PERDAMAN INDUSTRIES
CHEMICALS & FERTILISERS

Flora Management Plan

Perdaman Urea Project

Burrup Peninsula, Western Australia
PCF-PD-EN-FMP

Proponent:

Perdaman Chemicals and Fertilisers Pty Ltd

ABN: 31 121 263 741

Date: 10 October 2023

EPA Ministerial Statement No:1180

Assessment No:

2184 (WA)

2018/8383 (Commonwealth)

PERDAMAN INDUSTRIES
CHEMICALS & FERTILISERS

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Document Information

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A	15/03/20	Developed for DMA review	BR	DH
PCF 1	15/04/2021	Response to Submissions	Cardno	Cardno
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PCF 3	21/02/2022	Amendments – response to DWER & DAWE comments	SCJV	PERDAMAN
PCF 3 AR23	10/10/2023	Annual review July 2023. Minor amendments and addressing typos, no impact to management actions.	SCJV	PERDAMAN

Executive Summary

Proposal Title	Project CERES
Proponent name	Perdaman Chemicals and Fertilisers Pty Ltd.
Ministerial Statement No.	1180
EPBC Decision Notice	EPBC 218/8383
Proposed Construction & Operation Commencement Dates	Bulk earthworks is scheduled to commence in September 2023. Construction is scheduled to commence June 2024. Operation of the facility is proposed to commence 2027.
Purpose of the FMP	This Flora Management Plan (FMP) has been prepared to comply with the Conditions for the Proposal implementation set out in the Ministerial Statement (MS) 1180. Condition 4 of MS 1180 includes the implementation Conditions and procedures for flora and vegetation that are addressed within the FMP. The FMP provides a framework which describes how the project will address, manage, monitor and mitigate impacts to native flora and vegetation. This FMP provides monitoring actions for flora & vegetation to demonstrate compliance with the environmental outcomes included in Condition 4-1 of MS 1180. This plan supplements the PCF-PD-EN-PEMP Project Environmental Management Plan (PEMP) and PCF-PD-EN-WMP Weed Management Sub-Plan (WMP). This version of the FMP has been prepared in accordance with the annual review requirements. No substantive changes have been made to this plan.
Key environmental factors and objectives	The environmental outcomes for flora and vegetation are associated with the EPA Factor: To protect flora and vegetation so that biological diversity and ecological integrity are maintained. The environmental outcomes that must be met (as provided in MS (Condition 4-1)) are as follows: • The extent of native vegetation clearing within the development envelope shall not exceed 73.05 ha. • The extent of clearing within the vegetation community identified as Priority 1 (P1) Priority Ecological Community (PEC) - Burrup Peninsula Rock Pile Communities shall not exceed 0.16 ha. The environmental objective for flora and vegetation (as provided in MS (Condition 4-1)) is as follows: • All direct impacts (other than the direct impacts authorised under Condition 4-1) are avoided and minimise indirect impacts to native vegetation.
Condition Clauses	Condition requirements related to MS 1180 for the management of flora and vegetation have been detailed in Appendix 1 of this Plan and Section 1.3.
Key provisions in the plan	The FMP's key provisions are included in Section 2, Management Plan Provisions. This Section details the outcome and management-based actions, that will be applied for the life of the project.

Foreword

This Flora Management Plan (FMP) is a sub-plan of the overarching Project Environmental Management Plan (PEMP), PCF-PD-EN-PEMP, for the Project CERES. An overview of the structure of the PEMP and associated management plans is illustrated in Figure 0-1.

This plan shall be reviewed and updated as necessary throughout the construction, operation and decommissioning phases of the project. The review process is detailed in Section 15 of the PEMP: *Review and Continual Improvement*.

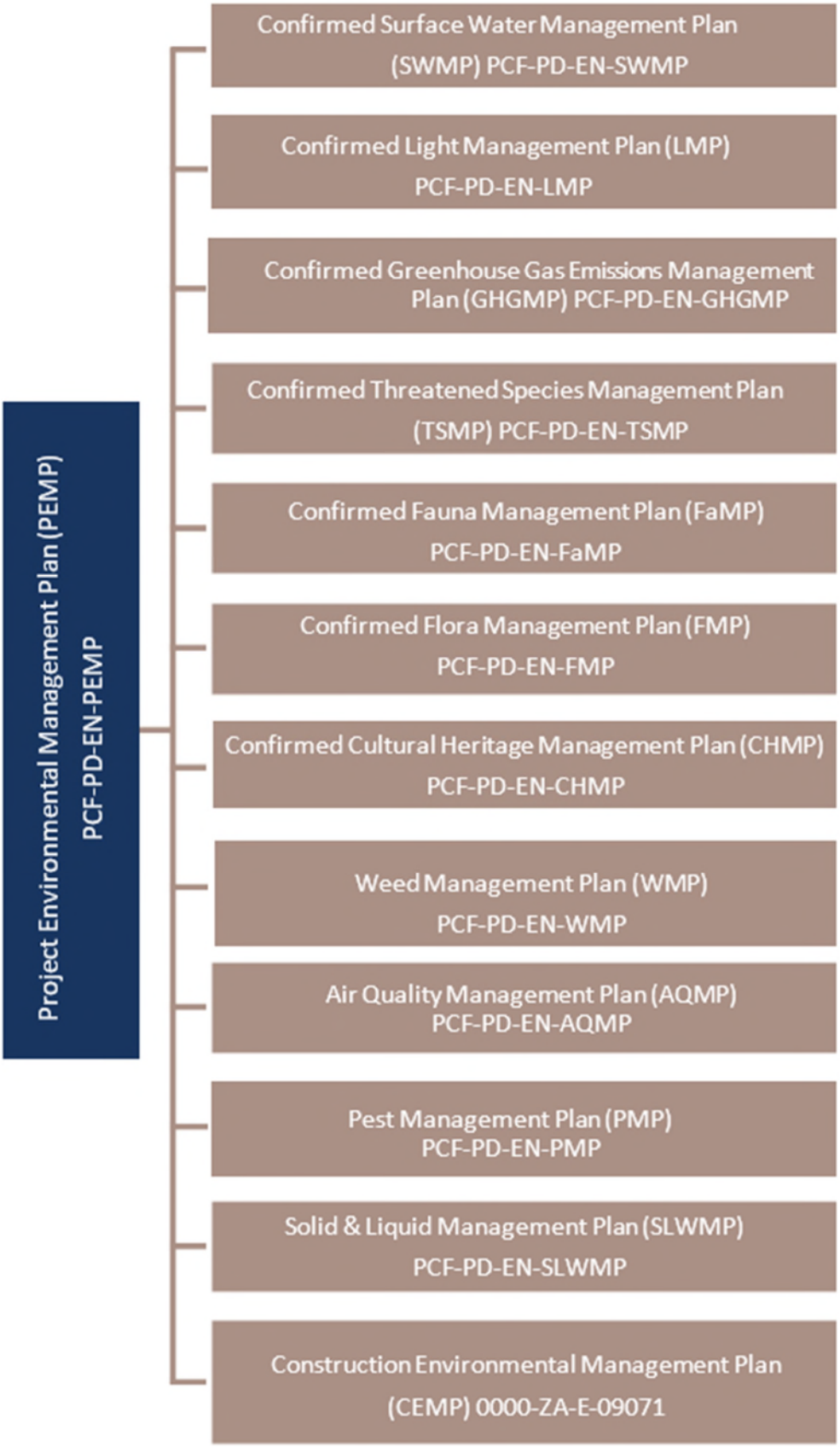

Figure 0-1 Structure of the Project Environmental Management Plan and supporting management plans

Contents

1 Context, Scope & Rationale

1.1 Proposal Description

Perdaman plans to construct and operate a state-of-the-art urea plant with a production capacity of approximately 2 million tonnes per annum (Mtpa) on the Burrup Peninsula in the Northwest of Australia (Figure 1-2) (the Project).

The project infrastructure including the main production facility (urea plant), administration, maintenance and storage infrastructure, conveyor and port storage and shiploading facilities are situated within the Burrup Strategic Industrial Area (Burrup SIA) approximately 8 km from Dampier and 20km north-west of Karratha on the Burrup Peninsula. The Burrup SIA has established industrial facilities including Yara Pilbara Fertilisers and Nitrates plants and Woodside's Pluto LNG plant. The estate's proximity to gas, port and other key infrastructure makes it an ideal location for the project.

The Burrup SIA is located in close proximity to the Murujuga National Park which covers an area of 4,913ha on the Burrup Peninsula. The area is considered to host the largest concentration of ancient rock art in the world. As such, the project will apply effective management strategies that minimise or abate, actual or potential impacts on the environment, heritage and cultural values of the region.

The project involves piping natural gas from the nearby Woodside operated LNG facility to the project site under a long term commercial off-take agreement. Natural gas is converted to urea and the final granulated product is transported by conveyor to the Dampier Port by closed conveyor along the East West Service route, where new facilities will include an enclosed stockpile shed and ship loading facilities.

Proven Urea production technology underpins each of the key stages of this project. The technologies being applied to the plant are equivalent to the industry best for the specific applications and successfully operate elsewhere in the world. The processing plant can be broadly considered in four sections, or Blocks, namely:

- Gas Block
- Product Block
- Utility Block
- Infrastructure and Logistics

Each of the Process Blocks is made up of a number of process units or physical sections of the plant. The major process sections are described in Figure 1-1 below.

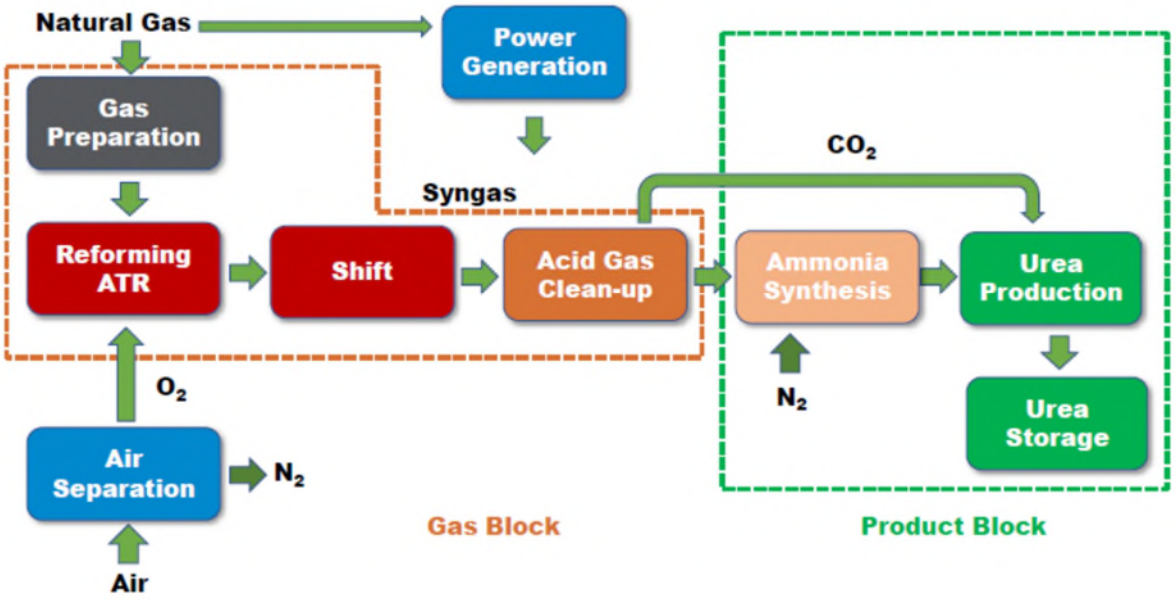

Figure 1-1 Process Block Diagram

The project area, including Sites C and F, the causeway, conveyor and Port storage and loading facilities, extends east-west approximately 3.4km covering approximately 105 hectares in area. As illustrated in Figure 1-2, the project area can be separated into five key areas, as follows:

Site C

Site C is relatively undeveloped with the only visible disturbance being a few access tracks. The site is situated adjacent to the Yara Pilbara Fertilisers ammonia plant to its east, to the north are steep rocky outcrops (P1 Priority Environmental Community (PEC)) and to the south the saline coastal flat area. Drainage from the site flows in a southerly direction towards the saline coastal flat between Hearson Cove and King Bay.

Once developed Site C will include the main process plant and a 75,000-tonne urea storage shed.

Site F

Site F is situated to the south of Site C, on the opposite side of the saline coastal flat. It includes Hearson Cove Road and a significant proportion of previously disturbed area (now rehabilitated). Drainage from this area flows primarily north into the saline coastal flat.

This area will be used as laydown for equipment and modules, and for shutdown / maintenance activities. The east portion of Site F will be developed to include the project's administration, maintenance, storage and warehousing facilities.

Causeway

The causeway, which links Sites C and F, extends across the saline coastal flat.

The causeway will be built up above the flat and will include several hydrological and fauna friendly culverts to ensure the structure does not impede natural drainage, tidal action or the movement of wildlife.

Conveyor

The 3.5km conveyor will transport urea from the storage shed at Site C to the Port loading shed.

From Site C the conveyor will be constructed on relatively undisturbed land, to the west of the existing Water Corp pipeline corridor. It will extend north, connecting to the existing Burrup East West Services Corridor (EWSC).

The EWSC is a bitumen sealed corridor which already includes the Yara Pilbara Fertilisers ammonia pipeline which extends to the bulk liquids jetty adjacent to the project's port facilities. The project's conveyor will be positioned within this corridor and where possible use existing culverts to avoid roads and other infrastructure. Where the conveyor crosses Woodside's Haul Road the road will be built up to allow the conveyor to pass under.

Port Area

The Port Area includes a storage shed, covered conveyor and ship loader. The storage shed will be located within an existing highly disturbed quarry and the ship loader on a wharf which will be constructed by Pilbara Port Authority (PPA). The Conveyor will be situated on cleared area associated with the new wharf and existing quarry, and a small section of rocky ground between these two areas.

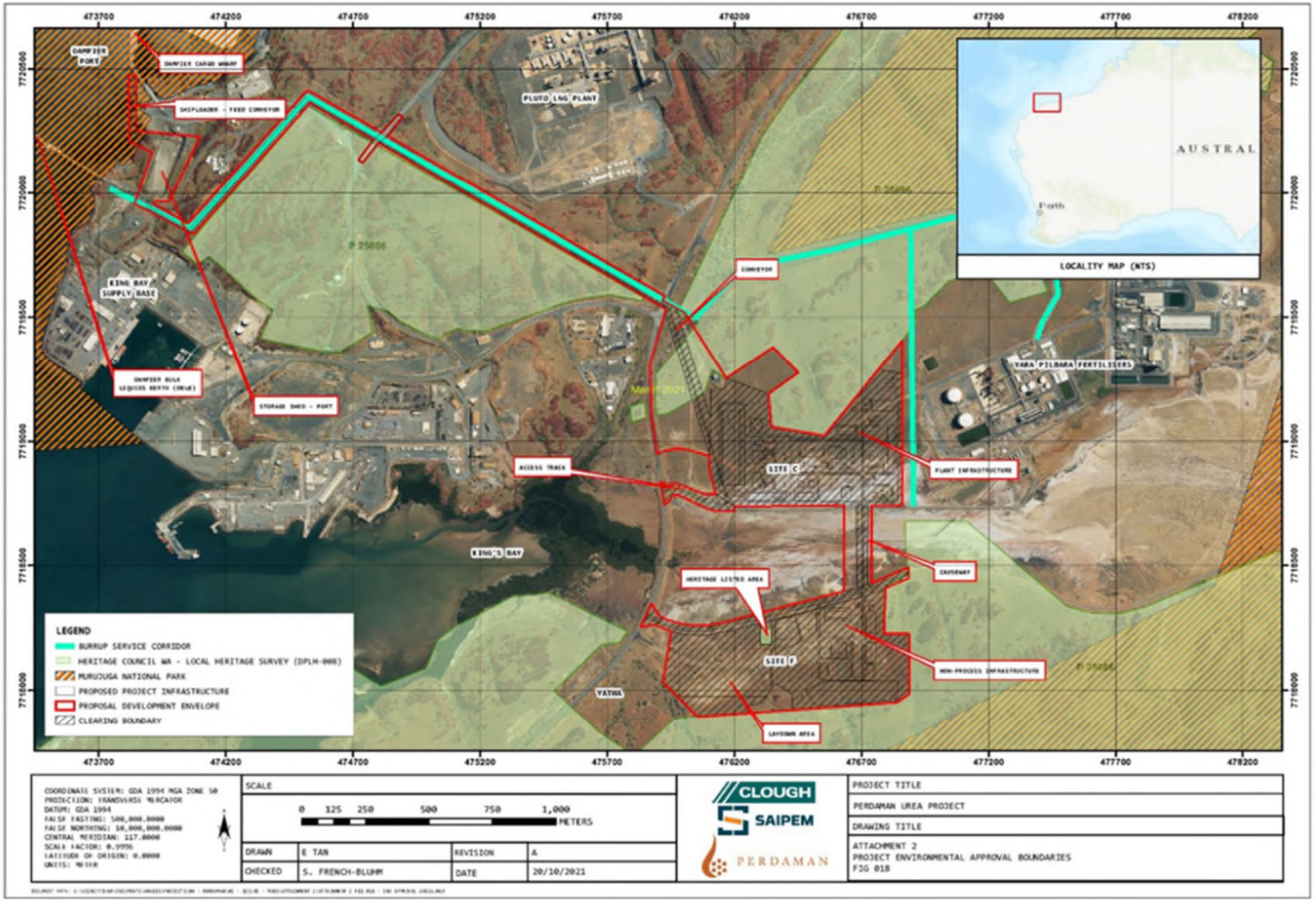

Figure 1-2 Project Site Layout and Adjoining Facilities.

