



# Onslow Decommissioning Project

Dodd and Dodd Group Pty Ltd

Native Vegetation Clearing Permit – Supporting Information

151,611 | 64858

15 May 2023





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

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

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

## Table of Contents

<b>1. Introduction .....</b>	<b>3</b>
1.1 Purpose and Scope .....	3
1.2 Project Background .....	3
1.3 Location, Ownership and Tenure .....	3
1.5 Avoidance and Mitigation .....	5
<b>2. Existing Environment .....</b>	<b>6</b>
2.1 Climate .....	6
2.2 Topography .....	7
2.3 Geology and Soils .....	7
2.4 Hydrology .....	9
2.5 Hydrogeology .....	9
2.6 Conservation Reserve .....	9
2.7 Public Drinking Water Source Area .....	9
2.8 Aboriginal and other Heritage Sites .....	10
<b>3. Application Area Assessment .....</b>	<b>11</b>
3.1 Matters of National Environmental Significance .....	11
3.2 Terrestrial Fauna .....	11
3.3 Flora and Vegetation .....	18
<b>4. Assessment Against the Clearing Principles .....</b>	<b>19</b>
<b>5. Limitations .....</b>	<b>26</b>
<b>6. References .....</b>	<b>A</b>

### List of Tables

Table 1-1: Site identification details .....	3
Table 2-1: Land systems of the Application Area .....	7
Table 3-1: Criteria for fauna likelihood assessment (Phoenix Environmental Sciences, 2017) .....	11
Table 3-2: Threatened fauna likelihood assessment of the Application Area (Phoenix Environmental Sciences, 2017) .....	12
Table 4-1: Fauna species with the potential to occur within the Application Area .....	21
Table 4-2: Vegetation extents .....	23

### List of Figures

Figure 1.1: Application Area .....	4
Figure 1.2: Conceptual premises layout .....	5
Figure 2.1: Climate data .....	6
Figure 2.2: Geology and soils of the Application Area .....	8
Figure 3.1: Regional Threatened and Priority fauna .....	15
Figure 3.2: Regional Threatened and Priority flora .....	17

## Appendices

Appendix A Certificate of Title

Appendix B Protected Matters Search Tool (2023)



# 1. Introduction

## 1.1 Purpose and Scope

This document has been prepared to support the Native Vegetation Clearing Permit (NVCP) application for assessment under s51E of the *Environmental Protection Act 1986* (EP Act) and includes the following information relating to clearing impacts:

- An overview of the existing environmental conditions and values of the areas;
- An evaluation of the proposed clearing against the 'Principles for clearing native vegetation' listed under Schedule 5 of the EP Act; and
- Environmental approvals and management requirements.

## 1.2 Project Background

Dodd and Dodd Group Pty Ltd (the applicant) is seeking approval to develop the proposed Onslow Decommissioning Project (the project) adjacent to the Pilbara Regional Waste Management Facility (PRWMF), located at Lot 550 Onslow Road, approximately 36 km south of the town of Onslow. The PRWMF has been established to service domestic and industrial waste generators across the Pilbara region by providing infrastructure for waste management, including waste reuse, liquid waste disposal, asbestos and tyre disposal and a Class IV secure landfill

The project involves the provision of a nominal 40,000 m<sup>2</sup> of land to be used for scrap metal cleaning and salvaging operations to support offshore infrastructure decommissioning works. Initially, the applicant will process containers and structures retrieved from decommissioned hydrocarbon fields, which will be delivered into the Port of Ashburton by vessel and transported by road to the premises.

The project will be constructed within Lot 550 on Plan 414367, being Reserve 53324 Onslow Road, Talandji WA 6710 (Certificate of Title: Volume LR3169, Folio 963) and will require clearing of approximately 7 ha of land (the Application Area).

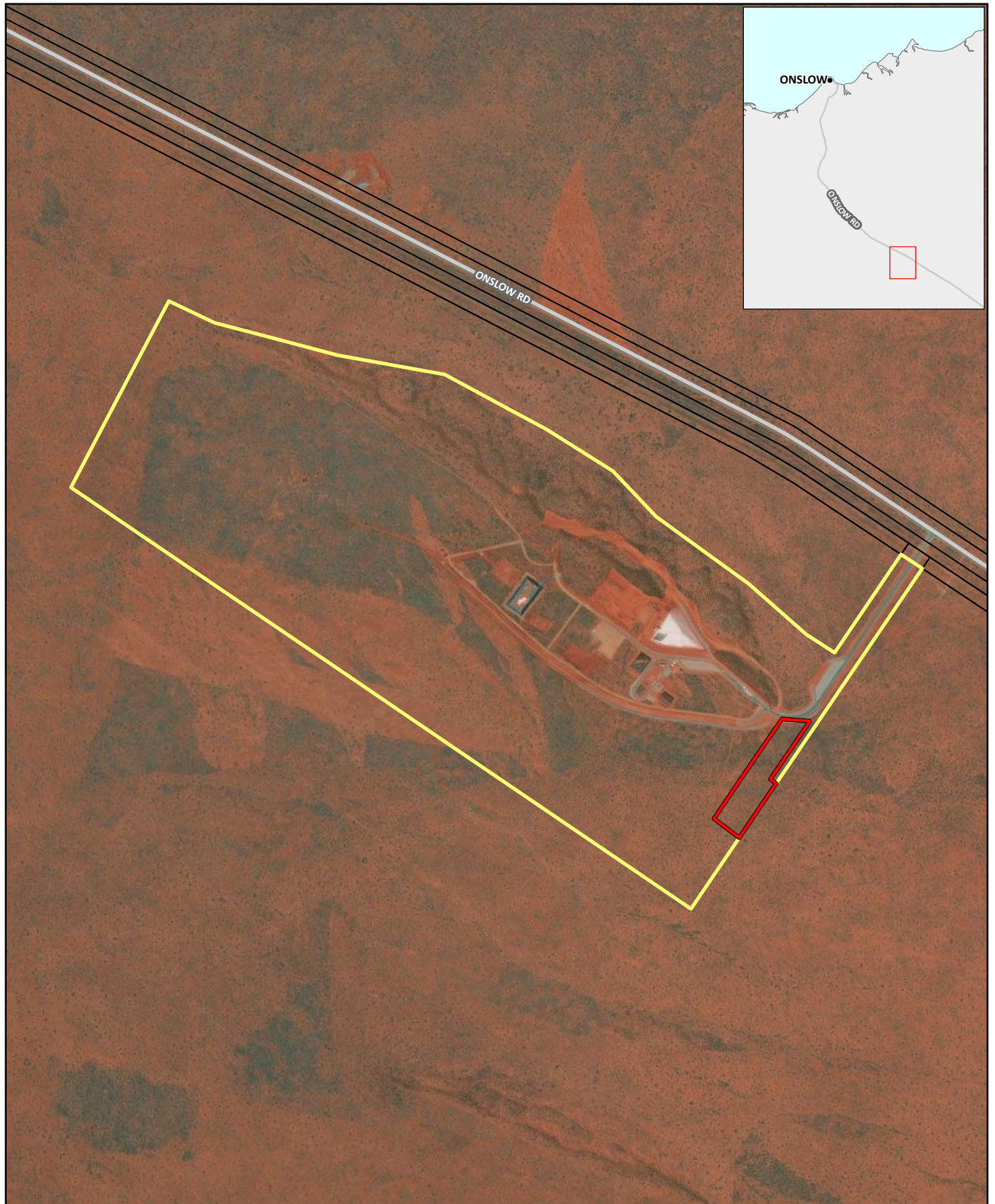
The Shire of Ashburton (the Shire) holds Licence L9304/2021/1 under the Part V Division 3 of the EP Act for the operation of the PRWMF and the applicant has applied to DWER for a works approval to construct the facility.

## 1.3 Location, Ownership and Tenure

The Application Area is to clear no more than 7 ha, of which no more than 4 ha will be cleared for the decommissioning facility and no more than 3 ha will be cleared for an access road (Figure 1.1). Site identification details for the Application Area are provided in Table 1-1.

**Table 1-1: Site identification details**

Subject	Detail
Lot address	Part of Lot 550 on Plan 414367, Reserve 53324
Common name of site	Pilbara Regional Waste Management Facility
Certificate of Title	Volume LR3169, Folio 963 (6)
Primary Interest Holder	Shire of Ashburton
Local Government Authority	Shire of Ashburton



<div>Legend</div> <div><div></div> NVCP Application Area</div> <div><div></div> Lot 550</div> <div><div></div> Cadastral boundary</div> <div><div></div> Major road</div>	Scale: 1:22,500 at A4 <div><div>0200400</div><div>metres</div></div>		<div>Lot 550 on Deposited Plan 414367</div> <div>Onslow Road, Talandji, WA 6710</div>	
	Coord. Sys. GDA2020 MGA Zone 50 <div><div></div></div>			<div>APPLICATION AREA</div>
	Job Number: 64858			
	Client: C.D. DODD SCRAP MERCHANT		<div>FIGURE 1.1</div> <div><div><div></div></div>JBS&amp;G</div>	
	Version: A	Date: 17-May-2023		
	Drawn By: ianandagoda	Checked By: JB		

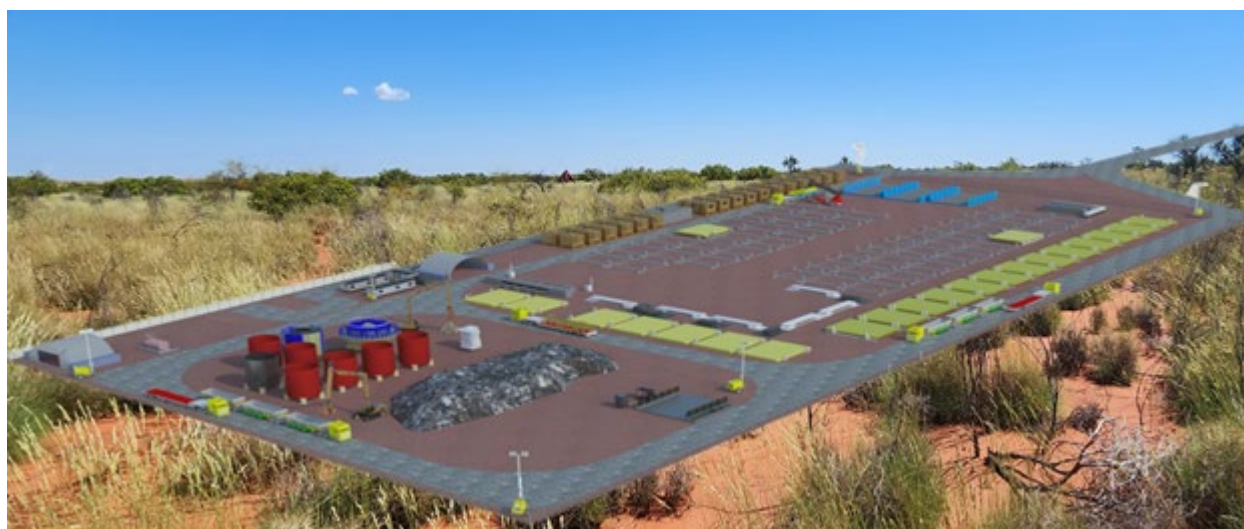


## 1.5 Avoidance and Mitigation

The PRWMF was identified by the applicant, in consultation with the Shire, as the preferred location for the project due to its proximity to offshore decommissioning works using the Port of Ashburton and transport connections to the applicant's other scrap metal processing facility in Karratha.

