



Lot 300 Back Beach Road, Onslow

Detailed Terrestrial Fauna and Shorebird Survey

**Prepared for Mineral Resources Limited
July 2022**

● people ● planet ● professional

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Executive Summary

Mineral Resources Limited commissioned 360 Environmental Pty Ltd (360 Environmental) part of SLR Consulting Pty Ltd (SLR) to undertake a biological survey (Detailed Vertebrate Fauna and Shorebird) for the proposed development of short stay worker accommodation at Lot 300 Back Beach Road, Onslow (the Survey Area). The Survey Area is located in the Carnarvon bioregion of Western Australia and covers approximately 25 ha.

The purpose of the assessment was to identify key biological values within the Survey Area to support the Environmental Assessment Report (EAR) process and approvals applications for development. This report presents the background, methods, results, and discussion of the survey undertaken.

Vertebrate Fauna and Shorebirds

The vertebrate fauna desktop assessment identified 58 significant species occurring within 20 km of the Survey Area. An assessment of the likelihood of occurrence within the Survey Area was undertaken and identified that, of the potential significant fauna, no species had a high likelihood of occurrence, 11 had a medium likelihood of occurrence, and 47 had a low likelihood of occurrence.

Fauna habitat mapping was based on a combination of field observations and fauna habitat assessment data. One fauna habitat was mapped within the Survey Area which was identified as Coastal Dunes.

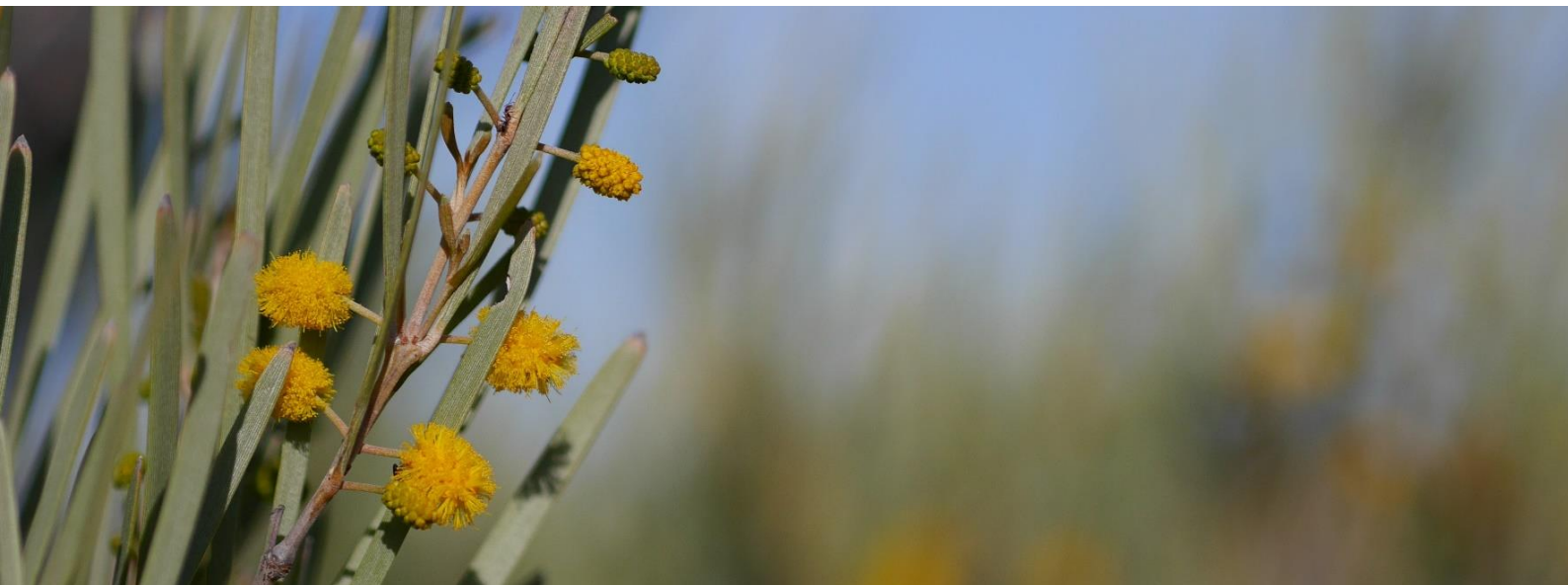
A single-phase detailed vertebrate fauna and shorebird survey recorded fauna assemblage using a variety of detection methods including trap sites, opportunistic observations, and active searches. A total of 62 fauna species from 37 families were recorded, comprising 37 bird species from 21 families, nine mammal species from eight families, 15 reptile species from seven families, and one amphibian from one family.

Four significant species were recorded adjacent to the Survey Area during the fauna survey; the Caspian Tern (*Hydroprogne caspia*; DBCA: IA; EPBC: MI, MA), the Common Sandpiper (*Actitis hypoleucos*; DBCA: IA; EPBC: MI, MA), the Eastern Osprey (*Pandion haliaetus cristatus*; DBCA: IA; EPBC: MI, MA), and the Greater Crested Tern (*Thalasseus bergii*; DBCA: IA; EPBC: MI, MA).

Five introduced species were recorded during the survey, the Cat (*Felis catus*), the House Mouse (*Mus musculus*), the Red Fox (*Vulpes vulpes*), the Asian House Gecko (*Hemidactylus frenatus*), and the Green Tree Frog (*Litoria caerulea*; an extralimital population).

The single-phase detailed vertebrate fauna survey was undertaken in April 2022, three weeks after a 70.2 mm rain event (30th March to 2nd April 2022), which is considered suitable for reptiles, mammals, amphibians, and non-migratory/bush birds.

The single-phase shorebird survey was undertaken in April 2022, the guidance does not make a distinction between bush and migratory birds in the Eremaean Botanical Province but does recommend surveying for migratory birds in the Southern Botanical Province between November and March. As the majority of migratory bird species migrate each year during the Northern Hemisphere summer and autumn to Australia before returning north in March and April, an April migratory shorebird survey is unlikely to record the full suite of migratory bird species that visit Onslow each year.



Abbreviations

Abbreviations used through the report are described below in **Table 1**

Table 1: Abbreviations

Abbreviation	Description
360 Environmental	360 Environmental Pty Ltd
ALA	Atlas of Living Australia
ARU	Autonomous Recording Unit
BAM Act	Biosecurity and Agriculture Management Act 2007
BC Act	Biodiversity Conservation Act 2016
BoM	Bureau of Meteorology
°C	Degree Celsius
CD	Conservation Dependent Fauna
CR	Critically Endangered
DAWE	Department of Agriculture, Water, and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DoE	Department of Environment
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EN	Endangered
EP Act	Environmental Protection Act 1986
EPA	Environmental Protection Authority
EPBC Act	Environment Protection Biodiversity and Conservation Act 1999
ESA	Environmentally Sensitive Area
GIS	Geographic Information System
Ha	Hectare
IA	Migratory listing under the Wildlife Conservation Notice 2018
IBRA	Interim Biogeographic Regionalisation for Australia
IBSA	Index of Biodiversity Surveys for Assessments
km	Kilometres
m	Metres
mm	Millimetres
MA	Marine
MI	Migratory listing under the EPBC Act 1999
MNES	Matters of National Environmental Significance
OS	Other Specially Protected Fauna
P	Priority
PMST	Protected Matters Search Tool

SLR	SLR Consulting Pty Ltd
Survey Area	The Survey Area is approximately 25 ha and is located on Lot 300 Back Beach Road, Onslow, WA
T	Threatened
TEC	Threatened Ecological Community
VU	Vulnerable
WA	Western Australia
WAM	Western Australian Museum

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1. Introduction

1.1. The Project

Mineral Resources Limited commissioned 360 Environmental Pty Ltd (360 Environmental) part of SLR Consulting Pty Ltd (SLR) to undertake a biological survey (Detailed Vertebrate Fauna and Shorebird) for the proposed development of short stay worker accommodation at Lot 300 Back Beach Road, Onslow (the Survey Area). The Survey Area is located in the Carnarvon bioregion of Western Australia. The Survey Area covers approximately 25 ha (Figure 1).

1.2. Objectives and Scope

The purpose of the survey was to delineate key fauna values within the Survey Area and identify potential environmental sensitivities that may impact the approvals process.

The scope of works includes:

- Undertake a Desktop Assessment including relevant database searches and a literature review to compile and summarise existing fauna records (including significant species and communities) in the vicinity of the Survey Area
- Carry out a single-phase detailed vertebrate fauna and shorebird survey to assess vertebrate fauna values in accordance with EPA Guidance
- Prepare a technical vertebrate fauna survey report
- Provide all spatial/mapping data collected during the survey in IBSA format.

This report presents the background, methods, results, and discussion of the surveys undertaken to support the above objectives.

2. Background

2.1. Protection of Fauna

Western Australian fauna is protected formally and informally by legislative and non-legislative measures:

Legislative measures:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- WA *Biodiversity Conservation Act 2016* (BC Act)
- WA *Environmental Protection Act 1986* (EP Act)
- WA *Biosecurity and Agriculture Management Act 2007* (BAM Act).

Non-legislative measures:

- WA Department of Biodiversity Conservation and Attractions (DBCA) Priority lists for fauna
- Recognition of locally significant populations by DBCA.

These protection mechanisms are supported by guidance documents published by the Environmental Protection Authority (EPA) and Department of Agriculture, Water and the Environment (DAWE; formerly Department of Environment, and Department of Sustainability, Environment, Water, Population and Communities):

- Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (Environmental Protection Authority, 2016)
- Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999 (Department of the Environment, 2013)
- Survey Guidelines for Australia's Threatened Mammals (Department of Sustainability Environment Water Population and Communities, 2011a)
- Survey Guidelines for Australia's Threatened Reptiles (Department of Sustainability Environment Water Population and Communities, 2011b)
- Survey Guidelines for Australia's Threatened Birds Under the Environment Protection and Biodiversity Conservation Act 1999 (Department of the Environment Water Heritage and the Arts, 2010).

2.2. Existing Environment

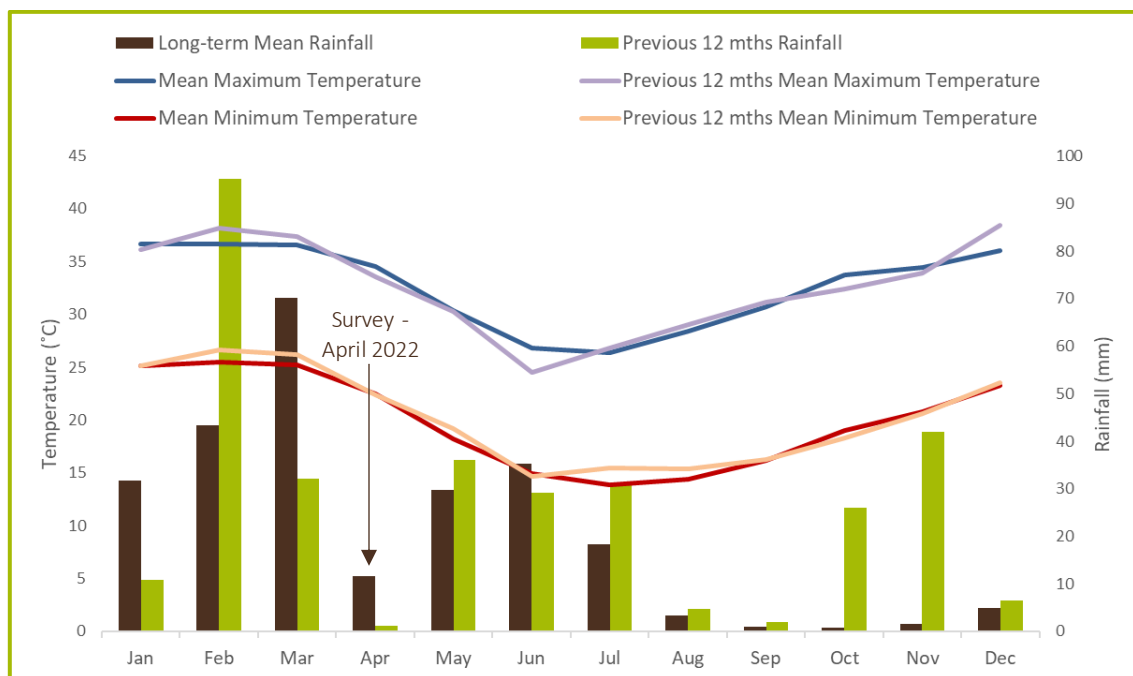
1.1.1 Climate

The closest long-term Bureau of Meteorology (BoM) weather station with a complete dataset is Onslow Airport (Station 5017), located approximately 3.0 km south of the Survey Area.

Climate statistics were calculated utilising data from the most current climate normal, which is defined as a 30-year interval (Bureau of Meteorology, 2007), where possible. A climate normal is a period long enough to include year-to-year variations while avoiding the influence of longer-term changes in climate (Bureau of Meteorology, 2007).

The long-term mean minimum temperature for Onslow Airport (1998 to 2020) ranges from 13.9°C (July) to 25.5°C (February) and the long-term mean maximum temperature for Onslow Airport (1998 to 2020) ranges from 26.4°C (July) to 36.7°C (January, February) (Graph 1) (Bureau of Meteorology, 2022).

The Onslow Airport weather station recorded 198.2 mm of rainfall in the 12 months prior to the survey (May 2021 to April 2022), which is 54 mm below the long-term average for Onslow Airport (1998 to 2020) of 252.2 mm (Bureau of Meteorology, 2022). In the three months prior to the survey (February to April 2022), 83.8 mm of rainfall was recorded, which is 41.5 mm below the long-term average for Onslow Airport (1998 to 2020) of 125.3 mm for the same time period (Bureau of Meteorology, 2022). Onslow received 70.2 mm of rain from the 30 March to the 2 April 2022.



Graph 1: Long Term (1998 to 2020) and Monthly Total Rainfall, and Mean Maximum and Minimum Temperatures for Onslow Airport (5017) (Bureau of Meteorology, 2022).

1.1.2 Interim Biogeographic Regionalisation of Australia

The Interim Biogeographic Regionalisation of Australia (IBRA) divides Australia into 89 bioregions based on major biological, geographical, and geological attributes. These bioregions are subdivided into 419 subregions as part of a refinement of the IBRA framework (Department of the Environment and Energy, 2016). The Survey Area occurs within the Carnarvon bioregion and the Cape Range (CAR01) subregion.

The Cape Range subregion (CAR01) is characterised by a mosaic of saline alluvial plains with samphire and saltbush low shrublands, low woodland on sandy ridges and plains, snakewood scrub on clay flats, and tree to shrub steppe over hummock grasslands on and between red sand dune fields (Kendrick and Mau, 2002). The subregion is represented by limestone strata with *Acacia stuartii* or *Acacia bivenosa* shrubland outcrop in the north, where extensive tidal flats in sheltered embayments support mangal.

1.1.3 Soil Landscapes and Land Systems

Soil landscapes and land system mapping of Western Australia describes broad soil and landscape characteristics from regional to local scales, ranging from 1:20,000 to 1:250,000 (Department of Agriculture and Food WA, 2012). The Survey Area occurs within the Dune System (201Du), which is described as dune fields supporting soft spinifex and minor hard spinifex grasslands.

1.1.4 Hydrography

The Survey Area does not intersect any major watercourses or water bodies that are mapped by State Government GIS databases (Department of Water and Environmental Regulation, 2018b). The Survey area is located 160 m from the coastal waterline (Figure 2).

1.1.5 Broad Vegetation Types

Mapping of pre-European vegetation in Western Australia was completed on a broad scale (1:1,000,000) by Beard (1976). These vegetation types were later refined by Shepherd *et al.* (2002) resulting in 819 vegetation types.

The Survey Area is mapped over the Cape Yannare Coastal Plain 117, which is a grass steppe characterised by hummock grassland (*Triodia* spp.) (Figure 2). Representation of the system associations at a local, regional, and state level is shown in Table 2.

Table 2: Broad Vegetation Types within the State, Regional and Local Representation (Government of Western Australia, 2019).

Broad Vegetation Type	Extent			
	Pre-European (ha)	Current (ha)	Remaining (%)	Managed in DBCA Lands (%)*
Representation across Western Australia				
117	919,517.05	886,005.79	96.36	14.79
Representation across the Carnarvon Bioregion				
117	12,424.35	10,907.99	87.80	27.48
Representation across the Cape Range (CAR01) Subregion				
117	12,424.35	10,907.99	87.80	27.48
Representation across the Shire of Ashburton				
117	14,506.04	9,073.90	62.55	19.13

*As a portion of the current extent

1.1.6 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by the Department of Water and Environmental Regulation (DWER) to prevent the degradation of important environmental values such as Threatened flora, Threatened Ecological Communities (TECs) or significant wetlands.

The Survey Area does not occur within a mapped ESA. The nearest ESAs are associated with Direction Island located approximately 11 km north of the Survey Area and Ashburton Island located approximately 18 km west of the Survey Area (Department of Water and Environmental Regulation, 2018a).

1.1.7 Conservation Areas

The Survey Area is not within a conservation area. The nearest conservation areas are Unallocated Crown Land (LR3046/473), vested under the Department of Planning, Lands and Heritage, which is located approximately 22 km south of the Survey Area and the Cane River Conservation Park, which is located 57 km southeast of the Survey Area and is vested under the Conservation Commission of Western Australia.

3. Methods

The biological survey documented by this report were undertaken in accordance with relevant EPA and DAWE guidelines (see section 2.1).

3.1. Desktop Assessment

3.1.1. Literature Review

Background information on the Survey Area and surrounds was compiled prior to the field survey (see Section 2.1). Historical vegetation mapping (Beard, 1976; Shepherd, Beeston and Hopkins, 2002), land systems mapping (Department of Agriculture and Food WA, 2012), and the IBRA classification system (Kendrick and Mau, 2002) were consulted to provide broad contextual knowledge of the vegetation units and habitat likely to be encountered within the Survey Area.

The literature review also considered a selection of biological reports detailing assessments undertaken in the region, that were publicly available:

- A Level 1 Vertebrate Fauna Assessment of the Proposed Ashburton North Gas Pipeline, Western Australia (Ninox Wildlife Consulting, 2014)
- A Level 1 Vertebrate Fauna Assessment of the Proposed Tubridgi to Wheatstone Gas Pipeline, Western Australia (Ninox Wildlife Consulting, 2013)
- Flora and Vegetation Survey and Terrestrial Fauna Survey for the Pilbara Regional Waste Management Facility (Phoenix Environmental Sciences, 2017)
- Onslow Rare Earths Plant Fauna Assessment (Bamford Consulting Ecologists, 2021)
- Onslow Townsite Strategy Flora, Vegetation and Fauna Assessment (ENV Australia Pty Ltd, 2011)
- West Pilbara Iron Ore Project Onslow Rail Corridor – Level 1 Fauna Assessment (Biota Environmental Sciences, 2008)
- West Pilbara Iron Ore Project Onslow Rail Corridor Terrestrial Fauna Survey (Biota Environmental Sciences, 2009).

3.1.2. Database Searches

Database searches were undertaken to compile a list of potential fauna and identify potential significant fauna within or surrounding the Survey Areas (Table 3, Appendix A). In addition, an EPBC Protected Matters Search (PMST) was undertaken to identify the potential for Matters of National Environmental Significance (MNES) to occur within or surrounding the Survey Area (Department of Agriculture Water and the Environment, 2021b).

The search area for each parameter was varied to reflect distances recommended by DBCA. The search areas are herein referred to collectively as the Study Area.

Table 3: Database Searches of the Study Area

Database Name	Date Received	Search Target	Buffer around the Survey Area
DBCA Threatened and Priority Fauna database search (Department of Biodiversity Conservation and Attractions, 2021b)	27 May 2020	Threatened and Priority Fauna	20 km buffer around the Survey Area
NatureMap (Department of Biodiversity Conservation and Attractions, 2021a)	13 July 2021	Threatened and Priority fauna, and inventory of potential fauna	20 km buffer around the Survey Area
Protected Matters Search Tool (Department of Agriculture Water and the Environment, 2021b)	13 July 2021	Commonwealth listed Threatened fauna	20 km buffer around the Survey Area

Shorebird records from eBird (Cornell Lab of Ornithology, 2022) and Birddata (Birdlife Australia, 2022) were used to gain a greater understanding of the temporal and spatial nature of shorebird sightings in and around the Survey Area. eBird and Birddata survey records within a 500 m buffer around the Survey Area were categorised by month recorded to determine how 'common' (monthly species record / monthly surveys) species were at different times of the year.

3.1.3. Likelihood of Occurrence

Significant fauna species identified from the desktop assessment were assessed to determine the likelihood of their occurrence within the Survey Area, both prior to and post field survey. The assessment was completed based on the likelihood of occurrence criteria presented in Table 4.

Only species recorded within the Survey Area or considered to have a high or medium likelihood of occurrence are discussed in detail. Species classified as having a low likelihood of occurrence based on the above criteria will not be discussed unless a justification for this classification is required.

For fauna, taxa listed as Marine only under the EPBC Act were not included as significant taxa because Marine only listed taxa do not constitute MNES under the EPBC Act, Marine only listed taxa identified by the desktop assessment and field survey were common and widespread, and the Survey Area does not contain any marine waters.

Table 4: Likelihood of Occurrence Criteria

Rank	Criteria
Previously Recorded	The species has been previously recorded in the Survey Area
High (Likely to occur)	<ul style="list-style-type: none"> There are existing records of the species in close proximity to the Survey Area (within 10 km), and for fauna has been recorded in the Survey Area in the last 10 years The species is strongly linked to a specific habitat, which is present in the Survey Area; or <p>The species has more general habitat preferences, and suitable habitat is present.</p>
Medium (May occur)	<ul style="list-style-type: none"> There are existing records of the species from the locality (between 10 km and 20 km), however: <ul style="list-style-type: none"> The species is strongly linked to a specific habitat, of which only a small amount is present in the Survey Area; or The species has more general habitat preferences, but only some suitable habitat is present. <p>There is suitable habitat in the Survey Area, but the species is recorded infrequently in the locality.</p>
Low (Unlikely to occur)	<ul style="list-style-type: none"> The species is linked to a specific habitat, which is absent from the Survey Area; or Suitable habitat is present, however there are no existing records of the species from the locality (within 20 km) despite reasonable previous search effort in suitable habitat; or <p>There is some suitable habitat in the Survey Area, however the species is very infrequently recorded in the locality.</p>

3.2. Field Surveys

The detailed terrestrial fauna and shorebird survey was undertaken by Ecologists Poppy Walker and Simon Girando between 20 and 29 April 2022 (Table 5). Data were collected from two trap sites, one ultrasonic recorder, two camera traps, bird surveys, active foraging, and spotlighting.