1.1.1 Scope & Requirement for the Plan

In accordance with Condition 4-3 (MS 1180) the Confirmed Flora Management Plan (PCF-PD-EN-FMP-PCF3) was provided to the CEO and the Department of Agriculture, Water and the Environment (DAWE) (now Department of Climate Change, the Environment, Energy and Water, DCCEEW) on 21 February 2022. The Confirmed Flora Management Plan PCF-PD-EN-FMP-PCF3 was prepared in consultation with the Murujuga Aboriginal Corporation and meets the requirements of Condition 4-7. The CEO confirmed in writing on 11 March 2022 that the Confirmed Flora Management Plan submitted under Condition 4-3 (PCF-PD-EN-FMP-PCF3) satisfies the requirements of Condition 4-7.

In accordance with Section 3.1, this plan has undergone an annual review.

This Confirmed Flora Management Plan (FMP) (PCF-PD-EN-FMP-PCF3) includes the requirements for management and monitoring of environmental performance against prescribed flora and vegetation outcomes and objectives during the construction and operational activities at Site C, Site F, the causeway, the conveyor corridor, Port side storage, transfer and ship loading areas. A short description of these areas is provided above in Section 1.1.

Some of the vegetation associations managed in accordance with this plan are a key requirement to satisfy the management efforts for conservation significant species and native fauna that occur in the project development envelope. The Confirmed Fauna Management Plan (PCF-PD-EN-FaMP) and the Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP) will supplement this Confirmed Flora Management Plan by providing monitoring and management measures to ensure fauna and conservation significant species environmental outcomes and objectives are met in relation to habitat protection from project-related activities. Conservation significant species at risk of habitat loss from project-related activities are listed in Section 1.2.1.

This FMP has been prepared to meet the requirements of the EPA's "***Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plan***" (2021). In accordance with ministerial Condition 4-7, this Plan shall demonstrate it has met the requirements detailed within Conditions 4-7 (1) through to 4-7 (8).

This document applies to all phases of the project (refer to Section 9 of this Plan) including but not limited to, Planning, Design, Construction, Commissioning and Operations.

This document will be periodically updated as new approvals are received and compliance requirements are determined. This document will be updated following construction to apply to updated operational aspects of the project.

The scope of this FMP does not include the construction of port facilities such as the jetty or infill of the coastal area for the provision of a wharf. These Works are to be managed by the Pilbara Port Authority (PPA) and are subject to separate approvals. The area in which the conveyor, ship loader and storage shed will be constructed is a highly disturbed area.

The main potential impacts to flora on the project include clearing of native vegetation and impacts on significant flora species, introduction and spread of weeds, dust deposition, hydrological changes and altered fire regimes. A suite of performance criteria and related response actions, management strategies and monitoring programs will be implemented throughout the construction and operational phases of the project to minimise or abate these impacts. These provisions, in conjunction with the Conditions in MS 1180, are the provisions with which this FMP has been written to comply and that will be adhered to across all project sites under the control of Perdaman.

1.1.2 Responsibility

The responsibility for flora management and compliance with this Plan sits primarily with Perdaman.

It is the responsibility of the EPC Contractor and personnel to understand their scope of works and how flora management applies to their activities during construction.

For specific roles and responsibilities related to flora management during the relevant phase of the Project, refer to Section 5 of the **Perdaman Project Environmental Management Plan** (PEMP) and Section 9 of the **Construction Environmental Management Plan** (0000-ZA-E-09071) and the Flora and Vegetation Management Sub-Plan (for responsibilities during the construction phase).

1.1.3 Legislative Framework

Project CERES sought approvals under both State and Commonwealth legislative frameworks. The two main pieces of legislation that relate to this project and provide the overall framework for environmental management for the project are as follows:

- *Environment Protection and Biodiversity Conservation Act, 1999 – Commonwealth; and,*
- *Environmental Protection Act, 1986 – State.*

Project CERES was referred to the Environmental Protection Authority (EPA) under the *Environmental Protection Act 1986* in accordance with Section 38 Part IV. Pursuant to section 45 of the EP Act, it has been agreed that this proposal may be implemented under the Conditions of Ministerial Statement 1180, as of the 24th of January 2022.

The EP Act provides for "the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing".

The Australian Government's key environmental legislation is the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act protects and manages matters of national environmental significance (MNES) which include nationally and internationally important flora, fauna, ecological communities, and National Heritage places.

The project was also referred to the Commonwealth Department of the Environment and Energy (DoEE) under the EPBC Act on the 21st of December 2018 (Reference: 2018/8383) through the s.87 accreditation provisions. The DoEE determined on 28th March 2019 that the Proposed Action was a "Controlled Action" under s.75 of the EPBC Act. The proposal was referred and assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for its impacts on Listed threatened species and communities (sections 18 & 18A), National Heritage places (sections 15B & 15C), Listed migratory species (sections 20 & 20A) and Commonwealth Marine Areas (sections 23 & 24A).

On the 26 February 2022, the Proposal was provided with an approval decision, as being an approved action subject to conditions. The decision was made under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the EPBC Act). The **Approved Action** under the decision being; *To construct and operate a urea plant and associated infrastructure on the Burrup Peninsula, Western Australia [See EPBC Act referral 2018/8383, the variation accepted on 26 July 2019 and the variation request accepted on 10 February 2021].* The EPBC approval has affect until the 24th January 2102.

Additional legislation relevant to flora and vegetation management during the project includes but is not limited to:

- *Biodiversity Conservation Act, 2016*
- *Biodiversity Conservation Regulations, 2018*
- *Biosecurity and Agriculture Management Act, 2007*
- *Biosecurity and Agriculture Management Regulations, 2013*
- *Environmental Protection (Clearing of Native Vegetation) Regulations, 2004*
- *Environmental Protection (Unauthorised Discharge) Regulations, 1997.*

This Plan will be developed and regularly reviewed to comply with the commitments and legal obligations arising from the project approvals process.

1.2 Key Environmental Factors

The EPA identified the key environmental factors for the project as including: **Flora and Vegetation**, Terrestrial Fauna, Inland Waters, Air Quality, Greenhouse Gas Emissions, Coastal Processes, Social Surroundings and Marine Environmental Quality.

This Plan addresses the **Flora and Vegetation** and the Inland Waters key environmental factors. Inland waters have been included in this Plan as a requirement of Conditions 4-7(2)(b), 4-7(2)(c) and 4-7(2)(d) of the MS 1180 and is detailed in Appendix 1. Although there is overlap of values between flora and vegetation and other key environmental factors due to association by ecological process, this Plan has been developed to meet the EPA's Flora and Vegetation & Inland Waters environmental factor objective as outlined in Table 1-1. The relevance of this environmental factor to the project is presented in Table 1-2.

Table 1-1 Key Environmental Factors

Key Environmental Factor	Objective
Flora & Vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Inland Waters	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.

1.2.1 Flora & Vegetation Values

Flora and vegetation surveys recorded two (2) flora species of conservation significance, as detailed in Section 1.5.1 of this FMP, in addition to the recording of 23 locally significant vegetation communities within

the development envelope. The proposal will directly disturb 21 of these communities during construction (Cardno 2021a). The Burrup Peninsula Rock Pile community PEC (Priority 1) was recorded in numerous locations within the development envelope. Several of these sites are located within the disturbance footprint for the proposal (Cardno 2021a).

With surveys not only identifying priority vegetation communities and vegetation of conservation significance, impacts to vegetation within the project development envelope has the potential to impact fauna species listed under the *Environmental Protection and Biodiversity Conservation Act (1999) and the Biodiversity Conservation Act* (*2016*) comprising:

- Northern Quoll (*Dasyurus hallucatus*)
- Pilbara Olive Python (*Liasis olivaceus barroni*)
- Ghost Bat (*Macroderma gigas*)
- Curlew sandpiper (*Calidris ferruginea*)
- Red knot (*Calidris canutus*)
- Lesser sand plover (*Charadrius mongolus*)
- Bar-tailed godwit (*Limosa lapponica baueri*)
- Australian fairy tern (*Sternula nereis nereis*)
- Great knot (*Calidris tenuirostris*)
- Eastern curlew (*Numenius madagascariensis*)

With the potential to impact these protected species, environmental outcomes for management of clearing during construction have considered conservation significant fauna habitats to remain consistent with the EPA factor objective for native fauna relative to the proposal. Management pertaining to native fauna will however be addressed in the Confirmed Fauna Management Plan (PCF-PD-EN-FaMP) and the Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP) separately.

The EPA considers that the clearing of native vegetation and impacts on other associated environmental values in the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion is significant where the cumulative impact may reach critical levels if not managed.

1.2.1.1 Vegetation of Conservation Significance in the Project Area

Twenty-six locations in the study area have been classified as the P1 Priority Ecological Community – Rockpiles of the Burrup Peninsula. These locations are not presently listed on the DBCA database. Seven vegetation associations have been classified in this assessment to be synonymous with vegetation associations listed by M. E Trudgen & Associates (2002) as being of conservation significance because they have less than 10 occurrences across the Burrup Peninsula and Angel, Gidley and Dolphin Islands. A further 4 have been included as they were listed with 10 to 24 occurrences. Impact assessment on these vegetation types will need to consider the cumulative impact of prior developments.

The EPA (2001) noted that vegetation in the King Bay – Hearson Cove Valley has high conservation value, and that part of the floristic variation appears to be uncommon elsewhere on the Peninsula (Trudgen et al., 2001). The EPA (2001) stated that the King Bay – Hearson Cove valley appeared to be the only area on the Peninsula and islands where there is development of both an infrequently submerged littoral zone, an extensive area of samphires, and the littoral grass *Sporobolus virginicus*. It considered that more comparative information was required for the valley vegetation, and that subsequent development needed to incorporate the findings from such work into its planning.

Astron Environmental (2005) mapped samphire vegetation in the valley, allowing a more detailed impact and cumulative impact assessment. Outback Ecology (2009) noted that the community mapped as *Sm* and described as Saline Inlet and Supra-tidal Flats by M. E. Trudgen & Associates (2002) had approximately 56% of this community's extent represented within the proposed Burrup Peninsula Conservation Reserve. Although not classified to the vegetation association level, M. E. Trudgen & Associates (2002) mapped 50 to 99 occurrences of *Sm* and 25 to 49 occurrences of the littoral grass *Sporobolus virginicus.*

The EPA (2001) noted that the valley is the only broad valley with gentle lower slopes and consequently had the best stands of a part of the range of vegetation structural / dominance units on the Burrup Peninsula (Trudgen et al. 2001). The Burrup Nitrates project along with other industrial developments in the valley have directly impacted vegetation assemblages considered significant and in general have fragmented the catena / topographic sequence on the northern side of the valley. However, the EPA recognizes that the Burrup Peninsula Land Use Plan and Management Strategy (O'Brien Planning Consultants, 1996) set aside about 5,400 ha (62%) of the Burrup Peninsula for conservation, recreation and heritage protection, and that the valley has been set aside for industrial development.

The EPA (2001) expects proponents to take reasonable measures to minimise impacts on the vegetation communities of highest importance as defined at a local and regional scale, having taken the available information on vegetation surveys into account when planning the footprint of their plants.

1.2.1.2 Flora of Conservation Significance

Four flora of conservation significance occurred inside the survey study area. Three *Terminalia supranitifolia* (P3) trees occur on rockpile vegetation in the south of the study area which are also classified as the P1, Priority Ecological Community (PEC) - Rockpiles of the Burrup Peninsula.

One specimen of *R. bungarensis* (P4) was collected from near the eastern boundary in a shallow drainage area. *T. supranitifolia* is found in other areas on the Burrup Peninsula, and other areas of the Pilbara, while *R. bungarensis* is widespread throughout the Burrup Peninsula. As such, development of the study area does not represent a significant loss of either of these species.

Conservation significant flora within the project development envelope are displayed in Figure 1-3.

1.2.1.3 Priority Flora

No Priority flora located during the field surveys will be impacted by the proposed layout. *Dolichandrone occidentalis* has been identified previously as being of local conservation significance as the distribution on the Burrup Peninsula is limited to one known area, despite it being widespread on the mainland. The project area intersects with small pockets of this species; however, majority of its distribution is to the north of the study area and will not be impacted.

1.2.1.4 Priority Ecological Communities

There are 21 Priority 1 ecological community Rockpiles of the Burrup Peninsula with the vegetation community *BaAcIc* in the broader study area (APM, 2019), individual community size ranges from 0.013 ha to 0.312 ha. The total cover of all Priority 1 ecological community Rockpiles of the Burrup Peninsula in the broader study area (APM, 2019) is 1.876 ha.

BaAcIc in the study area covers 1.656 ha. Of this an area of 0.13 ha will be impacted by project clearing.

There is a large, undisturbed area of the Priority 1 ecological community Rockpiles of the Burrup Peninsula to the north and south of the study area, with a large proportion of the total area on the Burrup Peninsula occurring in reserve (National Park) areas. As such the proposed impact is not considered to have a significant effect on the overall sustainability of this vegetation type.

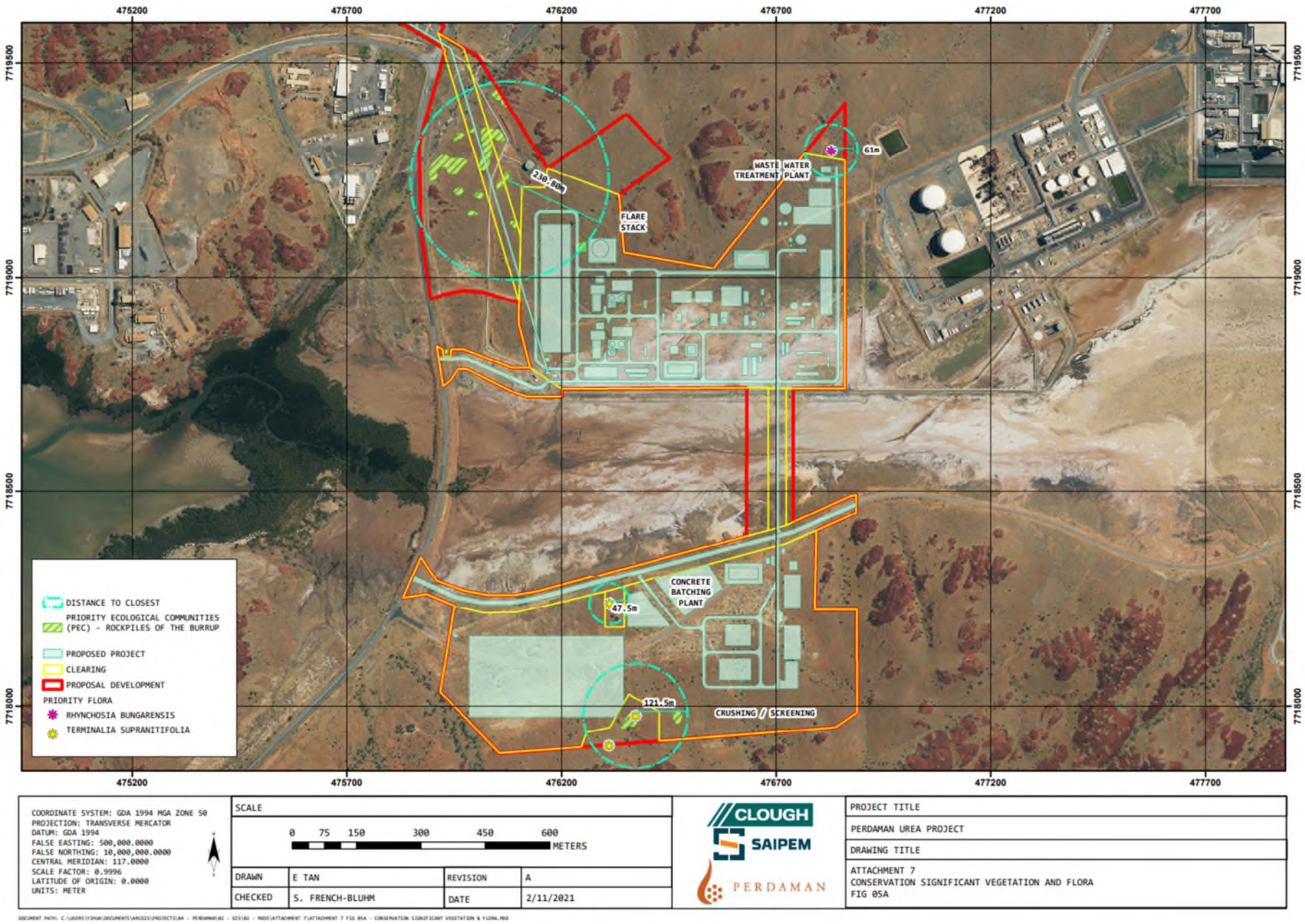

Figure 1-3 Conservation Significant Flora and Vegetation Communities of the Study Area

1.2.1.5 Impact on Vegetation Associations

The Project Area intersects a number of vegetation associations identified in Trudgen and Associates (2002) as being of regional conservation significance. The area mapped as *TaTsRm* (*Triodia angusta*, *Triodia epactia* grassland with *Tephrosia supina* herbland and *Rhyncosia minima lianes*) by Trudgen and Associates (2002), was recorded as a single occurrence and thus of high conservation significance. In its biological assessment APM (2019) retained the description given by Trudgen and Associates (2002) but note a much lower abundance of *Tephrosia supina* herbland and *Rhyncosia minima lianes*, likely due to the lower than average rainfall conditions. APM also noted that this area is a very narrow (15 m wide) strip of area (both in 2002 and 2019) immediately adjacent to the disturbed and rehabilitated zones to the east. In the Cluster analysis, the site was grouped with other sites based on the presence of *Triodia angusta*, and in the present study this locality is one of the furthest occurrences of *T. angusta* from the inlet.