The project is generally compatible with the existing activities already occurring at the PRWMF and will represent co-location of waste management/waste handling activities at the site.

The Application Area is the minimum required for the development of the decommissioning yard and access road. The layout of the facility has been designed for efficient use, minimising material handling distances whilst maximising material storage space. The applicant has refined the project footprint over time from 6 ha (excluding the access road) to the current 4 ha required. Conceptual images of the proposed premises are shown in Figure 1.2 below.



**Figure 1.2: Conceptual premises layout**

Specific mitigation measures that will be implemented to mitigate the potential impacts of the clearing are described in Section 4.

## 2. Existing Environment

The Application Area is located in the Cape Range subregion (CAR1) of the Carnarvon bioregion, which covers an area of 8,430,172 ha (NLWRA, 2008; DCCEW, 2021). It is also close (~7 km) to the Roebourne subregion of the Pilbara bioregion.

The Cape Range subregion is characterised as Quaternary alluvial, Aeolian and marine sediments overlying Cretaceous strata (Kendrick & Mau, 2002). Vegetation is a mosaic of saline alluvial plains with samphire and saltbush low shrublands, Bowgada low woodland on sandy ridges and plains, Shakedown scrub on clay flats, and tree to shrub steppe over hummock grasslands on and between red sand dune fields (Kendrick & Mau, 2002). Limestone strata with *Acacia stuartii* or *A. bivenosa* shrubland outcrop in the north, where extensive tidal flats in sheltered embayments support mangal (Kendrick & Mau, 2002).

### 2.1 Climate

The climate of the Cape Range subregion is described as arid, semi-desert to sub-tropical climate, with variable summer and winter rainfall. Cyclonic activity can be significant, and cyclonic systems may affect the coast and hinterland annually (Kendrick & Mau, 2002).

The nearest weather station that records both temperature and rainfall is Onslow Airport (Station 005017), located approximately 30 km south-east of the Application Area. The mean maximum temperature ranges from a low of 25.6 °C in July to a high of 36.5 °C in January, with the mean minimum temperature ranging from a low of 13.1 °C in July to a high of 25.1 °C in February. The mean monthly rainfall ranges from 0.8 mm in October to 69 mm in March (Figure 2.1) (BOM, 2023).

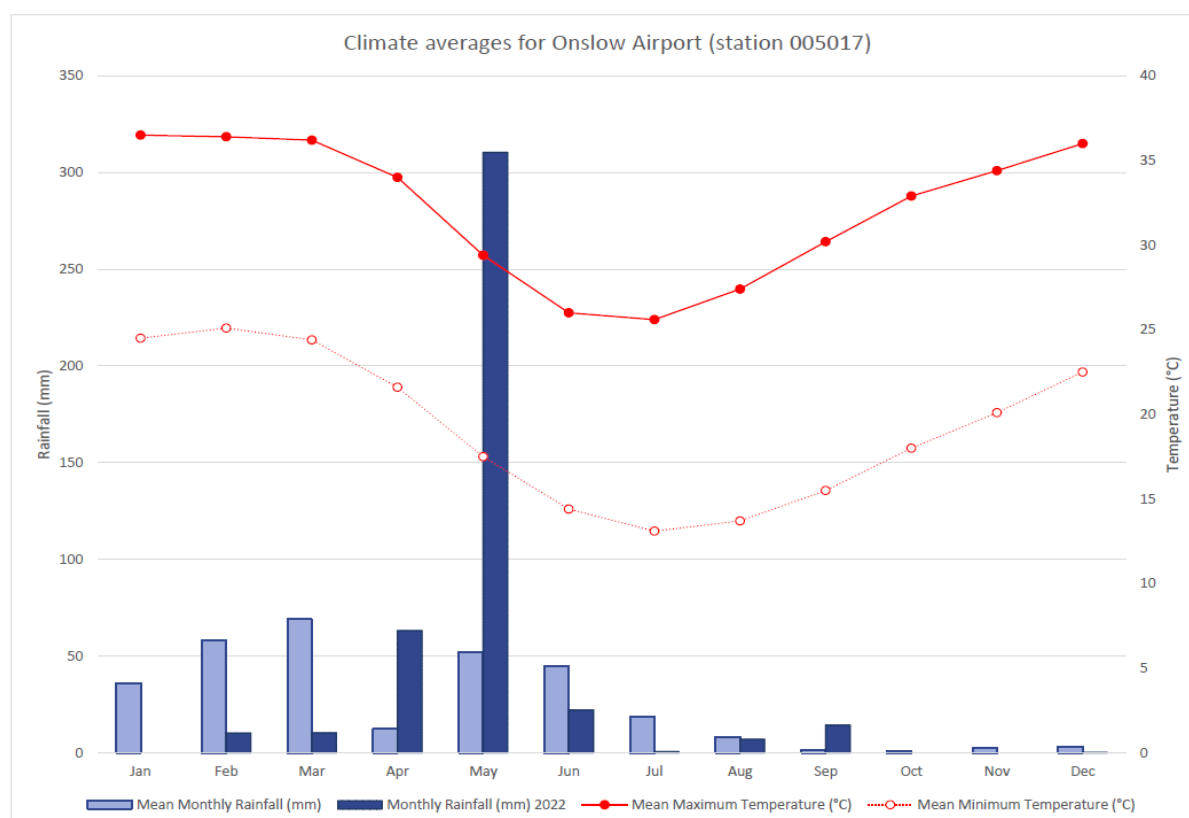


Figure 2.1: Climate data



## 2.2 Topography

The topography of Lot 550 is largely dominated by relatively flat plains, ranging from approximately 13 m AHD in the west to approximately 17 m AHD in the east (where the Application Area is). A pindan sand ridge extends approximately 3 km from the north-west to south-east of the lot and is aligned along the northern boundary (Talis, 2018d). The ridge is up to 350 m wide and is approximately 30 m AHD in height with the highest points reaching 40 m AHD. The surface is gently sloped and is hummocky with basins and swales formed by natural wind and water erosion (Talis, 2018c).

## 2.3 Geology and Soils

The geology within the Application Area is sandstone, interfingered with cemented gravel and clayey sand horizons (Talis, 2018d). This deposit is unidentified Cretaceous sediments; however, the Windalia Radiolarite Formation is known to have a sandstone member, grading into the Muderong Shale, which forms part of the Carnarvon Artesian Basin (Hocking, 2000)

The 2017 site geotechnical investigation (Talis, 2018d) identified superficial soils, which included an initial sand horizon across the sand dune ridge up to a maximum recorded depth of 15.5 metre below ground level (mbgl), located in the east of Lot 550, with remainder of the area consisting of silty clayey sand and sandy clayey silt with trace gravels. The general soil profile, in descending order from ground level, within the Application Area was found to consists of (Talis, 2018d):

- Sand – loose, fine to medium grained (Pindan) generally corresponding to the sand dune ridge.
- Sandy clayey silt/silty clayey sand – loose to dense, fine to medium grained, rounded to sub-rounded, red brown and dry (Pindan).
- Cemented gravel/silcrete – cemented gravels in silty sand/sandy silt matrix – hard, red brown and white, becoming brown with depth, and dry.
- Sandstone interfingered with cemented gravel – medium grained, occasional clasts, siliceous veins and vugs, dry, red to yellow.

The Application Area lies within the Exmouth Province, which consists of Alluvial plains and sandplains with coastal flats and dunes (and some ranges and stony plains) on sedimentary rocks of the Carnarvon Basin (Hocking, 2000). The Giralia and Uaroo land systems underlie the Application Area and are described in Table 2-1 below (DPIRD, 2022).

**Table 2-1: Land systems of the Application Area**

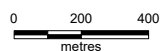
Land System	Description	Area (ha)
Giralia	Sandy plains with linear dunes and broad sandy swales supporting hummock grasslands of hard and soft spinifex with scattered acacia shrubs.	4.6
Uaroo	Broad sandy plains, pebbly plains and drainage tracts supporting hard and soft spinifex hummock grasslands with scattered acacia shrubs.	2.4

The Department of Primary Industries and Regional Development's (DPIRD) GIS spatial data set (DPIRD-006) indicates that the Application Area is located within Pre-European Beard vegetation association of Cape Yannare Coastal Plain 98. This vegetation association is described as hummock grassland with scattered shrubs of mallee *Triodia* spp., *Acacia* spp., *Grevillea* spp. and *Eucalyptus* spp. The vegetation association is extensively represented in the Cape Range subregion and has over 99% extent remaining (DBCA, 2019a).



- Legend**
- NVCP Application Area
  - Lot 550
  - Cadastral boundary
  - Land Systems (DPIRD 027)
    - Giralia system
    - Uaroo system
    - Major road

Scale: 1:22,500 at A4



Coord. Sys. GDA2020 MGA Zone 50



Job Number: 64858

Client: C.D. DODD SCRAP MERCHANT

Version: A

Date: 17-May-2023

Drawn By: ianandagoda

Checked By: JB

**Lot 550 on Deposited Plan 414367  
Onslow Road, Talandji, WA 6710**

**SOIL AND GEOLOGY APPLICATION AREA**

**FIGURE 2.2**



## 2.4 Hydrology

The Application Area is located within the Ashburton River Catchment area and is situated within the Pilbara Surface Water Area, a Proclaimed Surface Water Resource Area in accordance with the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DWER, 2022).