Table 5: Field Personnel

Personnel	Role	Fauna Taking Licence
Poppy Walker	Ecologist Planning, fauna field work, data interpretation and report preparation.	Reg 27: BA27000575
Simon Girando	Ecologist Planning, fauna field work, data interpretation and report preparation.	Reg 27: BA27000575

3.2.1. Daily Survey Conditions

Survey conditions for the basic fauna survey are presented in Table 6. Daily temperature and rainfall data is from the Onslow Airport Weather Station (Station 5017) (Bureau of Meteorology, 2022). This information is important for potential detection of species diversity during a survey.

Table 6: Detailed Fauna Survey Weather Conditions (Bureau of Meteorology, 2022)

Date	Temperature (°C)		Rainfall (mm)
	Min	Max	
21/04/2022	24.2	35.3	0
22/04/2022	22	31.7	0
23/04/2022	20.7	35.2	0
24/04/2022	20.3	35.2	0
25/04/2022	20.6	32.0	0
26/04/2022	18.5	29.6	0
27/04/2022	20.9	27.7	2.2
28/04/2022	21.5	29.2	0

The closest Department of Transport tide gauge sensor station is Onslow - Beadon Creek (Station 62470; 115.131540, -21.649657), located approximately 2.7 km east southeast of the Survey Area (Department of Transport, 2022). Tide heights ranged from 0.64 m to 2.95 m, with a last quarter moon on the 23 April 2022 (Table 7). This information is important for potential detection of shorebird species during a survey.

Table 7. Detailed Fauna Survey Tidal Conditions (Department of Transport, 2022)

Date	Time	Tide (m)	Date	Time	Tide (m)
21/04/22	01:59	2.49	25/04/22	05:31	1.87
	06:56	1.10		11:02	1.67
	13:53	2.95		17:32	2.15
	20:21	0.64			
22/04/22	02:34	2.33	26/04/22	00:54	1.31
	07:17	1.21		07:35	1.98
	14:25	2.80		13:24	1.61
	21:04	0.82		19:30	2.14
23/04/22	03:13	2.14	27/04/22	02:22	1.25
	07:34	1.34		09:11	2.19
	14:57	2.59		14:53	1.40
	21:54	1.03		21:09	2.24
24/04/22	04:01	1.97	28/04/22	03:18	1.17
	08:04	1.50		10:00	2.43
	15:40	2.35		15:57	1.18
	23:00	1.22		22:16	2.39

3.2.2. Fauna Habitat Assessment

Fauna habitat assessments were undertaken throughout the Survey Area to identify fauna habitat values. Habitat assessment locations are shown in Figure 3. The following information was collected at each site using Fulcrum, a mobile data collection app:

- Site photo
- Landform
- Soil type and colour
- Rock types, surface stone cover and size classes
- Key habitat and microhabitat features including leaf litter, logs, burrows, rocky outcrops, rock crevices, hollows, water sources
- Habitat quality, fire history and evidence of disturbance
- General description of vegetation structure.

Fauna habitat mapping was based on a combination of field observations, fauna habitat assessment data and vegetation mapping undertaken by 360 Environmental.

3.2.3. Trap Sites

Two trap sites were installed in the Survey Area within areas of suitable and representative habitat. Each trap site consisted of two individual replicate trap lines spaced 30 to 90 m apart to account for the possibility that fauna assemblages can be distributed unevenly within a given habitat. Individual trap lines were roughly 30 m long and comprised a 30 cm tall flywire drift fence passing over five pitfall traps (20 L buckets and 150 mm PVC pipes) with six funnel traps placed along the drift fence in pairs. A total of five Elliot traps were placed at each replicate trap line beneath vegetation and were checked within three hours of sunrise each morning. Elliot traps were closed during the day to avoid trap death in the heat of the day. A diagram of the trap site layout is provided in Plate 1.

Site selection was based on a review of available literature and aerial imagery, which indicated that one fauna habitat occurs within the Survey Area. Trap site locations are shown in Figure 3 and Table 8 shows the total trapping effort for each trap site and habitat type.

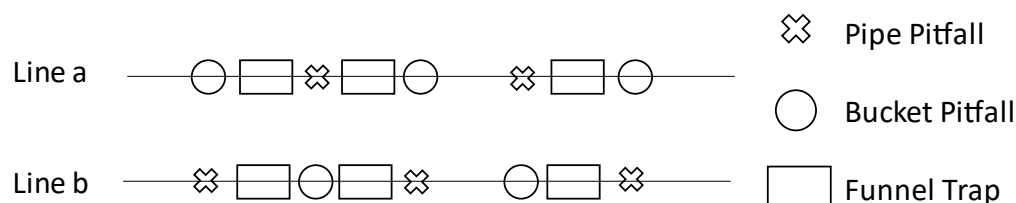


Plate 1: Trap Site Layout

Table 8: Trap Site Trapping Effort

Habitat	Trap site	Number of nights open	Total pitfall trap nights	Total funnel trap nights	Total Elliot trap nights
Coastal Dunes	BBF1	7	70	84	70
Coastal Dunes	BBF2	7	70	84	70
Total	2 sites	14	140	168	140

3.2.4. Camera Traps

Two motion sensitive camera traps were set up during the detailed field survey. Site selection was based on suitable habitat features for fauna activity. Cameras were baited with universal bait (rolled oats, peanut butter and sardines). Table 9 shows the total trapping effort for camera traps, and locations are shown in Figure 3.

Table 9: Camera Trap Trapping Effort

Fauna Habitat	Nearest trap site	No. of Cameras	Total camera trap nights
Coastal Dunes	BBF1	1	7
Coastal Dunes	BBF2	1	7
Total	2 Camera traps	14	

3.2.5. Autonomous Recording Units

An ultrasonic call ARU was used to target bats and audible call ARU was used to target the Pilbara Leaf-nosed Bat (*Rhinonictis aurantia*) and Ghost Bat (*Macroderma gigas*). The units were moved periodically during the detailed field survey. All recording locations were within the Survey Area.

Table 10 outlines the total trapping effort for ARUs and locations are shown in Figure 3.

Table 10: ARU Trapping Effort

Fauna Habitat	Nearest trap site	No. of ARUs	Total ultrasonic trap nights
Coastal Dunes	BBF2	1	2
Coastal Dunes	BBF2	1	2
Coastal Dunes	BBF1	1	3
Total		3 ARUs	7

3.2.6. Opportunistic Observations and Active Searches

Opportunistic observations of fauna were recorded throughout the Survey Area. Observations of primary evidence (direct sightings, calls) and secondary evidence (tracks, scats, diggings etc.) were recorded. Active searches were undertaken in microhabitats likely to contain fauna. They primarily involved raking leaf litter, peeling bark, and splitting dead wood. Two nights of spotlighting was also undertaken within the Survey Area.

3.2.7. Bird Surveys

Systematic bird surveys were undertaken within the Survey Area for 20 minutes in a 2 ha quadrat (Environmental Protection Authority, 2016c) at each fauna habitat assessment location (at a minimum). Where practicable, this was undertaken during typical peak periods of activity when birds are calling and moving about, which is typically in the 3-4 hours after sunrise, particularly during warmer periods.

3.2.8. Shorebird Surveys

Shorebird surveys were undertaken from the Back Beach boardwalk and Back Beach shoreline. Surveys ranged from 10 to 50 minutes depending on bird numbers and tide conditions (Table 11). Shorebird surveys were undertaken at a range of times throughout the day to encompass various weather, time, and tide conditions.

Table 11: Shorebird Survey Effort and Tide Conditions (Beadon Creek, Station 62470) (Department of Transport, 2022)

Fauna Habitat	Site	Date, time	Tide (m) (rising, falling)	Effort	Total person hours
Beach	Bird_B1	23/4/22 16:05	2.61 (f)	2 people x 20min	0.66
Beach	Bird_B2	26/4/22 08:30	2.09 (f)	2 people x 50min	1.66
Beach	Bird_B3	28/4/22 16:10	1.24 (r)	2 people x 20min	0.66
Beach	Bird_B4	25/4/22 09:05	1.82 (f)	2 people x 20min	0.66
Beach, Coastal Dunes	Bird_D1	23/4/22 06:50	1.49 (f)	2 people x 10min	1.00
		24/4/22 17:35	2.24 (f)	2 people x 10min	
		28/4/22 08:30	2.31 (r)	2 people x 10min	
Beach, Coastal Dunes	Bird_D2	23/4/22 06:25	1.52 (f)	2 people x 10min	3.33
		24/4/22 17:55	2.19 (f)	2 people x 10min	
		25/4/22 06:45	1.98 (f)	2 people x 10min	
		25/4/22 18:10	2.26 (f)	2 people x 10min	
		27/4/22 15:20	1.50 (r)	2 people x 10min	
		27/4/22 17:10	1.61 (r)	2 people x 10min	
		22/4/22 08:30	1.40 (r)	2 people x 20min	
		22/4/22 15:55	2.46 (f)	2 people x 20min	
Total				15 surveys	8.00

3.2.9. Identification and Taxonomy

Terrestrial vertebrate fauna taxa were identified in the field and released on site. Data captured by ARUs was analysed by bat specialist Robert Bullen from Bat Call WA.

Where there was doubt on a species name (through subsequent name changes or taxonomic reviews), an effort was made to determine the current scientific name for each taxon. Taxonomy and nomenclature in this report follows the WA Museum (WAM) checklist 2022 (Western Australian Museum, 2022) where relevant.

4. Results

4.1. Limitations

Limitations and constraints of the single-phase detailed vertebrate fauna survey are detailed below in Table 12. Despite the limitations identified the assessment is suitable to support approvals applications for the proposed actions within the Survey Area.

Table 12: Limitations and Constraints Associated with the Survey

Variable	Degree of Limitation	Potential Constraints on Survey Outcomes
Survey Scope	Limitation	A single-phase detailed vertebrate fauna survey was undertaken. The relevant EPA guidance (2020) recommends at least two survey phases for detailed surveys.
Availability of Data	No limitation	All data required to complete the scope of works including regional and local contextual information was available.
Site Access	No limitation	The Survey Area was able to be accessed by vehicle and on foot.
Survey Intensity and Resources	No limitation	The single-phase detailed vertebrate fauna survey consisted of two fauna trap sites, each consisting of two replicate trap lines (5 pitfalls, 6 funnels and 5 Elliot traps per trap line), in the single habitat type. All trap sites were active for seven nights. Active searches at each trap site, two spotlighting sessions, seven nights of ultrasonic recording (for bat detection), 14 days of camera trapping, and 8 hours of shorebird surveys were also conducted as part of the single-phase detailed vertebrate fauna survey.
Experience	No limitation	The single-phase detailed vertebrate fauna survey was undertaken by Ecologists Poppy Walker and Simon Girando. The team has a combined experience of over 8 years conducting surveys of similar scope throughout Western Australia and the bioregion. ARU data analysis was undertaken by Robert Bullen, WA's preeminent bat specialist.
Timing, weather, season	Limitation	The recommended primary survey period for the region as per the EPA Technical Guidance, occurs between September and April for reptiles and any time of the year for mammals. For bird and amphibian species survey timing is recommended after significant rainfall events. There was a significant rainfall event of 61 mm three weeks prior to the survey. While the single-phase detailed vertebrate fauna survey was in season for birds and reptiles, migratory birds and reptiles are unlikely to be readily observed during April. A second detailed vertebrate fauna survey may need to be carried out between November and January.

Variable	Degree of Limitation	Potential Constraints on Survey Outcomes
Life Forms Sampled	No limitation	The single-phase detailed vertebrate fauna survey used a wide range of detection techniques to detect fauna taxa within the Survey Area. All vertebrate fauna species were readily identified in the field.
Mapping Reliability	No limitation	Fauna habitat mapping was based on ground observations and vegetation mapping and there were no constraints on mapping reliability.
Disturbances (fire, flood etc.)	No limitation	No disturbances occurred during any of the surveys. Areas of disturbance associated with access tracks, weeds, and litter were recorded but were not a constraint on the results of the survey.
Completeness	No limitation	The survey was considered complete for a single-phase detailed vertebrate fauna survey. All habitat types were surveyed and delineated within the Survey Area, with at least two trap sites within the habitat type.

4.2. Vertebrate Fauna

4.2.1. Desktop Assessment

The desktop assessment identified 58 significant terrestrial vertebrate fauna species potentially occurring within the Survey Area, comprising 46 birds, four mammals, and eight reptiles. These are discussed further in Section 4.2.4.


Key findings of the literature review are summarized below in Appendix B. Database search results are presented in Figure 4 and Appendix A.

4.2.2. Fauna Habitat

One broad fauna habitat was identified and mapped within the Survey Area (Figure 5). The Coastal Dunes Fauna Habitat was continuous throughout the Survey Area and is analogous with the Coastal Dunes vegetation type. The habitat quality was good throughout the Survey Area.

A description, extent within the Survey Area and a representative photo is provided for each fauna habitat in Table 13. Fauna habitat site sheets for each habitat assessment are shown in Appendix C.

Table 13: Fauna Habitat Type Descriptions with the Survey Area

Fauna Habitat	Total Area, Proportion of the Survey Area	Sites	Representative Photo
<p>Coastal Dunes: <i>Acacia coriacea</i> subsp. <i>coriacea</i> and <i>Acacia tetragonophylla</i> (with <i>Crotalaria cunninghamii</i> subsp. <i>sturtii</i>) mid to low sparse shrubland over <i>*Cenchrus ciliaris</i> and <i>Eulalia aurea</i> low tussock grassland with <i>Triodia epactia</i> low sparse hummock grassland over <i>Euphorbia myrtoides</i> low sparse herbland.</p> <p>Suitable good quality habitat for passerine birds (perching birds and songbirds). Suitable, but low-quality habitat for reptile and small mammal species due to the presence of cats and foxes, and alteration of understory structure by <i>*Cenchrus ciliaris</i>.</p>	25 ha, 100%	BBF1, BBF2	

4.2.3. Fauna Assemblage

The single-phase detailed vertebrate fauna survey recorded a total of 61 fauna species from 36 families, summarised in Table 14. A full inventory of fauna species recorded during the field survey is provided in Appendix D.

Table 14: Overview of Vertebrate Fauna Species Recorded

Fauna group	Number of species	Number of families
Birds	37	21
Mammals	9	8
Reptiles	15	7
Amphibians	1	1
Total	62	37

Birds

A total of 37 avian species from 21 families were recorded throughout the Survey Area. The most recorded species was the Silver Gull (*Larus novaehollandiae*), followed by the Greater Crested Tern (*Thalasseus bergii*) and the White-plumed Honeyeater (*Ptilotula penicillata*). The most speciose avifauna families were Meliphagidae (five taxa), Laridae (four taxa) and Maluridae (four taxa).

Mammals

A total of three native non-volant (non-flying) mammal species from three families were recorded within the Survey Area. The most recorded native mammal species was the Spinifex hopping-mouse (*Notomys alexis alexis*).

A total of three native volant mammal species (bats) from three families were recorded throughout the Survey Area.

A total of three introduced mammal species were recorded in the Survey Area, the Cat (*Felis catus*), the House Mouse (*Mus musculus*), and the Red Fox (*Vulpes vulpes*).

Reptiles

A total of 15 reptile species from seven families were recorded throughout the Survey Area. The most recorded species was *Lucasium stenodactylus* followed by the *Lerista onslowiana*. The most speciose reptilian families were Scincidae (five taxa) and Gekkonidae (three taxa).

One introduced reptile species was recorded in the Survey Area, the Asian House Gecko (*Hemidactylus frenatus*).

Amphibians

One amphibian from one family was recorded during the survey, the Green Tree Frog (*Littoria caerulea*). While the Green Tree Frog is native to WA, they have been introduced to Onslow and are now prevalent around town (extralimital population; Chevron, 2015).

4.2.4. Significant Fauna

Direct sightings of four migratory bird species were recorded in areas directly surrounding the Survey Area (Figure 6).

- Caspian Tern (*Hydroprogne caspia*) – IA (DBCA); MI, MA (EPBC)
- Common Sandpiper (*Actitis hypoleucos*) – IA (DBCA); MI, MA (EPBC)
- Eastern Osprey (*Pandion haliaetus cristatus*) – IA (DBCA); MI, MA (EPBC)
- Greater Crested Tern (*Thalasseus bergii*) – IA (DBCA); MI, MA (EPBC).

No other significant fauna species (Threatened or Priority), or evidence of these species such as tracks, scats, nest, diggings, burrows were recorded within or directly surrounding the Survey Area.

The post survey results identified seven significant taxa as having a medium likelihood of occurrence within of the Survey Area:

- Barn Swallow (*Hirundo rustica*) – IA (DBCA); MI, MA (EPBC)
- Common Tern (*Sterna hirundo*) – IA (DBCA); MI, MA (EPBC)
- Greater Sand Plover (*Charadrius leschenaultii*) – VU, IA (DBCA); VU, MI, MA (EPBC)
- Grey-tailed Tattler (*Tringa brevipes*) – IA, P4 (DBCA); MI, MA (EPBC)
- Red-necked Stint (*Calidris ruficollis*) – IA (DBCA); MI, MA (EPBC)
- Ruddy Turnstone (*Arenaria interpres*) – IA (DBCA); MI, MA (EPBC)
- Sanderling (*Calidris alba*) – IA (DBCA); MI, MA (EPBC).

A further 48 significant taxa were assessed as having a low likelihood of occurrence within the Survey Area. Further detail regarding recorded and potential significant fauna is provided below in Table 15.

While shorebirds may occur within the Survey Area, they are unlikely to rely on it for foraging or roosting activities, as more suitable habitat is found to the north, northwest and west of the Survey Area along the beach and tidal flats.

4.2.5. Shorebirds

eBird and Birddata records from 2000 to 2022 identified 25 listed migratory shorebird species as having occurred within 500m of the Survey Area (Appendix E).

Based on DBCA, eBird and Birddata records nine listed migratory shorebirds (in addition to those recorded during the Survey and those assessed as having a medium or high likelihood of occurrence within the Survey Area) were identified as likely to occur along the beach and tidal flats located 100 to 300 m northeast, north, northwest and west of the Survey Area:

- Bar-tailed Godwit (*Limosa lapponica*) – IA (DBCA); MI, MA (EPBC)
- Common Greenshank (*Tringa nebularia*) – IA (DBCA); MI, MA (EPBC)
- Far Eastern Curlew (*Numenius madagascariensis*) – CR, IA (DBCA); CR, MI, MA (EPBC)

- Grey Plover (*Pluvialis squatarola*) – IA (DBCA); MI, MA (EPBC)
- Gull-billed Tern (*Gelochelidon nilotica*) – IA (DBCA); MI, MA (EPBC)
- Lesser Sand Plover (*Charadrius mongolus*) – EN, IA (DBCA); EN, MI, MA (EPBC)
- Little Tern (*Sternula albifrons*) – IA (DBCA); MI, MA (EPBC)
- Whimbrel (*Numenius phaeopus*) – IA (DBCA); MI, MA (EPBC)
- White-winged Black Tern (*Chlidonias leucopterus*) – IA (DBCA); MI, MA (EPBC).

Due to low DBCA, eBird and Birddata record numbers, the remaining five listed migratory shorebirds, were deemed to occur infrequently within the coastal areas adjacent to the Survey Area:

- Pacific Swift (*Apus pacificus*) – IA (DBCA); MI, MA (EPBC)
- Sharp-tailed Sandpiper (*Calidris acuminata*) – IA (DBCA); MI, MA (EPBC)
- Great Knot (*Calidris tenuirostris*) – CR, IA (DBCA); CR, MI, MA (EPBC)
- Little Curlew (*Numenius minutus*) – IA (DBCA); MI, MA (EPBC)
- Roseate Tern (*Sterna dougallii*) – IA (DBCA); MI, MA (EPBC).