It is considered here that the area mapped as **CcTs* is synonymous with *TaTsRm*, albeit in poorer condition due to the presence of a weedy grass. APM (2019) mapped a greater area than Trudgen and Associates (2002) of this vegetation type. Approximately 0.64 ha of **CsTs* and *TaTsRm* will be cleared as part of the project.

There is one *ChAbSg* (*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* lowshrubland to low open heath over *Triodia epactia* hummock grassland) vegetation association recorded by Trudgen and Associates (2002) inside the study area, as having 2 to 4 occurrences, therefore *ChAbSg* of conservation significance. No clearing has occurred of this vegetation from prior development. There are 4 occurrences of this vegetation remaining outside the study area. The *ChAbSg* vegetation is located in Site C of the project footprint and willaccount for 0.75 ha of clearing.

The Project Area also intersects three vegetation associations that were recorded by Trudgen and Associates (2002) as having 5 to 9 occurrences. This includes 5.43 ha of the vegetation association *AbTa* (*Acacia bivenosa* high open shrubs over *Triodia angusta* hummock grassland) which is within the project clearing area. Using the combination of APM (2019) and Trudgen and Associates (2002) vegetation mapping, there is approximately 12 ha in total and there will be 11 occurrences remaining outside the Biological Survey study area. There are no occurrences of this vegetation within the Murujuga National Park.

The Project will disturb 6.3 ha of the vegetation AbImTe (*Acacia bivenosa)* high open shrubland to high shrubland over *Indigofera monophyla* scattered low shrubs to low open shrubland over *Triodia epactia* hummock grassland to closed hummock grassland). Trudgen and Associates (2002) mapped a total of 23.4 ha of this vegetation type as a single unit and a further 8.14 ha as mixed units. The area mapped by Trudgen and Associates (2002) outside of the project area intersects other developments and 10.981 ha has already been cleared but no occurrences have been completely cleared. There will be 8 occurrences remaining post-development of the project plus 2 more occurrences as a mixed unit.

There about 0.16 ha of the vegetation association *EvAa* (Eucalyptus victrix low woodland over *Acacia ampliceps* open heath over *Cyperus vaginatus*, *Eriachne tenuiculmis*, *Triodia angusta* sedgeland and tussock/hummock grassland) within the Project Development Envelope (PDE), however this community won't be impacted by site Works or activities.

The Project sites intersect *ChAbSg* which was recorded by Trudgen and Associates (2002) as having 2 to 4 occurrences and is therefore of conservation significance. No clearing has occurred of this vegetation from prior development. Clearing activities will disturb 0.75 ha of *ChAbSg.*

The project sites intersect two vegetation associations that were recorded by Trudgen and Associates (2002) as having 10 to 24 occurrences. Though the proposed clearing could impact up to 0.49 ha of *ChImTe* and 0.64 ha of *EvDsTa* it will not remove the entire occurrences of the vegetation type and therefore there is no change to their conservation significance as assessed through the method of Trudgen and Associates (2002).

Figure 1-4 and Figure 1-5 map the vegetation communities into northern and southern study areas respectively. It should be noted that this is the total study area and not the final project footprint, nor potential clearing areas, which are both located within and smaller than the study area.

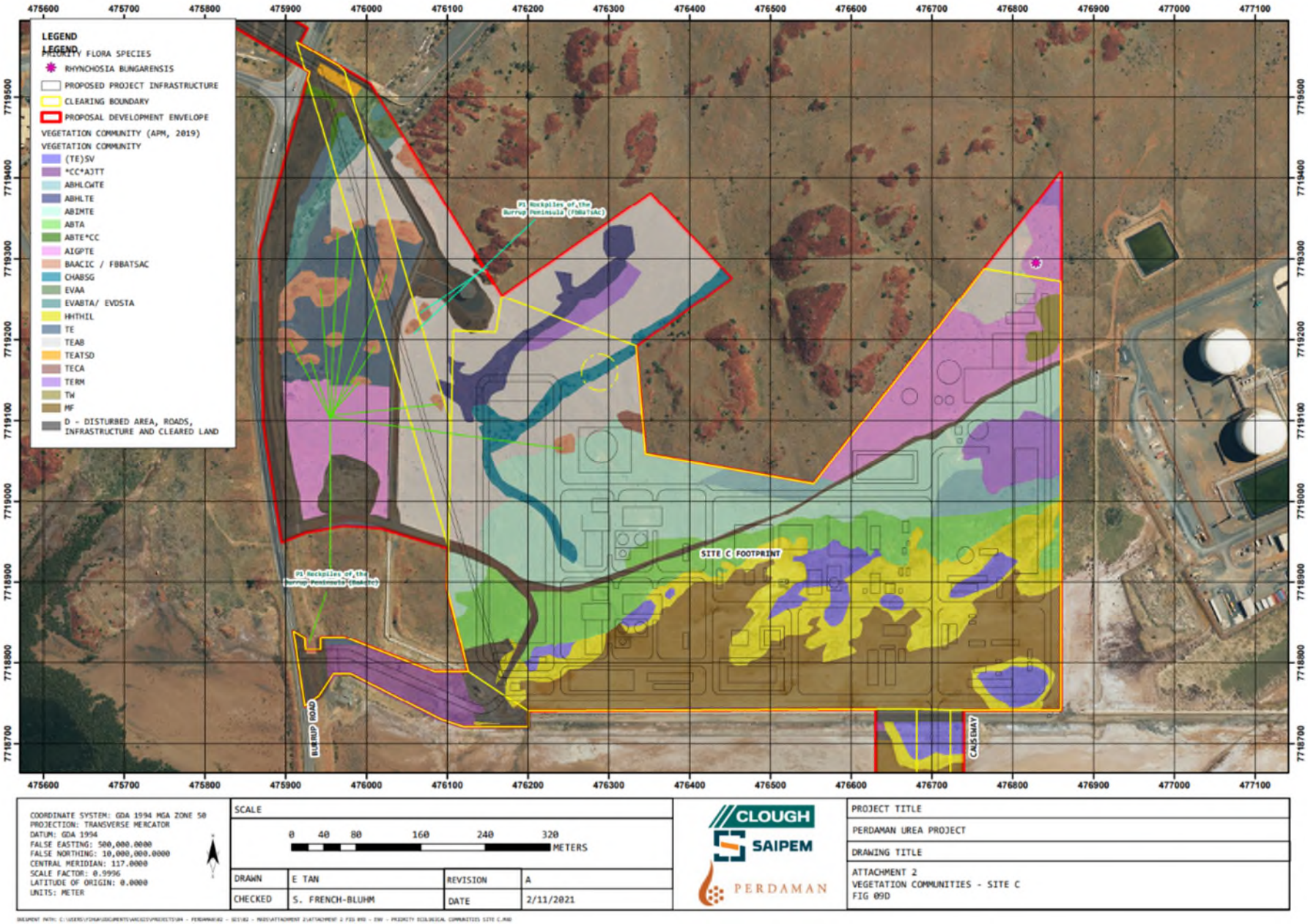

Figure 1-4 Vegetation Communities Within the Flora Survey Study Area (North)

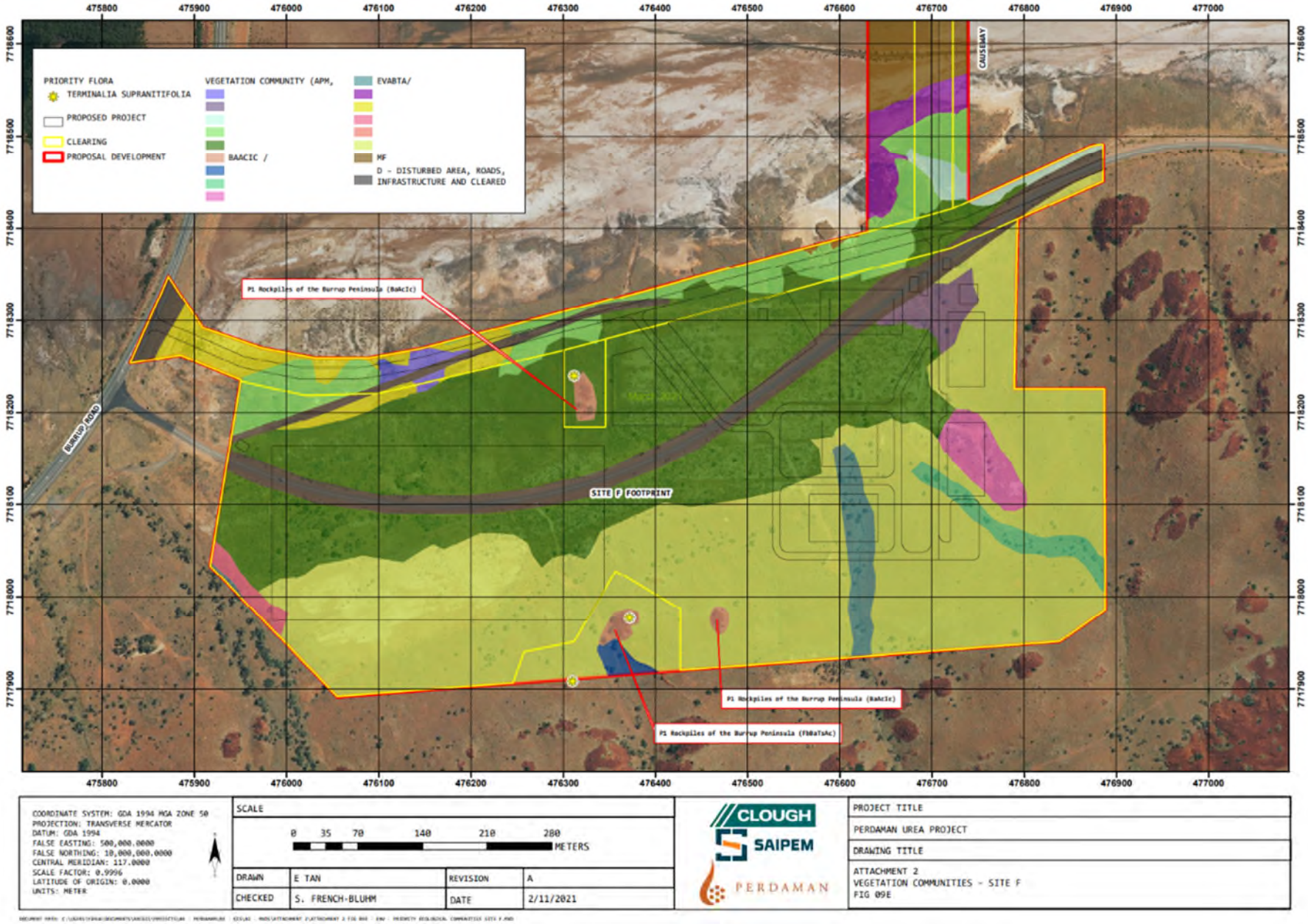

Figure 1-5 Vegetation Communities Within the Flora Survey Study area (South)

1.2.1.6 Vegetation Condition

Vegetation ranges from 'Excellent' condition to 'Completely Degraded'. Vegetation condition is displayed in Figure 1-6. Areas classified as completely degraded contain roads and infrastructure and are maintained in avegetation free state. One narrow area in the southwestern part of the study area has been classified as 'Degraded' condition. This is a rehabilitated road that has not returned to a good cover or diversity of vegetation.

The area classified as in 'Poor' condition in the south of the study area (APM, 2019) contains the vegetation association *TeTh*. This area is previously disturbed and rehabilitated and large shelly lens in proximity to the surface has been exposed during the rehabilitation process which provides poor quality soil and hasslowed the rehabilitation trajectory in this area. Although it has a reasonable abundance of *Triodia epactia* the cover and diversity of plants is lower than would be expected under undisturbed conditions. The time since rehabilitation indicates the area is unlikely to regain pre-disturbance structure without further intervention. There is also a presence of the aggressive weed **Cenchrus ciliaris*.

A number of areas have been designated in 'Good' condition. These are distributed across the study area. The large areas to the south surrounding Hearson Cove Road are previously disturbed and rehabilitated and although there are also some poorer quality subsoils present at the surface, there is a reasonable diversity of species and a high abundance of plants in multiple strata. The introduced species **Cenchrus ciliaris* and / or **Aerva javanica* were found in these areas. Smaller areas designated 'Good' condition are generally undisturbed or near to a disturbance (such as a road or pipeline corridor) and have significant infestations of the introduced species **Cenchrus ciliaris, *Aerva javanica* and **Passiflora foetida*.

Areas in the vegetation fringing the tidal inlet have been classified as 'Good' condition in part due to the presence of **Cenchrus ciliaris* and **Aerva javanica* but also due to the lower species diversity recorded there than by Astron (2005). Astron (2005) considered changes to the surface flow conditions caused by the pipeline infrastructure to be impacting the health of the vegetation in these areas, and the lower species diversity recorded by APM confirm this.

Areas designated in 'Very Good' condition have vehicle tracks or other infrastructure nearby that are causing some level of disturbance to the continuity of the landscape but are otherwise not disturbed. All other areas are in 'Excellent' condition and displayed no signs of disturbance.

A large amount of dust was noted on the foliage of shrubs and trees across the entire survey area during the dry season. A large number of shrubs were noted to have died in many areas across the study area however it is difficult to speculate on the cause of death differing from expected senescence of short-lived perennial shrub species common on the Burrup Peninsula.

In July 2023 a further supplementary baseline flora and vegetation survey was undertaken by Trace Ecology (Trace 2023). The vegetation condition across the survey area resembled the findings from APM (2019). Vegetation condition in a few areas have been regarded in a lower category in this survey due to increased impacts to the vegetation by pest flora and/or fauna, and/or clearing works.

Areas regarded as Completely Degraded are those areas which have little to no vegetation with evidence of clearing or infrastructure.

Areas regarded as Poor are those areas with high abundance of weed species **Cenchrus ciliaris*, **Aerva javanica*. These areas have evidence of previous rehabilitation where the topsoil has been exposed, and buried shells have been uncovered and brought to the surface. This has caused poor soil quality due to the chemical composition of the shells; without intervention it is unlikely this area will be able to regain pre-disturbance structure. It is recommended that these areas regarded as Poor or Completely Degraded are used as stockpile areas for soil and vegetation management.

Areas regarded as Good are those that contained weed species but still have a high diversity and structure of native species. The surrounding vegetation along the tracks within the survey area to the north are regarded as Good with evidence of dust on the flora; the dust spans roughly one (1) metre into the vegetation at the highest point.

Areas regarded as Very Good condition have little to no presence of weed species and have a high species diversity and a little evidence of disturbance.

Areas regarded as Excellent are those area which have no impact of weed species and contain a high species diversity and structure. The mudflat areas are regarded as Excellent as the structure of the community has not been altered or disturbed.