There are no surface water bodies located within the Application Area. A series of non-perennial lakes are situated to the west (down-gradient), southwest (up-gradient) and northeast (up-gradient) of Lot 550. The closest of these is located approximately 2.3 km west. Beyond these is a series of Saline Coastal Flats which extend towards the Indian Ocean (Talis, 2018a).

The Application Area is located in between two major ephemeral watercourses, the Ashburton River, located approximately 20 km to the west, and the Cane River, located approximately 21 km to the north-east (DWER, 2018). These major rivers discharge over the coastal flats towards the Indian Ocean. According to the Department of Waters' 'Pilbara Regional Water Plan 2010-2030 Supporting Detail' (DoW, 2010), these rivers are highly seasonal and variable in flow following rainfall and cyclonic events.

Surface water runoff in the vicinity of the premises mimics topography, with no defined permanent flow paths or channels (Talis, 2018a). On the sand plain area surrounding the base of the Pindan Sand Ridge, topography slopes gently from east to west towards the Ashburton River, through Minderoo Pastoral Station and the proposed extension of the Cane River Conservation Park (Meynink, 2017).

## 2.5 Hydrogeology

The Application Area is located within the Carnarvon Artesian Basin, which is a significant geographical area (DoW, 2007). An unconfined sedimentary aquifer comprising fine to medium grained sandstone, regarded as a member of the Windalia Radiolarite Sandstone, is located below the Application Area. This formation forms part of the confined Carnarvon-Birdrong Aquifer, a regionally extensive aquifer covering the western coastal areas of the Pilbara and Gascoyne regions of Western Australia (DoW, 2007).

Recharge predominantly occurs in the Kennedy Range and through surficial layers where the aquifer is unconfined (DoW, 2007). Groundwater under the Application Area is flowing in a westerly/north-westerly direction toward the Ashburton River and Indian Ocean located approximately 20 km and 40 km away, respectively (Talis, 2018b). The average depth to groundwater ranges from 5 mbgl to 21 mbgl.

Groundwater monitoring carried out within the larger PRWMF premises, indicates that the groundwater beneath Lot 550 is brackish, becoming more saline as it flows towards the Indian Ocean (Talis, 2018a).

## 2.6 Conservation Reserve

Under the Shire's Town Planning Scheme No.7 (DPLH, 2022), the Application Area and surrounding land is zoned as 'Conservation, Recreation and Nature Landscape', and is surrounded by pastoral lands.

The Application Area is located within a Department of Biodiversity, Conservation and Attractions (DBCA) managed land parcel designated as Unallocated Crown Land – leasehold proposed for conservation (former Mount [Mt] Minnie pastoral station). The former Mt Minnie pastoral station is proposed to be added to the Cane River Conservation Park, which is located 39 km south-east of the Application Area. The proposed extension includes all lands surrounding Lot 550 except easements associated with Onslow Road and associated infrastructure.

## 2.7 Public Drinking Water Source Area

The Cane River Water Reserve Priority 1 Public Drinking Water Source Area (PDWSA) is located approximately 21 km north-east (upgradient) of the Application Area.



## 2.8 Aboriginal and other Heritage Sites

An online search of the Aboriginal Heritage Inquiry System (AHIS) found no registered Aboriginal Heritage or other sites located within Lot 550 (AHIS, 2023).

An online search of the Heritage Council of WA's database using the inHerit portal found no recorded sites of European heritage are registered to occur within Lot 550 (inHerit, 2023).

## 3. Application Area Assessment

### 3.1 Matters of National Environmental Significance

A 40 km buffered search (Appendix B) of the Application Area was undertaken in May 2023 using the Protected Matters Search Tool (PMST). The search results returned 33 listed Threatened species and 47 listed Migratory species within the search area, of which eight and 11 species, respectively (Appendix B), may be within the Application Area (DCCEEW, 2023).

Due to the size of the desktop search area intersecting coastal and marine habitats, many migratory shorebirds and marine species of conservation significance were identified by the PMST, many of which are unlikely to occur within the Approval Area due to the absence of suitable supporting habitat. Marine and aquatic conservation significant mammal and reptile species (including fish, marine turtles, crocodiles, sea snakes, dolphins and whales) have been excluded from this assessment and are not discussed further. No Threatened flora or Threatened ecological communities were identified by the search.

A likelihood assessment was completed based on DBCA database records for the area (refer section 3.2).

### 3.2 Terrestrial Fauna

#### 3.2.1 Threatened and Priority Fauna

A DBCA Threatened and Priority fauna database search (7644 – FaunaSearch) was undertaken in May 2023 to inform if any changes have been recorded since a field survey was completed for the PRWMF in 2017 by Phoenix Environmental Sciences (Phoenix).

The 2023 data indicates no new Priority species records within 40 km of the Application Area, validating the data provided by the 2017 Phoenix survey (Phoenix Environmental Sciences, 2017).

The 2017 and 2023 desktop assessments identified the same five potential Priority fauna taxa within the Application Area.

One species of conservation significant fauna, the Rainbow Bee-eater, was recorded during the 2017 field survey and a further eight were noted as having the potential to occur based on the presence of suitable habitat within the Application Area (Phoenix Environmental Sciences, 2017).

Two occurrences of the Rainbow Bee-eater (*Merops ornatus*), a Migratory species, were recorded during the 2017 survey (Phoenix Environmental Sciences, 2017). It was concluded in the report that the species is common and widespread, and is unlikely to be significantly impacted by clearing (Phoenix Environmental Sciences, 2018).

Likelihood of occurrence assessments for species identified by the 2017 survey have been reviewed against the updated 2023 database search using the criteria described in Table 3-1. The results are shown in Table 3-2 below and depicted in Figure 3.1.

**Table 3-1: Criteria for fauna likelihood assessment (Phoenix Environmental Sciences, 2017)**

Likelihood	Criteria
Recorded	Species has been recorded previously from the study site.
Likely	Species considered likely to occur as suitable habitat is present and multiple existing records are close to the Survey Area (within 7.5 km).
Possible	Species has potential to occur as suitable habitat is likely to be present, and there are existing records in the wider vicinity (within 15 km), or the area is insufficiently surveyed to exclude local occurrence.

Likelihood	Criteria
Unlikely	Species is unlikely to occur as suitable habitat is not considered to be present, or habitat may be present but there are no recent (<25yr) existing records in the wider vicinity (within 15 km).
Very unlikely	Species is very unlikely to occur as suitable habitat is not considered to be present, and there are no existing records in the wider vicinity (within 15 km)

**Table 3-2: Threatened fauna likelihood assessment of the Application Area (Phoenix Environmental Sciences, 2017)**

Taxon	Cons. Status		Description	Likelihood of occurrence
	EPBC Act	BC Act DBCA		
REPTILES				
<i>Liasis olivaceus barroni</i> Pilbara Oliver Python	VU	VU	Suitable habitat not present.	Unlikely
<i>Lerista planiventralis maryani</i> Maryan’s Keeled Slider		P1	Likely to occur in areas where loose sandy substrates and leaf litter present throughout the Application Area.	Likely
BIRDS				
<i>Pezoporus occidentalis</i> Night Parrot	EN	CE	Species habitat preferences poorly known; however, may occur in areas where suitable vegetation present to forage or nest, particularly areas with mature <i>Triodia</i> which may be used for nesting.	Possible
<i>Falco hypoleucos</i> Grey Falcon	VU	VU	May occasionally occur within the Application Area to forage, though unlikely to nest due to the absence of suitable tall nesting structures.	Possible
<i>Apus pacificus</i> Fork-tailed Swift	MI	MI	Likely to occasionally occur above the Application Area to forage; however, unlikely to land or nest within the Study Area.	Likely
<i>Falco peregrinus</i> Peregrine Falcon		OS*	May occasionally occur within Application Area to forage, though unlikely to nest due to the absence of suitable nesting sites.	Possible
<i>Merops ornatus</i> Rainbow Bee-eater		MI	Recorded twice within Lot 550 during the 2017 field survey in shrubland on sand dune habitat. Previously recorded multiple times within 20 km of the Application Area.	Recorded
<i>Calidris ferruginea</i> Curlew Sandpiper	CE, MI	CE, MI	Suitable habitat not present.	Unlikely
<i>Calidris tenuirostris</i> Great Knot	CR, MI	CE, MI	Suitable habitat not present.	Unlikely
<i>Limosa lapponica menzbieri</i> Bar-tailed Godwit (northern Siberian)	CR, MI	CE, MI	Suitable habitat not present.	Unlikely
<i>Numenius madagascariensis</i> Eastern Curlew	CE, MI	CE, MI	Suitable habitat not present.	Unlikely
<i>Calidris canutus rogersi</i> Red Knot (northeastern Siberia)	EN, MI	EN, MI	Suitable habitat not present.	Unlikely



Taxon	Cons. Status		Description	Likelihood of occurrence
	EPBC Act	BC Act DBCA		
<i>Charadrius mongolus</i> Lesser Sand Plover	EN, MI	EN, MI	Suitable habitat not present.	Unlikely
<i>Sterna nereis nereis</i> Fairy Tern	VU	VU	Suitable habitat not present.	Unlikely
<i>Charadrius leschenaultia</i> Greater Sand Plover	VU, MI	VU, MI	Suitable habitat not present.	Unlikely
<i>Limosa lapponica baueri</i> Bar-tailed Godwit (western Alaskan)	VU, MI	VU, MI	Suitable habitat not present.	Unlikely
<i>Elanus scriptus</i> , Letter-winged Kite		P4	Application Area outside of species known range. Single record from 1979 likely to be a misidentification of a more common, Black-shouldered Kite ( <i>Elanus acillaris</i> ).	Unlikely
<i>Tringa brevipes</i> Grey-tailed Tattler	MI	MI, P4	Suitable habitat not present.	Unlikely
<i>Arenaria interpres</i> Ruddy Turnstone	MI	MI	Suitable habitat not present.	Unlikely
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	MI	MI	Suitable habitat not present.	Unlikely
<i>Calidris alba</i> Sanderling	MI	MI	Suitable habitat not present.	Unlikely
<i>Calidris ruficollis</i> Red-necked Stint	MI	MI	Suitable habitat not present.	Unlikely
<i>Anous stolidus</i> Common Noddy	MI	MI	Suitable habitat not present.	Unlikely
<i>Calonectris leucomelas</i> Streaked Shearwater	MI	MI	Suitable habitat not present.	Unlikely
<i>Chlidonias leucopterus</i> White-winged Black Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Calidris melanotos</i> Pectoral Sandpiper	MI	MI	Suitable habitat not present.	Unlikely
<i>Charadrius veredus</i> Oriental Plover	MI	MI	Suitable habitat not present.	Unlikely
<i>Gelochelidon nilotica</i> Gull-billed Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Glareola maldivarum</i> Oriental Pratincole	MI	MI	Suitable habitat not present.	Unlikely
<i>Hirundo rustica</i> Barn Swallow	MI	MI	Suitable habitat not present.	Unlikely
<i>Limosa limosa</i> Black-tailed Godwit	MI	MI	Suitable habitat not present.	Unlikely
<i>Motacilla cinerea</i> Grey Wagtail	MI	MI	Suitable habitat not present.	Unlikely
<i>Motacilla flava</i> Yellow Wagtail	MI	MI	Suitable habitat not present.	Unlikely