Table 15: Significant Fauna Likelihood of Occurrence

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
AVIAN											
Apodidae	<i>Apus pacificus</i>	Pacific Swift	IA	MI, MA	x	x	x	x		Low	Six DBCA records within 20 km of the Survey Area, including 0.3 km east in 2008 and 9.1 km south in 2012. ¹ May use habitats in Survey Area for foraging (low to very high airspace over varied habitat). ²
Charadriidae	<i>Charadrius leschenaultii</i>	Greater Sand Plover	VU, IA	VU, MI, MA	x		x	x		Medium	72 DBCA records within 20 km of the Survey Area, including 0.2 km northeast in 2017 and 2016. ¹ Suitable habitat exists adjacent to the Survey Area (tidal flats, beaches). ³
	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN, IA	EN, MI, MA	x		x	x		Low	Five DBCA records within 20 km of the Survey Area, including 0.2 km northeast in 2017 and 2015. ¹ Suitable habitat exists adjacent to the Survey Area (tidal flats). ³
	<i>Charadrius veredus</i>	Oriental Plover	IA	MI, MA	x	x	x			Low	Three DBCA records within 20 km of the Survey Area, including 16.9 km southwest in 2013 and 18.5 km south in 2015. ¹ No suitable habitat present in the Survey Area (grasslands, thinly vegetated plains). ³
	<i>Pluvialis squatarola</i>	Grey Plover	IA	MI, MA	x		x	x		Low	11 DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 0.2 km northeast in 2014. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats). ³
Falconidae	<i>Falco hypoleucos</i>	Grey Falcon	VU	VU		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (open plains with treed watercourses in arid inland). ³

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Falconidae	<i>Falco peregrinus</i>	Peregrine Falcon	OS		x		x			Low	Four DBCA records within 20 km of the Survey Area, including 12.8 km and 13.3 southwest in 2017. ¹ No suitable habitat present in the Survey Area (most environments with suitable nest sites: cliff faces preferred, including man-made ones, commonly uses stick nests built by other species). ³ May use the Survey Area for hunting.
Fregatidae	<i>Fregata ariel</i>	Lesser Frigatebird	IA	MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (oceanic). ⁵
Glareolidae	<i>Glareola maldivarum</i>	Oriental Pratincole	IA	MI, MA	x	x	x			Low	Four DBCA records within 20 km of the Survey Area, including 12.3 km southwest in 2013 and 16.0 km south in 2017. ¹ Suitable habitat exists adjacent to the Survey Area (open plains, open areas around tidal flats, beaches, wetlands). ²
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	IA	MI, MA	x	x	x	x		Medium	Ten DBCA records within 20 km of the Survey Area, including 0.2 km west in 2014 and 2015. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, wetlands). ³ Forages over open country, often congregates in areas with high densities of flying insects.
Laridae	<i>Anous stolidus</i>	Common Noddy	IA	MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (oceanic). ²
	<i>Chlidonias leucopterus</i>	White-winged Black Tern	IA	MI, MA	x		x	x		Low	Two DBCA records within 20 km of the Survey Area, including 0.5 km east in 2008 and 12.5 km southwest in 2016. ¹ Suitable habitat exists adjacent to the Survey Area (fresh to saline wetlands, coastal, estuaries, freshwater lakes, swamps, salt lakes). ^{3, 5}

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Laridae	<i>Gelochelidon nilotica</i>	Gull-billed Tern	IA	MI, MA	x		x	x		Low	Seven DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 10.3 km south in 2018. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, estuaries, tidal creeks, salt lakes, freshwater swamps, lagoons, claypans). ⁵
	<i>Hydroprogne caspia</i>	Caspian Tern	IA	MI, MA	x		x	x	x	Medium	Recorded outside of the Survey Area during the field survey. 65 DBCA records within 20 km of the Survey Area, including 0.06 km west and 0.2 km north in 2017. ¹ Suitable habitat occurs adjacent to the Survey Area (sheltered coastal waters, fresh to saline lakes, large rivers, temporary wetlands, estuaries, tidal creeks, near-coastal salt lakes, brackish pools). ^{3, 5}
	<i>Onychoprion anaethetus</i>	Bridled Tern	IA	MI, MA	x	x				Low	One ALA record within 10 km of the Survey Area, 4.1 km south in 2012. ⁷ No suitable habitat present in the Survey Area (tropical and subtropical seas). ²
	<i>Sterna dougallii</i>	Roseate Tern	IA	MI, MA	x	x	x	x		Low	Four DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 0.2 km northeast in 2016. ¹ Suitable habitat exists adjacent to the Survey Area (tropical and subtropical seas and coastlines). ²
	<i>Sterna hirundo</i>	Common Tern	IA	MI, MA	x		x	x		Medium	33 DBCA records within 20 km of the Survey Area, including 0.2 km northeast in 2017 and 2014. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, near-coastal saltworks, sewage ponds). ⁵
	<i>Sternula albifrons</i>	Little Tern	IA	MI, MA	x		x	x		Low	24 DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 0.2 km northeast in 2014. ¹ Suitable habitat exists adjacent to the Survey Area (sheltered coastal waters, beaches, sandbars, estuaries, mangroves, near-coastal saltworks). ^{3, 5}

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Laridae	<i>Sternula nereis nereis</i>		VU	VU		x	x			Low	One vouchered DBCA record within 20 km of the Survey Area, 0.7 km northeast in 1947. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, bays, inlets, beaches, salt ponds and lakes). ²
	<i>Thalasseus bergii</i>	Greater Crested Tern	IA	MI, MA	x		x	x	x	Medium	Recorded outside of the Survey Area during the field survey. 33 DBCA records within 20 km of the Survey Area, including 0.06 km west in 2017 and 0.2 km northwest in 2015. ¹ Suitable habitat occurs adjacent to the Survey Area (coastal, beaches, bays, lagoons, salt ponds and lakes, estuaries, tidal creeks). ^{2, 5}
Motacillidae	<i>Motacilla cinerea</i>	Grey Wagtail	IA	MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (fresh sandy or rocky streams, mown grass, ploughed land, sewage ponds). ²
	<i>Motacilla tschutschensis</i>	Yellow Wagtail	IA	MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (damp short grass flats, swamp edges, sewage ponds, mowed grass). ⁵
Oceanitidae	<i>Oceanites oceanicus</i>	Wilson's Storm Petrel	IA	MI, MA	x		x			Low	One DBCA records within 20 km of the Survey Area, 2.7 km 2013 in southeast. ¹ No suitable habitat present in the Survey Area (oceanic). ³
Pandionidae	<i>Pandion haliaetus cristatus</i>	Eastern Osprey	IA		x		x	x	x	Medium	Recorded outside of the Survey Area during the field survey. 41 DBCA records within 20 km of the Survey Area, including 0.2 km northeast in 2014 and 2013. ¹ Suitable habitat occurs adjacent to the Survey Area (beaches, coastal reaches of rivers and large inland waterbodies). ³

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Procellariidae	<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	IA	MI, MA	x		x			Low	Six DBCA records within 20 km of the Survey Area, including 2.4 km east southeast in 2014 and 11.8 km southwest in 2017. ¹ Known to breed on islands in the Onslow area. ¹² No suitable habitat present in the Survey Area (oceanic). ⁵
	<i>Calonectris leucomelas</i>	Streaked Shearwater	IA	MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (oceanic). ⁵
	<i>Macronectes giganteus</i>	Southern Giant Petrel	IA	EN, MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (southern oceans, bays, harbours). ³
Psittaculidae	<i>Pezoporus occidentalis</i>	Night Parrot	CR	EN	x	x	x			Low	One DBCA records within 20 km of the Survey Area, 0.9 km northeast in 1967 (spatially suspect). ¹ No suitable habitat present in the Survey Area (often to have been associated with spinifex, or among samphire bushes on margins of salt lakes). ²
Rostratulidae	<i>Rostratula australis</i>	Australian Painted Snipe	EN	EN, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (well vegetated surrounds and shallows of wetlands). ²
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	MI, MA	x	x	x	x	x	Medium	Recorded outside of the Survey Area during the field survey. 31 DBCA records within 20 km of the Survey Area, including 0.05 km northeast in 2016 and 0.8 km southeast in 2017. ¹ Suitable habitat occurs adjacent to the Survey Area (coastal and interior wetlands, narrow muddy edges of billabongs, river

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
											pools, mangroves, rocky beaches, estuaries, lagoons, claypans). ^{2, 5}
Scolopacidae	<i>Arenaria interpres</i>	Ruddy Turnstone	IA	MI, MA	x		x	x		Medium	38 DBCA records within 20 km of the Survey Area, including 0.05 km north in 2016 and 0.2 km northeast in 2014. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats, beaches, rocky shorelines). ³
	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	IA	MI, MA	x	x	x	x		Low	Eight DBCA records within 20 km of the Survey Area, including 0.2 km southwest in 2011 and 13.9 km northeast in 2008. ¹ No suitable habitat present in the Survey Area (fresh and salt wetlands, muddy edges of lagoons, swamps, lakes, dams, soaks, sewage farms, temporary floodwaters). ²
	<i>Calidris alba</i>	Sanderling	IA	MI, MA	x		x	x		Medium	45 DBCA records within 20 km of the Survey Area, including 0.05 km north in 2016 and 0.2 km northeast in 2017. ¹ Suitable habitat exists adjacent to the Survey Area (beaches, sandy tidal flats). ³
	<i>Calidris canutus</i>	Red Knot	EN, IA	EN, MI, MA		x	x			Low	Two DBCA records within 20 km of the Survey Area, 19.0 km southwest in 1980. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, extensive firm tidal flats). ³
	<i>Calidris ferruginea</i>	Curlew Sandpiper	CR, IA	CR, MI, MA	x	x	x			Low	Two DBCA records within 20 km of the Survey Area, 0.4 km east and 3.2 km southwest in 1980. ¹ Suitable habitat exists adjacent to the Survey Area (inter-tidal mudflats of estuaries, lagoons, mangrove channels, dams, floodwaters, flooded saltbush surrounds of inland lakes). ²
	<i>Calidris melanotos</i>	Pectoral Sandpiper	IA	MI, MA	x	x	x			Low	Three DBCA records within 20 km of the Survey Area, 18.5 km south in 2015. ¹ No suitable habitat present in the Survey Area (coastal fresh to saline wetlands, inland permanent and temporary wetlands, mudflats, swamps with dense vegetation). ²

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Scolopacidae	<i>Calidris ruficollis</i>	Red-necked Stint	IA	MI, MA	x		x	x		Medium	51 DBCA records within 20 km of the Survey Area, including 0.2 km northeast in 2017 and 2014. ¹ Suitable habitat exists adjacent to the Survey Area (mudflats, salt marshes, beaches, salt fields, temporary floodwaters). ²
	<i>Calidris tenuirostris</i>	Great Knot	CR, IA	CR, MI, MA	x		x	x		Low	Two DBCA records within 20 km of the Survey Area, 2.2 km east in 2009 and 13.9 km southwest in 2008. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats, beaches). ³
	<i>Limosa lapponica / L. lapponica menzbieri</i>	Bar-tailed Godwit	IA, (CR)	MI, MA, (CR)	x	x	x	x		Low	75 DBCA records within 20 km of the Survey Area, including 0.05 km north in 2016 and 0.2 km north in 2017. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats). ³
	<i>Numenius madagascariensis</i>	Far Eastern Curlew	CR, IA	CR, MI, MA	x	x	x	x		Low	24 DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 0.2 km northeast in 2014. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats). ³
	<i>Numenius minutus</i>	Little Curlew	IA	MI, MA	x		x	x		Low	Two DBCA records within 20 km of the Survey Area, including 0.05 km north in 2016 and 2.0 km south in 2003. ¹ No suitable habitat present in the Survey Area (dry grassland, plains and woodland of grassy understorey of clay and black soil plains). ³
	<i>Numenius phaeopus</i>	Whimbrel	IA	MI, MA	x		x	x		Low	20 DBCA records within 20 km of the Survey Area, 0.1 km east in 2006 and 0.2 km northeast in 2014. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats, mangroves). ³
	<i>Tringa brevipes</i>	Grey-tailed Tattler	IA, P4	MI, MA	x		x	x		Medium	49 DBCA records within 20 km of the Survey Area, including 0.05 km north in 2016 and 0.2 km northeast in 2017. ¹ Suitable habitat exists adjacent to the Survey Area (coastal, tidal flats, rocky shorelines). ³

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
Scolopacidae	<i>Tringa glareola</i>	Wood Sandpiper	IA	MI, MA	x		x			Low	One DBCA record within 20 km of the Survey Area, 13.9 km southwest in 2008. ¹ No suitable habitat present in the Survey Area (freshwater wetlands with emergent sedges and taller fringing vegetation). ³
	<i>Tringa nebularia</i>	Common Greenshank	IA	MI, MA	x	x	x	x		Low	18 DBCA records within 20 km of the Survey Area, including 0.1 km east in 2006 and 2.2 km east in 2019. ¹ Limited suitable habitat present in the Survey Area (permanent and temporary wetlands, billabongs, swamps, lakes, floodplains, sewage farms and salt works ponds, flooded irrigated crops, mudflats, mangrove swamps, muddy shallows of lagoons). ²
Threskiornithidae	<i>Plegadis falcinellus</i>	Glossy Ibis	IA	MI, MA	x		x			Low	Two DBCA records within 20 km of the Survey Area, 17.3 km southwest in 2015. ¹ No suitable habitat present in the Survey Area (Shallow, fresh water, and estuarine waters, dry grasslands). ³
MAMMALIAN											
Dasyuridae	<i>Dasyurus hallucatus</i>	Northern Quoll	EN	EN	x	x	x			Low	Five DBCA records within 20 km of the Survey Area, including 0.1 km east in 2012 and 11.1 km southwest in 2017. ¹ No suitable habitat present in the Survey Area (rocky escarpments, Eucalypt forest and woodland). ⁶
Muridae	<i>Leggadina lakedownensis</i>	Short-tailed Mouse	P4		x		x			Low	58 DBCA records within 20 km of the Survey Area, including 11.1 km southwest in 2016 and 11.3 km south in 2003. ¹ Limited suitable habitat present in the Survey Area (monsoon tropical coast to semi-arid areas; spinifex and tussock grasslands, samphire, sedgelands, Acacia shrublands, tropical Eucalyptus and Melaleuca woodlands, stony ranges). ⁸
Muridae	<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse	P4		x		x			Low	One DBCA record within 20 km of the Survey Area, 16.5 km south in 2005. ¹ No suitable habitat present

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
											in the Survey Area (gentler slopes of rocky ranges covered by stony mulch and hard spinifex). ⁸
Rhinonycteridae	<i>Rhinonycteris aurantia</i> Pilbara form	Pilbara Leaf-nosed Bat	VU	VU		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No suitable habitat present in the Survey Area (gorges and gullies, often over pools; spinifex hummock grasslands). ⁸
REPTILIAN											
Cheloniidae	<i>Caretta caretta</i>	Loggerhead Turtle	EN	EN, MI, MA	x	x	x			Low	14 DBCA records within 20 km of the Survey Area, including 2.2 km east in 2015 and 8.7 km west in 2014. ¹ No breeding stocks are known from the Onslow townsite. ⁹
	<i>Chelonia mydas</i>	Green Turtle	VU	VU, MI, MA	x	x	x			Low	41 DBCA records within 20 km of the Survey Area, including 1.0 km northeast in 2013 and 2.0 km north in 2014. ¹ No breeding stocks are known from the Onslow townsite. ⁹
	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	VU	VU, MI, MA	x	x	x			Low	One DBCA record within 20 km of the Survey Area, 5.2 km west in 2013. ¹ No breeding stocks are known from the Onslow townsite. ⁹
	<i>Lepidochelys olivacea</i>	Olive Ridley Turtle	EN	EN, MI, MA	x					Low	No ALA records within 10 km of the Survey Area. ⁷ No breeding stocks are known from the Onslow townsite. ⁹
	<i>Natator depressus</i>	Flatback Turtle	VU	VU, MI, MA	x	x	x			Low	189 DBCA records within 20 km of the Survey Area, including 1.8 km northwest in 2013 and 5.3 km southwest in 2017. ¹ No breeding stocks are known from the Onslow townsite. ⁹
Crocodylidae	<i>Crocodylus porosus</i>	Saltwater Crocodile	OS	MI, MA	x		x			Low	Two DBCA records within 20 km of the Survey Area, including 2.4 km east in 2014 and 13.9 km southwest in 2008. ¹ Outside normal range. No suitable habitat present in the Survey Area (coastal

Family	Scientific Name	Common Name	Conservation Status		Source					Likelihood of Occurrence	Justification
			State	Federal	NM	PMST	DBCA	eBird/ Birddata	Field Survey		
											waters, estuaries, lakes, inland swamps and marshes). ¹⁰
Dermochelyidae	<i>Dermochelys coriacea</i>	Leatherback Turtle	VU	EN, MI, MA		x				Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records. ⁴ No breeding stocks are known from the Onslow townsite. ⁹
Scincidae	<i>Lerista planiventralis maryani</i>		P1		x		x			Low	One vouchered DBCA record within 20 km of the Survey Area, 0.7 km northeast in 1990. ¹ Suitable habitat present in the Survey Area (coastal sandy areas between Onslow and Barradale). ¹¹

1 (Department of Biodiversity Conservation and Attractions, 2021), 2 (Morcombe, 2003), 3 (Menkhorst *et al.*, 2017), 4 (Department of Agriculture Water and the Environment, 2021a), 5 (Johnstone and Storr, 1998), 6 (Van Dyck and Strahan, 2008), 7 (ALA, 2022), 8 (Dyck, Gynther and Baker, 2013), 9 (Department of the Environment and Energy, 2017), 10 (Department of Agriculture Water and the Environment, 2021b), 11 (Wilson and Swan, 2017), 12 (Department of Sustainability Environment Water Population and Communities, 2012)

5. Discussion

5.1. Vertebrate Fauna

One broad fauna habitat was observed within the Survey Area comprising Coastal Dunes. The Coastal Dunes habitat contains limited microhabitat opportunities and is of low value to most significant fauna species and overall fauna assemblages that occur in the broader area.

The relatively uniform landform means that the findings of the report are sufficient to inform impact assessment across the project area. Clearing of vegetation within the Survey Area may indirectly impact fauna species that utilise coastal habitats adjacent to the Survey Area.

The level of survey detail undertaken is consistent with the requirements of a single-phase detailed vertebrate fauna survey. However, a migratory shorebird survey undertaken in April is unlikely to have recorded the full suite of migratory bird species that visit Onslow each year.

The Survey Area falls within mapped Biologically Important Areas for the Lesser Crested Tern (breeding), Wedge-tailed Shearwater (breeding, foraging), Flatback Turtles (nesting), and Hawksbill Turtles (internesting). The Survey Area also falls within mapped Habitat Critical for Flatback Turtles (nesting), Green Turtles (nesting) and Hawksbill Turtles (nesting) (Department of Agriculture Water and the Environment, 2021a).

One significant fauna species, *Lerista planiventralis maryani* (P1), utilises dune habitat in the bioregion and records indicate that it historically occurred within 1 km of the Survey Area. However, the survey did not identify its presence within the Survey Area.

5.1.1. Shorebirds

The surrounding coastal environment of Onslow is characterised by extensive areas of coastal intertidal sand flats and tidal creeks and inlets that are known to support migratory shorebirds. These areas can be further classified into the following wetland types (BirdLife Australia, 2020):

- A7 – intertidal mud, sand or salt flats
- A8 – intertidal marshes, including saltmarshes, salt meadows, saltings, raised saltmarshes, tidal brackish and freshwater marshes
- A9 – intertidal forested wetlands, including mangrove swamps, nipa swamps, tidal freshwater swamp forests
- C4 – salt exploitation (salt pans, salinas).

There are several high-tide roosting areas for shorebirds, as well as significant areas of supratidal claypan, however, most of these systems have been modified to control tidal inundation for the production of salt. A vast natural flat area from the southwest to the east of Onslow was enclosed with sea wall levees to create a salt field. Like other expansive salt evaporation facilities in the Pilbara region, the site continues to be a major migration stop-over area for shorebirds in the East Asia-Australasian Flyway (BirdLife Australia, 2020).

Thirty-four species of seabird listed as Threatened, Migratory and/or Marine under the EPBC Act are known to occur regularly in the North-west Marine Region; another seven listed species may

infrequently occur (Department of Sustainability Environment Water Population and Communities, 2012b)

Shorebirds, including significant species, may occur within the Survey Area, however, these species are highly mobile and are unlikely to rely on the Survey Area for foraging or roosting habitat, as more suitable habitat is found 100 m to 300 m to the northeast, north, northwest, and west of the Survey Area along the beach and tidal flats.

5.1.2. Significant Fauna

5.1.2.1. Recorded

The following four significant species were recorded inside, or within 300 m of the Survey Area.

Caspian Tern (*Hydroprogne caspia*) – IA (DBCA); MI, MA (EPBC)

The Caspian Tern is mostly found in sheltered coastal embayments, on near-coastal or inland terrestrial wetlands, lakes, waterholes, reservoirs, rivers and creeks. The Caspian Tern usually forages in open wetlands, including lakes and rivers. They often prefer sheltered shallow water near the margins, but can also be found in open coastal waters. In coastal inlets, they may prefer to forage in tidal channels, or over submerged mudbanks (Higgins, 1999). In Western Australia the Caspian Tern is widespread in coastal regions, from the Great Australian Bight to the Dampier Peninsula, and breeding occurs from the Recherche Archipelago to Dirk Hartog Island and Faure Island in Shark Bay, from around Point Cloates to North Turtle Island in the Pilbara, and more rarely, in the Kimberley (Higgins, 1999; Chatto, 2001).

Caspian Terns are found in the Pilbara year-round with the majority of sightings in Onslow occurring from September to May and breeding in the Pilbara occurring from March to November (Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Caspian Terns were observed utilising the beach and tidal flat habitats adjacent to the Survey Area.

Common Sandpiper (*Actitis hypoleucos*) – IA (DBCA); MI, MA (EPBC)

The Common Sandpiper is typically carnivorous, feeding on molluscs, crustaceans, and a variety of insects. It is a migratory species that uses varied coastal and interior wetlands including narrow muddy edges of billabongs, river pools, mangroves, among rocks and snags, reefs or rocky beaches (Morcombe, 2003). It migrates from mid-northern latitudes of Asia (Menkhorst *et al.*, 2017) and has a broad breeding distribution from western Europe to eastern Russia (Pizzey and Knight, 2001; Bamford *et al.*, 2008).

Common Sandpipers are found in the Pilbara from July to May with the majority of sightings in Onslow occurring from September to February (Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Common Sandpipers were observed utilising the beach and tidal flat habitats adjacent to the Survey Area.

Eastern Osprey (*Pandion haliaetus cristatus*) – IA (DBCA); MI, MA (EPBC)

The Eastern Osprey is considered to be moderately common in Australia (Olsen, 1998). The species is most abundant in northern Australia, where high population densities occur in remote areas (Johnstone and Storr, 1998). They require extensive areas of open fresh, brackish, or saline water for foraging (Marchant and Higgins, 1993). They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia (Olsen, 1995; Johnstone and Storr, 1998). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs, and large lakes and waterholes (Olsen, 1995; Johnstone and Storr, 1998).

Eastern Ospreys are found in the Pilbara year-round with the majority of sightings in Onslow occurring from July to November and breeding in the Pilbara occurring from June to September (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

A pair of Eastern Ospreys have an established nest on the communication tower located on Simpson St, Onslow (~200 m from the Survey Area), and during the survey the pair were seen perched on the pole at Lookout Point (~40m from the Survey Area), collecting nesting materials, and hunting over the Survey Area.

Greater Crested Tern (*Thalasseus bergii*) – IA (DBCA); MI, MA (EPBC)

The Greater Crested Tern inhabits tropical and subtropical coastlines, and forages in the shallow waters of lagoons, coral reefs, bays, harbours, inlets, and estuaries; along sandy, rocky, coral or muddy shores; on rocky outcrops in open sea; in mangrove swamps; and in offshore and pelagic waters (Higgins and Davies, 1996). Its diet consists predominantly of pelagic fish 10–50 millimetres long, although the species will also take cephalopods, crustaceans, insects and hatchling turtles opportunistically (BirdLife International, 2022). The species shows a preference for nesting on offshore islands, low-lying coral reefs, sandy or rocky coastal islets, coastal spits, and lagoon mudflats (Department of Sustainability Environment Water Population and Communities, 2012a; BirdLife International, 2022).

Greater Crested Terns are found in the Pilbara year-round with the majority of sightings in Onslow occurring from January to June and breeding in the Pilbara occurring from March to June (Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Greater Crested Terns were observed utilising the beach and tidal flat habitats adjacent to the Survey Area.

5.1.2.2. Medium Likelihood

Barn Swallow (*Hirundo rustica*) – IA (DBCA); MI, MA (EPBC)

The Barn Swallow is a casual visitor primarily to coastal areas from the Gascoyne north, although the species may appear as a vagrant in inland areas on an irregular basis (Johnstone and Storr, 1998). After breeding in the temperate and subtropical regions of North America, Europe, northern Africa, and Asia it migrates to the southern hemisphere where it spends the boreal winter (Johnstone and Storr, 1998). It is typically observed in the vicinity of urban water bodies and coastal wetlands.