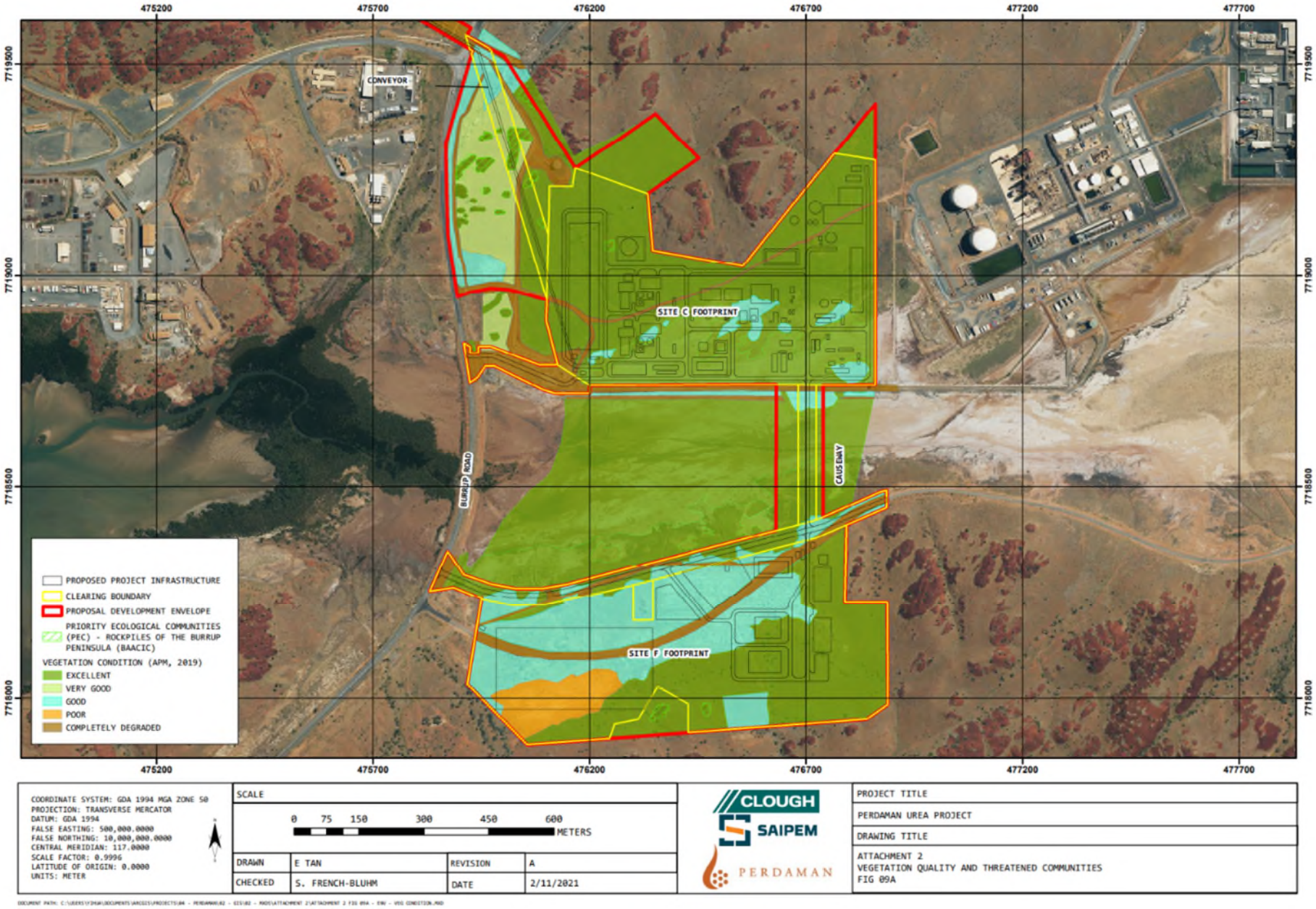

Figure 1-6 Vegetation Condition in the Project footprint.

1.2.2 Potential Impacts

The Environmental Protection Authority (EPA) considers that the key environmental values likely to be impacted by the project are priority flora species and locally significant vegetation communities and aims to protect flora and vegetation so that biological diversity and ecological integrity are maintained to comply with environmental outcomes detailed in MS 1180 Condition 4, and as summarised in Section 1.3 and Appendix 1 of this FMP.

Vegetation communities potentially used as critical habitat for conservation significant fauna are addressed in this plan for the purpose of mitigating indirect impacts to such species. These impacts are further detailed in the Confirmed Fauna Management Plan (PCF-PD-EN-FaMP) and the Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP).

Table *1-2* provides an overview of the flora and vegetation factors and potential impacts to these values during implementation of the project. Section 1.2.2 of this FMP further describes the environmental values and potential impacts to flora and vegetation during the project.

Additionally a risk assessment & associated mitigation measures is included within Appendix 2B of this plan, which outlines threats, potential impacts, the associated risk and mitigation measures that will be implemented on the project. Appendix 2A/B aims to address the requirements of Condition 4-7 (2).

Table 1-2 Environmental Factors and Impacts – Flora & Vegetation

Key Environmental Factor - Flora & Vegetation "To protect flora and vegetation so that biological diversity and ecological integrity are maintained"		
Project Activities Impacting Flora & Vegetation	**Flora & Vegetation Values**	**Potential Impact**
Clearing of native vegetation.	Priority Ecological Communities and threatened species including: • Burrup Peninsula Rock Pile Communities (Priority 1) • *Terminalia supranitofolia* (Priority 3) • *Rhynchosia bungarensis* (Priority 4) Feeding and roosting habitat for native fauna, including conservation significant species: • Northern Quoll (*Dasyurus hallucatus*) • Pilbara Olive Python (*Liasis olivaceus barroni*) • Ghost Bat (*Macroderma gigas*) Locally significant samphire shrublands/ intertidal flats with importance to migratory species: • Curlew sandpiper (*Calidris ferruginea*) • Red knot (Calidris canutus) • Lesser sand plover (*Charadrius mongolus*) • Bar-tailed godwit (*Limosa lapponica baueri*) • Australian fairy tern (*Sternula nereis nereis*) • Great knot (*Calidris tenuirostris*) • Eastern curlew (*Numenius madagascariensis*) Natural ecological conditions supporting native species.	• Loss and degradation of flora species and vegetation, including in environmentally sensitive areas • Permanent loss of up to 73.05 ha native vegetation. • Permanent Loss of up to 0.16 ha of Burrup Peninsular Rock Pile Communities (Priority 1). • Spread of weeds during clearing activities and movement of heavy plant and equipment. • Spread of weeds through improper stockpiling of topsoil's containing flora & vegetation. • Impacts to local and migratory species feeding and roosting habitats. • Increased stress on the carrying capacity of surrounding flora and vegetation. • Fragmentations of populations, isolation of populations/occurrences. • Drainage, erosion and sedimentation impacts following vegetation removal, potentially altering the groundwater & surface water regimes, which in turn affects remaining vegetation and flora.

Key Environmental Factor - Flora & Vegetation "To protect flora and vegetation so that biological diversity and ecological integrity are maintained"		
Project Activities Impacting Flora & Vegetation	**Flora & Vegetation Values**	**Potential Impact**
Ground disturbance & Earthworks during construction. Movement of heavy equipment, transporting of materials during operations.	• Priority Ecological Communities (PEC) and threatened species including: • Burrup Peninsula Rock Pile Communities (Priority 1) • *Terminalia supranitofolia* (Priority 3) • *Rhynchosia bungarensis* (Priority 4) • Natural ecological conditions supporting native species. • Visual amenity values for community and visitors of the area.	• Dust deposition on vegetation affecting the transpiration and photosynthesis of native vegetation, Priority ecological communities and priority flora. • Compaction of soils by vehicle movements may inhibit vegetative recruitment.
Vehicle and machinery movement in general around site. Movement of plant, vehicle and machinery outside designated areas. Movement of weed material in topsoil and stockpiles contaminated with seeds and weeds.	• Priority Ecological Communities and threatened species including: o Burrup Peninsula Rock Pile Communities (Priority 1) o *Terminalia supranitofolia* (Priority 3) o *Rhynchosia bungarensis* (Priority 4) • Natural ecological conditions supporting native species. • Visual amenity values for users and visitors of the area. • Locally significant samphire shrublands/ intertidal flats with importance to migratory species.	• Spread and introduction of weeds and introduced flora. • Particularly the spread of Buffel grass (*Cenchrus ciliaris*), which is aggressive and has the potential to further degrade the quality of vegetation within and surrounding the site. • Compaction of soils by vehicle movements may inhibit vegetative recruitment. • Compaction of intertidal/supratidal flats during construction may impact drainage and ecological chemistry.
Movement of people. Smoking in non-designated areas. Hot works.	• Priority Ecological Communities and threatened species including: o Burrup Peninsula Rock Pile Communities (Priority 1) o *Terminalia supranitofolia* (Priority 3) o *Rhynchosia bungarensis* (Priority 4) • Feeding and roosting habitat for conservation significant fauna species. • Natural ecological conditions supporting native species.	• Altered fire regimes result in increased loss or degradation of native vegetation and/ or flora. • Altered fire regimes may allow vegetation thickening and encroachment to occur, potentially impacting habitat values and natural ecological conditions. • Potential impacts to local diversity due to genetic responses of vegetation to altered fire regimes.

Table 1-3 Environmental Factors and Impacts – Inland Waters

Key Environmental Factor - Inland Waters ***"To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected".***		
Project Activities Impacting Inland Waters	**Flora & Vegetation Values**	**Potential Impact**
Changes to the quality and quantity of surface and groundwater flow regimes through: Contaminant spills Effluent discharge Stormwater and site runoff Waste generation	• Priority Ecological Communities and threatened species including: o Burrup Peninsula Rock Pile Communities (Priority 1) o *Terminalia supranitofolia* (Priority 3) o *Rhynchosia bungarensis* (Priority 4) o Natural ecological conditions supporting native species. o Fresh, uncontaminated stormwater run-off and temporary watercourses. o Healthy vegetative conditions. o Intertidal habitats; Samphire shrublands and mangrove communities of King Bay.	• Impacts to the condition and overall health on flora and vegetation communities that rely on flow regimes and groundwater. • Degradation of surface water quality from elevated levels of suspended solids or contaminants (i.e. Hydrocarbons). • Degradation of groundwater quality via spills leaching into groundwater table. • Degradation of surface water and intertidal flats from improper effluent discharge, stormwater runoff and rubbish, polluting water quality and affecting plant and vegetation health. • Degradation of water quality from elevated levels of suspended solids or contaminants such as hydrocarbons, effluent (sewerage) and general rubbish in surface water runoff from sites C and F, entering the intra-tidal flat, could have an indirect impact on vegetation in this area (samphire shrublands) and the mangrove communities of King Bay.

Condition 4-2 of MS 1180 specifies that direct impacts to flora and vegetation are to be avoided, with the exception of the clearing limits authorized in Condition 4-1. Condition 4-2 also specifies that indirect impacts to flora and vegetation, for example as a consequence of impacts to inland waters (among others outlined in Table 1-3 above) are to be minimised.

Potential Impacts have been summarised in Table *1-2* above and further detailed within this section, while the **management measures** for minimising or mitigating such impacts to flora and vegetation (both outcome and objective based) are included in Section 2 as management actions, response actions and targets and in Appendix 2A – .

1.2.2.1 Clearing of Native Vegetation

To enable the construction and operation of the project's permanent infrastructure, native vegetation and habitat within the project footprint will need to be removed. The construction phase will include the disturbance of approximately **73.05 ha**, which includes native vegetation, salt plains and heavily impacted areas (roads and vehicle tracks). Up to **64 ha** of this clearing extent is considered 'good to excellent' condition foraging and roosting habitat for the species protected under the *EPBC (1999)* and *BC (2016) Act,* comprising:

- Clearing of up to **49.33 ha** (up to **0.16 ha** of priority 1 rocky outcrop communities and up to **49.17** ha Hummock Grasslands on Mid Slopes) Northern Quoll and Pilbara Olive Python habitat in 'Good to Excellent' condition;
- Clearing of up to **2.7 ha** of Ghost Bat drainage line habitat in 'Good to Excellent' condition; and,
- Clearing of up to **11.97 ha** of EPBC Act listed Migratory / marine bird habitat in 'Good to Excellent' condition.

The EPA has assessed the residual impacts to the 21 locally significant vegetation communities to be significant due to their regional and local value. The residual impacts on the vegetation communities need to be able to be offset to prevent inconsistency with the EPA objective to maintain biodiversity.

Table 1-4 provides an approximate area of ground disturbance of fauna habitat (by condition) within Site C and Site F. These areas are *total disturbance areas*, including native vegetation (of any condition) and previously impacted areas.

Table 1-4 Approximate Ground Disturbance Area Categorised by Fauna Habitat and Condition

Fauna Habitat	Vegetation Condition	Area(ha)	Area – Good to Excellent only (ha)
Rocky Outcrops/Priority 1 PEC	Excellent	0.102	0.102
	Subtotal	0.102	
Hummock Grasslands on Mid Slopes	Excellent	31.26	46.05
	Very Good	0.03	
	Good	14.76	
	Poor/Degraded	0.45	
	Subtotal	46.50	
Samphire Shrubland/ Supratidal Flats	Excellent	11.41	11.47
	Very Good	0.000349	
	Good	0.06	
	Poor/Degraded	0	
	Subtotal	11.47	
Drainage Lines	Excellent	2.41	2.42
	Good	0.01	
	Subtotal	2.42	

Fauna Habitat	Vegetation Condition	Area(ha)	Area – Good to Excellent only (ha)
Disturbed (not classified as Fauna Habitat Type)	Poor/Degraded	11.838	
	Subtotal	11.838	

The majority of the conveyor will be located within the EWSC which is a bituminized corridor. The area of disturbance in Table 1-4 refers to the section of conveyor, immediately to the west of Site C, prior to it connecting to the EWSC. The conveyor near Site C is mostly constructed on a raised platform and the area disturbed will only be footings of the raised platform and the maintenance access tracks.

1.2.2.2 Introduced Flora

Four introduced species were identified in the project area. No declared weeds or weeds with control categories under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) were located in the APM study area.

- *Cenchrus ciliaris* (buffel grass) was common across the project area with the greatest abundances occurring in previously disturbed areas or in ephemeral creek lines under shady canopies.
- *Aerva javanica* (kapok) was recorded in high abundance in the sandy swale areas adjacent to the supra- tidal inlet and in disturbed areas, particularly near roads. In undisturbed vegetation its presence is scattered and in very low abundance. The distribution and abundance of kapok was significantly greater in the wet season follow up survey than recorded in the pre-wet season survey.
- *Passiflora foetida* var. *foetida* (stinking passionflower) has not previously been recorded on the site and is a relatively new invasion for the area. The weed is restricted to the riparian vegetation in the northwest corner of the project area. Although the distribution is restricted, where it does occur it has a very aggressive infestation and is likely to cause significant decline to the quality of the vegetation soon if not controlled.
- *Malvastrum americanum* a naturalised herbaceous weed occurred as two individuals at one location.

The native species *Acacia ancistrocarpa* and *A. synchronicia* are common in the Pilbara but not common on the Burrup Peninsula. They were recorded as an opportunistic collection near Hearson Cove Road and are likely to have arrived in the area by transport of seed on vehicles (Trudgen & Associates, 2002).

A further annual weed survey was conducted by Trace Ecology in July 2023 (Trace 2023). This identified seven environmental weeds species present across the Project clearing area.

- *Amaranthus viridis*
- *Avera javanica*
- *Cenchrus ciliaris*
- *Cenchrus setiger*
- *Malvastrum americanum*
- *Portulaca oleracea*
- *Stylosanthes hamata*

1.2.2.3 Introduction and Spread of Weeds

The introduction and spread of weeds across the project area and into surrounding vegetation could occur as a consequence of the project Works.

Causes include the movement of vehicles outside designated areas, the movement of weed material, weed seed contaminated topsoil and the importation of fill material.

Without suitable management, these species, particularly buffel grass (*Cenchrus ciliaris*), can be aggressive and have the potential to further degrade the quality of vegetation within the site and surrounding area.

1.2.2.4 Dust Deposition

During generated by site activities, particularly clearing, ground disturbing works and transportation of urea during operations causing dust deposition on vegetation may impact the health and overall condition of vegetation and fauna habitat.

Dust deposition on vegetation can affect transpiration and photosynthesis, which are essential processes for plant survival. Dust deposition generated during construction and operations is only likely to be an issue where such populations are located close to roadside and plant construction areas. Additionally, dust deposition has the potential to affect visual amenity of the natural landscape due to associated impacts that dust has to vegetation health.

Dust during construction activities is managed through implementation of the Construction Environmental Management Plan Air Quality Management Protocol 0000-ZA-E-09071.

1.2.2.5 Changes to Surface and Groundwater Quality

Changes to the quality and quantity of surface and groundwater flow regimes have the potential to impact the condition of surrounding flora and vegetation.

Degradation of water quality from elevated levels of suspended solids or contaminants such as hydrocarbons, effluent (sewerage) and general rubbish in surface water runoff from sites C and F, entering the intra-tidal flat, could have an indirect impact on vegetation in this area and the mangrove communities of King Bay.

1.2.2.6 Changes to Surface Water Flows and Groundwater Regimes.

During periods of heavy rains and extreme spring tides, the supratidal mudflats between sites C and F are subject to flooding.

The amalgamation of Sites C and F into one single site had the potential to significantly impact on the tidal movements within King Bay/Hearson Cove supratidal to intertidal flat area. This layout, which included a large-scale infill program of the supratidal flat, has since been revisited and major design changes have been made to avoid impacts on coastal processes, amongst other factors (refer to Section 2.2.6 of the ERD).

The causeway will have a limited impact on the east-west water flow through the supratidal flat, including during storm surge events from King Bay. Similarly, the current design will not promote flooding in the supratidal flat east of the causeway, as it will not impede the flow westwards into King Bay (Cardno, 2020).