Taxon	Cons. Status		Description	Likelihood of occurrence
	EPBC Act	BC Act DBCA		
<i>Numenius minutus</i> Little Curlew	MI	MI	Suitable habitat not present.	Unlikely
<i>Numenius phaeopus</i> Whimbrel	MI	MI	Suitable habitat not present.	Unlikely
<i>Pandion haliaetus</i> Osprey	MI	MI	Suitable habitat not present.	Unlikely
<i>Puffinus pacificus</i> Wedge-tailed Shearwater	MI	MI	Suitable habitat not present.	Unlikely
<i>Sterna albifrons</i> Little Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Sterna caspia</i> Caspian Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Sterna dougallii</i> Roseate Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Sterna hirundo</i> Common Tern	MI	MI	Suitable habitat not present.	Unlikely
<i>Sula leucogaster</i> Brown Booby	MI	MI	Suitable habitat not present.	Unlikely
<i>Tringa glareola</i> Wood Sandpiper	MI	MI	Suitable habitat not present.	Unlikely
<i>Tringa nebularia</i> Common Greenshank	MI	MI	Suitable habitat not present.	Unlikely
<i>Tringa stagnatilis</i> Marsh Sandpiper	MI	MI	Suitable habitat not present.	Unlikely
MAMMALS				
<i>Leggadina lakedownensis</i> Short-tailed Mouse		P4	Likely to occur throughout the Application Area where suitable vegetation cover is present.	Likely
<i>Pseudomys chapmani</i> Western Pebble Mouse		P4	May occur in areas where suitable stony or gravelly substrates providing suitable pebbles present; however, sparse within the Application Area. Species often recorded in areas of low undulating topography and gentle stony slopes throughout most of its range.	Possible
<i>Dasyurus hallucatus</i> Northern Quoll	EN	EN	Suitable habitat not present.	Unlikely
<i>Perameles bougainville</i> Western Barred Bandicoot	EN	EN	Suitable habitat not present.	Unlikely
<i>Macroderma gigas</i> Ghost Bat	VU	VU	Suitable habitat not present.	Unlikely
<i>Rhinonicteris aurantia</i> Pilbara Leaf-nosed Bat	VU	VU	Suitable habitat not present.	Unlikely

\*Species otherwise in need of special protection (other specially protected).

# Regional Threatened and Priority Fauna

## Critically endangered

- ★ *Calidris ferruginea*
- ▲ *Calidris tenuirostris*
- ◆ *Limosa lapponica menzbieri*
- *Numenius*
- *madagascariensis*
- ✕ *Pezoporus occidentalis*

## Endangered

- *Calidris canutus*
- ★ *Charadrius mongolus*
- ✕ *Dasyurus hallucatus*

## Vulnerable

- ▼ *Charadrius leschenaultii*
- *Liasis olivaceus barroni*

- ◆ *Perameles bougainville*

- ▲ *Sternula nereis nereis*

## Priority

- *Lerista planiventralis maryani* (P1)
- *Leggadina lakedownensis* (P4)
- ◆ *Pseudomys chapmani* (P4)
- ◆ *Tringa brevipes* (P4)

## Other specifically protected

- *Falco peregrinus*

## Migratory

- *Actitis hypoleucos*
- ▲ *Apus pacificus*

- ◆ *Ardenna pacifica*

- *Arenaria interpres*

- ✕ *Calidris acuminata*

- ✕ *Calidris alba*

- ▼ *Calidris melanotos*

- ★ *Calidris ruficollis*

- *Charadrius veredus*

- *Chlidonias leucopterus*

- *Gelochelidon nilotica*

- *Glareola maldivarum*

- *Hirundo rustica*

- ▼ *Hydroprogne caspia*

- ✕ *Limosa lapponica*

- *Limosa limosa*

- ◆ *Numenius minutus*

- ✕ *Numenius phaeopus*

- ◆ *Oceanites oceanicus*

- ✕ *Pandion haliaetus*

- ◆ *Plegadis falcinellus*

- ✕ *Pluvialis squatarola*

- ◆ *Sterna dougallii*

- *Sterna hirundo*

- *Sternula albifrons*

- ▲ *Thalasseus bergii*

- ◆ *Tringa glareola*

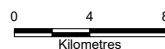
- *Tringa nebularia*



## Legend

- NVCP Application Area
- Lot 550
- Major road
- Minor road

Scale: 1:400,000 at A4



Coord. Sys. GDA2020 MGA Zone 50



Job Number: 64858

Client: C.D. DODD SCRAP MERCHANT

Version: A

Date: 18-May-2023

Drawn By: ianandagoda

Checked By: JB

Lot 550 on Deposited Plan 414367  
Onslow Road, Talandji, WA 6710

REGIONAL THREATENED AND PRIORITY  
FAUNA

FIGURE 3.1





### 3.2.2 Fauna Habitat

The Application Area is covered by one broad fauna habitat type – Mosaic of hummock grassland and shrubland on plain (Phoenix Environmental Sciences, 2017). This habitat type is dominated by *Acacia* and *Grevillea* species on varying sandy to clay-loam and gravelly substrates. Vegetation consists of scattered areas of mixed shrub cover ranging from 1–3 m over mixed smaller shrubs and hummock grasses and areas dominated by patches of immature and mature *Triodia* grasses (Phoenix Environmental Sciences, 2017).

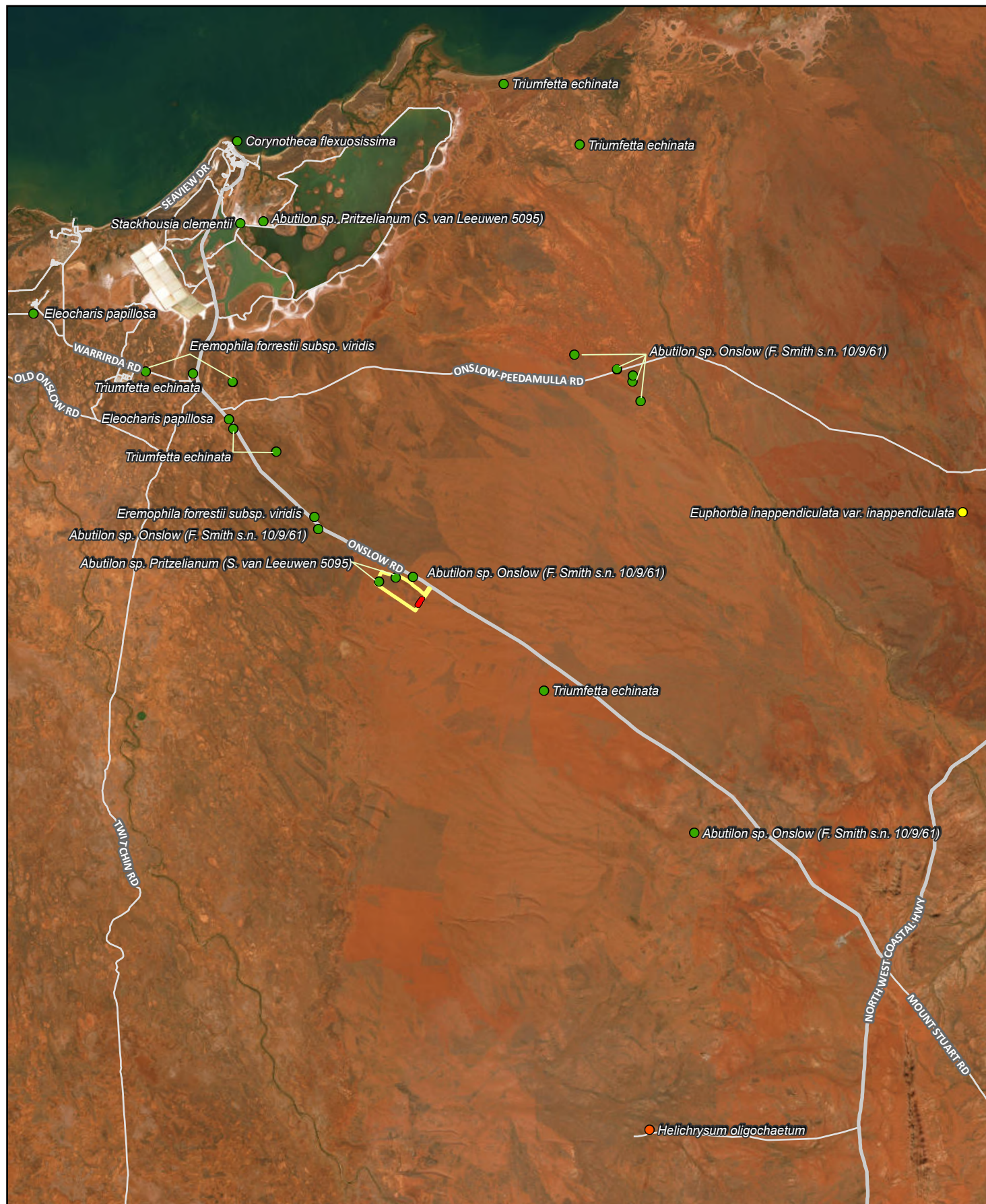
Mixed grassland and shrubland on plain habitat is suitable for several species of conservation significance, including Night Parrot, Greater Bilby, Short-tailed Mouse and Maryan's Keeled Slider, in addition to potential foraging habitat for conservation significant birds of prey including the Grey Falcon and Peregrine Falcon (Phoenix Environmental Sciences, 2017).