The majority of Barn Swallow sightings in Onslow occurred from November to February (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Common Tern (*Sterna hirundo*) – IA (DBCA); MI, MA (EPBC)

The Common Tern is a non-breeding migrant to Australia, where it is widespread and common on the eastern coast south to eastern Victoria, and common on parts of the northern coast. Common Terns arrive in north-western and northern Australia from late August, with some moving south along the western coast, however, the species is rarely recorded south of approximately 30° S (Higgins and Davies, 1996; Chatto, 2006; Department of Agriculture Water and the Environment, 2021c).

Common Terns are typically gregarious, roosting and foraging in small flocks. In Australia, they are recorded in all marine zones, but are commonly observed in near-coastal waters, both on ocean beaches, platforms, and headlands, and in sheltered waters, such as bays, harbours and estuaries with muddy, sandy or rocky shores. Occasionally they are recorded in coastal and near-coastal wetlands, either saline or freshwater, including lagoons, rivers, lakes, swamps, and saltworks. Sometimes they occur in mangroves or saltmarsh and, in bad weather, in coastal sand-dunes, or coastal embayments (Higgins and Davies, 1996; Chatto, 2006; Department of Agriculture Water and the Environment, 2021c).

Common Terns are found in the Pilbara August to May with the majority of sightings in Onslow occurring from November to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Greater Sand Plover (*Charadrius leschenaultii*) – VU, IA (DBCA); VU, MI, MA (EPBC)

There are three sub-species of the Greater Sand Plover but only *Charadrius leschenaultii leschenaultii* occurs in Australia, which breeds in western China, Mongolia, and southern Russia and spends the non-breeding season in Australasia, south-east Asia and the Indian subcontinent (Bamford *et al.*, 2008; Threatened Species Scientific Committee, 2016a). In Western Australia, Greater Sand Plovers are especially widespread between North West Cape and Roebuck Bay and also occasionally recorded along the coast of southern Western Australia (Threatened Species Scientific Committee, 2016a). Greater Sand Plovers are present in the North-west Marine Region in internationally significant numbers at Ashmore Reef between December and February (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b).

In the non-breeding grounds in Australasia, Greater Sand Plovers are almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches, large intertidal mudflats, sandbanks, salt-marshes, estuaries, coral reefs, rocky islands rock platforms, tidal lagoons, and dunes near the coast. Greater Sand Plovers usually feed on molluscs, worms, crustaceans, and insects from the surface of wet sand or mud on open intertidal flats of sheltered embayments, lagoons or estuaries and roost on sand-spits and banks on beaches or in tidal lagoons (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2016a; BirdLife International, 2022).

Greater Sand Plovers are found in the Pilbara July to April with the majority of sightings in Onslow occurring from September to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Grey-tailed Tattler (*Tringa brevipes*) – IA, P4 (DBCA); MI, MA (EPBC)

The global population of Grey-tailed Tattlers is confined to the East Asian – Australasian Flyway, with more than 90% of the global population present in Australia during the non-breeding period (Bamford *et al.*, 2008). They are distributed around much of the Australian coastline and are widespread from Houtman Abrolhos and the mainland adjacent to the Kimberley Division, where they roost at high tide in vegetation or on artificial structures. Grey-tailed Tattlers are present in the North-west Marine Region in internationally-significant numbers at Ashmore Reef between September and March (Higgins and Davies, 1996; Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b).

The diet of the Grey-tailed Tattler consists primarily of polychaete worms, molluscs, crustaceans, insects, and fish. The Grey-tailed Tattler is often found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. It can also be found at intertidal rocky, coral or stony reefs as well as platforms, and islets that are exposed at low tide. They forage in shallow water, on hard intertidal substrates, such as reefs and rock platforms, in rock pools, and among rocks and coral rubble. The Grey-tailed Tattler usually roosts in the branches of mangroves or, rarely, in dense stands of other shrubs, or on snags or driftwood (Higgins and Davies, 1996; Department of Agriculture Water and the Environment, 2021c).

Grey-tailed Tattlers are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from October to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Red-necked Stint (*Calidris ruficollis*) – IA (DBCA); MI, MA (EPBC)

The global population of Red-necked Stints is confined to the East Asian - Australasian Flyway, with more than 80% of the global population present in Australia during the non-breeding period. The northwest of Australia is an important area for the species on their migration from the northwest to the southeast of Australia (Bamford *et al.*, 2008). Red-necked Stints are present in the North-west Marine Region in nationally-significant numbers at Ashmore Reef between September and March (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b). Red-necked Stints are found in coastal and inland areas, including tidal flats, brackish and freshwater wetlands, and beaches (Menkhorst *et al.*, 2017).

Red-necked Stints are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from October to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Ruddy Turnstone (*Arenaria interpres*) – IA (DBCA); MI, MA (EPBC)

Ruddy Turnstones breed in the high Arctic tundra in Siberia and Alaska, before migrating southwards into Australia, the northwest of Australia is used extensively on their northward migration (Geering, Agnew and Harding, 2007). Ruddy Turnstones are present in the North-west Marine Region in internationally-significant numbers at Ashmore Reef between August and May (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b). Ruddy Turnstones are found in a broad range of coastal habitats, including tidal flats, beaches, and rocky shorelines (Menkhorst *et al.*, 2017).

Ruddy Turnstones are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from November to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Sanderling (*Calidris alba*) – IA (DBCA); MI, MA (EPBC)

Sanderlings breed in the high Arctic tundra of Asia and North America, before some populations migrating southwards into Australia, the northwest of Australia is used extensively on their northward migration (Bamford *et al.*, 2008). Less than 10% of the global population of sanderling is present in the East Asian - Australasian Flyway with the remainder of the population present in Europe, Africa, and the Americas. They are among the smallest species of migratory shorebirds found in the North-west Marine Region and are present in internationally-significant numbers at Ashmore Reef during the non-breeding period between December and February (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b). In Australia, Sanderlings are seen on oceanic beaches and sandy tidal flats (Menkhorst *et al.*, 2017).

Sanderlings are found in the Pilbara from August to May with the majority of sightings in Onslow occurring from October to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

5.1.2.4. Shorebirds

An additional nine shorebirds are likely to use habitat within 500m of the Survey Area. The following species have all been recorded within 500m of the Survey Area by DBCA, eBird and/or Birddata in the last 22 years.

Bar-tailed Godwit (*Limosa lapponica*) – IA (DBCA); MI, MA (EPBC)

Two sub-species of the Bar-tailed Godwit are recognised, with both occurring within Australia, but only *L. l. menzbieri* (DBCA: CR, IA; EPBC: CR, MI, MA) occurs within the North-west Marine Region (Bamford *et al.*, 2008). Birds of this subspecies breed in northern Siberia and Russia before migrating to south-eastern Asia and the north of Western Australia. Bar-tailed Godwits are present in the North-west Marine Region in internationally-significant numbers at Ashmore Reef between September and March (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b). Bar-tailed Godwits are primarily found on inter-tidal mudflats and rarely far from the coast when they reach the Australian mainland. They have been reported from much of Australia's coast feeding in shallow water and exposed mudflats (Menkhorst *et al.*, 2017).

Bar-tailed Godwits are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from October to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Common Greenshank (*Tringa nebularia*) – IA (DBCA); MI, MA (EPBC)

Common Greenshanks typically breed in the boreal forest zone from sea level to 1200 m in Norway and are a migratory species to Australia (BirdLife International, 2022). Common Greenshanks are present in the North-west Marine Region in internationally-significant numbers, with approximately 1% of the flyway population visiting Ashmore Reef between September and March (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b). The species is found in coastal areas, river banks, and coastal to freshwater wetlands, where it wades in shallow water foraging for prey, often lunging or probing for fish and invertebrates (Pizzey and Knight, 2001; Menkhorst *et al.*, 2017; BirdLife International, 2022).

Common Greenshanks are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from September to January (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Far Eastern Curlew (*Numenius madagascariensis*) – CR, IA (DBCA); CR, MI, MA (EPBC)

The Far Eastern Curlew is endemic to the East Asian – Australasian Flyway, with an estimated 28 000 individuals (73% of individuals) spending the non-breeding season in Australia. In northwest Australia, the maximum arrival was recorded between mid-August and the end of August. In Australia, most eastern curlews leave between late February and March-April (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2015).

In Australia, the Far Eastern Curlew uses coastal habitats, including sheltered coasts, estuaries, bays, harbours, inlets, beaches, and coastal lagoons with large intertidal mudflats or sandflats. They are also found on coastal saltworks, sewage farms, saltmarsh, and on mudflats fringed by mangroves. Far Eastern Curlews forage for crustaceans, small molluscs, and some insects on soft sheltered intertidal sandflats or mudflats, on salt flats, and in saltmarsh, rockpools, and among rubble on coral reefs, and on ocean beaches near the tideline. During high tide periods, they roost on sandy spits, sandbars, and islets, especially on beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2015).

Far Eastern Curlews are found in the Pilbara from July to April with the majority of sightings in Onslow occurring from September to January and breeding occurring in Russian and north-east China (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Grey Plover (*Pluvialis squatarola*) – IA (DBCA); MI, MA (EPBC)

Grey Plovers are medium-sized migratory shorebirds that breed in Alaska and the northern Siberian tundra and migrate at the start of the Southern Hemisphere summer to many coastal areas of Australia. They arrive in northern Australia in August and early September, and depart in March and April (Department of Agriculture Water and the Environment, 2021c).

In Australia, Grey Plovers occur almost entirely in coastal areas, including sheltered embayments, estuaries and lagoons with mudflats and sandflats, reef-flats, near-coastal lakes, swamps, and salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes (Marchant and Higgins, 1993). Grey Plovers usually forage for molluscs, insects, polychaete worms, and crustaceans on large areas of exposed mudflats and beaches of sheltered coastal shores such as inlets, estuaries, and lagoons (Marchant and Higgins, 1993; Department of Agriculture Water and the Environment, 2021c). They usually roost in sandy areas, such as on unvegetated sandbanks or sand-spits on sheltered beaches or other sheltered environments such as estuaries or lagoons (Department of Agriculture Water and the Environment, 2021c).

Grey Plovers are found in the Pilbara from August to March with the majority of sightings in Onslow occurring from September to February (Barrett *et al.*, 2003; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Gull-billed Tern (*Gelochelidon nilotica*) – IA (DBCA); MI, MA (EPBC)

In Australia Gull-billed Terns inhabit estuaries, saltpans, lagoons, and saltmarshes and inland sites such as large rivers, lakes, rice-fields, sewage ponds, reservoirs, saltpans, and irrigation canals. Gull-billed Terns forage on the wing over shallow waters and grassy plains for crabs, prawns, flying insects, frogs, lizard, and mice (Johnstone and Storr, 1998; Menkhorst *et al.*, 2017; BirdLife International, 2022).

The majority of Gull-billed Tern sightings in Onslow occur from November to January (Barrett *et al.*, 2003; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Lesser Sand Plover (*Charadrius mongolus*) – EN, IA (DBCA); EN, MI, MA (EPBC)

Four of the five Lesser Sand Plover subspecies occur in the East Asian-Australasian Flyway, however, only two of these subspecies, *C. m. mongolus* and *C. m. stegmanni*, occur in Australia during the non-breeding season (Bamford *et al.*, 2008). The Lesser Sand Plover breeds in the northern hemisphere and undertakes annual migrations to and from southern feeding grounds. They are present at non-breeding grounds in Australasia mostly between September and April/May, with greatest numbers occurring in northern Australia (Marchant and Higgins, 1993; Threatened Species Scientific Committee, 2016b).

In Australia, Lesser Sand Plovers are almost strictly coastal, preferring sandy beaches, mudflats of coastal bays and estuaries, sand-flats, mangrove mudflats, and dunes near the coast (Menkhorst *et al.*, 2017; BirdLife International, 2022). They forage for insects, crustaceans, molluscs, and polychaete worms on extensive, freshly-exposed areas of intertidal sandflats and mudflats in estuaries or beaches, or in shallow ponds in saltworks (Marchant and Higgins, 1993; Garnett, Szabo and Dutson, 2011; BirdLife International, 2022). The Lesser Sand Plover roosts near foraging areas, on beaches, banks, spits, and banks of sand or shells and occasionally on rocky spits, islets or reefs (Marchant and Higgins, 1993).

Lesser Sand Plovers are found in the Pilbara from August to May with the majority of sightings in Onslow occurring from September to November (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Little Tern (*Sternula albifrons*) – IA (DBCA); MI, MA (EPBC)

There are three subspecies of Little Terns, with three subpopulations of the western Pacific *S. a. sinensis* occurring in Australia. Two subpopulations occur in the North-west Marine Region: a northern Australian breeding subpopulation, which occurs around Broome and extends into the North Marine Region across the Gulf of Carpentaria to the east coast of Cape York Peninsula; and an east Asian breeding subpopulation of which some birds migrate to the north Australian coast between Shark Bay and south-eastern Queensland during the austral summer (Garnett, Szabo and Dutson, 2011). The east Asian breeding subpopulation is thought to be sexually isolated from the northern Australian breeding subpopulation (Department of Sustainability Environment Water Population and Communities, 2012b).

The Little Tern is commonly seen in sandy coastal habitats and in mangrove-mudflat habitats along the coast, or in bays and estuaries, generally within 1 km of the coast (Chatto, 2001; Department of Sustainability Environment Water Population and Communities, 2012a). Little Terns usually forage for small fish, crustaceans, insects, worms, and molluscs close to breeding colonies in the shallow water of estuaries, coastal lagoons, and lakes (Higgins and Davies, 1996; Department of Sustainability Environment Water Population and Communities, 2012b).

The majority of Little Tern sightings in Onslow occur from November to February and breeding occurs in the Pilbara from April to early January, with the main periods being late April and July and September and early January (Chatto, 2001; Department of Sustainability Environment Water Population and Communities, 2012a; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

Whimbrel (*Numenius phaeopus*) – IA (DBCA); MI, MA (EPBC)

Whimbrels are widely distributed with six recognised subspecies, however, only *N. p. variegatus* occurs within Australia. Whimbrels breed at high latitudes in the Arctic and have a circum-polar breeding distribution. Whimbrels appear to migrate southward into Australia via northern Australia. Whimbrels are present in the North-west Marine Region in nationally-significant numbers at Ashmore Reef between September and March. They are typically found in open coastal estuarine mudflats and mangroves in northern Australia and feed on crustaceans (Bamford *et al.*, 2008; Department of Sustainability Environment Water Population and Communities, 2012b).

Whimbrels are found in the Pilbara from August to April with the majority of sightings in Onslow occurring from October to March (Barrett *et al.*, 2003; Department of Biodiversity Conservation and Attractions, 2017; Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

White-winged Black Tern (*Chlidonias leucopterus*) – IA (DBCA); MI, MA (EPBC)

The White-winged Black Tern is a non-breeding migrant to Australia, often arriving in October and departing between March and May, where it is widespread and common along south-western, northern and central-eastern coasts. In Australia, the White-winged Black Tern mostly inhabits fresh, brackish, and coastal or subcoastal wetlands, tidal mudflats, harbours, bays, estuaries, lagoons, saltworks, and sewage works (Higgins and Davies, 1996; Johnstone and Storr, 1998; Chatto, 2006; Menkhorst *et al.*, 2017; Department of Agriculture Water and the Environment, 2021c).

The White-winged Black Tern mainly forages aerially, over water or over muddy or sandy edges of wetlands; and also forages over land adjacent to wetlands, especially if inundated, including rice paddies and dry paddocks and grassland (Higgins and Davies, 1996; Johnstone and Storr, 1998). The species often roosts at the edges of wetlands, sandflats, mudflats, beaches, spits, banks, islets, and rocks but also often on emergent branches of submerged trees or piles and posts (Higgins and Davies, 1996; Department of Agriculture Water and the Environment, 2021c).

The majority of White-winged Black Tern sightings in Onslow occur from January to April (Birdlife Australia, 2022; Cornell Lab of Ornithology, 2022).

6. Conclusion

- One broad fauna habitat was observed within the Survey Area comprising Coastal Dunes.
- The single-phase detailed vertebrate fauna survey recorded a total of 61 fauna species from 36 families.
- Direct sightings of four migratory bird species were recorded in areas directly surrounding the Survey Area:
 - Caspian Tern (*Hydroprogne caspia*) – IA (DBCA); MI, MA (EPBC)
 - Common Sandpiper (*Actitis hypoleucos*) – IA (DBCA); MI, MA (EPBC)
 - Eastern Osprey (*Pandion haliaetus cristatus*) – IA (DBCA); MI, MA (EPBC)
 - Greater Crested Tern (*Thalasseus bergii*) – IA (DBCA); MI, MA (EPBC).
- One significant fauna species, *Lerista planiventralis maryani* (P1), utilises dune habitat in the bioregion, and records indicate that it historically occurred within 1 km of the Survey Area. *Lerista* tracks were abundant throughout the Survey Area, however, no *L. p. maryani* individuals were captured during the single-phase detailed vertebrate fauna survey.
- A migratory shorebird survey undertaken in April is unlikely to have recorded the full suite of migratory bird species that visit Onslow each year.
- Shorebirds may use the Coastal Dunes habitat within the Survey Area; however, these species are highly mobile and would not be reliant on the habitats within the Survey Area. Increased beach activity, lighting, noise, and pollution may disturb these species and impact feeding regimes.
- Turtles are unlikely to use the beaches adjacent to the Survey Area, however, low number may still come ashore to nest between October and January. Increased beach activity, lighting, noise and pollution may disturb these species and impact breeding adults and hatchlings.
- Five introduced species were recorded during the survey, the Cat (*Felis catus*), the House Mouse (*Mus musculus*), the Red Fox (*Vulpes vulpes*), the Asian House Gecko (*Hemidactylus frenatus*), and the Green Tree Frog (*Litoria caerulea*; an extralimital population).

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Mineral Resources Limited
Lot 300 Back Beach Road, Onslow

Detailed Terrestrial Fauna and Shorebird Survey

Figure 1
Survey Area

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K:\Projects\1.0 EBS\5116 Lot 300 Back Beach Road, Onslow\5116 F01 Survey Area.mxd



Legend

- Survey Area
- Broad Vegetation Types**
 - CAPE YANNARE COASTAL PLAIN_117
- Hydrography**
 - Lake
 - Tidal Flat
 - Coastal Waterline

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Detailed Terrestrial Fauna and Shorebird Survey

Figure 2
Broad Vegetation Types and Hydrography



Legend

- Survey Area
- GPS Tracks

Sampling Sites

- ARU - ultrasonic calls
- Active Search
- Bird Survey
- Camera trap
- Spotlight
- Trap line

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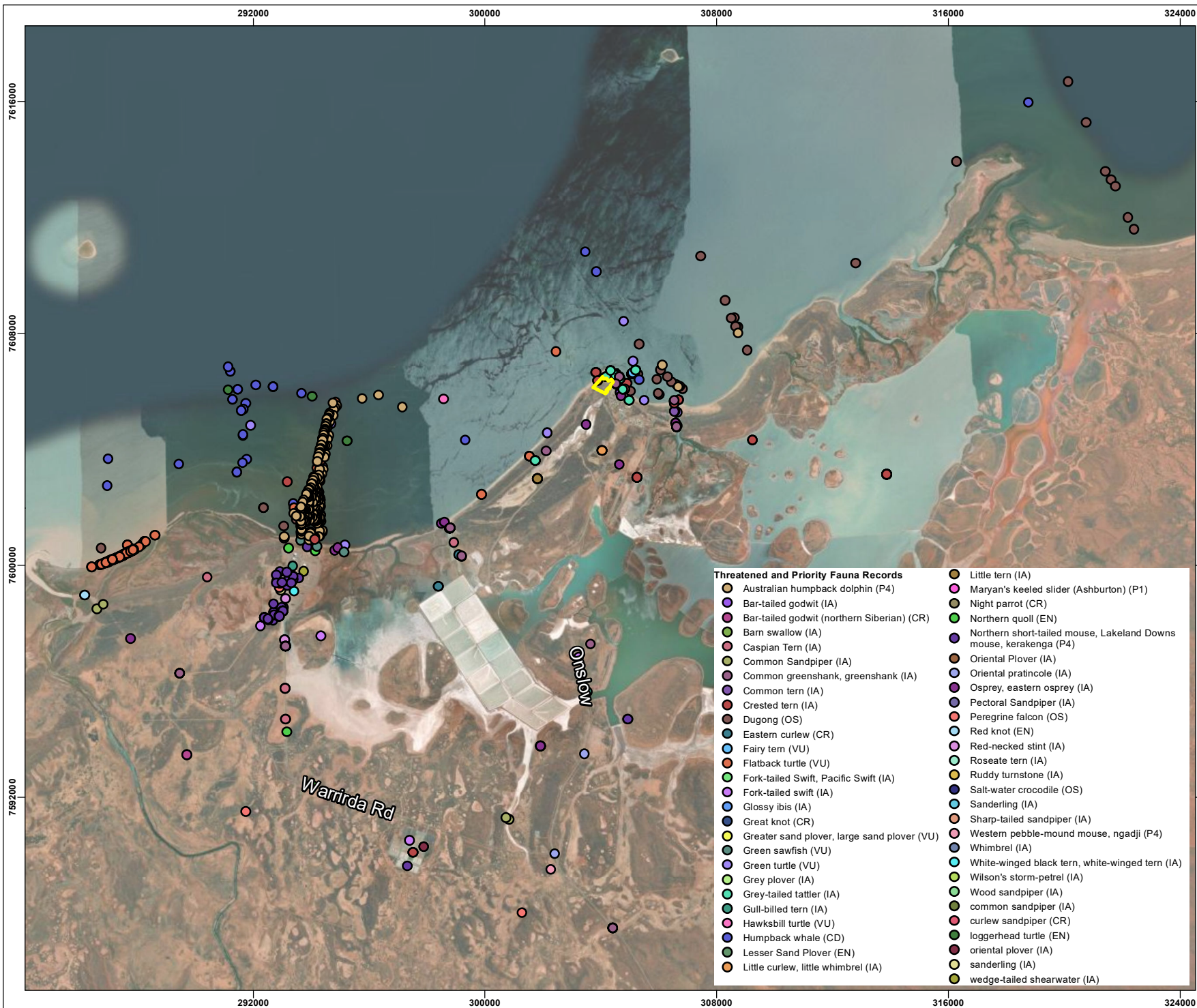
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Detailed Terrestrial Fauna and Shorebird Survey

**Figure 3
Survey Effort**



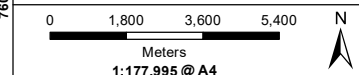
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Survey Area