Flooding of containment ponds is also a potential risk during periods of heavy rains, or after prolonged periods without inspection and clearing/removal of sediment settled within.

The condition and overall health of flora and vegetation communities that rely on flow regimes and groundwater may be impacted by changes to those flows through dewatering, construction activities and establishment of plant infrastructure.

1.2.2.7 Altered Fire Regimes

Fire as a result of construction or operational activities may impact native vegetation through the following methods:

- Altered fire regimes negatively impacting vegetation, and associated values.
- Loss or degradation of native vegetation and/or flora.

The prevention of, and reduction of impacts from fires is managed through the implementation of the Construction Environmental Management Plan Fire Management Protocol 0000-ZA-E-09071.

1.2.2.8 Soil Compaction

The compaction of soil by frequent heavy vehicle movements across site may influence vegetation by inhibiting vegetation ecesis/recruitment or mechanisms of ecological succession. This may influence plant survival/success rates during site rehabilitation.

1.2.2.9 Project Air Emissions

The potential impact on vegetation from cumulative increases in airborne pollutant concentrations is not well understood for the plant communities found in the Burrup region. The maximum point of impact is expected to occur in proximity to the project area. The NOx and SO_2 emissions associated with the Project CERES are proportionally smaller than the existing Burrup airshed emissions (Cardno. 2020).

With respect to urea dust, given the use of best practice pollution control technology within the plant (i.e. the scrubbing system in the plant will remove approximately 99.5% of the entrained urea dust, and approximately 80% of the ammonia) and the use of an enclosed conveyor system, it is unlikely that the vegetation in areas surrounding the plant would be significantly impacted (Cardno. 2020).

The residual impact from the project's NOx and SO_2 emissions on surrounding vegetation is not likely to be a material impact (EPA 2021a).

1.3 EP Act Ministerial Statement MS 1180 Condition Requirements

Pursuant to section 45 of the *Environmental Protection Act 1986* (EP Act), it has been agreed that the proposal, as described in Section 1.1 of this Plan and subject to changes approved under Section 43A of the EP Act on March 20th 2020, February 10th 2021, and May 13th 2021 may be implemented subject to the implementation conditions and procedures detailed therein.

Appendix 1 details the Ministerial Statement Conditions relating to flora & vegetation and in which Section of the FMP each Condition is addressed.

As the project has the potential to impact aspects with both State and Federal significance, the respective regulatory bodies (EPA and DCCEEW) have imposed Conditions associated with environmental approval (MS 1180) for the project. Perdaman must ensure all details and procedures included in this management plan are in alignment with the Conditions provided, and commencement of construction activities are not to proceed until permission has been granted in writing, by the CEO.

Permission will only be granted if the most recent version of the **FMP** addresses the following:

- Demonstrate how outcomes and objectives (Conditions 4-1 and 4-2) will be achieved.
- Include management provisions for clearing, modification of surface water flows, changes to surface water quality, changes to groundwater regimes, dust, weeds and fire.
- Provides for relevant traditional owners to observe any ground disturbing activities.
- Specify trigger criteria to prevent impacts to vegetation communities listed in Conditions 4-1(1) and 4-1(2).
- Specify threshold criteria to prevent impacts to demonstrate compliance with Conditions 4-1 and 4-2.
- Specify monitoring methodology to determine if trigger and threshold criteria have been met.
- Specify management and/ or contingency actions if trigger and/or threshold criteria have not been met.
- Provide the format and timing for the reporting of monitoring results against trigger criteria to demonstrate Conditions 4-1 and 4-2 have been met over the reporting period in the Compliance Assessment Report required by Condition 15-7.

This Revised Flora Management Plan has been prepared in consultation with the Murujuga Aboriginal Corporation, and is submitted in accordance with MS 1180, Condition 4-6 (1). As required under Condition 16-1, this Plan will be made publicly available for the life of the project. The requirements of these Conditions and where they are addressed in this Plan are presented in Appendix 1.

In accordance with Condition 4-5, Perdaman shall implement the most recent version of the Confirmed Flora Management Plan until the CEO has confirmed by notice in writing that the proponent has demonstrated that the environmental outcomes in condition 4-1 and objectives detailed in condition 4-2 have been met.

1.4 EPBC Act Approval 2018/8383 Condition Requirements

Pursuant to sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) the decision was made that the Proposal is approved as a controlled action. The proposal was referred and assessed for the following controlling provisions; Listed threatened species and communities (sections 18 & 18A), National Heritage place (sections 15B & 15C), Listed migratory species (sections 20 & 20A) and Commonwealth Marine Areas (sections 23 & 24A). The EPBC approval is subject to conditions.

The conditions that specifically apply to flora management on the Project are as follows:

- Part A
  - **1.** To avoid and mitigate **impacts** to **protected matters**, the approval holder must not **clear** outside the **disturbance footprint** and must comply with Conditions 1, 4-1 and 5 of the **Western Australian Approval**.

In addition, offset conditions (conditions 8-10 of EPBC 2018/8383 approval) have been set for the clearing impacts to habitats associated with threatened species and migratory birds, which have been addressed and detailed within the Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP) and the Confirmed Impacts Reconciliation Procedure (PCF-PD-EN-IRP).

1.5 Rationale & Approach

1.5.1 Survey & Study Findings

Several environmental studies have been undertaken within the development envelope. The Key findings of these studies have been used to infer the management provisions of this Plan.

As part of the project's EP Act Part IV approvals process, Perdaman commissioned Animal Plant Mineral Pty Ltd (APM) to undertake desktop and multi-season flora and vegetation surveys of the study area. The resulting report (CAR002 Perdaman Pre and Post-wet Season Biological Survey) forms the basis of this FMP.

APM's assessment found that there are no proposed impacts to flora and vegetation Matters of National Environmental Significance (MNES). Vegetation and flora of conservation significance, priority flora and priority ecological vegetation communities were identified on the project site, as outlined in the following Sections.

Trace Archeology and Ecology (Trace) carried out a supplementary baseline flora and vegetation survey in June 2023. Trace noted that the Conservation Significant Flora and ecological communities identified by APM were consistent with current conditions. Vegetation condition in a few areas have been regarded in a lower category in this survey due to increased impacts to the vegetation by pest flora/or fauna and/or clearing works.

Trace Archaeology and Ecology (Trace) carried out a Supplementary Baseline Flora and Vegetation Survey in March 2023 (Trace, 2023) to establish baseline data consistent with the requirements of the Perdaman management plans and to confirm the findings of the APM (2019) survey.

The survey included an assessment of vegetation condition, weeds and verification of locations of stockpiles for soil and vegetation. As these environmental factors have been identified as risks to threatened species, and mitigated through management actions, this supplementary baseline survey contributes to the status of environmental values prior to disturbance.

The total area within the clearing boundary is:

- Site C – 32.4ha
- Site F – 31.72ha
- Causeway - 1.36ha
- Hearson Cove Rd – 4.43ha
- Conveyor; 2.60ha

The area of significant habitat to be cleared is provided in Table 1-5.

Table 1-5 Fauna habitat types to be cleared

Fauna Habitat	Area to be cleared (ha)	Approved maximum clearing extent (ha) (MS 1180 Condition 5-	Balance (ha)
Rocky Outcrops/Priority 1 PEC	0.102	0.16	0.058
Hummock Grasslands on Mid Slopes	46.50	49.17	2.67
Samphire Shrubland/ Supratidal Flats	11.47	11.97	0.5
Drainage Lines	2.42	2.7	0.28
Sub total	**60.312**	**64**	**3.508**
Degraded/Disturbed	11.838		
Total (MS 1180 Condition 1 – Disturbance Footprint)	**69.91**	**73.05**	**5.14**

The corridor for the conveyor to be cleared within Site C is currently not included in clearing calculations. Perdaman is to confirm specific areas to be cleared to avoid sensitive vegetation habitats. Clearing will only be required in small areas within the corridor to allow for vehicle access and conveyor footing installation.

The total area within the corridor is 5.08 ha.

1.5.1.1 Index of Biodiversity Surveys for Assessments

If Perdaman is required to undertake any land-based biodiversity surveys to support this FMP, Perdaman will submit any required Index of Biodiversity Surveys for Assessments (IBSA) data packages in accordance with guideline 'Instructions for preparing data packages for the Index of IBSA' as noted in the annual compliance assessment report (CAR) provided to the EPA.

1.5.2 Management Approach

The management approach of this FMP has been informed by best practice and the expectations within the environmental Conditions stated within MS 1180. The primary approach taken focusses on avoiding potential impacts through design and planning mechanisms. Where the impacts are unavoidable, the management approach includes provisions to identify early response indicators that detect when flora & vegetation is at risk; threshold criteria to quantify the maximum allowable impact before the environmental outcomes presented in Condition 4-1 are exceeded and management actions to minimise the duration, intensity or extent of the potential impact to flora and vegetation.

Additionally, implementation of an Environmental Management System (EMS) Framework provides a structure for achieving the key environmental objectives during the construction and operational phases of the project. Implementation of the EMS Framework ensures environmental performance is achieved through environmental management practices that are consistent with the Perdaman Environmental Policy and Objectives. Management measures and actions are specifically detailed within this Plan (Section 2.2) and reiterated within the Flora and Native Vegetation Clearing Management Protocol as Attachment B of the CEMP. The Environmental Management Protocols have been developed to address the environmental risks posed by construction and operational based activities of the project.

A summary of the management approach for this FMP includes:

- Avoid impacts to significant native vegetation communities;
- Risk Assessment and the internal use of early response indicators and criteria with performance indicators to track impacts;
- The establishment of spatially defined Project areas, as per the Areas discussed in Section 1.1 of this Plan and shown in Figure 1-2.
- Consideration and investigation of use of new technologies and techniques that will inform updates to monitoring parameters, monitoring sites, and management measures;
- Regular review and update of the monitoring program based on changes to proposal, timings of construction and operations, hydrological and surface water flood models, and groundwater monitoring data etc.;
- Review of management measures to be implemented in the event of trigger criteria being exceeded;
- Measurement and review of effectiveness of implemented management measures; and,
- Assessment of other effects or impacts not related to mining activities such as rainfall, fire, climate change, grazing and historic degradation from previous land use.

1.5.3 Monitoring Approach

The purpose of vegetation health monitoring is to inform, through the environmental criteria, if the environmental outcomes are being achieved and if required, to determine when trigger level or threshold levels are exceeded. The exceedance of trigger or threshold criteria then informs which contingency management measures need to be implemented. This is discussed further in Section 2.3 of this document, outlining how Perdaman will undertake monitoring to determine performance against the environmental criteria outlined in the outcome and objective-based provisions (see Sections 2.1 and 2.2).

Due to the outcomes required in Condition 4-1 of MS 1180, monitoring during clearing will be undertaken along the clearing boundary as per the timing and methodology detailed in Table 2-1 of Section 2. As for the details and methodology for the monitoring of objective-based controls, see Table 2-2 of Section 2.2.

A statistical approach based on a BACI (before – after - control – impact) design will be used to provide objectivity and rigor to thresholds and triggers. The BACI approach is to sample 'Before' and 'After' an impact activity has commenced, to determine how the activities will change the condition of a site from its historical condition, whilst Control and Impact sampling will enable the effects of activities to be discerned from natural variation and other events. BACI designs are useful where there are large potential changes after impact and where changes may be permanent after impact. This approach is consistent with rigorous monitoring programs and for monitoring programs undertaken elsewhere in the Pilbara.

With intentions to undertake monitoring under a BACI approach, baseline surveys (APM Surveys, 2019)

will be used in comparison to monitoring results gained after ground disturbing activities commence.

All monitoring will be undertaken annually as a minimum, with the preferred timing of most monitoring being at the end of the dry season around October/November when vegetation is normally subject to the highest degree of drought stress under natural conditions. In the case of areas at potential risk from waterlogging, monitoring in April to June after the wet season is preferred as waterlogging effects are more likely to be expressed during this period.

Details of the timing and methods of monitoring flora and vegetation is described in Section 2.3 below.

1.5.4 Rationale for Choice of Provisions

The rationale for the choice of management including the trigger and threshold criterion, response actions, monitoring and reporting has been made partly on the basis of the MS 1180 Condition 4 requirements. The EPA report (Assessment No. 2184) also provides recommendations pertaining to management actions in alignment with s.44 of the EP Act 1986. Additionally, the Environmental Review Document and associated surveys and investigations for the project have informed the specific flora and vegetation triggers and thresholds to ensure that the environmental outcomes stated in Condition 4-1 of MS 1180 and the environmental objective stated in Condition 4-2 are achieved.

Perdaman has also considered the EP Act 1986 environmental protection principals for the project. These principles provide a guideline for decision making and advice to government on matters of environmental protection, and the principles considered for the flora and vegetation factor will be the 'Principle of the conservation of biological diversity and ecological integrity', and the 'Principles relating to improved valuation, pricing and incentive mechanisms', as recommended by the EPA (EPA 2021a). In 2003, the EP Act 1986 was amended to include these principles and as such, it is now the object of the Act to protect the environment of the State having regard to these principles.

The surveys and studies conducted for the project (refer to Appendix B of the ERD) have identified the relevant flora and vegetation values within the PDE and have been detailed in Section 1.5.1 above. To summarise, the following flora and vegetation values will be directly or indirectly impacted by the project:

- Native vegetation communities with local and national conservation significance;
- The Burrup Peninsula (Rocky Outcrops) Rock Pile Community PEC (Priority 1);
- Conservation significant flora species, *Terminalia supranitifolia* (P3) and *Rhynchosia bungarensis* (P4);
- Visual amenity;
- Habitat values for local and migratory species; and,
- Health of vegetation communities.

These flora and vegetation values have the potential to be impacted by the activities identified and summarised in Section 1.2 "Key Environmental Factors". Conservation of the values provided by the local flora and vegetation assemblages will be managed through a hybrid approach of both Objective and Outcome-based implementations, as outlined in Sections 1.5.4.1 and 1.5.4.2 below.

In addition, these flora and vegetation values have been informed by Condition 5-1 of MS 1180, where requirements regarding the conservation of significant fauna habitat have been adopted into this Confirmed Flora Management Plan and will be further implemented and monitored as per the Confirmed Fauna Management Plan (PCF-PD-EN-FaMP) and the Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP) in supplement. These significant habitat types make up the following environmental outcomes for terrestrial fauna (Condition 5) which will have been used to assist in informing clearing provisions of this plan;

- Clearing in the fauna habitat type identified as Rocky Outcrops shall not exceed 0.16 ha;
- Clearing in the fauna habitat type identified as Hummock Grasslands on Mid-slopes shall not exceed 49.17 ha;
- Clearing in the fauna habitat type identified as Samphire Shrublands / Supratidal flats shall not exceed 11.97 ha; and
- Clearing in the fauna habitat type identified as Drainage Lines shall not exceed 2.7 ha.

Exceedances of trigger and threshold criteria, summarized in Table 2-1, will indicate the response action required to manage said exceedance. Exceedances will also warn management of associated rates of change in the environment as caused by the impact. Understanding environmental rates of change can assist in developing early warning indicators or predetermining potential exceedances during monitoring of trigger and threshold criteria.

It should be noted that consideration of impacts external to functions of the project will be important, as natural impacts independent of the project activity should not implicate the responsibility of Perdaman. However, awareness of external impacts may require mitigation through alignment with Perdaman's

interests and/or environmental policy. These could include impacts from external land-use activities including tourism/recreation, industrial or cultural activities, as well as external environmental processes, such as weathering from heavy rains, dust as a result of high winds etc.

Perdaman is aware of its position in the Burrup Strategic Industrial Area (SIA), indicating the necessity for considering cumulative impacts of industrial activities on the surrounding environment. Findings by Trudgen (2001) concluded that variation in vegetation composition across the Burrup Peninsula has a significant geographical component, requiring that hydrogeographic functions be well understood to assist in mitigating cumulative impacts by industrial development. Consideration of this should indicate changes to the intensity, duration or geographic footprint of the projects impact towards flora and vegetation upon understanding these localised processes.

1.5.4.1 Outcomes

The EPA has required Perdaman to meet the flora and vegetation outcomes presented in Table 1-6 below.

Table 1-6 Ministerial Statement No. 1180 Flora & Vegetation Outcomes

Condition	Outcome
4-1 (1)	The extent of native vegetation clearing within the development envelope shall not exceed 73.05 ha.
4-1 (2)	The extent of clearing within the vegetation community identified as Priority 1 (P1) Priority Ecological Community (PEC) - Burrup Peninsula Rock Pile Communities shall not exceed 0.16 ha.

Threshold and trigger criterion for each flora and vegetation outcome specified has been detailed in Section 2.1 of this Plan. Monitoring and management will assist with measuring potential and actual exceedances. Through the implementation of trigger criterion, the project will have forewarning that the threshold criteria may be reached, and in doing so, response actions can be implemented well in advance of the threshold criteria being reached, therefore avoiding non-compliance with the flora and vegetation outcomes.

1.5.4.2 Objectives

In addition, Perdaman shall implement the project to achieve the following environmental objective:

Table 1-7 Ministerial Statement No. 1180 Flora & Vegetation Objectives

Condition	Objective
4-2 (1)	All direct impacts (other than the direct impacts authorised under Condition 4-1) are avoided and minimise indirect impacts to native vegetation.