Although potential habitat for the Night Parrot is present, the species was not detected in acoustic call recordings conducted during the 2017 survey (Phoenix Environmental Sciences, 2017). Current guidance identifies broad habitat requirements for the species as including areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs and may or may not contain shrubs or low trees (DPaW, 2017).

Vegetation in the Application Area was considered to have low species diversity, be broadly represented in the region and of low regional significance. As such, the clearing of vegetation is not anticipated to result in significant impacts on terrestrial fauna in the area (Talis, 2018c).

### 3.2.3 Introduced Fauna Species

During the 2017 survey (Phoenix Environmental Sciences, 2017), two introduced fauna species – Feral Cat and Red Fox – were recorded within the survey area.



<div><div>Legend</div><div><div><div></div></div> NVCP Application Area</div><div><div></div> Lot 550</div><div>Conservation status (DBCA 18-0423FL)</div><div><div></div> P1</div><div><div></div> P2</div><div><div></div> P3</div><div><div></div> Major road</div><div><div></div> Minor road</div></div>	Scale: 1:350,000 at A4 <div><div>048</div><div>Kilometres</div></div>		Lot 550 on Deposited Plan 414367 Onslow Road, Talandji, WA 6710
	Coord. Sys. GDA2020 MGA Zone 50 <div><div></div></div>		
	Job Number: 64858		
	Client: C.D. DODD SCRAP MERCHANT		FIGURE 3.2
	Version: A	Date: 18-May-2023	
	Drawn By: ianandagoda	Checked By: JB	

### 3.3 Flora and Vegetation

#### 3.3.1 Threatened and Significant Flora

A DBCA Threatened and Priority flora database search (18-0423FL) was undertaken in May 2023 to inform if any changes have been recorded since 2017 and 2018 surveys carried out for the PRWMF (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). The records indicate that the data provided within the Phoenix reports remains current and correct.

Two Priority flora – *Abutilon* sp. Pritzelianum (P1) (three plants) and *Triumfetta echinata* (P3) (one plant) – were recorded approximately 2 km north of the Application Area during the 2017 Level 1 Flora and Fauna Survey (Phoenix Environmental Sciences, 2017). However, the presence of the plants was not deemed significant given they were not isolated remnants and were considered to have a wide distribution in the surrounding area.

Data on the two Priority flora records made by Phoenix were provided to DBCA and included in the 2023 database search (reference 18-0423FL).

#### 3.3.2 Vegetation

The vegetation within the Application Area was described as excellent and was found to consist of a Hummock Grassland 1, *Triodia basedowii* grassland (with isolated *Corymbia hamersleyana* and/or *C. zygomphyla mallee*), and Hummock Grassland 2, isolated low *Acacia* sp. sterile, *A. coriacea* and *Corymbia hamersleyana* trees over isolated mid *Acacia ancistrocarpa*, *A. bivenosa* and *A. trachycarpa* shrubs over mid *Triodia ?glabra* hummock grassland (Phoenix Environmental Sciences, 2018).

#### 3.3.3 Ecological Communities

No Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) were found to be present within the site during the 2017 and 2018 surveys (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018) or through the 2023 DBCA database request (reference 11-0423EC).

The closest PEC buffer, being Tanpool land system, is situated approximately 37 km north-east of the Application Area. A Tanpool land system is a highly restricted land system that occurs between Pannawonica and Onslow. It consists of stony plains and low ridges of sandstone and other sedimentary rocks supporting hard spinifex grasslands and snakewood shrublands (DBCA, 2017), with a Priority 1 category rating.

#### 3.3.4 Introduced Flora Species

One introduced flora species – *Cenchrus ciliaris* (Buffel grass) – was recorded during the detailed flora and vegetation survey undertaken in 2017 (Phoenix Environmental Sciences, 2018).

Buffel grass is a tufted or sometimes stoloniferous perennial grass that grows to approximately 1.5 m high and has a purple flower. The grass flowers in February to October. The seeds are generally dispersed by wind, water, and animals.



## 4. Assessment Against the Clearing Principles

Schedule 5 of the EP Act outlines ten 'Principles for clearing native vegetation' that provide decision makers with a guide on whether native vegetation should be cleared. The principles are used as a comparative tool when determining whether clearing activities are environmentally acceptable and capable of being appropriately managed. An assessment of the Application Area against the ten clearing principles has been undertaken and is detailed below.

### **(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.**

#### **Proposed clearing is not likely be at variance to this Principle.**

In September 2017, Phoenix was commissioned by Talis Consultants, on behalf of the Shire of Ashburton, to undertake a flora and vegetation survey and terrestrial fauna survey (Survey 1) of a larger footprint area of 435 ha (the Study Area), which encompassed the Application Area. The survey involved a single season reconnaissance flora and vegetation survey and a Level 1 targeted terrestrial vertebrate fauna survey. A total of 45 flora species and sub-species were recorded during the survey (Phoenix Environmental Sciences, 2017).

A further detailed flora and vegetation survey of the Study Area was undertaken by Phoenix in 2018 (Survey 2). The aim of the survey was to build on the information collected in the abovementioned reconnaissance flora and vegetation survey, and included surveying of quadrats and relevés, targeted significant flora searches, and vegetation type and condition mapping. Targeted searches were undertaken for conservation significant flora throughout the Study Area, which occurred in all quadrats and relevés, as well as opportunistic sampling and meandering transect searches (Phoenix Environmental Sciences, 2018). A total of 51 flora species and sub-species were recorded during the survey (Phoenix Environmental Sciences, 2018). As detailed in Section 2 of this report, this survey identified two vegetation types within the Application Area, which were assessed as largely in excellent condition, according to the scale of Keighery (1994) (Phoenix Environmental Sciences, 2018).

The Application Area is located within unallocated Crown land, which was formerly a pastoral station (former Mt Minnie pastoral station). The former Mt Minnie pastoral station is proposed to be added to the Cane River Conservation Park, located south-east of the Application Area. However, the Application Area will be excluded from the expanded reserve. The survey noted that the recorded vegetation types within the Application Area are representative of the broadly mapped Beard vegetation association (98) described as Hummock grasslands, shrub steppe; kanji over soft spinifex and *Triodia basedowii*, which is a widespread community well represented at a regional level (Phoenix Environmental Sciences, 2018). This vegetation association is mapped over approximately 50% of the larger former Mt Minnie pastoral station (comprising approximately 110,000 ha).

No Threatened flora species have been recorded within the local area, based on DBCA database results, and none were recorded within the Study Area (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018).

Two priority flora species – *Triumfetta echinata* (Priority 3) and *Abutilon* sp. Pritzelianum (Priority 3) (highly likely, however not definitively confirmed) – were identified within the larger PRWMF study area during both surveys. Survey 2 notes that, while the seasonal timing of the survey was suitable to identify conservation significant flora species in the region (at the end of the wet season), the region had experienced less than average rainfall over the wet season resulting in dry conditions and fewer healthy and identifiable plant species (Phoenix Environmental Sciences, 2018). These species were not located within the Application Area during the time of both studies and there were no records within the Application Area returned from the 2023 DBCA spatial data request (reference 18-0423FL).

A total of 37 plants believed to be *Abutilon* sp. Pritzelianum were identified within the Study Area during Survey 2; however, definitive confirmation was not possible given that these plants were sterile at the time of identification, and the majority of the plants were withered due to climatic conditions (Phoenix Environmental

Sciences, 2018). Of these 37 plants, no individuals occurred within the boundary of the Application Area (Phoenix Environmental Sciences, 2018). *Abutilon* sp. Pritzelianum is known from 46 records over a range of 765 km, with population sizes (when noted) ranging from one to 220 plants. The species has been recorded in the Carnarvon, Murchison and Pilbara bioregions. Survey 2 noted that, given the limited regional survey effort and likely detection of *Abutilon* sp. Pritzelianum in two adjacent dunes outside of the Study Area, it is likely the species also occurs more broadly in the vicinity of the Study Area (Phoenix Environmental Sciences, 2018).

Based on the habitat types within the Study Area, it is also considered that three additional priority flora species may occur – *Abutilon* sp. Onslow (F. Smith s.n. 10/9/61) (Priority 1), *Eremophila forrestii* subsp. *viridis* (Priority 3) and *Goodenia nuda* (Priority 4) (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). However, these species were not identified within the larger Study Area during Survey 1 or Survey 2.

There are no TECs recorded within the local area, and the Application Area was not considered to be representative of any known TECs (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). There is one PEC recorded within the local area, known as the Tanpool land system (Priority 1) located approximately 40 km east of the Application Area. This PEC is described as a highly restricted land system that occurs between Pannawonica and Onslow, consisting of stony plains and low ridges of sandstone and other sedimentary rocks supporting hard spinifex grasslands and snakewood shrublands (DBCA, 2019b). Survey 2 did not identify any PECs within the larger Study Area (Phoenix Environmental Sciences, 2018) and the application area is not considered to be representative of this community. Noting this, the Application Area is not likely to comprise of any PECs.

One introduced flora species – *\*Cenchrus ciliaris* (Buffel grass) was recorded within the Study Area of Survey 1 and Survey 2 (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). The DBCA has advised that “*this species is rated as a rapidly invasive species with high ecological impact in the Pilbara region, and therefore it is critical that clearing and associated disturbance activities do not spread or increase the occurrence of this weed*” (DBCA, 2019c). Appropriate weed management practices will assist in minimising the spread of this weed into adjacent native vegetation because of clearing.

Therefore, it is considered that the proposed clearing is not likely to have a significant impact on the level of biodiversity in the local area and will not lead to an unacceptable risk to the environment.

***(b) Native vegetation should not be cleared if it comprises of the whole part of, or is necessary for the maintenance of, a significant habitat for fauna.***

**Proposed clearing is not likely to be at variance to this Principle.**

One fauna habitat is present within the Application Area (Phoenix Environmental Sciences, 2017), being Mosaic of hummock grassland and shrubland on plain (comprising approximately 7 ha of the Application Area), which is described as a mosaic of hummock grassland and shrubland vegetation dominated by *Acacia* and *Grevillea* species on varying sandy to clay-loam and gravelly substrates. The vegetation consists of scattered areas of mixed shrub cover ranging from 1-3 m over mixed smaller shrubs and hummock grasses and areas dominated by patches of immature and mature *Triodia* grasses.