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**Detailed Terrestrial Fauna and
Shorebird Survey
Figure 4
DBCA Threatened and Priority
Fauna Locations**

Threatened and Priority Fauna Records

<ul style="list-style-type: none">Australian humpback dolphin (P4)Bar-tailed godwit (IA)Bar-tailed godwit (northern Siberian) (CR)Barn swallow (IA)Caspian Tern (IA)Common Sandpiper (IA)Common greenshank, greenshank (IA)Common tern (IA)Crested tern (IA)Dugong (OS)Eastern curlew (CR)Fairy tern (VU)Flatback turtle (VU)Fork-tailed Swift, Pacific Swift (IA)Fork-tailed swift (IA)Glossy ibis (IA)Great knot (CR)Greater sand plover, large sand plover (VU)Green sawfish (VU)Green turtle (VU)Grey plover (IA)Grey-tailed tattler (IA)Gull-billed tern (IA)Hawksbill turtle (VU)Humpback whale (CD)Lesser Sand Plover (EN)Little curlew, little whimbrel (IA)	<ul style="list-style-type: none">Little tern (IA)Maryan's keeled slider (Ashburton) (P1)Night parrot (CR)Northern quoll (EN)Northern short-tailed mouse, Lakeland Downs mouse, kerakenga (P4)Oriental Plover (IA)Oriental pratincole (IA)Osprey, eastern osprey (IA)Pectoral Sandpiper (IA)Peregrine falcon (OS)Red knot (EN)Red-necked stint (IA)Roseate tern (IA)Ruddy turnstone (IA)Salt-water crocodile (OS)Sanderling (IA)Sharp-tailed sandpiper (IA)Western pebble-mound mouse, ngadji (P4)Whimbrel (IA)White-winged black tern, white-winged tern (IA)Wilson's storm-petrel (IA)Wood sandpiper (IA)common sandpiper (IA)curlew sandpiper (CR)loggerhead turtle (EN)oriental plover (IA)sanderling (IA)wedge-tailed shearwater (IA)
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Survey Area

Fauna Habitat

Coastal Dunes

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**Detailed Terrestrial Fauna and
 Shorebird Survey**

**Figure 5
 Fauna Habitat**



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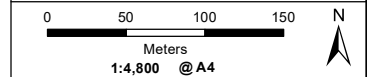
Migratory Bird Records

- *Actitis hypoleucos* (IA)
- *Hydroprogne caspia* (IA)
- *Pandion haliaetus* (IA)
- *Thalasseus bergii* (IA)

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Detailed Terrestrial Fauna and
Shorebird Survey

Figure 6
Migratory Bird Records

Appendices

Appendix A

Database Searches

Class	Family	Scientific Name	Common Name	Conservation Code	Year
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	1978
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	1999
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2001
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2002
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2003
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2005
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2006
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2008
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2013
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2014
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2015
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2017
BIRD	Accipitridae	<i>Pandion cristatus</i>	Eastern osprey	IA	2019
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2005
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2008
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2012
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2013
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2014
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2014
BIRD	Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	IA	2015
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	1900
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2003
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2005
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2006
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2008
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2014
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2015
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2016
BIRD	Charadriidae	<i>Charadrius leschenaultii</i>	Greater sand plover	VU	2017
BIRD	Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	1999
BIRD	Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	2008
BIRD	Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	2014
BIRD	Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	2015
BIRD	Charadriidae	<i>Charadrius mongolus</i>	Lesser Sand Plover	EN	2017
BIRD	Charadriidae	<i>Charadrius veredus</i>	Oriental Plover	IA	2013
BIRD	Charadriidae	<i>Charadrius veredus</i>	Oriental Plover	IA	2015
BIRD	Charadriidae	<i>Pluvialis squatarola</i>	Grey plover	IA	1999
BIRD	Charadriidae	<i>Pluvialis squatarola</i>	Grey plover	IA	2006
BIRD	Charadriidae	<i>Pluvialis squatarola</i>	Grey plover	IA	2014
BIRD	Charadriidae	<i>Pluvialis squatarola</i>	Grey plover	IA	2015
BIRD	Falconidae	<i>Falco peregrinus</i>	Peregrine falcon	OS	2005
BIRD	Falconidae	<i>Falco peregrinus</i>	Peregrine falcon	OS	2012
BIRD	Falconidae	<i>Falco peregrinus</i>	Peregrine falcon	OS	2017
BIRD	Glareolidae	<i>Glareola maldivarum</i>	Oriental pratincole	IA	2008
BIRD	Glareolidae	<i>Glareola maldivarum</i>	Oriental pratincole	IA	2013
BIRD	Glareolidae	<i>Glareola maldivarum</i>	Oriental pratincole	IA	2017
BIRD	Hirundinidae	<i>Hirundo rustica</i>	Barn swallow	IA	2014
BIRD	Hirundinidae	<i>Hirundo rustica</i>	Barn swallow	IA	2015
BIRD	Hydrobatidae	<i>Oceanites oceanicus</i>	Wilson's storm-petrel	IA	2013
BIRD	Laridae	<i>Chlidonias leucopterus</i>	White-winged black tern	IA	2008
BIRD	Laridae	<i>Chlidonias leucopterus</i>	White-winged black tern	IA	2016
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	1978
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	1999
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2001

BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2002
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2003
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2005
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2006
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2008
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2013
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2014
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2015
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2016
BIRD	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	2017
BIRD	Laridae	<i>Sterna dougallii</i>	Roseate tern	IA	2003
BIRD	Laridae	<i>Sterna dougallii</i>	Roseate tern	IA	2006
BIRD	Laridae	<i>Sterna dougallii</i>	Roseate tern	IA	2008
BIRD	Laridae	<i>Sterna dougallii</i>	Roseate tern	IA	2016
BIRD	Laridae	<i>Sterna hirundo</i>	Common tern	IA	2008
BIRD	Laridae	<i>Sterna hirundo</i>	Common tern	IA	2014
BIRD	Laridae	<i>Sterna hirundo</i>	Common tern	IA	2015
BIRD	Laridae	<i>Sterna hirundo</i>	Common tern	IA	2017
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2001
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2002
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2006
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2008
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2014
BIRD	Laridae	<i>Sternula albifrons</i>	Little tern	IA	2015
BIRD	Laridae	<i>Sternula nereis nereis</i>	Fairy tern	VU	1947
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	1981
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	1999
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2001
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2002
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2005
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2006
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2008
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2014
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2015
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2016
BIRD	Laridae	<i>Thalasseus bergii</i>	Crested tern	IA	2017
BIRD	Procellariidae	<i>Ardenna pacifica</i>	Wedge-tailed shearwater	IA	2014
BIRD	Procellariidae	<i>Ardenna pacifica</i>	Wedge-tailed shearwater	IA	2017
BIRD	Psittacidae	<i>Pezoporus occidentalis</i>	Night parrot	CR	1967
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2001
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2002
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2003
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	common sandpiper	IA	2008
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2013
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2014
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2015
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2016
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2017
BIRD	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	2018
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	1999
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	2006
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	2008
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	2014
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	2015
BIRD	Scolopacidae	<i>Arenaria interpres</i>	Ruddy turnstone	IA	2016
BIRD	Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	IA	1901

BIRD	Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	IA	2003
BIRD	Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	IA	2008
BIRD	Scolopacidae	<i>Calidris acuminata</i>	Sharp-tailed sandpiper	IA	2011
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2002
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2003
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2006
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2008
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2014
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2015
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2016
BIRD	Scolopacidae	<i>Calidris alba</i>	Sanderling	IA	2017
BIRD	Scolopacidae	<i>Calidris canutus</i>	Red knot	EN	1980
BIRD	Scolopacidae	<i>Calidris ferruginea</i>	Curlew sandpiper	CR	1999
BIRD	Scolopacidae	<i>Calidris melanotos</i>	Pectoral Sandpiper	IA	2015
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	1999
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2001
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2002
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2003
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2006
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2008
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2013
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2014
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2015
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2016
BIRD	Scolopacidae	<i>Calidris ruficollis</i>	Red-necked stint	IA	2017
BIRD	Scolopacidae	<i>Calidris tenuirostris</i>	Great knot	CR	2008
BIRD	Scolopacidae	<i>Calidris tenuirostris</i>	Great knot	CR	2019
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	1977
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	1978
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2001
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2002
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2003
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2005
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2006
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2008
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2014
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2015
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2016
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2017
BIRD	Scolopacidae	<i>Limosa lapponica</i>	Bar-tailed godwit	IA	2019
BIRD	Scolopacidae	<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit	CR	1901
BIRD	Scolopacidae	<i>Limosa lapponica menzbieri</i>	Bar-tailed godwit	CR	
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	1966
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2001
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2002
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2006
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2014
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2015
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2017
BIRD	Scolopacidae	<i>Numenius madagascariensis</i>	Eastern curlew	CR	2019
BIRD	Scolopacidae	<i>Numenius minutus</i>	Little curlew	IA	2003
BIRD	Scolopacidae	<i>Numenius minutus</i>	Little curlew	IA	2016
BIRD	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	IA	2006
BIRD	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	IA	2008
BIRD	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	IA	2014
BIRD	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	IA	2015

BIRD	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	IA	2017
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	1999
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2001
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2003
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2006
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2008
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2014
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2015
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2016
BIRD	Scolopacidae	<i>Tringa brevipes</i>	Grey-tailed tattler	IA	2017
BIRD	Scolopacidae	<i>Tringa glareola</i>	Wood sandpiper	IA	2008
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	1999
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2003
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2006
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2008
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2015
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2016
BIRD	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank	IA	2019
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	1999
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	2003
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	2006
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	2008
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	2016
BIRD	Sturnidae	<i>Gelochelidon nilotica</i>	Gull-billed tern	IA	2018
BIRD	Threskiornithidae	<i>Plegadis falcinellus</i>	Glossy ibis	IA	2015
FISH	Pristidae	<i>Pristis zijsron</i>	Green sawfish	VU	2011
FISH	Pristidae	<i>Pristis zijsron</i>	Green sawfish	VU	2013
MAMMAL	Balaenopteridae	<i>Megaptera novaeangliae</i>	Humpback whale	CD	2013
MAMMAL	Balaenopteridae	<i>Megaptera novaeangliae</i>	Humpback whale	CD	2015
MAMMAL	Dasyuridae	<i>Dasyurus hallucatus</i>	Northern quoll	EN	2012
MAMMAL	Dasyuridae	<i>Dasyurus hallucatus</i>	Northern quoll	EN	2013
MAMMAL	Dasyuridae	<i>Dasyurus hallucatus</i>	Northern quoll	EN	2017
MAMMAL	Delphinidae	<i>Sousa sahalensis</i>	Australian humpback dolphin	P4	2013
MAMMAL	Delphinidae	<i>Sousa sahalensis</i>	Australian humpback dolphin	P4	2014
MAMMAL	Delphinidae	<i>Sousa sahalensis</i>	Australian humpback dolphin	P4	2015
MAMMAL	Dugongidae	<i>Dugong dugon</i>	Dugong	OS	2012
MAMMAL	Dugongidae	<i>Dugong dugon</i>	Dugong	OS	2013
MAMMAL	Dugongidae	<i>Dugong dugon</i>	Dugong	OS	2014
MAMMAL	Dugongidae	<i>Dugong dugon</i>	Dugong	OS	2015
MAMMAL	Dugongidae	<i>Dugong dugon</i>	Dugong	OS	
MAMMAL	Muridae	<i>Leggadina lakedownensis</i>	Northern short-tailed mouse	P4	2003
MAMMAL	Muridae	<i>Leggadina lakedownensis</i>	Northern short-tailed mouse	P4	2016
MAMMAL	Muridae	<i>Pseudomys chapmani</i>	Western pebble-mound mouse	P4	2005
REPTILE	Cheloniidae	<i>Caretta caretta</i>	loggerhead turtle	EN	2013
REPTILE	Cheloniidae	<i>Caretta caretta</i>	loggerhead turtle	EN	2014
REPTILE	Cheloniidae	<i>Caretta caretta</i>	loggerhead turtle	EN	2015
REPTILE	Cheloniidae	<i>Chelonia mydas</i>	Green turtle	VU	2012
REPTILE	Cheloniidae	<i>Chelonia mydas</i>	Green turtle	VU	2013
REPTILE	Cheloniidae	<i>Chelonia mydas</i>	Green turtle	VU	2014
REPTILE	Cheloniidae	<i>Chelonia mydas</i>	Green turtle	VU	2015
REPTILE	Cheloniidae	<i>Chelonia mydas</i>	Green turtle	VU	2016
REPTILE	Cheloniidae	<i>Eretmochelys imbricata</i>	Hawksbill turtle	VU	2013
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2009
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2010
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2012
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2013

REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2014
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2015
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2017
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	2018
REPTILE	Cheloniidae	<i>Natator depressus</i>	Flatback turtle	VU	
REPTILE	Crocodylidae	<i>Crocodylus porosus</i>	Salt-water crocodile	OS	2008
REPTILE	Crocodylidae	<i>Crocodylus porosus</i>	Salt-water crocodile	OS	2014
REPTILE	Scincidae	<i>Lerista planiventralis maryani</i>	Maryan's keeled slider	P1	1990

NatureMap Species Report

Created By Guest user on 13/07/2021

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 06' 29" E, 21° 38' 09" S
Buffer 40km
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	810	37737
Other specially protected fauna	5	2122
Priority 1	1	1
Priority 3	1	44
Priority 4	5	686
Protected under international agreement	35	933
Rare or likely to become extinct	23	902
TOTAL	880	42425

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	24783 <i>Calidris canutus</i> subsp. <i>rogersi</i> (Red Knot (north-eastern Siberia))		T	
2.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
3.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
4.	25335 <i>Caretta caretta</i> (Loggerhead Turtle)		T	
5.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
6.	24372 <i>Charadrius leschenaultii</i> subsp. <i>leschenaultii</i> (Greater Sand Plover (Mongolian))		T	
7.	25576 <i>Charadrius mongolus</i> (Lesser Sand Plover)		T	
8.	24375 <i>Charadrius mongolus</i> subsp. <i>mongolus</i> (Lesser Sand Plover)		T	
9.	25336 <i>Chelonia mydas</i> (Green Turtle)		T	
10.	24093 <i>Dasyurus hallucatus</i> (Northern Quoll)		T	
11.	25346 <i>Dermochelys coriacea</i> (Leatherback Turtle)		T	
12.	25473 <i>Eretmochelys imbricata</i> (Hawksbill Turtle)		T	
13.	25342 <i>Eretmochelys imbricata</i> subsp. <i>bissa</i> (Hawksbill Turtle)		T	
14.	24043 <i>Eubalaena australis</i> (Southern Right Whale)		T	
15.	25343 <i>Lepidochelys olivacea</i> (Olive Ridley Turtle, Pacific Ridley Turtle)		T	
16.	25238 <i>Liasis olivaceus</i> subsp. <i>barroni</i> (Pilbara Olive Python)		T	
17.	24796 <i>Limosa lapponica</i> subsp. <i>menzbieri</i> (Bar-tailed Godwit (northern Siberian))		T	
18.	25344 <i>Natator depressus</i> (Flatback Turtle)		T	
19.	24798 <i>Numenius madagascariensis</i> (Eastern Curlew)		T	
20.	25504 <i>Perameles bougainville</i> (Western Barred Bandicoot, Little Marl, Shark Bay Bandicoot)		T	
21.	24743 <i>Pezoporus occidentalis</i> (Night Parrot)		T	
22.	34037 <i>Pristis zijsron</i> (Green Sawfish)		T	
23.	48595 <i>Sternula nereis</i> subsp. <i>nereis</i> (Fairy Tern)		T	
Protected under international agreement				
24.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
25.	25634 <i>Anous stolidus</i> (Common Noddy)		IA	
26.	25554 <i>Apus pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
27.	48573 <i>Ardenna pacifica</i> (Wedge-tailed Shearwater)		IA	
28.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
29.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
30.	24780 <i>Calidris alba</i> (Sanderling)		IA	
31.	25738 <i>Calidris canutus</i> (Red Knot, knot)		IA	
32.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
33.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
34.	24378 <i>Charadrius veredus</i> (Oriental Plover)		IA	
35.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
36.	47954 <i>Gelochelidon nilotica</i> (Gull-billed Tern)		IA	
37.	24481 <i>Glareola maldivarum</i> (Oriental Pratincole)		IA	
38.	25630 <i>Hirundo rustica</i> (Barn Swallow)		IA	

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
39.	48587	<i>Hydroprogne caspia</i> (Caspian Tern)		IA	
40.	30932	<i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
41.	24799	<i>Numenius minutus</i> (Little Curlew, Little Whimbrel)		IA	
42.	25742	<i>Numenius phaeopus</i> (Whimbrel)		IA	
43.	24497	<i>Oceanites oceanicus</i> (Wilson's Storm-petrel)		IA	
44.	41347	<i>Onychoprion anaethetus</i> (Bridled Tern)		IA	
45.	48591	<i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
46.	24843	<i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
47.	24382	<i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
48.	24383	<i>Pluvialis squatarola</i> (Grey Plover)		IA	
49.	24716	<i>Puffinus pacificus</i> (Wedge-tailed Shearwater)		IA	
50.	25640	<i>Sterna dougallii</i> (Roseate Tern)		IA	
51.	24524	<i>Sterna dougallii</i> subsp. <i>gracilis</i> (Roseate Tern)		IA	
52.	25642	<i>Sterna hirundo</i> (Common Tern)		IA	
53.	48593	<i>Sternula albifrons</i> (Little Tern)		IA	
54.	25754	<i>Sula leucogaster</i> (Brown Booby)		IA	
55.	48597	<i>Thalasseus bergii</i> (Crested Tern)		IA	
56.	24806	<i>Tringa glareola</i> (Wood Sandpiper)		IA	
57.	24808	<i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
58.	41351	<i>Xenus cinereus</i> (Terek Sandpiper)		IA	

Other specially protected fauna

59.	24859	<i>Crocodylus porosus</i> (Salt-water Crocodile)		S	
60.	24084	<i>Dugong dugon</i> (Dugong)		S	
61.	25624	<i>Falco peregrinus</i> (Peregrine Falcon)		S	
62.	24051	<i>Megaptera novaeangliae</i> (Humpback Whale)		S	
63.	42358	<i>Rhincodon typus</i> (Whale Shark)		S	

Priority 1

64.	25164	<i>Leisteria planiventralis</i> subsp. <i>maryani</i> (Maryan's keeled slider (Ashburton), Keeled Slider (NW coast Onslow to Barradale))		P1	
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Priority 3

65.	25024	<i>Ctenotus angusticeps</i> (Airlie Island Ctenotus, Northwestern coastal Ctenotus)		P3	
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Priority 4

66.	24217	<i>Leggadina lakedownensis</i> (Northern Short-tailed Mouse, Lakeland Downs Mouse, Kerakenga)		P4	
67.	24060	<i>Orcaella heinsohni</i> (Australian Snubfin Dolphin)		P4	
68.	24233	<i>Pseudomys chapmani</i> (Western Pebble-mound Mouse, Ngadjii)		P4	
69.	48107	<i>Sousa sahalensis</i> (Australian humpback dolphin)		P4	
70.	24803	<i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	