This objective will be achieved through specific measures ensuring appropriate environmental management measures (in addition to monitoring) are implemented during the construction, commissioning and operation phases of the project (life of the project).

The specific targets and management actions associated with the flora objective stated above (Condition 4-2) are detailed in Section 2.2 of this Plan.

1.5.5 Key Assumptions & Uncertainties

Assumptions relating to flora and vegetation throughout this Plan include:

- That flora and vegetation surveys conducted to-date have accurately recorded the presence of all flora species, weed species, conservation significant species and PEC's, habitat values and vegetation associations;
- The flora surveys undertaken to date accurately report the distribution and status of conservation significant flora and vegetation communities;
- That conditions experienced during flora survey programs were ideal for recording conservation significant species, unless specified otherwise;
- That all flora and vegetation communities have been identified correctly during survey; and,
- That applicable surveys have been completed as per relevant EPA technical guidance survey methods for flora and vegetation surveys.

Additionally, several assumptions are present pertaining to other environmental factors that may indirectly effect flora and vegetation during construction activities.

One such assumption includes the presence and disturbance of acid sulfate soils (ASS), where management of this impact is required as per Condition 7-1 of MS 1180, and likelihood of occurrence is limited to the southern section of Site C and within the supratidal flat area, and the laydown area at Site F.

A detailed environmental investigation was undertaken in 2022 by Tetra Tech Coffey. There is a reported potential presence of ASS within the southern section of Site C and within the supra-tidal flat area, associated with the causeway. The potential ASS is categorised as Class 1 with a high to moderate risk of ASS occurring within 3m of the natural soil surface. Due to the historical disturbance of soil and rock for a laydown area in Site F, there is minor potential for ASS to exist or develop in that area. An Acid Sulfate Soils Management Plan has been prepared to mitigate the environmental risks of interactions with ASS.

Further geotechnical investigations were recommended by Trudgen and Associates (2001) due to the significant geographic based patterns of vegetation distribution; where management to maintain this variation into the future requires careful consideration of the nature and controls of these geological patterns. The *Perdaman Urea Geotechnical Investigation Interpretive Report* (Coffey, 2020) presents interpretive results of geotechnical studies carried out by Coffey Services Australia Pty Ltd (Coffey) on the proposed Project CERES located between Village Road and Hearson Cove Road, in Burrup, WA.

Of a total of 39 migratory bird species identified to occur within a 10km buffer of the project area, 30 bird species are listen as 'known to occur' within the 10km buffer area, 2 species 'likely to occur' and 7 species identified that 'may occur' in the project area. Surveys by APM 2019 recorded 26 of these migratory/marine bird species in the project area, many of which having common habitat preferences. The following species were identified to potentially occur (including the potential for occurrence) in the 11.97 ha of Samphire Shrubland / Supratidal Flats habitat within the project area;

- Curlew sandpiper (*Calidris ferruginea*) – Critically Endangered (EPBC Act and BC Act) with a moderate potential of occurrence.
- Red knot (*Calidris canutus*) – Endangered (EPBC Act and BC Act) with a moderate potential of occurrence.
- Lesser sand plover (*Charadrius mongolus*) – Endangered (EPBC Act and BC Act) with a low potential of occurrence.
- Bar-tailed godwit (*Limosa lapponica baueri*) – Vulnerable (EPBC Act and BC Act) with a moderate potential of occurrence.
- Australian fairy tern (*Sternula nereis nereis*) – Vulnerable (EPBC Act and BC Act) with a low potential of occurrence.
- Great knot (*Calidris tenuirostris*) – Critically Endangered (EPBC Act and BC Act) with a low potential of occurrence.
- Eastern curlew (*Numenius madagascariensis*) – Critically Endangered (EPBC Act and BC Act) with a moderate potential of occurrence.

Due to the potential for EPBC listed migratory bird species to utilise the Samphire Shrublands habitat within the project area; the EPA has assessed there to be a significant residual risk to the listed species due to impacts on the shared Samphire Shrublands habitat. For the purpose of this Plan, the samphire shrublands will be considered key habitat for these species to be protected; even where surveys record a low potential of species occurrence.

Lastly, two species of cryptic nature; the Northern Quoll (*Dasyurus hallaand* Pilbara Olive Python have been assumed present within the PDE and surrounds despite failure to detect both species during sampling efforts in the biological surveys conducted by APM. These species have been deemed relevant for consideration in this FMP due to their reliance on the limited vegetation associations suitable for foraging and denning habitat. The habitats utilised by the Northern Quoll and Pilbara Olive Python and the associated amounts set to be cleared are up to 0.16 ha of rocky outcrops and up to 49.17 ha Hummock Grasslands on Mid Slopes, respectively.

2 Flora Management Plan Provisions

This Section of the FMP sets out the provisions that will be implemented for the project. This Plan outlines both outcome-based (Section 2.1) and management-based (Section 2.2) provisions. All requirements will be carried out during construction and operations and until the Perdaman Urea Plant is decommissioned and closed.

2.1 Outcome – Based Provisions

The provisions within this Section are outcome based as specified by the MS 1180 detailed within Condition 4. Outcome – based provisions are performance based and are used where a potential impact on the environment is conducive to objective measurement and reporting.

The following Sections and Table 2-1 below outline the legal requirements for the project and provide detail of the Environmental Criteria, Response Actions, Monitoring and Reporting required to ensure compliance with the specified outcomes. Outcomes have been outlined in Section 1.5.4.1.

Table 2-1 provides details of the trigger criteria, threshold criteria, response actions, monitoring and reporting in relation to the Conditions (outcomes) set out in 4-1 of MS 1180. These triggers and contingency actions will be adopted to monitor and track impacts to native vegetation and flora where controls and management measures are not employed or are effective. Exceedances to the threshold criteria presented in Table 2-1 require the response actions to be implemented to reduce the impact and potential damage to native flora and vegetation and to maintain flora & vegetation objectives.

The triggers pre-empt a potential threshold exceedance. Trigger Level Actions including but not limited to the Table 2-1 and inspections/investigations on-site will be utilised where practicable to reduce the risk of reaching a threshold and the need to implement the contingency actions.

Table 2-1 Flora & Vegetation Outcome -Based Conditions (Triggers, Thresholds, Contingency Actions)

EPA Factors and Objectives	Flora and Vegetation – To protect flora and vegetation so that biological diversity and ecological integrity are maintained		
Outcome/s	The extent of native vegetation clearing within the development envelope shall not exceed 73.05 ha. The extent of clearing within the vegetation community identified as Priority 1 (P1) Priority Ecological Community (PEC) - Burrup Peninsula Rock Pile Communities shall not exceed 0.16 ha.		
Key Environmental Values	Clearing of Native vegetation. P1 PECs - Burrup Peninsula Rock Pile Communities *Terminalia supranitifolia* (P3) *Rhynchosia bungarensis (*P4)		
Key Impacts and Risks	Loss of native Vegetation and conservation significant flora resulting from clearing activities.		
ENVIRONMENTAL CRITERIA	**RESPONSE ACTIONS**	**MONITORING**	**REPORTING**
Trigger Criterion 1: Actual and planned clearing within the development envelope exceeds 90% (65.75 ha) of the approved clearing limit. **Threshold Criterion 1:** Actual clearing within the development envelope exceeds the approved clearing limit (73.05ha).	**Trigger Level Actions 1:** Confirm extent of existing approved ground disturbance via audit of clearing records, boundary flagging. Stop the authorisation of GDPs if threshold criterion would be exceeded. Notify Environment & Heritage Manager for future planning options. **Threshold Contingency Actions1:** Investigate to determine the cause of the threshold criteria being exceeded. Cease all clearing activities. Check flagging, boundary fencing[1] (see Table 2-2 – Management Action 3 for more details on	**Monitoring Indicator:** Actual clearing carried out (existing ground disturbance). Clearing authorised by GDP's but not yet conducted. Clearing under GDP applications. **Method:** **Clearing** – determine the extent of clearing and ground disturbance. Use GIS to determine extent of clearing authorised against GDPs not yet undertaken. Extent of clearing under pending GDP applications. **Locations:** Within the development envelope (Site C and Site F and between the two sites) **Timing & Frequency** For actual clearing – monthly survey of cleared areas. For planned clearing – every time a GDP is applied for or closed out.	Where threshold criteria is exceeded: • Report any exceedances in writing to the CEO and the DCCEEW within seven days of the exceedance being identified as per Condition 4-8(1). • Investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded as per Condition 4-8(4). • Provide a further report to the CEO and DCCEEW within 21 days of the exceedance being reported as required by Condition 4-8(1), which shall include details specified in Condition 4-8(5). See Section 2.4 for reporting on exceedance of outcomes.

	fencing), and signage of areas to be cleared/ not cleared has been undertaken and is obvious to those on the ground. Identify likely cause of incident. Report to relevant government authorities (DWER, EPA and DCCEEW). Implement the management and/or contingency actions required by condition 4-7(7) within seven days of the exceedances being reported. Undertake corrective rehabilitation, and/or seek amendment to approvals, in consultation with EPA, DWER and DCCEEW. Undertake further education and awareness training to personnel Seek consultation with MAC.		The EPC Contractor will compile a monthly clearing report and compare the progress against the clearing limits both visually (using GIS data) and numerically. The Owner shall compile the monthly EPC contractor data into an annual report in accordance with Compliance Reporting as per Condition 15 of MS 1180. This report will be submitted to the EPA as per Condition 15-6 of MS 1180, upon EPA request or if the threshold criteria is exceeded.
Trigger Criterion 2: Actual & planned clearing within vegetation community identified as Priority 1 (P1) PEC – Burrup Peninsula Rock Pile Communities (rocky outcrops) exceeds 90 % (0.144 ha) of the approved clearing limit. **Threshold Criterion 2:** Actual clearing in the vegetation community identified as Priority 1 (P1) PEC – Burrup Peninsula Rock Pile Communities exceeds approved clearing limit of 0.16 ha.	**Trigger Level Actions 2:** Confirm extent of existing approved ground disturbance via audit of clearing records, boundary flagging. Do not authorise additional GDPs if the threshold will be exceeded. Notify Environment & Heritage Manager for future planning options. Survey team to reinvestigate area and re-establish survey markers to peg out and indicate the authorised extent of clearing Site team to establish temporary star picket and wire fence[1] as a primary visual and physical aid. Fencing[1] / site boundary and early warning markers to be installed as per the Confirmed Flora	**Monitoring Indicator:** Actual clearing carried out (existing ground disturbance) within the PEC Rocky Outcrops. Clearing authorised by GDP's but not yet conducted. Clearing under GDP applications. **Method:** **Clearing** – determine the extent of clearing and ground disturbance that has occurred (records, visual inspection and GDPs) Use GIS to determine extent of clearing authorised against GDPs not yet undertaken. Extent of clearing under pending GDP applications. **Locations:** Within the development envelope (Site C and Site F and between the two sites) **Timing & Frequency**	Where threshold criteria is exceeded: • Report any exceedances in writing to the CEO and the DCCEEW within seven days of the exceedance being identified as per Condition 4-8(1). • Investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded as per Condition 4-8(4). • Provide a further report to the CEO and DCCEEW within 21 days of the exceedance being reported as required by Condition 4-8(1), which shall include details specified in Condition 4-8(5). See Section 2.4 for reporting on exceedance of outcomes.

	Management Plan (PCF-PD-EN-FMP). **Threshold Contingency Actions 2:** Investigate to determine the cause of the threshold criteria being exceeded. Cease all clearing activities and / ground disturbance. Check flagging, boundary fencing[1] and signage of areas to be cleared/ not cleared has been undertaken and is obvious to those on the ground. Identify likely cause of incident. Report to relevant government authorities (DWER, EPA and DCCEEW). Implement the management and/or contingency actions required by condition 4-7(7) within seven days of the exceedances being reported. Undertake corrective rehabilitation, and/or seek amendment to approvals, in consultation with EPA, DWER and DCCEEW. Undertake further education and awareness training to personnel Seek consultation with MAC.	For actual clearing – monthly survey of cleared areas. For planned clearing – every time a GDP is applied for or closed out Survey markers to be inspected daily by site supervisors and weekly by the PER. Inspections to confirm presence of 3m warning zone survey markers denoted by pink and black flagging and 5m buffer survey markers denoted by white flagging. All survey markers shall be maintained throughout construction and commissioning or until replaced by permanent fencing. The correct location of boundary markers is to be checked and confirmed onsite by a suitably qualified surveyor prior to commencement of GDAs.	The EPC Contractor will compile a monthly clearing report and compare the progress against the clearing limits both visually (using GIS data) and numerically. The Owner shall compile the monthly EPC contractor data into an annual report in accordance with Compliance Reporting as per Condition 15 of MS 1180. This report will be submitted to the EPA as per Condition 15-6 of MS 1180, upon EPA request or if the threshold criteria is exceeded.
Trigger Criterion 3: Clearing boundary not surveyed (or missing) and identified with approved survey markers. Temporary fencing comprising star pickets and wire not installed or damaged.	**Trigger Response 3:** Confirm extent of existing approved ground disturbance via audit of clearing records, boundary flagging. Do not authorise additional GDPs if the threshold will be exceeded. Notify Environment & Heritage	**Monitoring Indicator:** Clearing boundary not surveyed and pegged during clearing. **Method:** **Clearing** – determine the extent of clearing and ground disturbance that has occurred (records, visual inspection and GDPs) Use GIS to determine extent of clearing	Where threshold criteria is exceeded: • Report any exceedances in writing to the CEO and the DCCEEW within seven days of the exceedance being identified as per Condition 4-8(1). • Investigate to provide information for the CEO to determine potential

Threshold Criterion 3: Actual & planned clearing exceeds clearing limit of 73.05 ha Notable visual activity and / or disturbance beyond the clearing boundary associated with the project.	Manager for future planning options. Survey team to reinvestigate area and re-establish survey markers to peg out and indicate the authorised extent of clearing Site team to establish temporary star picket and wire fence[1] as a primary visual and physical aid. **Threshold Response 3:** Investigate to determine the cause of the threshold criteria being exceeded. Qualified environmental representative must investigate to confirm threshold event exceedance or near-miss. Stop works in local area and confirm threshold event with survey team. Do not authorise additional GDPs if the threshold has been exceeded. Notify the CEO, DCCEEW of exceedance. Implement the management and/or contingency actions required by condition 4-7(7) within seven days of the exceedances being reported. Remediate and rehabilitate cleared land in excess of clearing limit.	authorised against GDPs not yet undertaken. Extent of clearing under pending GDP applications. Survey markers to be inspected daily by site supervisors and weekly by the PER. Inspections to confirm presence of 3m warning zone survey markers denoted by pink and black flagging and 5m buffer survey markers denoted by white flagging. All survey markers shall be maintained throughout construction and commissioning or until replaced by permanent fencing. The correct location of boundary markers is to be checked and confirmed onsite by a suitably qualified surveyor prior to commencement of GDAs. **Locations:** Within the development envelope (Site C and Site F and between the two sites) **Timing & Frequency** For actual clearing – monthly survey of cleared areas. For planned clearing – every time a GDP is applied for or closed out Clearing boundary inspections will be conducted daily by the site supervisor until the establishment of the temporary fencing. Inspections to confirm presence of clearing boundary survey markers denoted by pink flagging and early warning survey markers denoted by white flagging. Weekly boundary and clearing confirmatory inspections will be conducted by the Projects Environmental Representative (PER). Survey data converted to Geospatial files will be made available to the PER for desktop review and progress of clearing activities. Following the establishment of the temporary fences, weekly perimeter inspections will be	environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded as per Condition 4-8(4). • Provide a further report to the CEO and DCCEEW within 21 days of the exceedance being reported as required by Condition 4-8(1), which shall include details specified in Condition 4-8(5). See Section 2.4 for reporting on exceedance of outcomes. The EPC Contractor will compile a monthly clearing report and compare the progress against the clearing limits both visually (using GIS data) and numerically. The Owner shall compile the monthly EPC contractor data into an annual report in accordance with Compliance Reporting as per Condition 15 of MS 1180. This report will be submitted to the EPA as per Condition 15-6 of MS 1180, upon EPA request or if the threshold criteria is exceeded.

		conducted by the PER to ensure no unauthorised activities have been carried out beyond the approved Construction Footprint.	
Trigger Criterion 4: Surveying and pegging of P1 PEC not conducted or missing **Threshold Criterion 4:** Actual and planned clearing exceeds clearing 0.16 ha of Burrup Peninsula Rock Pile Communities. Notable visual activity and / or disturbance beyond the clearing boundary associated with the project.	**Trigger Response 4:** Survey team to investigate area and re-establish survey markers to indicate authorised extent of clearing **Threshold Response 4:** Investigate to determine the cause of the threshold criteria being exceeded. Qualified environmental representative to investigate to confirm threshold event exceedance or near-miss. Stop works in local area and confirm threshold event with survey team. Notify the CEO, DCCEEW of exceedance. Implement the management and/or contingency actions required by condition 4-7(7) within seven days of the exceedances being reported.	**Monitoring Indicator:** Clearing boundary not surveyed and pegged during clearing. **Method:** **Clearing** – determine the extent of clearing and ground disturbance that has occurred (records, visual inspection and GDPs) Use GIS to determine extent of clearing authorised against GDPs not yet undertaken. Extent of clearing under pending GDP applications. Survey markers to be inspected daily by site supervisors and weekly by the PER. Inspections to confirm presence of 3m warning zone survey markers denoted by pink and black flagging and 5m buffer survey markers denoted by white flagging. All survey markers shall be maintained throughout construction and commissioning or until replaced by permanent fencing. The correct location of boundary markers is to be checked and confirmed onsite by a suitably qualified surveyor prior to commencement of GDAs. **Locations:** Within the development envelope (Site C and Site F and between the two sites). **Timing & Frequency:** For actual clearing – monthly survey of cleared areas. For planned clearing – every time a GDP is applied for or closed out Clearing boundary inspections will be conducted daily of the PEC 1 boundary by the site supervisor until the establishment of the	Where threshold criteria is exceeded: • Report any exceedances in writing to the CEO and the DCCEEW within seven days of the exceedance being identified as per Condition 4-8(1). • Investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded as per Condition 4-8(4). • Provide a further report to the CEO and DCCEEW within 21 days of the exceedance being reported as required by Condition 4-8(1), which shall include details specified in Condition 4-8(5). See Section 2.4 for reporting on exceedance of outcomes. The EPC Contractor will compile a monthly clearing report and compare the progress against the clearing limits both visually (using GIS data) and numerically. The Owner shall compile the monthly EPC contractor data into an annual report in accordance with Compliance Reporting as per Condition 15 of MS 1180. This report will be submitted to the EPA as per Condition 15-6 of MS 1180, upon EPA request or if the threshold criteria is exceeded.

		temporary fencing. Inspections to confirm presence of clearing boundary survey markers denoted by pink flagging and early warning survey markers denoted by white flagging. Weekly boundary and clearing confirmatory inspections will be conducted by the Projects Environmental Representative (PER). Survey data converted to Geospatial files will be made available to the PER for desktop review and progress of clearing activities. Following the establishment of the temporary fences, weekly perimeter inspections will be conducted by the PER to ensure no unauthorised activities have been carried out beyond the approved Construction Footprint.	