Survey 1 incorporated active fauna searches, avifauna surveying, bat echolocation and night parrot call recordings, opportunistic records and bilby survey plots. Eight Level 1 terrestrial fauna sites were surveyed within the Study Area, which covered all recorded fauna habitats. Regarding the active searches, these were undertaken at each of the eight Level 1 fauna survey sites and primarily targeted diurnal herpetofauna and mammals from direct sightings and secondary evidence. Additional searches were undertaken in any observable microhabitats considered likely to support mammals, reptiles and amphibians (Phoenix Environmental Sciences, 2017).

Survey 1 determined that the species listed in Table 4-1 below have the potential to occur within the larger Study Area, based on the suitability of habitat (Phoenix Environmental Sciences, 2017).

**Table 4-1: Fauna species with the potential to occur within the Application Area**

Scientific Name	Common Name	BC Act Status	Likelihood of Occurrence	Details
<i>Pezoporus occidentalis</i>	Night Parrot	Critically Endangered	Possible	Species habitat preferences poorly known; however, may occur in areas where suitable vegetation present to forage or nest, particularly areas with mature <i>Triodia</i> which may be used for nesting.
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	Possible	May occasionally occur within the Application Area to forage, though unlikely to nest due to the absence of suitable tall nesting structures.
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	Likely	Likely to occasionally occur above the Application Area to forage; however, unlikely to land or nest.
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory	Recorded	Recorded twice within the Study Area of the 2017 field survey in shrubland on sand dune habitat. Previously recorded multiple times within 20 km of the Application Area.
<i>Falco peregrinus</i>	Peregrine Falcon	OS*	Possible	May occasionally occur within Application Area to forage, though unlikely to nest due to the absence of suitable nesting sites.
<i>Lerista planiventralis maryani</i>	Maryan's Keeled Slider	P1	Likely	Likely to occur in areas where loose sandy substrates and leaf litter is present.
<i>Leggadina lakedownensis</i>	Short-tailed Mouse	P4	Likely	Likely to occur where suitable vegetation cover is present.
<i>Pseudomys chapmani</i>	Western Pebble Mouse	P4	Possible	May occur in areas where suitable stony or gravelly substrates providing suitable pebbles present; however, sparse within the Application Area. Species often recorded in areas of low undulating topography and gentle stony slopes throughout most of its range.

The Grey Falcon, Peregrine Falcon and Fork Tailed Swift are highly mobile avian fauna species with large home ranges. While these species may occasionally visit the Application Area to forage, it is unlikely to provide significant habitat for these species noting the availability of extensive suitable foraging habitat within the surrounding local area.

Current guidance identifies broad habitat requirements for the Night Parrot as including areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs, and may or may not contain shrubs or low trees (Phoenix Environmental Sciences, 2017). Noting that scattered small patches of mature spinifex were identified throughout parts of the PRWMF Study Area (Phoenix Environmental Sciences, 2017), the Application Area may provide suitable habitat for this species. However targeted acoustic call recordings conducted during the fauna survey did not detect this species; therefore, the proposed clearing is not likely to impact on significant habitat for this species.

There is little documented about the habitat and ecology of the Maryan's Keeled Slider. However, noting the closest record of this species is approximately 32 km north-northwest of the Application Area, and that it was not recorded during the 2017 survey, which included active searches in observable microhabitats considered likely to support reptiles (Phoenix Environmental Sciences, 2017), the proposed clearing is not likely to impact on significant habitat for this species.

The DBCA provided advice for clearing carried out for the PRWMF regarding impacts to the Short-tailed Mouse and the Western Pebble-mound Mouse, which stated that *“given the lack of field recorded observations, the scale of the clearing and the fact that the Study Area does not occur at the range limits of either of these species, the proposed clearing was not likely to cause a significant impact on either species at the species level”* (DBCA, 2019c). Noting this advice, that evidence of these species was not recorded during the 2017 fauna survey (which included active searches in observable microhabitats considered likely to support reptiles), and the availability of extensive suitable foraging habitat within the surrounding area, the proposed clearing is not likely to impact on significant habitat for these species.

The DBCA did, however, note that the proposed clearing *“could impact on the short-tailed mouse at the individual or family group level”* (DBCA, 2019c). To minimise direct impacts to any individuals of the Maryan's Keeled Slider, Short-tailed Mouse or Western Pebble-mound Mouse that may be using the Application Area at the time of clearing, the applicant will undertake slow progressive directional clearing to allow fauna to move into adjacent habitat ahead of the clearing activity.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

***(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.***

**Proposed clearing is not at variance to this Principle.**

According to DBCA database search results (reference 18-0423FL), there are no Threatened flora species recorded within the local area. The two flora surveys did not identify any Threatened flora species within the larger Study Area, and no additional Threatened flora species were identified as potentially occurring within the Application Area based on habitat suitability (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018).

Given the above, the vegetation within the Application Area is not necessary for the continued existence of Threatened flora; therefore, the proposed clearing is not at variance to this Principle.

***(d) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a threatened ecological community.***

**Proposed clearing is not at variance to this Principle.**

According to DBCA database records (reference 11-0423EC), there are no TECs recorded within the local area. The vegetation types recorded within the Application Area are not considered to be representative of any TECs, and the 2017 and 2018 flora surveys did not identify any TECs within the larger PRWMF Study Area (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018).

Given the above, the vegetation within the Application Area does not comprise the whole or part of, or is necessary for the maintenance of a TEC; therefore, the proposed clearing is not at variance with this Principle.

***(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.***

**Proposed clearing is not at variance to this Principle.**

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).



As indicated in Table 4-2 below, the Application Area is mapped as Beard vegetation association 98, which has 100% of its pre-European vegetation remaining in the Carnarvon bioregion (DBCA, 2019a). The Carnarvon Bioregion retains approximately 99.7% of its pre-European vegetation. The local area is highly vegetated and retains approximately 99% (998,832 ha) native vegetation cover (taking into account the coastal water mark).

The Application Area represents approximately 0.0007% of the remaining native vegetation within the local area and the proposed clearing would reduce the extent of native vegetation within the local area to approximately 998,825 ha.

Noting that the mapped vegetation type, IBRA bioregion, and local area retain considerably more than 30% of their vegetation extents, respectively, it is considered that the Application Area is not within an area that has been extensively cleared. Given the above, the proposed clearing is not at variance to this Principle.

**Table 4-2: Vegetation extents**

Description	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current extent in DBCA managed lands (%)
<b>IBRA Bioregion</b>				
Carnarvon	8,382,890	8,360,801	99.7	12.2
<b>Beard vegetation association within Bioregion</b>				
98	221,820	221,812	100	25

***(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.***

**Proposed clearing is not at variance to this Principle.**

According to publicly available databases, there are no watercourses or wetlands mapped within the Application Area. The closest hydrological feature to the Application Area is a non-perennial lake located approximately 2.5 km away.

The 2017 and 2018 flora surveys did not identify any hydrological features or riparian vegetation within the Application Area (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). Noting this, and the distance to known wetlands or watercourses, it is considered that the vegetation within the Application Area is not likely to be growing in, or in association with, a watercourse or wetland.

Given the absence of watercourses or wetlands in the Application Area and the lack of records of riparian vegetation, the proposed clearing is not at variance to this Principle.

***(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.***

**Proposed clearing is unlikely to be at variance to this Principle.**

The soils within the Application Area have been mapped at a regional scale as the Giralia Land System (comprises approximately 60% of the Application Area) and Uaroo Land System (comprises approximately 40% of the Application Area). The mapped sandy soils outlined within Section 2.3 of this supporting document are highly permeable, and, therefore, the proposed clearing is not likely to result in water erosion or waterlogging, particularly noting the absence of wetlands or watercourses within the Application Area.

The mapped soils are, however, prone to wind erosion. Noting the extent of clearing proposed, there is a small likelihood of wind erosion to cause land degradation should the surface soils within the Application Area be exposed post clearing for an extended duration.

To manage the generation of excessive dust because of wind erosion during clearing activities, the applicant has advised that a 10,000 litre water cart will be utilised to stabilise soils. It is considered that wind erosion

may be further minimised by the utilisation of cleared areas within an appropriate period following clearing activities. Therefore, to minimise the risk of wind erosion, construction works over the cleared areas will be undertaken within three months of the date of clearing, which will prevent the prolonged exposure of bare sandy soils. It is considered that these measures will adequately minimise the risk of wind erosion.

Based on the small clearing envelope and the use of water for dust suppression during construction of the laydown area, with structures in place covering the area after construction, and the limited records of invasive or pest species in the area, risks of land degradation have been minimised.

Given the above, the proposed clearing is unlikely to be at variance to this Principle.

***(h) Native vegetation should not be cleared if the clearing of vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.***

**Proposed clearing may be at variance to this Principle.**

According to publicly available datasets (DBCA-011), the closest conservation area to the Application Area is the Cane River Conservation Park, which is located approximately 26 km north-west of the Application Area.

The Application Area is located within the former Mt Minnie pastoral station. This former pastoral station is proposed for future addition to the Cane River Conservation Park. The former Department of Parks and Wildlife (2014) provided written support for the location of the PRWMF, noting that the site of proposed works (being the Application Area) will be excluded from this reserve addition.

One introduced flora species – *\*Cenchrus ciliaris* (Buffel grass) – was recorded in one location across the larger PRWMF Study Area (Phoenix Environmental Sciences, 2017). The DBCA has advised that “*this species is rated as a rapidly invasive species with high ecological impact in the Pilbara region, and therefore it is critical that clearing and associated disturbance activities do not spread or increase the occurrence of this weed*” (DBCA, 2019c). There is a risk that the proposed clearing will increase the risk of spreading this weed into surrounding vegetation proposed for future conservation, which may, therefore, impact on the environmental values of what will be the expanded Cane River Conservation Park.

Appropriate weed management practices will assist in minimising the spread of this weed into adjacent native vegetation as a result of clearing.

Given the above, the proposed clearing may be at variance to this Principle.