Non-conservation taxon

71.	?	?			
72.		<i>Ablennes hians</i>			
73.		<i>Abudefduf bengalensis</i>			
74.	24559	<i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
75.		<i>Acanthocephala abbreviata</i>			
76.		<i>Acanthopagrus latus</i>			
77.		<i>Acanthopagrus palmaris</i>			
78.	25243	<i>Acanthophris pyrrhus</i> (Desert Death Adder)			
79.		<i>Acanthurus grammoptilus</i>			
80.		<i>Acanthurus triostegus</i>			
81.		<i>Acariiformes</i> sp.			
82.	25535	<i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
83.	25536	<i>Accipiter fasciatus</i> (Brown Goshawk)			
84.		<i>Acentrogobius viridipunctatus</i>			
85.		<i>Achnanthis minutissima</i> (Kütz.) Czarnetzki			
86.	25751	<i>Acridotheres tristis</i> (Common Myna)	Y		
87.		<i>Adventor elongatus</i>			
88.		<i>Adversaeschna brevistyla</i>			
89.	25544	<i>Aegotheles cristatus</i> (Australian Owllet-nightjar)			
90.		<i>Aeolosoma</i> sp. 1 (PSS)			
91.		<i>Agraptocorixa parvipunctata</i>			
92.		<i>Agraptocorixa</i> sp.			
93.	25355	<i>Aipysurus laevis</i> (Olive Seasnake)			
94.	25357	<i>Aipysurus tenuis</i> (Brown-lined Seasnake)			
95.		<i>Alectis indica</i>			
96.		<i>Allodessus bistrigatus</i>			
97.		<i>Alona</i> cf. <i>rectangula</i> (but may be > 1 spp.)			
98.		<i>Alona rectangula novaezealandiae</i>			
99.		<i>Ambassia agassizi</i>			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
100.		<i>Ambassis gymnocephalus</i>			
101.		<i>Amniataba caudavittata</i>			
102.		<i>Amniataba percoides</i>			
103.		<i>Amniataba percoides?</i>			Y
104.	30831	<i>Amphibolurus gilberti</i> (Ta-ta, Gilbert's Dragon)			
105.	30833	<i>Amphibolurus longirostris</i> (Long-nosed Dragon)			
106.		<i>Aname ellenae</i>			
107.	24312	<i>Anas gracilis</i> (Grey Teal)			
108.	24316	<i>Anas superciliosa</i> (Pacific Black Duck)			
109.		<i>Anax papuensis</i>			
110.	47414	<i>Anhinga novaehollandiae</i> (Australasian Darter)			
111.		<i>Anisops canaliculatus</i>			
112.		<i>Anisops nasutus</i>			
113.		<i>Anisops paraexigerus</i>			
114.		<i>Anisops sp.</i>			
115.		<i>Anisops stali</i>			
116.		<i>Anisops thienemanni</i>			
117.		<i>Anomooneis brachysira</i> (Bréb.) Grun.			
118.		<i>Anopheles annulipes</i> s.l.			
119.	25317	<i>Antaresia childreni</i> (Children's Python)			
120.	25448	<i>Antaresia stimsoni</i> (Stimson's Python)			
121.	25241	<i>Antaresia stimsoni subsp. stimsoni</i> (Stimson's Python)			
122.	25670	<i>Anthus australis</i> (Australian Pipit)			
123.		<i>Apistus carinatus</i>			
124.		<i>Apogon rueppellii</i>			
125.		<i>Apogon sp.</i>			
126.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
127.		<i>Arcella sp. P1</i>			
128.	25557	<i>Ardea garzetta</i> (Little Egret)			
129.	24337	<i>Ardea garzetta subsp. nigripes</i> (Little Egret)			
130.	25558	<i>Ardea ibis</i> (Cattle Egret)			
131.	25559	<i>Ardea intermedia</i> (Intermediate Egret)			
132.	41324	<i>Ardea modesta</i> (great egret, white egret)			
133.	24340	<i>Ardea novaehollandiae</i> (White-faced Heron)			
134.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
135.	25560	<i>Ardea sacra</i> (Eastern Reef Egret, Eastern Reef Heron)			
136.	24610	<i>Ardeotis australis</i> (Australian Bustard)			
137.		<i>Areacandona 'undulata' (PSS)</i>			Y
138.		<i>Areacandona sp. 6' (PSS)</i>			Y
139.		<i>Argiocnemis rubescens</i>			
140.		<i>Armatalona macrocopa</i>			
141.		<i>Arothron hispidus</i>			
142.		<i>Arothron manilensis</i>			
143.		<i>Arrenurus (Arrenurus) balladoniensis</i>			
144.		<i>Arrhamphus sclerolepis</i>			
145.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)			
146.	24353	<i>Artamus cyanopterus</i> (Dusky Woodswallow)			
147.	25567	<i>Artamus leucorhynchus</i> (White-breasted Woodswallow)			
148.	24354	<i>Artamus leucorhynchus subsp. leucopygialis</i> (White-breasted Woodswallow)			
149.	24355	<i>Artamus minor</i> (Little Woodswallow)			
150.	24356	<i>Artamus personatus</i> (Masked Woodswallow)			
151.	25320	<i>Aspidites melanocephalus</i> (Black-headed Python)			
152.		<i>Asplanchna sieboldi</i>			
153.		<i>Assiculus punctatus</i>			
154.		<i>Atelomycteris fasciatus</i>			
155.		<i>Atherinid sp.</i>			
156.		<i>Atherinomorus endrachtensis</i>			
157.		<i>Atherinomorus vaigiensis</i>			
158.		<i>Aulacoseira ambigua</i>			
159.		<i>Aulacoseira granulata</i> (Ehr.) Simonsen			
160.		<i>Aulopus purpurissatus</i>			
161.		<i>Australocyclus sp.</i>			
162.		<i>Australospilus elongatus</i>			
163.		<i>Austrolestes aridus</i>			
164.		<i>Austronibea oedegenys?</i>			Y
165.		<i>Austropeplea lessoni</i>			
166.	24318	<i>Aythya australis</i> (Hardhead)			
167.		<i>Baetidae sp.</i>			
168.		<i>Barnardius zonarius</i>			
169.		<i>Bathygobius cocosensis</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
170.	<i>Bathygobius fuscus</i>			
171.	<i>Bathynella</i> sp.			
172.	<i>Bdelloidea</i> sp. 2:2			
173.	<i>Bdelloidea</i> sp. 3:3			
174.	<i>Bennelongia australis</i> OrdX (PSW)			
175.	<i>Bennelongia</i> cb			Y
176.	<i>Bennelongia minimus</i>			
177.	<i>Bennelongia nimala</i>			
178.	<i>Bennelongia triangulata</i> (ex sp 414 /460 (CB)			
179.	<i>Berosus nutans</i>			
180.	<i>Berosus pulchellus</i>			
181.	<i>Berosus</i> sp.			
182.	<i>Blattella germanica</i>			Y
183.	<i>Blennodesmus scapularis</i>			
184.	<i>Bodianus frenchii</i>			
185.	<i>Boeckella triarticulata</i>			
186.	24251 <i>Bos taurus</i> (European Cattle)	Y		
187.	<i>Brachionus dichotomus</i>			
188.	<i>Brachionus falcatus</i>			
189.	<i>Brachionus leydigii</i>			
190.	<i>Brachionus nilsoni</i>			
191.	<i>Brachionus quadridentatus</i>			
192.	<i>Branchinella halsei</i>			
193.	<i>Branchinella pinderi</i>			
194.	<i>Branchinella proboscida</i>			
195.	24359 <i>Burhinus grallarius</i> (Bush Stone-curlew)			
196.	<i>Butis amboinensis</i>			
197.	47897 <i>Butorides striata</i> (Striated Heron, Mangrove Heron)			
198.	25715 <i>Cacatua roseicapilla</i> (Galah)			
199.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
200.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
201.	<i>Caenidae</i> sp.			
202.	24269 <i>Calamanthus campestris</i> (Rufous Fieldwren)			
203.	<i>Calamoecia baylyi</i> (Cue form) (ex nr lucasi CB)			
204.	<i>Calamoecia halsei</i>			
205.	<i>Calanoida</i> sp.			
206.	<i>Candonocypris fitzroyi</i>			
207.	48920 <i>Canis familiaris</i> (Dog, Dingo)	Y		
208.	<i>Canthigaster coronata</i>			
209.	24253 <i>Capra hircus</i> (Goat)	Y		
210.	<i>Carangoides talamparoides</i>			
211.	<i>Caranx ignobilis</i>			
212.	<i>Caranx sexfasciatus</i>			
213.	<i>Centriscus</i> sp.			
214.	25600 <i>Centropus phasianinus</i> (Pheasant Coucal)			
215.	<i>Ceratopogonidae</i> sp.			
216.	<i>Ceriodaphnia cornuta</i>			
217.	24564 <i>Certhionyx variegatus</i> (Pied Honeyeater)			
218.	24181 <i>Chaerephon jobensis</i> (Greater Northern Freetail-bat, Northern Mastiff Bat)			
219.	<i>Chaetodon lunula</i>			
220.	<i>Chaetodon plebeius</i>			
221.	<i>Chaetodon</i> sp.			
222.	<i>Chaetodontoplus duboulayi</i>			
223.	24186 <i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
224.	<i>Chanos chanos</i>			
225.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
226.	<i>Chelmon marginalis</i>			
227.	<i>Chelonodon patoca</i>			
228.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
229.	47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow)			
230.	<i>Chimarra</i> sp AV17 (PSW)			
231.	<i>Chirocentrus dorab</i>			
232.	<i>Chironominae</i> sp.			
233.	<i>Choerodon cyanodus</i>			
234.	<i>Chroicocephalus novaehollandiae</i>			
235.	24431 <i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
236.	24434 <i>Chrysococcyx osculans</i> (Black-eared Cuckoo)			
237.	24288 <i>Circus approximans</i> (Swamp Harrier)			
238.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
239.	24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
240.	<i>Cloeon</i> sp.			
241.	<i>Cloeon</i> sp. P1 (PSW)			
242.	<i>Cocconeis placentula</i> var. <i>euglypta</i> ehr.			
243.	<i>Coenagrionidae</i> sp.			
244.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
245.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
246.	<i>Colurodontis paxmani</i>			
247.	<i>Congrogadus winterbottomi</i>			
248.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
249.	<i>Coradion chrysozonus</i>			
250.	<i>Corduliidae</i> sp.			
251.	<i>Coris aygula</i>			
252.	<i>Corixidae</i> sp.			
253.	24416 <i>Corvus bennetti</i> (Little Crow)			
254.	25593 <i>Corvus orru</i> (Torresian Crow)			
255.	24671 <i>Coturnix pectoralis</i> (Stubble Quail)			
256.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
257.	24673 <i>Coturnix ypsilophora</i> subsp. <i>australis</i> (Brown Quail)			
258.	24672 <i>Coturnix ypsilophora</i> subsp. <i>cervina</i> (Brown Quail)			
259.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
260.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
261.	<i>Cracticus tibicen</i> subsp. <i>longirostris</i>			Y
262.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
263.	<i>Craterocephalus capreoli</i>			
264.	<i>Craticula cuspidata</i> (Grun. ex. Van Heurck) Mann			
265.	<i>Craticula halophila</i> (Grun. ex. Van Heurck) Mann			
266.	<i>Cryptochironomus griseidorsum</i>			
267.	<i>Cryptoerithus occultus</i>			
268.	25458 <i>Ctenophorus caudicinctus</i> (Ring-tailed Dragon)			
269.	24865 <i>Ctenophorus caudicinctus</i> subsp. <i>caudicinctus</i> (Ring-tailed Dragon)			
270.	24872 <i>Ctenophorus femoralis</i> (Dune Dragon)			
271.	25459 <i>Ctenophorus isolepis</i> (Crested Dragon, Military Dragon)			
272.	24875 <i>Ctenophorus isolepis</i> subsp. <i>gularis</i> (Central Military Dragon)			
273.	24876 <i>Ctenophorus isolepis</i> subsp. <i>isolepis</i> (Crested Dragon, Military Dragon)			
274.	24882 <i>Ctenophorus nuchalis</i> (Central Netted Dragon)			
275.	24885 <i>Ctenophorus rubens</i> (Red Dragon)			
276.	24887 <i>Ctenophorus rufescens</i> (Red Rock Dragon)			
277.	<i>Ctenotrypauchen microcephalus</i>			
278.	25032 <i>Ctenotus calurus</i>			
279.	25462 <i>Ctenotus grandis</i>			
280.	25043 <i>Ctenotus grandis</i> subsp. <i>titan</i>			
281.	25044 <i>Ctenotus hanloni</i>			
282.	25045 <i>Ctenotus helenae</i>			
283.	25046 <i>Ctenotus iapetus</i>			
284.	25053 <i>Ctenotus maryani</i>			
285.	25463 <i>Ctenotus pantherinus</i> (Leopard Ctenotus)			
286.	25064 <i>Ctenotus pantherinus</i> subsp. <i>ocellifer</i> (Leopard Ctenotus)			
287.	25066 <i>Ctenotus quattuordecimlineatus</i>			
288.	25069 <i>Ctenotus rufescens</i>			
289.	25073 <i>Ctenotus saxatilis</i> (Rock Ctenotus)			
290.	25074 <i>Ctenotus schomburgkii</i>			
291.	<i>Culicoides</i> sp.			
292.	<i>Cybister tripunctatus</i>			
293.	25375 <i>Cyclorana maini</i> (Sheep Frog)			
294.	25376 <i>Cyclorana platycephala</i> (Water-holding Frog)			
295.	24322 <i>Cygnus atratus</i> (Black Swan)			
296.	<i>Cylotella menghiniana</i> Kütz.			
297.	<i>Cymbacephalus staigeri</i> ?			
298.	<i>Cymbella proxima</i> Reimer			Y
299.	<i>Cypretta 'triangulum'</i>			
300.	<i>Cypretta ?lutea</i>			
301.	<i>Cypretta baylyi</i>			
302.	<i>Cypricercus salinus</i>			
303.	<i>Cypricercus</i> sp. 422 (CB)			
304.	<i>Cypricercus</i> sp. 442 (CB)			
305.	25547 <i>Dacelo leachii</i> (Blue-winged Kookaburra)			
306.	24304 <i>Dacelo leachii</i> subsp. <i>leachii</i> (Blue-winged Kookaburra)			
307.	<i>Dactyloptena papilio</i>			
308.	<i>Dactylopus dactylopus</i>			
309.	<i>Daphnia carinata</i>			

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310.		<i>Dasybasis vetusta</i>			Y
311.	24091	<i>Dasykaluta rosamondae</i> (Little Red Kaluta)			
312.	25000	<i>Delma haroldi</i>			
313.	25001	<i>Delma nasuta</i>			
314.	25004	<i>Delma tincta</i>			
315.	25468	<i>Demansia psammophis</i> (Yellow-faced Whipsnake)			
316.	25295	<i>Demansia psammophis</i> subsp. <i>cupreiceps</i> (Yellow-faced Whipsnake)			
317.		<i>Deminutiocandona 'atope'</i> (PSS)			Y
318.	24325	<i>Dendrocygna eytoni</i> (Plumed Whistling Duck)			
319.		<i>Dero furcata</i>			
320.		<i>Diacyclops cockingi</i>			
321.		<i>Diacyclops humphreysi humphreysi</i>			
322.		<i>Diaphanosoma unguiculatum</i>			
323.		<i>Dicranophorus epicharis</i>			
324.		<i>Dicrotendipes</i> sp P4 (PSW)			
325.		<i>Diffugia</i> sp. P1			
326.		<i>Dineutus australis</i>			
327.		<i>Diplacodes bipunctata</i>			
328.		<i>Diplacodes haematodes</i>			
329.	47932	<i>Diplodactylus bilybara</i> (Western Fat-tailed Gecko)			
330.	24926	<i>Diplodactylus conspicillatus</i> (Fat-tailed Gecko)			
331.	24940	<i>Diplodactylus pulcher</i>			
332.	42400	<i>Diporiphora adductus</i> (Carnarvon Dragon)			
333.		<i>Dischistodus darwiniensis</i>			
334.		<i>Dissotrocha</i> sp.			
335.		<i>Drepane punctata</i>			
336.	24470	<i>Dromaius novaehollandiae</i> (Emu)			
337.		<i>Drombus triangularis</i>			
338.		<i>Dytiscidae</i> sp.			
339.		<i>Echeneis naucrates</i>			
340.		<i>Echidna nebulosa</i>			
341.		<i>Ecnomidae</i> sp.			
342.		<i>Egretta garzetta</i>			
343.		<i>Egretta novaehollandiae</i>			
344.		<i>Elanus axillaris</i>			
345.	25540	<i>Elanus caeruleus</i> (Black-shouldered Kite)			
346.	24290	<i>Elanus caeruleus</i> subsp. <i>axillaris</i> (Australian Black-shouldered Kite)			
347.		<i>Elops hawaiiensis</i>			
348.	47937	<i>Elseya melanops</i> (Black-fronted Dotterel)			
349.	24631	<i>Emblema pictum</i> (Painted Finch)			
350.		<i>Engraulis australis?</i>			Y
351.		<i>Enochrus deserticola</i>			
352.		<i>Enteroplea</i> cf. <i>lacustris</i> (PSW)			
353.		<i>Eolophus roseicapillus</i>			
354.	24653	<i>Eopsaltria pulverulenta</i> (Mangrove Robin)			
355.	25362	<i>Ephalophis greyae</i>			
356.	24387	<i>Ephippiorhynchus asiaticus</i> subsp. <i>australis</i> (Black-necked Stork)			
357.		<i>Ephydriidae</i> sp.			
358.		<i>Epinephelus amblycephalus</i>			
359.		<i>Epinephelus corallicola</i>			
360.		<i>Epinephelus lanceolatus</i>			
361.		<i>Epinephelus malabaricus</i>			
362.		<i>Epinephelus multinotatus</i>			
363.		<i>Epinephelus quoyanus</i>			
364.		<i>Epinephelus rankini</i> (invalid)			Y
365.		<i>Epinephelus rivulatus</i>			
366.		<i>Epinephelus sexfasciatus</i>			
367.		<i>Epinephelus</i> sp.			
368.		<i>Epinephelus tauvina</i>			
369.		<i>Epistylis</i> sp			
370.	24568	<i>Epthianura aurifrons</i> (Orange Chat)			
371.	24570	<i>Epthianura tricolor</i> (Crimson Chat)			
372.	24258	<i>Equus caballus</i> (Horse)	Y		
373.	42404	<i>Eremiascincus isolepis</i>			
374.	43381	<i>Eremiascincus pallidus</i> (Western Narrow-banded Skink, Narrow-banded Sand Swimmer)			
375.	24837	<i>Eremiornis carteri</i> (Spinifex-bird)			
376.		<i>Eretes australis</i>			
377.	24379	<i>Erythrogonys cinctus</i> (Red-kneed Dotterel)			
378.	47938	<i>Esacus magnirostris</i> (Beach Stone-curlew, Beach Thick-knee)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
379.	<i>Escualosa thoracata</i>			Y
380.	<i>Euglypha</i> sp.			
381.	<i>Eunotia bilunaris</i> (Ehr.) Mills.			
382.	<i>Eunotia pectinatus</i> (Dillw.) Rabh.			
383.	<i>Eurema hecabe</i>			Y
384.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
385.	<i>Eurypegasmus draconis</i>			
386.	<i>Eurysticta coolawanyah</i>			
387.	<i>Eviota</i> sp.			
388.	25621 <i>Falco berigora</i> (Brown Falcon)			
389.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
390.	24472 <i>Falco cenchroides</i> subsp. <i>cenchrus</i> (Australian Kestrel, Nankeen Kestrel)			
391.	25623 <i>Falco longipennis</i> (Australian Hobby)			
392.	24476 <i>Falco subniger</i> (Black Falcon)			
393.	<i>Feia nota</i>			Y
394.	24041 <i>Felis catus</i> (Cat)	Y		
395.	<i>Feroxodon multistriatus</i>			
396.	<i>Filinia longiseta</i>			
397.	<i>Fistularia petimba</i>			
398.	25327 <i>Fordonia leucobalia</i> (White-bellied Mangrove Snake)			
399.	<i>Fragilaria ulna</i> (Nitz.) Lange Bertalot			
400.	25727 <i>Fulica atra</i> (Eurasian Coot)			
401.	25301 <i>Furina ornata</i> (Moon Snake)			
402.	25730 <i>Gallirallus philippensis</i> (Buff-banded Rail)			
403.	24765 <i>Gallirallus philippensis</i> subsp. <i>mellori</i> (Buff-banded Rail)			
404.	42314 <i>Gavialis virescens</i> (Singing Honeyeater)			
405.	24952 <i>Gehyra australis</i>			
406.	24956 <i>Gehyra pilbara</i>			
407.	24958 <i>Gehyra punctata</i>			
408.	24957 <i>Gehyra purpurascens</i>			
409.	24959 <i>Gehyra variegata</i>			
410.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
411.	24402 <i>Geopelia humeralis</i> (Bar-shouldered Dove)			
412.	25585 <i>Geopelia striata</i> (Zebra Dove)			
413.	24403 <i>Geopelia striata</i> subsp. <i>placida</i> (Peaceful Dove)			
414.	24404 <i>Geophaps plumifera</i> (Spinifex Pigeon)			
415.	<i>Gerres filamentosus</i>			
416.	<i>Gerres oyena</i>			
417.	<i>Gerres</i> sp.			
418.	<i>Gerres subfasciatus</i>			
419.	<i>Gerridae</i> sp.			
420.	25531 <i>Gerygone levigaster</i> (Mangrove Gerygone)			
421.	24276 <i>Gerygone tenebrosa</i> (Dusky Gerygone)			
422.	<i>Gigadema bostocki</i>			
423.	<i>Gobiodon</i> sp.			
424.	<i>Gomphonema parvulum</i> (Kütz.) Kütz.			
425.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
426.	24484 <i>Grus rubicunda</i> (Brolga)			
427.	<i>Guineaxonopsis</i> sp. S1 (PSS)			
428.	<i>Gymnothorax pictus</i>			
429.	<i>Gymnothorax undulatus</i>			
430.	<i>Gymnura australis</i>			
431.	25627 <i>Haematopus fuliginosus</i> (Sooty Oystercatcher)			
432.	24486 <i>Haematopus fuliginosus</i> subsp. <i>ophthalmicus</i> (Sooty Oystercatcher)			
433.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
434.	<i>Halacaridae</i> sp. 1 (PSS)			
435.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
436.	25541 <i>Haliastur indus</i> (Brahminy Kite)			
437.	24294 <i>Haliastur indus</i> subsp. <i>girrenera</i> (Brahminy Kite)			
438.	24295 <i>Haliastur spheurnus</i> (Whistling Kite)			
439.	<i>Halichoeres nebulosus</i>			
440.	<i>Halichoeres</i> sp.			
441.	<i>Halipus</i> sp.			
442.	<i>Halophryne diemensis</i>			
443.	<i>Halophryne ocellatus</i>			
444.	24297 <i>Hamirostra melanostemon</i> (Black-breasted Buzzard)			
445.	<i>Hantzschia amphioxys</i> (Ehr.) Grun.			
446.	<i>Hebridae</i> sp.			
447.	<i>Helluapterus niger</i>			
448.	<i>Hemicordulia tau</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
449.	<i>Hemicypripis megalops</i>			
450.	25232 <i>Hemidactylus frenatus</i> (Asian House Gecko)	Y		
451.	<i>Hemigaleus australiensis</i>			
452.	<i>Hemigaleus</i> sp.			
453.	<i>Hemiramphus robustus</i>			
454.	<i>Hemiscyllium trispeculare</i>			
455.	<i>Herklotsichthys blackburni</i>			
456.	<i>Herklotsichthys collettei</i>			
457.	<i>Herklotsichthys collettei?</i>			Y
458.	<i>Herklotsichthys koningsbergeri</i>			
459.	<i>Herklotsichthys quadrimaculatus</i>			Y
460.	<i>Heterocypris</i> sp PSW66			Y
461.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
462.	<i>Hexarthra mira</i>			
463.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
464.	<i>Hilsa kelee?</i>			Y
465.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
466.	24775 <i>Himantopus himantopus</i> subsp. <i>leucocephalus</i> (Black-winged Stilt)			
467.	<i>Hippocampus</i> sp.			
468.	<i>Hippocampus tuberculatus</i>			
469.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
470.	<i>Holconia westralia</i>			
471.	<i>Hydrachna</i> sp. 4/5 (PSW)			
472.	<i>Hydraenidae</i> sp.			
473.	<i>Hydrobiidae</i> sp.			
474.	<i>Hydroglyphus grammopterus</i> (=trilineatus)			
475.	<i>Hydroglyphus leai</i>			
476.	<i>Hydrophilidae</i> sp.			
477.	44656 <i>Hydrophis major</i> (Olive-headed seasnake, greater seasnake)			
478.	42410 <i>Hydrophis ornatus</i> (Ornate Reef Seasnake, Sea Snake)			
479.	43385 <i>Hydrophis stokesii</i> (Stoke's Seasnake, Sea Snake)			
480.	<i>Hydropsychidae</i> sp.			
481.	<i>Hyphydrus</i> sp.			
482.	<i>Hypopterus macropterus</i>			
483.	<i>Ilyocypris</i> 'spiculata' (ms name) (SAP)			
484.	<i>Ilyocypris australiensis</i>			
485.	<i>Ilyodromus</i> sp. PB			
486.	<i>Indolpium</i> sp.			
487.	<i>Inimicus sinensis</i>			
488.	<i>Iridomyrmex chasei</i>			
489.	<i>Ischnura aurora aurora</i>			
490.	<i>Isidorella egraria</i>			
491.	<i>Isocypris williamsi</i> (ex <i>Ilyodromus</i> sp. 413)			
492.	<i>Isostictidae</i> sp.			
493.	<i>Istiblennius edentulus</i>			
494.	<i>Istiblennius lineatus</i>			
495.	<i>Istiblennius meleagris</i>			
496.	<i>Keratella procurva</i>			
497.	<i>Keratella</i> sp. nov. (aff. <i>australis</i> grp) (CB)			
498.	<i>Keratella tropica</i>			
499.	<i>Kiefferulus intertinctus</i>			
500.	<i>Laccophilus sharpi</i>			
501.	<i>Lactoria cornuta</i>			
502.	<i>Lactoria diaphana</i>			
503.	24367 <i>Lalage tricolor</i> (White-winged Triller)			
504.	<i>Lampona ampeinna</i>			
505.	<i>Lamponina scutata</i>			
506.	25637 <i>Larus novaehollandiae</i> (Silver Gull)			
507.	<i>Latonopsis brehmi</i>			
508.	<i>Latrodectus mactans</i>			Y
509.	<i>Lecane bulla</i>			
510.	<i>Lecane cf. pertica</i>			Y
511.	<i>Lecane cf. spenceri</i> (PSW)			
512.	<i>Lecane halsei</i>			
513.	<i>Lecane n. sp. psw031</i> (like <i>signifera</i> but tall)			Y
514.	<i>Leiognathus decorus</i>			
515.	<i>Leiognathus equulus</i>			
516.	<i>Leiopotherapon unicolor</i>			
517.	<i>Leptoceridae</i> sp.			
518.	25124 <i>Lerista baynesi</i>			