1 Barbed wire fencing will **not** be used on the Project. The Project will adopt plain wire fencing, that allows safe fauna access through the fence line, attached to pickets. The wire used will be flexible Longlife Blue or a suitably similar product.

2.2 Objective (Management) – Based Provisions

An objective is the Project-specific desired state for an environmental factor to be achieved from the implementation of management actions and must relate to the EPA's environmental objective for a particular factor.

This Section of the FMP provides details of the objective-based provisions to implement on the project. Management-based provisions relate to management actions and are used where it is not practical, efficient or necessary to implement outcome-based provisions because the priority for protection is lower. Management actions are the actions implemented to achieve the environmental objective which generally relate to the 'minimise' and 'rehabilitate' steps of the mitigation hierarchy, while management targets are a type of indicator defined to demonstrate that the objective is being met.

The management actions presented in Table 2-2 Objective Based Management Actions & Targets below have been prioritized using a risk-based approach (see risk assessment Appendix 2A), so that the greatest effort will be placed on the project activities that have the highest likelihood of causing environmental impacts where the consequence of the impact is likely to be severe and irreversible.

Perdaman has included management targets and management actions that will aid the project in achieving the objective stated within Condition 4-2 of MS 1180 and these are outlined in Table 2-2 below. The management actions and associated target additionally aim to achieve Condition 4-7 (2) which requires provisions to management impacts from; *(a) clearing (b) changes to surface water flows, including increase and decrease in extent of flooding (c) changes to surface water quality (d) changes to groundwater regimes (e) dust (f) weeds and (g) fire.*

Table 2-2 Objective Based Management Actions & Targets

EPA Factors and Objectives	Flora and Vegetation – To protect flora and vegetation so that biological diversity and ecological integrity are maintained
Conditional Objectives	All direct impacts are avoided (other than exceptions in Condition 4-1) and minimise indirect impacts to native vegetation (Condition 4-2, MS 1180).
	Maintain existing surrounding vegetation condition. Feeding and roosting habitat for native fauna, including conservation significant species: • Northern Quoll (Dasyurus hallucatus) • Pilbara Olive Python (Liasis olivaceus barroni) Ghost Bat (Macroderma gigas)Priority Ecological Communities and threatened species including: • Burrup Peninsula Rock Pile Communities (Priority 1) • Terminalia supranitofolia (Priority 3) • Rhynchosia bungarensis (Priority 4) Locally significant samphire shrublands/ intertidal flats with importance to migratory species including: • Curlew Sandpiper (*Calidris ferruginea*) • Red Knot (Calidris canutus) • Lesser Sand Plover (*Charadrius mongolus*) • Bar-tailed Godwit (Limosa lapponica baueri) • Australian Fairy Tern (*Sternula nereis nereis*) • Great Knot (Calidris tenuirostris) • Eastern Curlew (Numenius madagascariensis) Natural ecological conditions supporting native species. Visual amenity values for community and visitors of the area.

Key Impacts and Risks	Surface water diversions resulting in loss or degradation of riparian vegetation; Altered hydrological regimes resulting in loss or degradation of vegetation; Exposure to saline water resulting in a decline in health and/or change in vegetation composition. Groundwater drawdown from abstraction resulting in a loss of riparian vegetation; Groundwater mounding due to reinjection resulting in waterlogging and/or salinisation, which may cause unbalanced growth, and/or a decline in health or loss of vegetation. Loss or degradation of vegetation as a result of dust deposition Loss or degradation of vegetation as a result of weeds or introduced flora Loss of vegetation as a result of fires

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Management Action 1 *To meet Condition 4-7 (2) (a)* All ground disturbance activities and clearing of native vegetation must be undertaken under a Ground Disturbance Permit (GDP). ▪ The GDP will provide the summary of the key approval commitments and obligations obtained by or issued to Perdaman by regulators, tenure holders and other third parties. ▪ Relevant traditional owners are to be invited or appropriately facilitated to observe any Ground Disturbing Activities during construction. During Operations, fencing and boundaries protecting native vegetation will be inspected to ensure no unauthorised access or clearing has damaged or removed vegetation and flora.	**FVM Target 1** No clearing to be undertaken onsite without a GDP in place and all clearing will be undertaken within the GDP conditions.	**Indicator:** GDPs in place **Method:** Monitored through regular GDP reviews and environmental inspections. Monitored via incident records. **Location:** Project Area **Timing & Frequency:** Monthly - Ongoing during construction. Monthly inspections during operations.	All clearing without a GDP in place or clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 2 Appropriate training will be carried out for all personnel, subcontractors, consultants and visitors to ensure personnel are provided with adequate training	**FVM Target 2** 100% attendance of personnel and sub-contractors at environmental	**Indicator:** Training and Awareness inductions and competency assessments **Method:** Induction materials and register of	Records of pre-start meetings and training materials / registers are to be maintained by the EPC Contractor.

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
in identifying conservation species, priority communities, native vegetation, fauna habitats, weed species and the provisions of this FMP, including the GDP and clearing processes to be implemented. Increase awareness of site personnel in relation to flora and vegetation management through site environmental induction.	induction and 100% of personnel completing the competency assessment.	Attendees. Records of Pre-start meetings. Training materials/ registers. Toolbox meetings. Competency records. Monitored via audit records **Location:** Project Area **Timing & Frequency:** Monthly - Ongoing during construction. Employee inductions carried out during operations will contain content on conservation species, priority communities, native vegetation, fauna habitats, weed species and the provisions of this FMP. .	All non-compliances by personnel in relation to their responsibilities regarding flora and vegetation management will be reported as an incident in Perdaman's incident management system. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 3 *To meet Condition 4-7 (2) (a)* Areas including the project's construction limits shall be demarcated with temporary fencing and survey markers. The following measures relating to temporary fencing and early warning survey markers will be implemented: Temporary fencing location will be initially surveyed and identified using pink flagging. Temporary fencing will be installed along the pink flagging boundary and consist of star pickets driven into the ground markingthe edge of the boundary. Where possible, pink flagging shall remain. Yellow safety caps will be placed on the top of the star pickets. Non-barbed wire will connect the star pickets to present a visual barrier.	**FVM Targets 3** Ensure a **suitably qualified** surveyor sets out the construction battery limits prior to construction, and ensure these limits are visible to construction personnel. Damages to survey markers and temporary fencing or removal of objects demarcating site battery limits will be reported to the PER immediately upon identification and re-erected before clearing activities may re-commence.	**Indicator:** Survey Markers and fencing. **Method:** GPS Mapping on surveyed boundaries. Supervisor and Environmental inspections. **Location:** Project Area **Timing & Frequency:** weekly - Ongoing during construction. Monthly inspections of fencing protecting access to native vegetation and flora during operations.	All clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Star pickets should be installed 10m apart. Star pickets must be installed at each directional change. An early warning survey marker will be installed a minimum of 0.5m from the clearing boundary (location of temporary fence). The correct location of temporary fencing and survey markers is to be confirmed onsite by a suitably qualified surveyor and data provided to PER. The requirement for temporary fencing and survey markers shall be included in the Ground Disturbance Permit (GDP) issued for those particular works, with onsite verification by the Contractor's Environmental Representative prior to the commencement of clearing Works.			
Management Action 4 Fencing / boundary markers shall be installed to restrict the movement of vehicles, plant and personnel into vegetation areas that are not to be impacted. Areas of high sensitivity such as priority vegetative communities, including those bordering the project site, will be protected with temporary fencing and/or identified with survey markers to prevent entry or impact. No-go-Zones will be demarcated with Pink and Black Survey flagging, followed by a white early warning survey marker offset a minimum of 2m from No-go-Zones Permanent fencing or demarcation of no-go zones will be maintained during operations.	**FVM Target 4** No-go-Zones will be clearly demarcated (two layers of demarcation) on site prior to clearing and ground disturbing works being carried out onsite and no works are to take place within No-Go-Zones. Temporary fences are not to be moved during the construction period and will not be removed until permanent fencing has been installed.	**Indicator:** Presence of No-Go Zone demarcations **Method:** Temporary fences and survey markers are to be checked on a weekly basis as part of routine site inspections to ensure they remain in place and effective. Any identified damage to temporary fences is to be repaired immediately upon discovery. GPS Mapping on surveyed boundaries to check clearing progress daily. Supervisor and Environmental inspections. Monthly inspections of no-go-zones during operations. **Location:** Project Area **Timing & Frequency:** Weekly- Ongoing during construction. Monthly – during operations.	All clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 5 *To meet Condition 4-7 (2) (a)*	**FVM Target 5** All signage will be maintained	**Indicator:** Presence of signs **Method:** Temporary fences and signs are to be	Damages to fencing or signage will be reported as incidents.

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Install signage along the perimeters of the No-Go Zone at regular intervals (i.e., 30m apart) for both the construction phases and the operations. Signage will be installed in order to: Highlight the area as an ecologically sensitive area; Prevent accidental entry by construction and operational personnel; Prevent vegetation trampling, rock disturbance and rubbish ingress by construction workers during the construction phase and by employees and visitors during operations.	until construction works are complete or until replaced by permanent fencing.	checked on a weekly basis as part of routine site inspections to ensure they remain in place and effective during construction. Any identified damage to temporary fences is to be repaired immediately upon discovery. Quarterly inspections during operations. **Location:** Project Area **Timing & Frequency:** Weekly – Ongoing during construction. Quarterly during operations.	Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 6 *To meet Condition 4-7 (2) (a)* No-Go Zone is to be established around the PEC P1 areas in Site F. This is to be established prior to the start of any site clearing and maintained throughout the duration of project Works and operations. A suitably qualified surveyor will survey and mark 5m buffer and 3m warning zone. Temporary fencing during construction will be made permanent during operations.	**FVM Target 6** The No-Go Zone is to include a buffer of at least 5m from the edge of the delineated shapefile prepared by APM as part of their 2019 site survey (APM Shapefile) and provided in this FMP as Figure 2-1, and a warning of 3m.	**Indicator:** Buffer zones present **Method:** Survey markers to be inspected daily by site supervisors and weekly by PER. Inspections to confirm presence of 3m warning zone survey markers denoted by pink and black flagging and 5m buffer survey markers denoted by white flagging. All survey markers shall be maintained throughout construction and commissioning or until replaced by permanent fencing. The correct location of boundary markers is to be checked and confirmed onsite by a suitably qualified surveyor. GPS Mapping. **Location:** Project Area **Timing & Frequency:** Daily during clearing and weekly - Ongoing during construction. Quarterly during operations.	All clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 7 PEC P1 communities located wholly or partially within the conveyor corridor should, as far as practicable, not be disturbed to the extent shown in Figure 2-2. A suitably qualified surveyor will survey and mark 5m	**FVM Target 7** PEC P1 areas located in the conveyor corridor are to be managed as No-Go Zones to the extent shown within	**Indicator:** No-Go-Zone marked for PEC 1 communities **Method:** Inspections during construction and	All clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system.

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
buffer and 3m warning zone. Temporary fencing during construction will be made permanent during operations.	Figure 2-2.	operations. Weekly inspections during construction and daily inspections of buffers and warning zones daily during clearing. Incident management system. Relevant traditional owners are to be invited or appropriately facilitated to observe any Ground Disturbing Activities during construction. Fencing around no-go-zones to be inspected quarterly during operations. **Location:** Project Area **Timing & Frequency:** Daily during clearing Weekly - Ongoing during construction. Inspections quarterly during operations.	The extent of clearing in PEC P1 communities where unavoidable will be recorded and maintained to ensure cumulative clearing extents of this community does not exceed 0.16ha. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 8 The PEC P1 communities located adjacent to Site C's ammonia storage tank and the intersection of Burrup Road should, as far as practicable, not be disturbed to the extent shown in Figure 1-3. A suitably qualified surveyor will survey and mark 5m buffer and 3m warning zone. Temporary fencing during construction will be made permanent during operations.	**FVM Target 8** Any disturbance of this PEC will not contribute to the exceedance of the total allowable clearing of PEC 1 of 0.16ha.	**Indicator:** No-Go-Zone marked for PEC 1 communities **Method:** Inspections during construction and operations. Incident management system. GPS Mapping. Relevant traditional owners are to be invited or appropriately facilitated to observe any Ground Disturbing Activities during construction. Monitor all clearing within PEC P1 communities to ensure non-exceedance of the authorized clearing extent of 0.16ha. Fencing around no-go-zones to be inspected quarterly during operations. **Location:** Project Area **Timing & Frequency:**	All clearing that does not follow the conditions on the GDP will be required to be reported as an incident in Perdaman's incident management system. The extent of clearing in PEC P1 communities where unavoidable will be recorded and maintained to ensure cumulative clearing extents of this community does not exceed 0.16ha Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
		Daily during clearing Weekly - Ongoing during construction. Quarterly during operations.	Reporting on the review and revision of management actions – annually in the CAR
Management Action 9 *To meet Condition 4-7 (2) (f)* Weeds will be managed and controlled in accordance with PCF-PD-EN-WMP Weed Management Plan. Immediate notification to the PER upon identification of weed species on site. Site personnel will be trained in the recognition of weed species and will not attempt to remove / manage until directed by a suitably qualified Environmental Representative. Vehicle movements in and out of the project site will be controlled and monitored to avoid the introduction of weed species into the project development envelope. Topsoil stockpiles being used for rehabilitation will be controlled and monitored though the use of a Material Tracking System to avoid the introduction of weed species into the project development envelope.	**FVM Target 9** Prevent the spread and/or distribution of weeds within the Project Area and to surrounding adjacent unimpacted native vegetation. Compliance with PCF-PD-EN-WMP Weed Management Plan.	**Indicator:** Visual evidence of weed infestation. **Method:** Monitoring will be conducted as per PCF-PD-EN-WMP Weed Management Plan. Monitoring will occur within the project site and along the site boundary for new infestations on an annual basis (refer to Table 2-3). Vehicles will be washed down and inspected at site entry points. Verification vehicles, plant and equipment are free from weeds and seeds and comply with wash down requirements. Site personnel will continually monitor grounds for the presence of weeds during construction. Ongoing weed monitoring will occur around the stockpile storage areas for new infestations. Verification that construction fill, or topsoils bought to site has a low risk of containing weeds and / or pathogens. Monitored through incident records. Annual Inspections during construction and operations for new weed incursions. **Location:** Project Area **Timing & Frequency:** Annually (September) for new weed incursions within and adjacent to the PDE. Annually (September) for weed incursions within and adjacent to the PDE that were previously uninfested. Pre-construction (spring) – declared weed survey and mapping.	Occurrences of weeds identified on site will be recorded and reported as incidents. and the species and location will be recorded on a weed register. Weed incursion into areas of native vegetation that cause a non-compliance with Condition 4-2 will be reported in the CAR as per Condition 15-3, as detailed in Section 2.4.1. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
		Construction – annual surveys for declared weeds and associated mapping. Monthly visual Inspections. Monthly - Ongoing during construction for verification of weed and seed certificates and wash down procedures.	
Management Action 10 *To meet Condition 4-7 (2) (g)* Fire is to be managed as per the requirements of PCF-PD-EN-ERMP Emergency Response Management Plan and PCF-PD-EN-PEMP Environmental Management Plan. Active areas are managed to reduce risk of uncontrolled fire and adhere to requirements under the *Bushfire Act 1954.* Compliance with PCF-PD-EN-ERMP Emergency Response Management Plan and PCF-PD-EN-PEMP Environmental Management Plan and *Bushfire Act 1954.* A dust suppression vehicle will be fitted such that it is capable of also being used as an onsite fire response vehicle. Early establishment of a fire break.	**FVM Target (s) 10** No Fires impacting native vegetation communities caused directly from Project activities (construction or operations).	**Indicator:** Fire impacting native vegetation onsite or adjacent to site from Project activities. **Method:** Monitored through incident records. Weekly inspections of fire response equipment during construction. Inspections of fire response equipment throughout operations (i.e. fire extinguishers biannually, fire hose reel testing biannually, fire alarms monthly). Inspections to ensure fire break remains free of debris and vegetation monthly during construction and quarterly during operations. **Location:** Project Area **Timing & Frequency:** Monthly - Ongoing during construction. Quarterly during Operations.	All uncontrolled fire that does not adhere to requirements recorded and reported as incidents. If fire causes disturbance to an area greater than the authorised extents, report any exceedances in writing to the CEO and the DCCEEW within seven days of the exceedance being identified as per Condition 4-8(1). Provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded as per Condition 4-8(4). Provide an additional report to the CEO and the DCCEEW within twenty-one (21) days of the exceedance being reported, with details of such report specified in Condition 4-8(5). See Section 2.4 for reporting on exceedance of outcomes. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
			management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR.
Management Action 11 Where required, carry out progressive rehabilitation of land that has been impacted during construction activities. Carry out the rehabilitation of area no longer required during construction. The management aspects for rehabilitation include: • Topsoil and vegetation to be stripped and stockpiled for use in rehabilitation prior to the commencement of construction works. • Stockpiled topsoil will be re-spread over disturbed areas to maximise germination of pioneer species from the soil seedbank during rehabilitation activities. • Local native seeds will be sourced where possible from a supplier and used for progressive rehabilitation and revegetation activities where required during the life of the project and until the implementation of the Confirmed Decommissioning and Rehabilitation Plan. Ensure correct storage and management of soil stockpiles, outlined in the Erosion, Sediment and Surface Water Management Protocol and the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP). Use seeds representative of the vegetation diversity of the project area (as notified by relevant flora surveys) during progressive rehabilitation activities.	**FVM Target (s) 11** Carry out progressive Rehabilitation of the land as soon as practicable after the completion of construction activities onsite.	**Indicator:** Areas that have not been rehabilitated following construction activities. **Method:** Topsoil to be monitored by a Material Tracking System (MTS). **Location:** Project Area **Timing & Frequency:** Ongoing during construction following rehabilitation of an area.	Compliance with FVM Target 11 will be reported in the CAR, and in alignment with the CAP. CAR submitted to EPA Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 12 Rehabilitation at decommissioning (end of project life) is to be managed as per the Confirmed Decommissioning and Rehabilitation Plan (TBD)	**FVM Target 12** Compliance with Confirmed Decommissioning and Rehabilitation Plan (TBD at	**Indicator:** Confirmed Decommissioning and Rehabilitation Plan (TBD) **Method:** Rehabilitated vegetation areas will be visually monitored proceeding decommissioning to	Compliance with FVM Target 12 will be reported in the CAR, and in alignment with the CAP. CAR submitted to EPA.