***(i) Native vegetation should not be cleared if clearing of the vegetation is likely to cause deterioration in the quality of surface or groundwater.***

**Proposed clearing is not at variance to this Principle.**

As discussed under Principle (f), there are no watercourses or wetlands mapped within the Application Area, and none were identified during the 2017 and 2018 flora surveys (Phoenix Environmental Sciences, 2017; Phoenix Environmental Sciences, 2018). The closest water body is a non-perennial lake located approximately 2.5 km from the Application Area.

Noting the distance to the closest hydrological feature, and the extent of surrounding native vegetation that provides an extensive buffer to the wetlands and watercourses within the local area, the proposed clearing is not likely to cause deterioration in the quality of surface water.

Groundwater salinity within the Application Area is considered to be moderately saline (Talis, 2018a). Given the extensive vegetative cover surrounding the Application Area, the proposed clearing is unlikely to lead to a perceptible rise in the water table or increase in groundwater salinity levels.

Given the above, the proposed clearing is not at variance to this Principle.

***(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.***

**Proposed clearing is not at variance to this Principle.**

Mean annual rainfall at the locality of the Application Area is approximately 400 mm (BOM, 2023). The Carnarvon bioregion has a semiarid to arid climate, receiving most of its rainfall during winter months.

As discussed under Principle (g), the two broad land systems mapped over the Application Area (Giralia System and Uaroo System) are predominately described as sandy plains, and, as such, are considered to be highly permeable. Noting this, the moderate mean annual rainfall described above, the lack of wetlands or watercourses mapped within the Application Area, and the extensively vegetated surrounding landscape, it is considered that the proposed clearing is unlikely result in an increase in the incidence or intensity of flooding.

Given the above, the proposed clearing is not at variance to this Principle.

## 5. Limitations

### Scope of services

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

### Reliance on data

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

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

### Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

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

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.



## 6. References

- AHIS. (2023, January). *Aboriginal Heritage Inquiry System - Web Viewer*. Retrieved from Aboriginal Heritage Inquiry System: <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS>
- BOM. (2023, May). *Climat Data Online*. Retrieved from Australian Government Bureau of Meteorology: <http://www.bom.gov.au/climate/data/index.shtml?bookmark=136&zoom=1&lat=-26.7905&lon=121.3165&layers=B000000TFFFFFFFFFFFFFFFFFFFFFFFFTTTT&dp=IDC10002-d>
- Commonwealth of Australia. (2001). *National Objectives and Targets for Biodiversity Conservation 2001-2005*. Canberra, ACT: Commonwealth of Australia.
- DBCA. (2019a). *2018 Statewide Vegetation Statistics*. Department of Biodiversity, Conservation and Attractions.
- DBCA. (2019b). *Priority Ecological Communities for Western Australia, Version 28*. Department of Biodiversity, Conservation and Attractions.
- DBCA. (2019c). *Flora and fauna advice for Clearing Permit Application CPS 8395/1 (DWER Ref: A1787617)*. Department of Biodiversity, Conservation and Attractions.
- DCCEEW. (2021, October). *Australia's Bioregions - Maps*. Retrieved from Australian Government Department of Climate Change, Energy, the Environment and Water: <https://www.dcceew.gov.au/environment/land/nrs/science/ibra/australias-bioregions-maps>
- DCCEEW. (2023, May). *EPBC Act Protected Matters Report*. Canberra, ACT: Department of Climate Change, Energy, the Environment and Water.
- DoW. (2007). *Carnarvon Artesian Basin Water Management Plan*. Perth, Western Australia: Department of Water, Government of Western Australia.
- DoW. (2010). *Pilbara Regional Water Plan 2010-2030*. Perth, Western Australia: Department of Water.
- DPaW. (2017). *Interim Guideline for Primary Surveys of Night Parrot (*Pezoporus occidentalis*) in Western Australia*. Kensington, Western Australia: Department of Parks and Wildlife.
- DPIRD. (2022, July). *Soil Landscape Mapping - Best Available (DPIRD-027)*. Perth, Western Australia.
- DPLH. (2022). *Shire of Ashburton Local Planning Scheme No. 7*. Perth, Western Australia: Department of Planning, Lands and Heritage.
- DWER. (2018, June). *Hydrography Linear (Hierarchy) (DWER-031)*. Perth, Western Australia: Department of Water and Environmental Regulation.
- DWER. (2022, May). *Public Drinking Water Source Areas (DWER-033)*. Perth, Western Australia: Department of Water and Environmental Regulation.
- Hocking, R. M. (2000). *Geology of the Sothern Carnarvon Basin Western Australia - A Field Guide. Geological Survey of Western Australia*. Perth, Western Australia: Department of Minerals and Energy.
- inHerit. (2023, May). *Search Heritage Places*. Retrieved from Heritage Council - inHerit: <http://inherit.stateheritage.wa.gov.au/Public/>
- Keighery, B. (1994). *Bushland Plant Survey: a Guide to Plant Community Survey for the Community*. Nedlands: Wildflower Society of WA.
- Kendrick, P., & Mau, R. (2002). *Carnarvon 1*. Department of Conservation and Land Management.
- McKenzie, N. L., May, J. E., & McKenna, S. (2002). *Bioregional Summary of the 2002 Biodiversity Audit for Western Australia*. Western Australia: Department of Conservation and Land Management.
- Meynink, P. S. (2017). *Onslow Waste Facility Flood Study Report*. West Perth, Western Australia: Pells Sullivan Meynink.
- NLWRA. (2008). *Rangelands 2008 - Taking the Pulse*. Canberra: Published on behalf of the ACRIS Management Committee.
- Phoenix Environmental Sciences. (2017). *Flora and Vegetation Survey and Terrestrial Fauna Survey for the Pilbara Regional Waste Management Facility*. Balcatta, Western Australia: Phoenix Environmental Sciences for Talis.

- Phoenix Environmental Sciences. (2018). *Detailed Flora and Vegetation Survey for the Pilbara Regional Waste Management Facility*. Balcatta, Western Australia: Phoenix Environmental Sciences for Talis.
- Sudmeyer, R. (2016). *Climate in the Pilbara, Bulletin 4873*. Perth, Western Australia: Department of Agriculture and Food.
- Talis. (2018a). *Phase 1 Hydrological Risk Assessment DRAFT*. Talis on behalf of the Shire of Ashburton.
- Talis. (2018b). *Operational and Environmental Management Plan. Pilbara Regional Waste Management Facility*. Perth, Western Australia: Talis on behalf of the Shire of Ashburton.
- Talis. (2018c). *EPA Referral Supporting Document*. Perth, Western Australia: Talis on behalf of Shire of Ashburton.
- Talis. (2018d). *Geotechnical Investigation DRAFT*. Perth, Western Australia: Talis on behalf of Shire of Ashburton.
- Tille, P. J. (2006). *Soil-landscapes of Western Australia's Rangelands and Arid Interior*. Perth, Western Australia: Department of Primary Industries and Regional Development.

## Appendix A    Certificate of Title

WESTERN



AUSTRALIA

REGISTER NUMBER

**550/DP414367**DUPLICATE  
EDITION**N/A**

DATE DUPLICATE ISSUED

**N/A**VOLUME  
**LR3169**FOLIO  
**963**

**RECORD OF CERTIFICATE  
OF  
CROWN LAND TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893  
AND THE LAND ADMINISTRATION ACT 1997  
**NO DUPLICATE CREATED**

The undermentioned land is Crown land in the name of the STATE OF WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

*BGRoberts*  
REGISTRAR OF TITLES

**LAND DESCRIPTION:**

LOT 550 ON DEPOSITED PLAN 414367

**STATUS ORDER AND PRIMARY INTEREST HOLDER:**  
(FIRST SCHEDULE)

**STATUS ORDER/INTEREST:** RESERVE UNDER MANAGEMENT ORDER

**PRIMARY INTEREST HOLDER:** SHIRE OF ASHBURTON OF PO BOX 567 TOM PRICE WA 6751  
(XE 0022708 ) REGISTERED 5/11/2018

**LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:**  
(SECOND SCHEDULE)

1. O022707 RESERVE 53324 FOR THE PURPOSE OF WASTE DISPOSAL SITE REGISTERED 5/11/2018.  
O022708 MANAGEMENT ORDER. CONTAINS CONDITIONS TO BE OBSERVED. WITH POWER TO  
LEASE FOR ANY TERM NOT EXCEEDING 21 YEARS, SUBJECT TO THE CONSENT OF THE  
MINISTER FOR LANDS. REGISTERED 5/11/2018.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.  
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF CROWN LAND TITLE-----

**STATEMENTS:**

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land  
and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP414367
PREVIOUS TITLE:	LR3046-473
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF ASHBURTON
RESPONSIBLE AGENCY:	DEPARTMENT OF PLANNING, LANDS AND HERITAGE (SLSD)

NOTE 1: O022706 CORRESPONDENCE FILE 00037-2015-01RO



## Appendix B    Protected Matters Search Tool (2023)



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 04-May-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# Summary

## Matters of National Environment Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	33
<a href="#">Listed Migratory Species:</a>	47

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Lands:</a>	3
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	77
<a href="#">Whales and Other Cetaceans:</a>	14
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	3

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	2
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	17
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	7
<a href="#">Bioregional Assessments:</a>	None
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Species [\[ Resource Information \]](#)

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

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Endangered	Species or species habitat may occur within area
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area



Scientific Name	Threatened Category	Presence Text
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
FISH		
<a href="#">Thunnus maccoyii</a> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area
MAMMAL		
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Dasyurus hallucatus</a> Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
<a href="#">Macroderma gigas</a> Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rhinonictoris aurantia (Pilbara form)</a> Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat may occur within area

## REPTILE

Scientific Name	Threatened Category	Presence Text
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Aipysurus foliosquama</a> Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#">Liasis olivaceus barroni</a> Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
<a href="#">Carcharias taurus (west coast population)</a> Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis pristis</a> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area

Listed Migratory Species	[ <a href="#">Resource Information</a> ]
--------------------------	--

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area
<a href="#">Sternula albifrons</a> Little Tern [82849]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
<a href="#">Anoxypristis cuspidata</a> Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Carcharhinus longimanus</a> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#">Eubalaena australis</a> as <a href="#">Balaena glacialis australis</a> Southern Right Whale [40]	Endangered	Species or species habitat may occur within area



Scientific Name	Threatened Category	Presence Text
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Species or species habitat known to occur within area
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat likely to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<a href="#">Orcaella heinsohni</a> Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis pristis</a> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sousa sahalensis as Sousa chinensis</a> Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat may occur within area
<a href="#">Limnodromus semipalmatus</a> Asian Dowitcher [843]		Species or species habitat may occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Lands [\[ Resource Information \]](#)