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519.	25125	<i>Lerista bipes</i>			
520.	30928	<i>Lerista clara</i>			
521.	25133	<i>Lerista elegans</i>			
522.	25155	<i>Lerista muelleri</i>			
523.	25158	<i>Lerista onsloviana</i>			
524.	25176	<i>Lerista uniduo</i> (Spotted Broad-blazed Slider, skink)			
525.		<i>Lethocerus distinctifemur</i>			
526.		<i>Lethrinus laticaudis</i>			
527.		<i>Lethrinus</i> sp.			
528.	25005	<i>Lialis burtonis</i>			
529.		<i>Libellulidae</i> sp.			
530.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
531.	24582	<i>Lichmera indistincta</i> subsp. <i>indistincta</i> (Brown Honeyeater)			
532.		<i>Limnesia</i> sp. 4 (PSW)			
533.		<i>Limnocytheridae</i> n.gen. sp 419 (CB)			
534.		<i>Liparetrus</i> sp.			Y
535.	25380	<i>Litoria caerulea</i> (Green Tree Frog)			
536.	25392	<i>Litoria rubella</i> (Little Red Tree Frog)			
537.		<i>Liza melinoptera</i>			
538.		<i>Liza</i> sp.			
539.		<i>Liza subviridis</i>			
540.		<i>Liza vaigiensis</i>			
541.		<i>Lophiocharon trisignatus</i>			
542.		<i>Lophoictinia isura</i>			
543.		<i>Loxandrus micantior</i>			
544.	30933	<i>Lucasium stenodactylum</i>			
545.		<i>Lutjanid</i> sp.			
546.		<i>Lutjanus argentimaculatus</i>			
547.		<i>Lutjanus erythropterus</i>			
548.		<i>Lutjanus fulviflamma</i>			
549.		<i>Lutjanus malabaricus</i>			
550.		<i>Lutjanus russellii</i>			
551.		<i>Lycosa meracula</i>			Y
552.		<i>Macropharyngodon ornatus</i>			
553.	25489	<i>Macropus robustus</i> (Euro, Biggada)			
554.	24136	<i>Macropus rufus</i> (Red Kangaroo, Marlu)			
555.		<i>Macrothrix indistincta</i>			
556.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
557.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
558.	25652	<i>Malurus leucopterus</i> (White-winged Fairy-wren)			
559.	25654	<i>Malurus splendens</i> (Splendid Fairy-wren)			
560.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
561.		<i>Masasteron tealei</i>			
562.		<i>Mastogloia smithii</i> Thwaites			
563.		<i>Megacephala greyana</i>			
564.		<i>Megalaspis cordyla</i>			
565.		<i>Megalops cyprinoides</i>			
566.	47995	<i>Megalurus mathewsi</i> (Rufous Songlark)			
567.		<i>Megaporus</i> sp.			
568.		<i>Melanotaenia australis</i>			
569.		<i>Melitidae</i> sp. 1 (PSS)			
570.	24736	<i>Melopsittacus undulatus</i> (Budgerigar)			
571.		<i>Mene maculata</i>			
572.	25184	<i>Menetia greyii</i>			
573.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
574.		<i>Mesocyclops brooksi</i>			
575.		<i>Mesoveliidae</i> sp.			
576.		<i>Microcarbo melanoleucos</i>			
577.		<i>Microcyclops varicans</i>			
578.		<i>Micronecta gracilis</i>			
579.		<i>Micronecta</i> sp.			
580.	25542	<i>Milvus migrans</i> (Black Kite)			
581.	24298	<i>Milvus migrans</i> subsp. <i>affinis</i> (Black Kite)			
582.		<i>Minasteron minusculum</i>			
583.	25545	<i>Mirafra javanica</i> (Horsfield's Bushlark, Singing Bushlark)			
584.	24302	<i>Mirafra javanica</i> subsp. <i>horsfieldii</i> (Horsfield's Bushlark, Singing Bushlark)			
585.		<i>Mirafra javanica</i> subsp. <i>woodwardi</i>			Y
586.		<i>Moina cf. australiensis</i> (CB)			
587.		<i>Moina micrura</i> s.l.			
588.		<i>Monacanthus chinensis</i>			

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589.	<i>Monocentris japonicus</i>			
590.	25495 <i>Morethia ruficauda</i>			
591.	25193 <i>Morethia ruficauda</i> subsp. <i>exquisita</i>			
592.	25194 <i>Morethia ruficauda</i> subsp. <i>ruficauda</i>			
593.	24183 <i>Mormopterus loriae</i> (Little Northern Freetail-bat)			
594.	<i>Mugil cephalus</i>			
595.	<i>Muraenesox cinereus</i>			
596.	24223 <i>Mus musculus</i> (House Mouse)	Y		
597.	<i>Myripristis</i> sp.			
598.	<i>Mytilocypris coolcalalaya</i>			
599.	<i>Navicula cryptonella</i> Lange-Bertalot			
600.	<i>Navicula molestiformis</i> Hust.			
601.	<i>Navicula radiosa</i> Kütz.			
602.	<i>Nematalosa come</i>			
603.	<i>Nematalosa</i> sp.			
604.	<i>Nematalosa vlamminghi</i>			
605.	<i>Nematoda</i> sp.			
606.	<i>Nematoda</i> sp. 16 (PSS)			Y
607.	<i>Nematoda</i> sp. 7 (PSS)			Y
608.	<i>Nematoda</i> sp. 8 (PSS)			Y
609.	<i>Nematoda</i> sp. P6 (PSW)			
610.	25422 <i>Neobatrachus aquilonius</i> (Northern Burrowing Frog)			
611.	25424 <i>Neobatrachus fulvus</i> (Tawny Trilling Frog)			
612.	25685 <i>Neochmia ruficauda</i> (Star Finch)			
613.	<i>Neopomacentrus filamentosus</i>			
614.	<i>Neothrix armata</i>			
615.	<i>Nephila edulis</i>			
616.	25497 <i>Nephurus levis</i>			
617.	24968 <i>Nephurus levis</i> subsp. <i>occidentalis</i>			
618.	24969 <i>Nephurus levis</i> subsp. <i>pilbarensis</i>			
619.	<i>Netuma thalassina</i>			Y
620.	<i>Nilobezzia</i> sp. P2 (PSW)			
621.	24095 <i>Ningau timealeyi</i> (Pilbara Ningau)			
622.	48016 <i>Ninox boobook</i> (Boobook Owl)			
623.	25747 <i>Ninox connivens</i> (Barking Owl)			
624.	<i>Nitzschia filiformis</i> (W. Sm.) Van Heurck			
625.	<i>Nitzschia frustulum</i> (Kütz.) Grun.			
626.	<i>Nitzschia palea</i> (Kütz.) W. Sm.			
627.	<i>Nitzschia sigma</i> (Kütz.) W. Sm.			
628.	<i>Nitzschia umbonata</i> (Ehr.) Lange-Bertalot			
629.	<i>No invertebrates</i>			
630.	25430 <i>Notaden nicholli</i> (Desert Spadefoot)			
631.	<i>Notobathynella</i> sp.			
632.	<i>Notograptus guttatus</i>			
633.	24224 <i>Notomys alexis</i> (Spinifex Hopping-mouse)			
634.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
635.	24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)			
636.	24742 <i>Nymphicus hollandicus</i> (Cockatiel)			
637.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
638.	<i>Oecetis</i> sp.			
639.	<i>Oecetis</i> sp. Pilbara 5 (PSW)			
640.	<i>Omobranchus punctatus</i>			
641.	<i>Ophichthus cephalozona</i>			
642.	<i>Opistognathus darwiniensis</i>			
643.	24618 <i>Oreoica gutturalis</i> (Crested Bellbird)			
644.	<i>Oribatida</i> group 5 (PSS)			
645.	<i>Orthetrum caledonicum</i>			
646.	24085 <i>Oryctolagus cuniculus</i> (Rabbit)	Y		
647.	<i>Ostracoda</i> (unident.)			
648.	<i>Ozestheria packardii</i>			
649.	24620 <i>Pachycephala lanioides</i> (White-breasted Whistler)			
650.	24621 <i>Pachycephala melanura</i> subsp. <i>melanura</i> (Mangrove Golden Whistler)			
651.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
652.	<i>Pantala flavescens</i>			
653.	<i>Paracentropogon vespa</i>			
654.	<i>Parachaeturichthys polynema</i>			
655.	<i>Paracymus spenceri</i>			
656.	<i>Paralimnocythere n</i> sp (PSW)			
657.	<i>Paramecium</i> sp.			
658.	<i>Paramelitidae</i> sp.			

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659.	<i>Paraplagusia bilineata</i>			
660.	<i>Paraplotosus albilabris</i>			
661.	<i>Parascorpaena picta</i>			
662.	<i>Parastenocarididae</i> sp.			
663.	<i>Parastenocaris jane</i>			
664.	<i>Parastromateus niger</i>			
665.	24627 <i>Pardalotus rubricatus</i> (Red-browed Pardalote)			
666.	<i>Parupeneus indicus</i>			
667.	24642 <i>Passer montanus</i> (Eurasian Tree Sparrow)	Y		
668.	<i>Pediana tenuis</i>			
669.	<i>Pelates octolineatus</i>			
670.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
671.	<i>Pellona ditchela</i>			
672.	<i>Pentapodus</i> sp.			
673.	<i>Pentapodus vitta</i>			
674.	<i>Periophthalmus argentilineatus</i>			
675.	<i>Peristrominus dolosus</i>			
676.	<i>Pervagor janthinosoma</i>			
677.	<i>Pescecyclus</i> sp. 442=462=465=CB2 (salinarum in Morton)			
678.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
679.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
680.	24659 <i>Petroica goodenovii</i> (Red-capped Robin)			
681.	<i>Petroscirtes breviceps</i>			
682.	<i>Petroscirtes mitratus</i>			
683.	<i>Pezidae</i> sp.			
684.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
685.	25698 <i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
686.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
687.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
688.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
689.	24411 <i>Phaps histrionica</i> (Flock Bronzewing, Flock Pigeon)			
690.	<i>Phorticosomus gularis</i>			
691.	<i>Phreodrilid</i> with dissimilar ventral chaetae			
692.	<i>Phreodrilid</i> with similar ventral chaetae			
693.	<i>Phreodrilus</i> n. sp. WA32 (PSS)			
694.	<i>Pilbarus millsii</i>			
695.	<i>Pinnularia borealis</i>			
696.	<i>Pinnularia divergens</i> W. Sm.			
697.	<i>Pinnularia subrostrata</i> (A. Cl.) Cl.-Euler			
698.	<i>Pisodonophis cancrivorus</i>			
699.	24101 <i>Planigale ingrami</i> (Long-tailed Planigale)			
700.	<i>Planorbidae</i> sp.			
701.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
702.	24842 <i>Platalea regia</i> (Royal Spoonbill)			
703.	<i>Platax teira</i>			
704.	<i>Platycephalus indicus</i>			
705.	<i>Platycephalus</i> sp.			
706.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
707.	24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			
708.	<i>Plectorhinchus flavomaculatus</i>			
709.	<i>Plectorhinchus gibbosus</i>			
710.	<i>Plectorhinchus polytaenia</i>			
711.	<i>Pleidae</i> sp.			
712.	<i>Plotosus lineatus</i>			
713.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
714.	25510 <i>Pogona minor</i> (Dwarf Bearded Dragon)			
715.	24907 <i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
716.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
717.	<i>Polyarthra dolichoptera</i>			
718.	<i>Polydactylus multiradiatus</i>			
719.	<i>Polydactylus plebius</i>			
720.	<i>Polypedilum leei</i>			
721.	<i>Pomacentrid</i> sp.			
722.	<i>Pomacentrus milleri</i>			
723.	<i>Pomacentrus nagasakiensis</i>			
724.	<i>Pomadasys argenteus</i>			
725.	<i>Pomadasys kaakan</i>			
726.	<i>Pomatomus saltatrix</i>			
727.	25706 <i>Pomatostomus temporalis</i> (Grey-crowned Babbler)			
728.	24684 <i>Pomatostomus temporalis</i> subsp. <i>rubeculus</i> (Grey-crowned Babbler)			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
729.	24769	<i>Porzana fluminea</i> (Australian Spotted Crane)			
730.	25732	<i>Porzana pusilla</i> (Baillon's Crane)			
731.		<i>Pristina longiseta</i>			
732.		<i>Procladius paludicola</i>			
733.		<i>Protonibea diacanthus</i>			
734.		<i>Psammoperca waigiensis</i>			
735.		<i>Psettodes erumei</i>			
736.	24105	<i>Pseudantechinus roryi</i> (Rory's Pseudantechinus)			
737.	25261	<i>Pseudechis australis</i> (Mulga Snake)			
738.	24235	<i>Pseudomys desertor</i> (Desert Mouse)			
739.	24237	<i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
740.	42416	<i>Pseudonaja mengdeni</i> (Western Brown Snake)			
741.	25263	<i>Pseudonaja modesta</i> (Ringed Brown Snake)			
742.	25264	<i>Pseudonaja nuchalis</i> (Gwardar, Northern Brown Snake)			
743.	24063	<i>Pseudorca crassidens</i> (False Killer Whale)			
744.		<i>Pseudorhombus argus</i>			
745.		<i>Pseudorhombus arsius</i>			
746.	24390	<i>Psophodes occidentalis</i> (Western Wedgebill, Chiming Wedgebill)			
747.		<i>Pterois antennata</i>			
748.		<i>Pterois</i> sp.			
749.		<i>Pterois volitans</i>			
750.	24172	<i>Pteropus alecto</i> (Black Flying-fox)			
751.	24173	<i>Pteropus scapulatus</i> (Little Red Flying-fox)			
752.	25009	<i>Pygopus nigriceps</i>			
753.	24278	<i>Pyrrholaemus brunneus</i> (Redthroat)			
754.		<i>Rachycentron canadum</i>			
755.	24245	<i>Rattus rattus</i> (Black Rat)	Y		
756.	24246	<i>Rattus tunneyi</i> (Pale Field-rat)			
757.	24776	<i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
758.		<i>Rheotanytarsus juliae</i>			
759.	48096	<i>Rhipidura albiscapa</i> (Grey Fantail)			
760.	25614	<i>Rhipidura leucophrys</i> (Willie Wagtail)			
761.	24457	<i>Rhipidura phasiana</i> (Mangrove Grey Fantail)			
762.	24982	<i>Rhynchoedura ornata</i> (Western Beaked Gecko)			
763.		<i>Sardinella albella</i>			Y
764.		<i>Sardinella gibbosa</i>			
765.		<i>Sargocentron prasinum</i>			
766.		<i>Sargocentron rubrum</i>			
767.		<i>Saurida gracilis</i>			
768.		<i>Saurida nebulosa</i>			
769.		<i>Scolecenchelys macroptera</i>			
770.		<i>Scomberoides commersonianus</i>			
771.		<i>Scomberoides lysan</i>			
772.		<i>Scomberoides lysan?</i>			Y
773.		<i>Scomberoides tol</i>			
774.		<i>Scomberomorus commerson</i>			
775.		<i>Scomberomorus queenslandicus</i>			
776.		<i>Scomberomorus semifasciatus</i>			
777.		<i>Selaroides leptolepis</i>			
778.		<i>Selenotoca multifasciata</i>			
779.		<i>Siganus fuscescens</i>			
780.		<i>Sillago analis</i>			
781.		<i>Sillago burrus</i>			
782.		<i>Sillago ingenua?</i>			Y
783.		<i>Sillago lutea</i>			
784.		<i>Sillago sihama</i>			
785.	25305	<i>Simoselaps anomalus</i> (Desert Banded Snake)			
786.	30948	<i>Smicrornis brevirostris</i> (Weebill)			
787.	24116	<i>Sminthopsis macroura</i> (Stripe-faced Dunnart)			
788.	24120	<i>Sminthopsis youngsoni</i> (Lesser Hairy-footed Dunnart)			
789.		<i>Sphyræna barracuda</i>			
790.		<i>Stauroneis anceps</i> Ehr.			
791.		<i>Staurosira construens</i> Ehr.			
792.		<i>Stegostoma fasciatum</i>			
793.	24521	<i>Sterna bengalensis</i> (Lesser Crested Tern)			
794.	24522	<i>Sterna bergii</i> (Crested Tern)			
795.	25643	<i>Sterna hybrida</i> (Whiskered Tern)			
796.		<i>Sternopriscus</i> sp.			
797.	48594	<i>Sternula nereis</i> (Fairy Tern)			
798.		<i>Stethojulis interrupta</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
799.	24482 <i>Stiltia isabella</i> (Australian Pratincole)			
800.	<i>Stolephorus carpentariae</i>			
801.	<i>Stolephorus commersonii</i>			
802.	<i>Strongylura strongylura</i>			
803.	24932 <i>Strophurus jeanae</i>			
804.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
805.	24946 <i>Strophurus strophurus</i>			
806.	<i>Stygonitocrella bispinosa</i>			
807.	<i>Stygonitocrella unispinosa</i>			
808.	<i>Supunna picta</i>			
809.	25269 <i>Suta fasciata</i> (Rosen's Snake)			
810.	25307 <i>Suta punctata</i> (Spotted Snake)			
811.	<i>Synanceia horrida</i>			
812.	<i>Synsphyronus callus</i>			
813.	<i>Tabanidae</i> sp.			
814.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
815.	24207 <i>Tachyglossus aculeatus</i> (Short-beaked Echidna)			
816.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
817.	<i>Tamopsis occidentalis</i>			
818.	<i>Tanypodinae</i> sp.			
819.	<i>Tasmanocoenis arcuata</i>			
820.	<i>Tasmanocoenis</i> sp. E (PSW)			
821.	<i>Tathicarpus butleri</i>			
822.	<i>Terapon jarbua</i>			
823.	<i>Terapon puta</i>			
824.	<i>Terapon thaeraps</i>			Y
825.	<i>Terapon theraps</i>			
826.	<i>Testudinella</i> cf. <i>trilobata</i> (=sp P3 PSW)			
827.	<i>Testudinella parva</i>			
828.	<i>Testudinella patina</i>			
829.	<i>Thalasseus bengalensis</i>			
830.	<i>Thalassoma amblycephalum</i>			
831.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
832.	<i>Thryssa mystax</i> ?			
833.	<i>Thryssa scratchleyi</i> ?			
834.	<i>Thryssa setirostris</i>			
835.	25202 <i>Tiliqua multifasciata</i> (Central Blue-tongue)			
836.	25548 <i>Todiramphus chloris</i> (Collared Kingfisher)			
837.	24306 <i>Todiramphus chloris</i> subsp. <i>pilbara</i> (Pilbara Collared Kingfisher)			
838.	42351 <i>Todiramphus pyrrhopygius</i> (Red-backed Kingfisher)			
839.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
840.	<i>Trachinotus bailloni</i>			
841.	<i>Triacanthus biaculeatus</i>			
842.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
843.	<i>Trichocarenum cylindricum</i>			
844.	<i>Trichocerca</i> cf. <i>tigris</i>			Y
845.	<i>Trichocerca similis</i>			
846.	<i>Trichocerca tigris</i>			
847.	<i>Trichocyclus nigropunctatus</i>			
848.	<i>Trichoniscidae</i> sp.			Y
849.	<i>Triops australiensis australiensis</i>			
850.	<i>Triplectides australis</i>			
851.	<i>Turbellaria</i> sp.			
852.	24848 <i>Turnix pyrrhotorax</i> (Red-chested Button-quail)			
853.	24851 <i>Turnix velox</i> (Little Button-quail)			
854.	30954 <i>Tursiops aduncus</i> (Indo-Pacific Bottlenose Dolphin)			
855.	25762 <i>Tyto alba</i> (Barn Owl)			
856.	<i>Tyto delicatula</i>			
857.	<i>Urodacus varians</i>			
858.	<i>Valenciennesa muralis</i>			
859.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
860.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
861.	25209 <i>Varanus acanthurus</i> (Spiny-tailed Monitor)			
862.	25210 <i>Varanus brevicauda</i> (Short-tailed Pygmy Monitor)			
863.	25211 <i>Varanus caudolineatus</i>			
864.	25212 <i>Varanus eremius</i> (Pygmy Desert Monitor)			
865.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
866.	25524 <i>Varanus panoptes</i> (Yellow-spotted Monitor)			
867.	25223 <i>Varanus panoptes</i> subsp. <i>rubidus</i>			
868.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
869.	<i>Veliidae</i> sp.			
870.	24205 <i>Vespadelus finlaysoni</i> (Finlayson's Cave Bat)			
871.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
872.	<i>Wyndundra kennedy</i>			
873.	<i>Xanthagrion erythroneurum</i>			
874.	<i>Xyrichtys</i> sp.			
875.	<i>Yongeichthys nebulosus</i>			
876.	<i>Zabidius novemaculeatus</i>			
877.	<i>Zonocyprretta kalimna</i>			
878.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			
879.	24857 <i>Zosterops luteus</i> (Yellow White-eye)			
880.	<i>Zosterops luteus</i> subsp. <i>balstoni</i>			

Conservation Codes

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

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



EPBC Act Protected Matters Report

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

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

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/07/21 15:43:19

[Summary](#)

[Details](#)

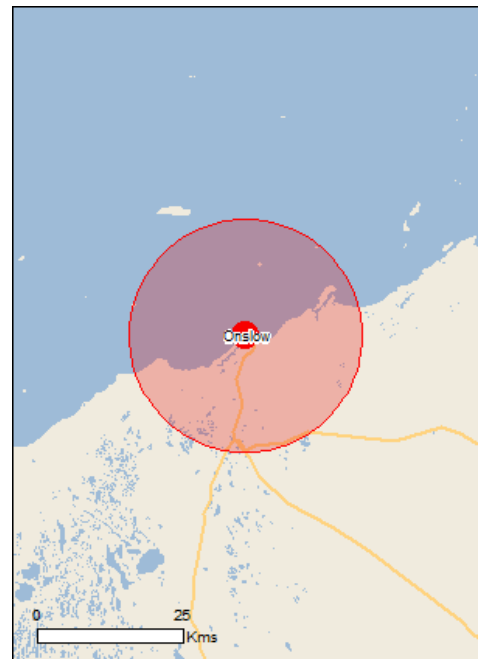
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

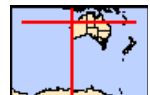
[Acknowledgements](#)



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[Coordinates](#)

Buffer: 20.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	26
Listed Migratory Species:	42

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	80
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	12
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species

Name	Status	Type of Presence
Rhinioncteris aurantia (Pilbara form) Pilbara Leaf-nosed Bat [82790]	Vulnerable	habitat known to occur within area Species or species habitat may occur within area
Reptiles		
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Sharks		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat known to occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area

Name	Threatened	Type of Presence
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

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

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

Name
Commonwealth Land -

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

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Larus novaehollandiae Silver Gull [810]		Breeding known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna anaethetus Bridled Tern [814]		Breeding known to occur within area
Sterna bengalensis Lesser Crested Tern [815]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrophis czelbukovi Fine-spined Seasnake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [1111]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within

Name	Status	Type of Presence area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Invasive Species		[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.		
Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Reptiles		
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat may occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-21.63589 115.10761

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.