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

Commonwealth Land Name	State
Unknown	
Commonwealth Land - [50385]	WA
Commonwealth Land - [51104]	WA
Commonwealth Land - [51887]	WA

### Listed Marine Species [\[ Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
Bird		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Chalcites osculans as Chrysococcyx osculans</a> Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area



Scientific Name	Threatened Category	Presence Text
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
<a href="#">Limnodromus semipalmatus</a> Asian Dowitcher [843]		Species or species habitat may occur within area overfly marine area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
<a href="#">Sternula albifrons as Sterna albifrons</a> Little Tern [82849]		Species or species habitat may occur within area
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalasseus bengalensis as Sterna bengalensis</a> Lesser Crested Tern [66546]		Breeding known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area
Fish		
<a href="#">Bulbonaricus brauni</a> Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
<a href="#">Campichthys tricarinatus</a> Three-keel Pipefish [66192]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Choeroichthys brachysoma</a> Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
<a href="#">Choeroichthys suillus</a> Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
<a href="#">Doryrhamphus janssi</a> Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
<a href="#">Doryrhamphus negrosensis</a> Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
<a href="#">Festucalex scalaris</a> Ladder Pipefish [66216]		Species or species habitat may occur within area
<a href="#">Filicampus tigris</a> Tiger Pipefish [66217]		Species or species habitat may occur within area
<a href="#">Halicampus brocki</a> Brock's Pipefish [66219]		Species or species habitat may occur within area
<a href="#">Halicampus grayi</a> Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
<a href="#">Halicampus nitidus</a> Glittering Pipefish [66224]		Species or species habitat may occur within area
<a href="#">Halicampus spinirostris</a> Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
<a href="#">Haliichthys taeniophorus</a> Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Hippichthys penicillus</a> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
<a href="#">Hippocampus angustus</a> Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
<a href="#">Hippocampus hystrix</a> Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
<a href="#">Hippocampus kuda</a> Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
<a href="#">Hippocampus planifrons</a> Flat-face Seahorse [66238]		Species or species habitat may occur within area
<a href="#">Hippocampus trimaculatus</a> Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
<a href="#">Micrognathus micronotopterus</a> Tidepool Pipefish [66255]		Species or species habitat may occur within area
<a href="#">Solegnathus hardwickii</a> Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
<a href="#">Solegnathus lettiensis</a> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
<a href="#">Solenostomus cyanopterus</a> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Trachyrhamphus bicoarctatus</a> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
<a href="#">Trachyrhamphus longirostris</a> Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat known to occur within area
Reptile		
<a href="#">Acalyptophis peronii</a> Horned Seasnake [1114]		Species or species habitat may occur within area
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Aipysurus duboisii</a> Dubois' Seasnake [1116]		Species or species habitat may occur within area
<a href="#">Aipysurus eydouxii</a> Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
<a href="#">Aipysurus foliosquama</a> Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Aipysurus laevis</a> Olive Seasnake [1120]		Species or species habitat may occur within area
<a href="#">Astrotia stokesii</a> Stokes' Seasnake [1122]		Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area



Scientific Name	Threatened Category	Presence Text
<a href="#"><u>Chelonia mydas</u></a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#"><u>Chitulia ornata as Hydrophis ornatus</u></a> Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area
<a href="#"><u>Dermochelys coriacea</u></a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#"><u>Disteira kingii</u></a> Spectacled Seasnake [1123]		Species or species habitat may occur within area
<a href="#"><u>Disteira major</u></a> Olive-headed Seasnake [1124]		Species or species habitat may occur within area
<a href="#"><u>Emydocephalus annulatus</u></a> Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
<a href="#"><u>Ephalophis greyi</u></a> North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
<a href="#"><u>Eretmochelys imbricata</u></a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#"><u>Hydrophis elegans</u></a> Elegant Seasnake [1104]		Species or species habitat may occur within area
<a href="#"><u>Leioselasma czeblukovi as Hydrophis czeblukovi</u></a> Fine-spined Seasnake, Geometrical Seasnake [87374]		Species or species habitat may occur within area
<a href="#"><u>Natator depressus</u></a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<a href="#"><u>Pelamis platurus</u></a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
<b>Mammal</b>		
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Species or species habitat known to occur within area
<a href="#">Orcaella heinsohni as Orcaella brevirostris</a> Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Sousa sahalensis as Sousa chinensis</a> Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Habitat Critical to the Survival of Marine Turtles		
Scientific Name	Behaviour	Presence
Aug - Sep		
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Nesting	Known to occur
Nov - May		
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Nesting	Known to occur

## Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	
Cane River	Conservation Park	WA	
Cane River (Mount Minnie and Nanutarra) NRS Addition - Gazettal in Progress			WA

EPBC Act Referrals				[ <a href="#">Resource Information</a> ]
Title of referral	Reference	Referral Outcome	Assessment Status	
<a href="#">Ashburton Infrastructure Project</a>	2021/9064		Completed	

Controlled action			
<a href="#">Construct and operate LNG &amp; domestic gas plant including onshore and offshore facilities - Wheatston</a>	2008/4469	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
<b>Controlled action</b>			
<a href="#">Construction and operation of a Solar Salt Project, SW Onslow, WA</a>	2016/7793	Controlled Action	Assessment Approach
<a href="#">Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island</a>	2005/2141	Controlled Action	Completed
<a href="#">Proposed West Pilbara Iron Ore Project</a>	2009/4706	Controlled Action	Post-Approval
<a href="#">Yannarie Solar Salt Project</a>	2004/1679	Controlled Action	Completed
<b>Not controlled action</b>			
<a href="#">Construct 110km buried natural gas pipeline from Onslow, connecting to Dampier/Bunbury natural gas p</a>	2013/7039	Not Controlled Action	Completed
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed
<a href="#">Onslow Power Infrastructure Upgrade Project, Onslow, WA</a>	2014/7314	Not Controlled Action	Completed
<a href="#">Onslow Rare Earths Plant</a>	2021/9046	Not Controlled Action	Completed
<a href="#">Onslow Water Supply Infrastructure Upgrade Project, Onslow, WA</a>	2014/7329	Not Controlled Action	Completed
<a href="#">Thevenard Island Retirement Project</a>	2015/7423	Not Controlled Action	Completed
<a href="#">To construct and operate an offshore submarine fibre optic cable, WA</a>	2014/7373	Not Controlled Action	Completed
<b>Not controlled action (particular manner)</b>			
<a href="#">2D and 3D seismic surveys</a>	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
<a href="#">Macedon Gas Field Development</a>	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
<a href="#">Ocean Bottom Cable Seismic Survey</a>	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
<a href="#">Onslow Seawater Desalination Plant Marine Geophysical</a>	2020/8794	Not Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
<a href="#">Investigation</a>		(Particular Manner)	

## Biologically Important Areas

Scientific Name	Behaviour	Presence
-----------------	-----------	----------

### Marine Turtles

[Eretmochelys imbricata](#)

Hawksbill Turtle [1766]	Internesting buffer	Known to occur
-------------------------	---------------------	----------------

[Natator depressus](#)

Flatback Turtle [59257]	Internesting buffer	Known to occur
-------------------------	---------------------	----------------

[Natator depressus](#)

Flatback Turtle [59257]	Nesting	Known to occur
-------------------------	---------	----------------

### Seabirds

[Ardena pacifica](#)

Wedge-tailed Shearwater [84292]	Breeding	Known to occur
---------------------------------	----------	----------------

[Thalasseus bengalensis](#)

Lesser Crested Tern [66546]	Breeding	Known to occur
-----------------------------	----------	----------------

### Whales

[Balaenoptera musculus brevicauda](#)

Pygmy Blue Whale [81317]	Distribution	Known to occur
--------------------------	--------------	----------------

[Megaptera novaeangliae](#)

Humpback Whale [38]	Migration (north and south)	Known to occur
---------------------	-----------------------------	----------------



# Caveat

## 1 PURPOSE

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

The report contains the mapped locations of:

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

## 2 DISCLAIMER

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

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

## 3 DATA SOURCES

### Threatened ecological communities

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

### Threatened, migratory and marine species

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

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

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

## 4 LIMITATIONS

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

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

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

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

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

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

# Acknowledgements

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

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

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

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

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111


© JBS&G

This document is and shall remain the property of JBS&G. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

#### Document Distribution

Rev No.	Copies	Recipient	Date
A	Electronic (DRAFT)	Dodd and Dodd Group	12/05/2023
0	Electronic (FINAL)	Dodd and Dodd Group; DWER	15/05/2023

#### Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
A	S. Mickan	B. Neasham	J. Bailes	On file	12/05/2023
0	S. Mickan	B. Neasham,	J. Bailes		12/05/2023



### Adelaide

Kaurna Country | 100 Hutt St,  
Adelaide, SA 5000  
T: 08 8431 7113

### Brisbane

Turrbal/Yuggera Country | Level 37, 123  
Eagle Street, Brisbane, QLD 4000  
T: 07 3211 5350

### Bunbury

Wardandi Noongar Country | 177  
Spencer Street Bunbury, WA 6230  
T: 08 9792 4797

### Canberra

Ngunnawal Country | Level 1, The Realm  
18 National Circuit Barton, ACT 2600  
T: 02 6198 3278

### Darwin

Larrakia Country | Suite G1, Level 1  
48-50 Smith Street, Darwin NT 0800  
T: 08 8943 0600

### Hobart

Muwununa/Nuenon Country | Level 6,  
111 Macquarie Street Hobart, TAS 7000  
T: 03 6108 9054

### Melbourne

Kulin Country | Level 5, 10 Queen  
Street, Melbourne, VIC 3000  
T: 03 9642 0599

### Newcastle

Awabakal/Worimi Country | 61 / 63  
Parry Street Newcastle West, NSW 2302  
T: 02 8245 0300

### Perth

Whadjuk Nyoongar Country | Allendale Square,  
Level 9, 77 St Georges Terrace, WA 6000  
T: 08 9380 3100

### Sydney

Gadigal Country | Level 1, 50  
Margaret Street, Sydney, NSW 2000  
T: 02 8245 0300

### Wollongong

Dharawal Country | Suite 1A, 280 - 286  
Keira Street, Wollongong, NSW 2500  
T: 02 4225 2647