Appendix B

Literature Review

Report	Project Area	Survey Timing and limitations	Survey Effort	Conservation Significant Fauna	Fauna Habitats
Onslow Townsite Strategy Flora, Vegetation and Fauna Assessment (ENV Australia Pty Ltd, 2011)	Overlapping with the Survey Area	May 2011	Basic fauna survey	<ul style="list-style-type: none"> • Eastern Osprey (<i>Pandion haliaetus cristatus</i>) – IA (DBCA); MI, MA (EPBC) • Caspian Tern (<i>Hydroprogne caspia</i>) – IA (DBCA); MI, MA (EPBC) 	<p>Two habitats were identified:</p> <ul style="list-style-type: none"> • Shrubland of <i>Acacia</i> species over hummock grassland • Beach
West Pilbara Iron Ore Project Onslow Rail Corridor Terrestrial Fauna Survey (Biota Environmental Sciences, 2009)	Approximately 14 km southwest of the Survey Area	October 2008	Detailed fauna survey	<ul style="list-style-type: none"> • Red-necked Stint (<i>Calidris ruficollis</i>) – IA (DBCA); MI, MA (EPBC) • Greater Sand Plover (<i>Charadrius leschenaultii</i>) – VU, IA (DBCA); VU, MI, MA (EPBC) • Wood Sandpiper (<i>Tringa glareola</i>) – IA (DBCA); MI, MA (EPBC) • Common Greenshank (<i>Tringa nebularia</i>) – IA (DBCA); MI, MA (EPBC) • Northern Quoll (<i>Dasyurus hallucatus</i>) – EN (DBCA); EN (EPBC) 	<p>Six habitats were identified:</p> <ul style="list-style-type: none"> • Buffel grass (<i>Cenchrus ciliaris</i>) and <i>Triodia</i> sp. on red silty loam • <i>Triodia</i> sp. on red sand dune • Samphire flat • <i>Acacia</i> sp. and <i>Triodia</i> sp. on stony loam alongside drainage line • <i>Acacia</i> sp. and <i>Triodia</i> sp. on loam • <i>Triodia</i> sp. on stony loam scree slope
West Pilbara Iron Ore Project Onslow Rail Corridor – Level 1 Fauna Assessment (Biota Environmental Sciences, 2008)	Approximately 14 km southwest of the Survey Area	2008	Desktop Assessment	<ul style="list-style-type: none"> • NA 	<p>Five habitats were identified:</p> <ul style="list-style-type: none"> • Mudflats • Alluvial Plains • Sandy Plains • Stony Plains • Mesas and Hills
A Level 1 Vertebrate Fauna Assessment of the Proposed Tubridgi to Wheatstone Gas Pipeline, Western Australia (Ninox Wildlife Consulting, 2013)	Approximately 14 km southwest of the Survey Area	April 2013	Basic fauna survey	<ul style="list-style-type: none"> • – 	<p>Thirteen habitats were identified:</p> <ul style="list-style-type: none"> • Tidal Mudflats/Creeks & Mangroves • Seasonally inundated inland wetlands • Chenopod Shrublands • <i>Acacia</i> over spinifex & buffel on sand • <i>Acacia</i> over spinifex on clay • Grasslands on clay • Shrubs over spinifex on sand • Eucs & shrubs over grasses on clay • Eucs & shrubs over spinifex & buffel on clay • Eucs over shrubs & grasses on clay • Riparian Zones on clay • Riparian Zones on sandy clay

Report	Project Area	Survey Timing and limitations	Survey Effort	Conservation Significant Fauna	Fauna Habitats
A Level 1 Vertebrate Fauna Assessment of the Proposed Ashburton North Gas Pipeline, Western Australia (Ninox Wildlife Consulting, 2014)	Approximately 15 km south of the Survey Area	April/ May 2014	Basic fauna survey	<ul style="list-style-type: none"> • – 	<p>Five habitats were identified:</p> <ul style="list-style-type: none"> • Seasonally inundated inland wetlands • Chenopod Shrublands • Acacia over spinifex on sand • Acacia over spinifex on clay • Eucs & shrubs over spinifex on clay
Onslow Rare Earths Plant Fauna Assessment (Bamford Consulting Ecologists, 2021)	Approximately 16 km southwest of the Survey Area	September/ October 2020	Basic fauna survey	<ul style="list-style-type: none"> • – 	<p>Four habitats were identified:</p> <ul style="list-style-type: none"> • Undulating dunes • Sandy loam flats • Claypans • Outcropping limestone
Flora and vegetation survey and terrestrial fauna survey for the Pilbara Regional Waste Management Facility (Phoenix Environmental Sciences, 2017)	Approximately 33 km south of the Survey Area	September 2017	Desktop review Targeted terrestrial fauna survey	<ul style="list-style-type: none"> • – 	<p>Two habitats were identified.:</p> <ul style="list-style-type: none"> • Mosaic of hummock grassland and shrubland on plain • Shrubland on sand dune

Appendix C

Fauna Habitat Assessments

BBF1a

Project:	Lot 300, Back Beach Rd, Onslow - Detailed Fauna Survey		
Date	26/04/2022	Personnel	PW
Zone	50	Easting	304248
		Northing	7606262
Landform and soil		Rock	
Landform	Dune slope	Rock type/s	None
Aspect	East	Surface stone cover	
Soil type	Sand	Surface stone size classes present	
Soil colour	Orange		
Condition		Habitat Features	
Quality	Good	Water Source	Absent
Fire History	Little or no fire evidence (>5 years)	Microhabitats	Leaf litter, Peeling bark
Disturbance	Weeds		
Introduced fauna	Cat	Ground Cover	26-50%
Vegetation			
Upper stratum	Absent		
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)	<i>Acacia coriacea</i>
Ground stratum	Mid (0.5-1 m)	Sparse grassland (0.25-20%)	<i>*Cenchrus ciliaris</i>



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BBF1b

Project:	Lot 300, Back Beach Rd, Onslow - Detailed Fauna Survey		
Date	26/04/2022	Personnel	PW
Zone	50	Easting	304295
		Northing	7606260
Landform and soil		Rock	
Landform	Dune crest	Rock type/s	None
Aspect	-	Surface stone cover	
Soil type	Sand	Surface stone size classes present	
Soil colour	Orange		
Condition		Habitat Features	
Quality	Very good	Water Source	Absent
Fire History	Little or no fire evidence (>5 years)	Microhabitats	Leaf litter, Peeling bark
Disturbance	Weeds		
Introduced fauna	Cat	Ground Cover	26-50%
Vegetation			
Upper stratum	Absent		
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)	<i>Acacia coriacea</i>
Ground stratum	Mid (0.5-1 m)	Sparse grassland (0.25-20%)	<i>*Cenchrus ciliaris</i>



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BBF2a

Project:		Lot 300, Back Beach Rd, Onslow - Detailed Fauna Survey				
Date		24/04/2022		Personnel	PW	
Zone	50	Easting	303911		Northing	7606217
Landform and soil			Rock			
Landform	Dune swale		Rock type/s	None		
Aspect	Southeast		Surface stone cover			
Soil type	Sand		Surface stone size classes			
Soil colour	Orange		present			
Condition			Habitat Features			
Quality	Very good		Water Source	Absent		
Fire History	Little or no fire evidence (>5 years)		Microhabitats	Leaf litter, Peeling bark		
Disturbance	Weeds					
Introduced fauna	Cat		Ground Cover	26-50%		
Vegetation						
Upper stratum	Absent					
Mid stratum	Tall (>2 m)	Open shrubland and/or heathland (20-50%)		Acacia coriacea		
Ground stratum	Low (>0.5 m)	Open grassland (20-50%)		*Cenchrus ciliaris, Threlkeldia diffusa		



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BBF2b

Project:		Lot 300, Back Beach Rd, Onslow - Detailed Fauna Survey				
Date		21/04/2022		Personnel	PW	
Zone	50	Easting	303989		Northing	7606191
Landform and soil			Rock			
Landform	Dune crest			Rock type/s	None	
Aspect	-			Surface stone cover		
Soil type	Sand			Surface stone size classes present		
Soil colour	Orange					
Condition			abitat Features			
Quality	Very good			Water Source	Absent	
Fire History	Little or no fire evidence (>5 years)			Microhabitats	Leaf litter, Peeling bark, Woody debris	
Disturbance	Weeds, Vehicle tracks					
Introduced fauna	Cat			Ground Cover	26-50%	
Vegetation						
Upper stratum	Absent					
Mid stratum	Tall (>2 m)	Sparse shrubland and/or heathland (0.25-20%)			Acacia coriacea	
Ground stratum	Low (>0.5 m)	Open grassland (20-50%)			*Cenchrus ciliaris, Threlkeldia diffusa	



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Appendix D

Fauna Species List

Conservation Status: State - Listed under Biodiversity Conservation Act 2016, Federal - Listed under Environmental Protection and Biodiversity Conservation Act 1999. MI/IA - Migratory, MA - Marine.

Family	Scientific Name	Common Name	Conservation Status		Method							
			State	Federal	Capture	Sighting	Camera	ARU	Call	Remains	Scat	Tracks
Amphibian												
Pelodryadidae	<i>Litoria caerulea</i>	Green Tree Frog				2						
Aves												
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	IA	MI, MA		4						
Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian Darter				1						
Artamidae	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow				43						
Charadriidae	<i>Charadrius ruficapillus</i>	Red-capped Plover		MA		26						
Hirundinidae	<i>Cheramoeca leucosterna</i>	White-backed Swallow				3						
	<i>Hirundo neoxena</i>	Welcome Swallow		MA		26			4			
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike		MA		3						
Corvidae	<i>Corvus orru</i>	Torresian Crow				7			3			
Ardeidae	<i>Egretta sacra</i>	Eastern Reef Heron		MA		3						
Falconidae	<i>Falco cenchroides</i>	Australian Kestrel		MA		5						
	<i>Falco longipennis</i>	Australian Hobby				1						
Meliphagidae	<i>Gavicalis virescens</i>	Singing Honeyeater				4						
	<i>Lichmera indistincta</i>	Brown Honeyeater				2						
	<i>Manorina flavigula</i>	Yellow-throated Miner				14						
	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater				1						
	<i>Ptilotula penicillata</i>	White-plumed Honeyeater				82			8			
Columbidae	<i>Geopelia striata placida</i>	Peaceful Dove				6	1					
	<i>Geophaps plumifera</i>	Spinifex Pigeon				12						
	<i>Ocyphaps lophotes</i>	Crested Pigeon					1					
Haematopodidae	<i>Haematopus fuliginosus</i>	Sooty Oystercatcher				7						
	<i>Haematopus longirostris</i>	Pied Oystercatcher				8						
Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	IA	MI, MA		40			12			
	<i>Larus novaehollandiae</i>	Silver Gull		MA		197			21	2		
	<i>Thalasseus bengalensis</i>	Lesser Crested Tern		MA		9						
	<i>Thalasseus bergii</i>	Greater Crested Tern	IA	MI, MA		108						
Maluridae	<i>Malurus assimilis</i>	Purple-backed Fairywren				23			3			

Family	Scientific Name	Common Name	Conservation Status		Method							
			State	Federal	Capture	Sighting	Camera	ARU	Call	Remains	Scat	Tracks
Maluridae	<i>Malurus leucopterus</i>	White-winged Fairywren				3	1		8			
	<i>Malurus splendens</i>	Splendid Fairywren				7			2			
	<i>Stipiturus ruficeps</i>	Rufous-crowned Emu-wren				1						
Psittaculidae	<i>Melopsittacus undulatus</i>	Budgerigar				2			1			
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater		MA		10			1			
Estrildidae	<i>Neochmia ruficauda</i>	Star Finch				3						
	<i>Taeniopygia guttata</i>	Zebra Finch				21			5			
Pandionidae	<i>Pandion haliaetus</i>	Osprey	IA	MI, MA		8						
Pomatostomidae	<i>Pomatostomus temporalis</i>	Grey-crowned Babbler							4			
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie Wagtail				1						
Zosteropidae	<i>Zosterops lateralis</i>	Grey-breasted White-eye		MA		6						
Mammalia												
Molossidae	<i>Chaerephon jobensis</i>	Northern Freetail Bat						1				
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat						1				
Felidae	<i>Felis catus</i>	Cat					3				1	1
Macropodidae	<i>Osphranter sp.</i>									2		2
Muridae	<i>Mus musculus</i>	House Mouse			3		1					
	<i>Notomys alexis alexis</i>	Spinifex Hopping-mouse			2	1	2					
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tailed Bat						1				
Dasyuridae	<i>Sminthopsis macroura</i>	Stripe-faced Dunnart			1							
Canidae	<i>Vulpes vulpes</i>	Red Fox					2					
Reptilia												
Agamidae	<i>Ctenophorus femoralis</i>	Dune Dragon			3							
	<i>Gowidon longirostris</i>	Long-nosed Dragon			1	1						
Scincidae	<i>Ctenotus superciliaris</i>				5		2					
	<i>Lerista bipes</i>				2							
	<i>Lerista onsloviana</i>				8							
	<i>Morethia ruficauda</i>				1							
	<i>Tiliqua multifasciata</i>	Central Blue-tongue					1					
Elapidae	<i>Demansia psammophis reticulata</i>				1							
Gekkonidae	<i>Gehyra variegata</i>	Variegated gehyra			2	2						
	<i>Hemidactylus frenatus</i>	Asian House Gecko			2							
	<i>Heteronotia binoei</i>	Bynoe's Gecko			2							

Family	Scientific Name	Common Name	Conservation Status		Method							
			State	Federal	Capture	Sighting	Camera	ARU	Call	Remains	Scat	Tracks
Pygopodidae	<i>Lialis burtonis</i>					1						
Diplodactylidae	<i>Lucasium stenodactylus</i>				11	1						
	<i>Strophurus strophurus</i>				5	1						
Carphodactylidae	<i>Nephrurus levis</i>				3	1						

Appendix E

eBird and Birdata Records

Taxon	Common Name	Conservation Status		No. Records		Monthly Records (% of No. Monthly Surveys)																							
						Januray		February		March		April		May		June		July		August		September		October		November		December	
		State	Federal	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata	eBird	Birddata
<i>Actitis hypoleucos</i>	Common Sandpiper	IA	MI, MA	79	72	27.3	31.6	64.7	84.6	27.3	33.3	4.8	0.0	0.0	15.4	0.0	0.0	8.1	7.7	31.6	31.0	50.0	52.6	46.2	62.5	36.0	25.0	34.8	33.3
<i>Apus pacificus</i>	Pacific Swift	IA	MI, MA		1		0.0		0.0		0.0		3.0		0.0	0.0	0.0		0.0		0.0		0.0	0.0		0.0		0.0	0.0
<i>Arenaria interpres</i>	Ruddy Turnstone	IA	MI, MA	118	98	81.8	78.9	82.4	76.9	77.3	61.1	52.4	30.3	0.0	7.7	0.0	0.0	2.7	2.6	10.5	9.5	50.0	47.4	46.2	75.0	52.0	50.0	73.9	83.3
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	IA	MI, MA		1		0.0		0.0		0.0		0.0		0.0		0.0		0.0		2.4		0.0		0.0		0.0		0.0
<i>Calidris alba</i>	Sanderling	IA	MI, MA	122	92	81.8	84.2	94.1	92.3	72.7	72.2	14.3	9.1	0.0	7.7	10.0	5.0	0.0	0.0	5.3	4.8	50.0	42.1	80.8	87.5	52.0	40.0	87.0	77.8
<i>Calidris ruficollis</i>	Red-necked Stint	IA	MI, MA	120	91	90.9	89.5	82.4	76.9	54.5	44.4	19.0	12.1	12.5	15.4	0.0	0.0	0.0	0.0	10.5	4.8	54.5	57.9	57.7	75.0	68.0	55.0	87.0	77.8
<i>Calidris tenuirostris</i>	Great Knot	CR, IA	CR, MI, MA	3	2	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	11.1
<i>Charadrius leschenaultii</i>	Greater Sand Plover	VU, IA	VU, MI, MA	185	136	90.9	89.5	94.1	92.3	81.8	77.8	76.2	42.4	31.2	53.8	25.0	15.0	27.0	12.8	47.4	28.6	77.3	63.2	88.5	93.8	68.0	55.0	87.0	77.8
<i>Charadrius mongolus</i>	Lesser Sand Plover	EN, IA	EN, MI, MA	4	9	0.0	0.0	0.0	0.0	0.0	5.6	4.8	3.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	2.4	9.1	15.8	3.8	6.3	0.0	0.0	0.0	5.6
<i>Chlidonias leucopterus</i>	White-winged Black Tern	IA	MI, MA	11	12	13.6	15.8	5.9	7.7	13.6	16.7	19.0	12.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Gelochelidon nilotica</i>	Gull-billed Tern	IA	MI, MA	72		31.8		23.5		22.7		23.8		25.0		20.0		13.5		18.4		9.1		26.9		40.0		52.2	
<i>Hirundo rustica</i>	Barn Swallow	IA	MI, MA	16	9	9.1	0.0	11.8	0.0	4.5	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	25.0	21.7	16.7
<i>Hydroprogne caspia</i>	Caspian Tern	IA	MI, MA	135	120	72.7	68.4	58.8	69.2	36.4	38.9	42.9	27.3	56.3	76.9	50.0	40.0	32.4	33.3	26.3	26.2	72.7	78.9	53.8	50.0	40.0	40.0	47.8	50.0
<i>Limosa lapponica</i>	Bar-tailed Godwit	IA	MI, MA	178	139	95.5	94.7	100.0	100.0	90.9	77.8	61.9	30.3	37.5	46.2	10.0	10.0	18.9	17.9	21.1	14.3	72.7	78.9	88.5	100.0	92.0	75.0	95.7	94.4
<i>Numenius madagascariensis</i>	Far Eastern Curlew	CR, IA	CR, MI, MA	12	11	9.1	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.4	4.5	5.3	0.0	6.3	4.0	0.0	30.4	33.3
<i>Numenius minutus</i>	Little Curlew	IA	MI, MA	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	12.5	0.0	0.0	0.0	0.0
<i>Numenius phaeopus</i>	Whimbrel	IA	MI, MA	38	32	4.5	5.3	17.6	15.4	31.8	33.3	19.0	15.2	0.0	0.0	5.0	0.0	0.0	0.0	5.3	4.8	13.6	15.8	19.2	31.3	24.0	10.0	26.1	33.3
<i>Pandion haliaetus</i>	Osprey	IA	MI, MA	98	86	18.2	21.1	47.1	38.5	31.8	33.3	28.6	21.2	25.0	30.8	25.0	20.0	54.1	59.0	31.6	28.6	27.3	31.6	34.6	25.0	40.0	30.0	30.4	27.8
<i>Pluvialis squatarola</i>	Grey Plover	IA	MI, MA	24	22	40.9	42.1	11.8	15.4	0.0	0.0	0.0	0.0	6.3	7.7	0.0	0.0	0.0	0.0	2.6	2.4	18.2	21.1	3.8	12.5	8.0	5.0	17.4	16.7
<i>Sterna dougallii</i>	Roseate Tern	IA	MI, MA	2	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	5.0	0.0	0.0
<i>Sterna hirundo</i>	Common Tern	IA	MI, MA	97	74	72.7	78.9	76.5	84.6	68.2	66.7	38.1	18.2	6.3	7.7	0.0	0.0	8.1	0.0	10.5	0.0	13.6	15.8	30.8	43.8	56.0	45.0	52.2	55.6
<i>Sternula albifrons</i>	Little Tern	IA	MI, MA	33	24	31.8	21.1	35.3	23.1	18.2	16.7	4.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	18.8	36.0	40.0	13.0	11.1
<i>Thalasseus bergii</i>	Greater Crested Tern	IA	MI, MA	95	75	31.8	31.6	76.5	69.2	68.2	44.4	81.0	42.4	31.2	38.5	40.0	35.0	21.6	17.9	7.9	11.9	22.7	26.3	26.9	25.0	8.0	5.0	21.7	22.2
<i>Tringa brevipes</i>	Grey-tailed Tattler	IA, P4	MI, MA	158	115	86.4	84.2	82.4	76.9	95.5	77.8	81.0	42.4	18.8	30.8	10.0	5.0	10.8	2.6	26.3	11.9	63.6	63.2	76.9	93.8	64.0	50.0	78.3	72.2
<i>Tringa nebularia</i>	Common Greenshank	IA	MI, MA	17	14	18.2	15.8	5.9	7.7	4.5	5.6	9.5	6.1	0.0	7.7	0.0	0.0	0.0	0.0	5.3	2.4	9.1	10.5	3.8	6.3	8.0	0.0	8.7	11.1
No. Monthly Surveys				289	270	22	19	17	13	22	18	21	33	16	13	20	20	37	39	38	42	22	19	26	16	25	20	23	18