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
(which will be developed at least 5 years prior to the forecasted completion of the operational phase of the Project).	least 5 years prior to the forecasted completion of operational phase i.e. Submit no later than the Year 2097, assumption made on a 80 year project operational life).	assess any reduction in vegetation health. **Location:** Project Area **Timing & Frequency:** NB: Monitoring of rehabilitation works during operations and post decommissioning to be carried out as per the Decommissioning and Rehabilitation Plan (TBD 5 years prior to Plant decommissioning i.e. in the year 2097). .	Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR
Management Action 13 *To meet Condition 4-7 (2) (e)* Manage dust during construction to ensure dust does not impact social surroundings or vegetation health. Implement dust suppression techniques (e.g. water trucks) on unsealed roads and access tracks, cleared areas and at locations of high dust risk. Dust suppression measures shall be implemented where dust is visible, except during topsoil stripping. Dust suppressant additives or methods that reduce overall water consumption should be used wherever practicable. This shall include restricting traffic within cleared areas until access is needed. Vegetation clearing, grubbing and earthworks during high winds (>40 km/hr) should be avoided. Where these works are required to be conducted during high winds, additional management measures must be implemented to minimise and control dust emissions. Dust emissions from the conveyor, product storage sheds and shiploading operations will be monitored and minimised throughout the life of the project. Implement controls relevant to dust included in Attachment J of the CEMP – Air Quality Management Protocol. Plan for activities likely to cause dust impacts to be	**FVM Target 13** Dust suppression source water not to exceed a TDS of 5,000 mg/L	**Indicator:** Source Water quality **Method:** Weekly Environmental Inspections for: Weekly Dust suppression water quality field test using a calibrated pocket TDS meter to monitor FVM Target 13. Visual dust inspections conducted continually and look for changes from previous day. Also conduct visual monitoring during dust generating activities. Inspect vehicle adherence to speed limits, established roads and access points Monitor the dust suppression being applied to soil and stockpiles, as well as loads traversing project access roads Inspect vegetation for visible signs of decline in ability to photosynthesis and/or dust settlement on foliage during construction quarterly. Conduct annual inspections on vegetation health and foliage for signs of dust impacts during operations. Additionally inspect vegetation for visual signs that poor quality water discharged (used for dust suppression or onsite during operations) has not adversely impacted vegetation communities (i.e. decline in plant productivity, alteration of community structure, foliage distress, root exposure, browning of leaves, plant deaths) during construction (quarterly)	A log of water used for dust suppression will be maintained and reported in the Monthly Environmental Report. Information reported will include, where relevant, the source of the water (eg: bore reference number or standpipe reference), date and time, volume removed (including meter reading at start and finish), location where water was used. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
carried out during days of low wind.		and during operations (annually). Signs of stress in vegetation and plant communities may include decline in plant productivity, alteration of community structure, plant deaths. If the Environmental representative observes (during inspections throughout the construction or operational phases) that vegetation health has been impacted negatively by dust settlement, a suitably qualified professional (i.e. botanist or flora specialist) may be required to determine the extent of project attributable impacts to vegetation so that further management and monitoring can be applied to the Project. Inspections of dust generated by operational activities during monthly inspections. Records of incidents and community complaints. **Location:** Project Area **Timing & Frequency:** Ongoing during construction. Quarterly vegetation health, stress and deaths during construction and operations. Annually after construction.	

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Management Action 14 *To meet Condition 4-7 (2) (b)* Implement and install drainage, erosion and sediment controls (during both construction and operations) to prevent changes to surface water flows, including increase and decrease in extent of flooding in accordance with mitigation measures stated within the Appendix 2B of this FMP, the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP) and the Erosion, Sediment and Water Quality Protocol.	**FVM Target 14** Compliance with the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP) and the Erosion, Sediment and Water Quality Protocol throughout construction and operations.	**Indicator:** Integrity and presence of ESC's **Method:** Weekly environmental inspections. Monthly inspections during operations of the integrity of drainage, ESC's. Inspections preceding heavy rainfall events to occur both during construction and operations. Incident management system. Monitor native vegetation adjacent and within PDE, to determine if changes to surface water flows within and adjacent to site has caused plant stress (indicated by root exposure, foliage browning and wilting, decline in plant productivity, plant deaths, drier or wetter soils than previously observed or recorded), quarterly during construction and annually during operations. If the Environmental representative observes (during inspections throughout the construction or operational phases) that vegetation health (i.e. foliage curling, wilting, dry soil, slow growth, dead leaf tips) has been impacted negatively by changes to surface water flows, a suitably qualified professional (i.e. botanist or flora specialist) may be required to determine the extent of project attributable impacts to vegetation so that further management and monitoring can be applied to the Project. **Location:** Project Area **Timing & Frequency:** Weekly - Ongoing during construction. Quarterly (visual) inspections to monitor vegetation health and stress from surface water flow changes during construction. Annually to monitor vegetation health and stress from surface water flow changes during operations.	Incident reporting. Exceedance reporting as per the SWMP (PCF-PD-EN-SWMP). Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Management Action 15 *To meet Condition 4-7 (2) (c).* Implement and install drainage, erosion and sediment controls (during both construction and operations) to prevent contamination of surface water and receiving environments in accordance with mitigation measures stated within the Appendix 2B of this FMP, the Confirmed Surface Water Management Plan and the Erosion, Sediment and Water Quality Protocol.	**FVM Target 15** Compliance with the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP) & the Erosion, Sediment and Water Quality Protocol throughout construction and operations.	**Indicator:** Integrity and presence of ESPC's **Method:** Weekly environmental inspections during construction. Quarterly inspections of flora health during construction. Annually inspections of flora health during operations. Inspections preceding heavy rainfall events during construction and operations. Incident management system. Visual inspection for evidence of contamination leaving site in stormwater. Monitor native vegetation adjacent and within PDE, to determine if contaminated runoff from site and within site has caused plant stress (indicated by foliage browning and wilting, decline in plant productivity, plant deaths, discolouration of soils, oily or contaminated water leading to vegetation communities). If the Environmental representative observes (during inspections throughout the construction or operational phases) that vegetation health has been impacted negatively by contaminated surface water, a suitably qualified professional (i.e. botanist or flora specialist) may be required to determine the extent of project attributable impacts to vegetation so that further management and monitoring can be applied to the Project. Inspections following incident being identified and reported. **Location:** Project Area **Timing & Frequency:** Weekly - Ongoing during construction. Following rain events.	Incident reporting. Exceedance reporting as per the SWMP (PCF-PD-EN-SWMP). Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
		Quarterly (visual) inspections to monitor vegetation health and stress from surface water quality changes during construction. Annually to monitor vegetation health and stress from surface water quality change during operations.	
Management Action 16 *To meet Condition 4-7 (2) (d)* Minimise project attributable impacts on groundwater quality, flow direction and/or depth to maintain the hydrological regimes and quality of groundwater. Undertake Hydrogeological studies to quantify baseline groundwater quality, groundwater flow directions, and the depth to groundwater beneath Sites C and F.	**FVM Target 16** Prepare and comply with a Hydrogeological (dewatering Management Plan) during construction to manage potential impacts to groundwater during extraction, if the hydrogeological studies indicate dewatering will be required during construction.	**Indicator:** Groundwater monitoring results against baseline results **Method:** Weekly Inspections during construction. Sampling and Lab data during dewatering. Monitoring of installed groundwater bores every 6 months as per Condition 6-6 and compare this to baseline data. Incident records. **Location:** Project Area **Timing & Frequency:** Monthly - Ongoing during construction. During dewatering (weekly)	Reporting to DWER. CAR to EPA. Reporting of groundwater monitoring data against baseline data of groundwater quality, groundwater flow directions, and depth to groundwater obtained from the hydrogeological studies referred to in Condition 6-2. Reporting where exceedances (stated within the Hydrogeological (dewatering Management Plan) occur as per MS 1180 Conditions. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

MANAGEMENT ACTIONS	MANAGEMENT TARGETS	MONITORING	REPORTING
Management Action 17 Comply with the Environmental Offsets that provide for a contribution to the Pilbara Environmental Offsets Fund (PEOF) to counterbalance the significant residual impacts of the project.	**FVM Target 17** $826 AUD (excluding GST) per hectare of 'Good to Excellent' condition native vegetation, including foraging and dispersal habitat for the Pilbara Olive Python, Northern Quoll, Ghost Bat and EPBC Act listed Migratory/marine bird habitat, cleared for the project within the Roebourne IBRA subregion. $1,653 AUD (excluding GST) per hectare of Priority 1 PEC - Burrup Peninsula rock pile community, which is also critical habitat for the Pilbara Olive Python and Northern Quoll (rocky outcrop), cleared for the project within the Roebourne IBRA subregion. Ensure that the above contribution rates are applicable to the financial year that the clearing is undertaken (as per Condition 11-4).	**Indicator:** non-compliance with offset plan (IRP) **Method:** Relevant traditional owners are to be invited or appropriately facilitated to observe any Ground Disturbing Activities during construction. Monitor via GPS mapping of demarcated areas of flora and vegetation in 'Good to Excellent' condition. Boundary extents concerning this will be specified in the Perdaman Urea Impact Reconciliation Report. **Location:** Project Area **Timing & Frequency:** Ongoing during construction. Ongoing during operations.	Impact Reconciliation Reports in accordance with the Confirmed Impact Reconciliation Procedure to meet Condition 11-8. Reported through Monthly Project Environmental Reporting by Environment Team. Performance against management target – annually in the CAR Reporting on the review and revision of management actions – annually in the CAR

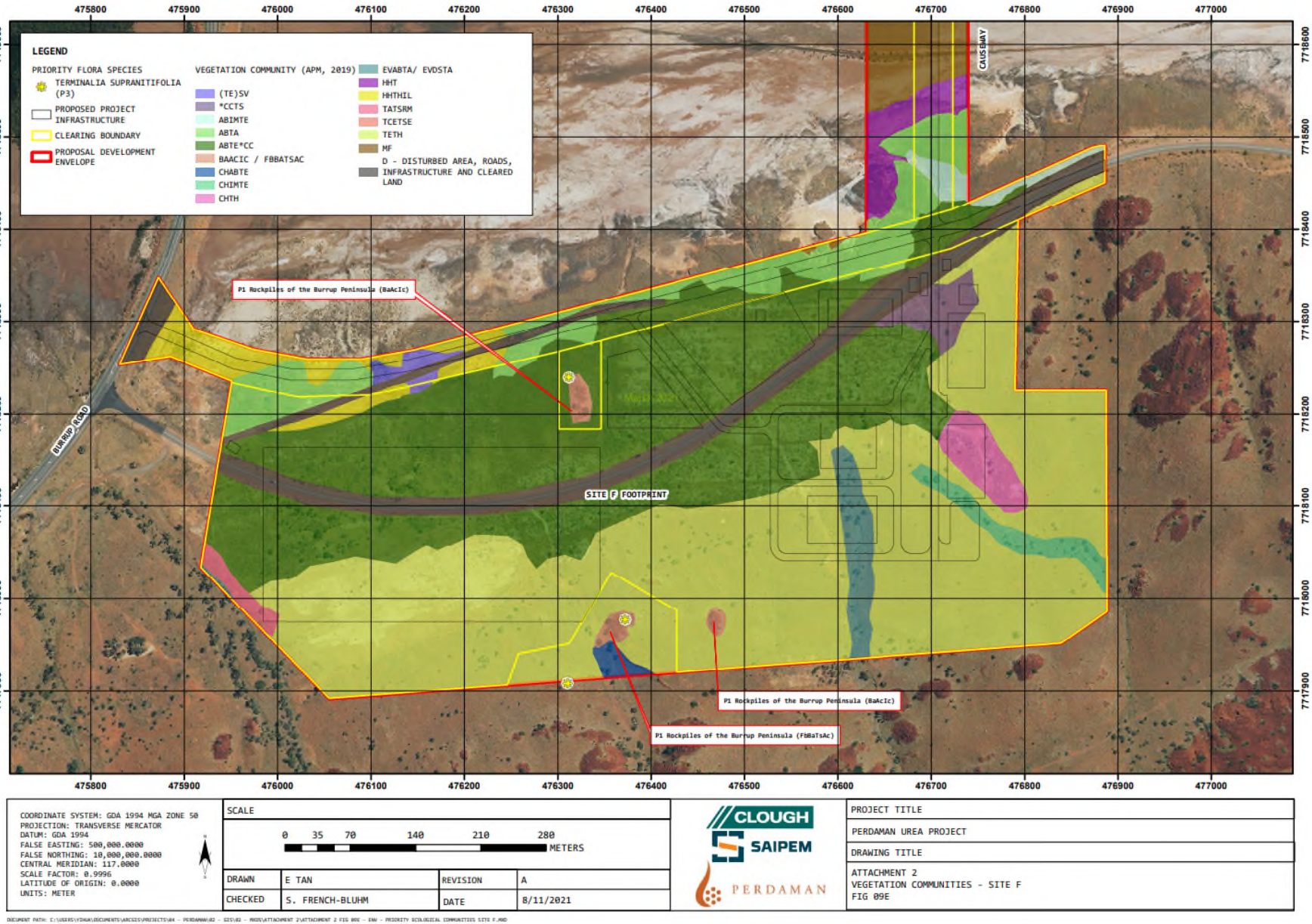

Figure 2-1 Site F Priority Ecological Communities

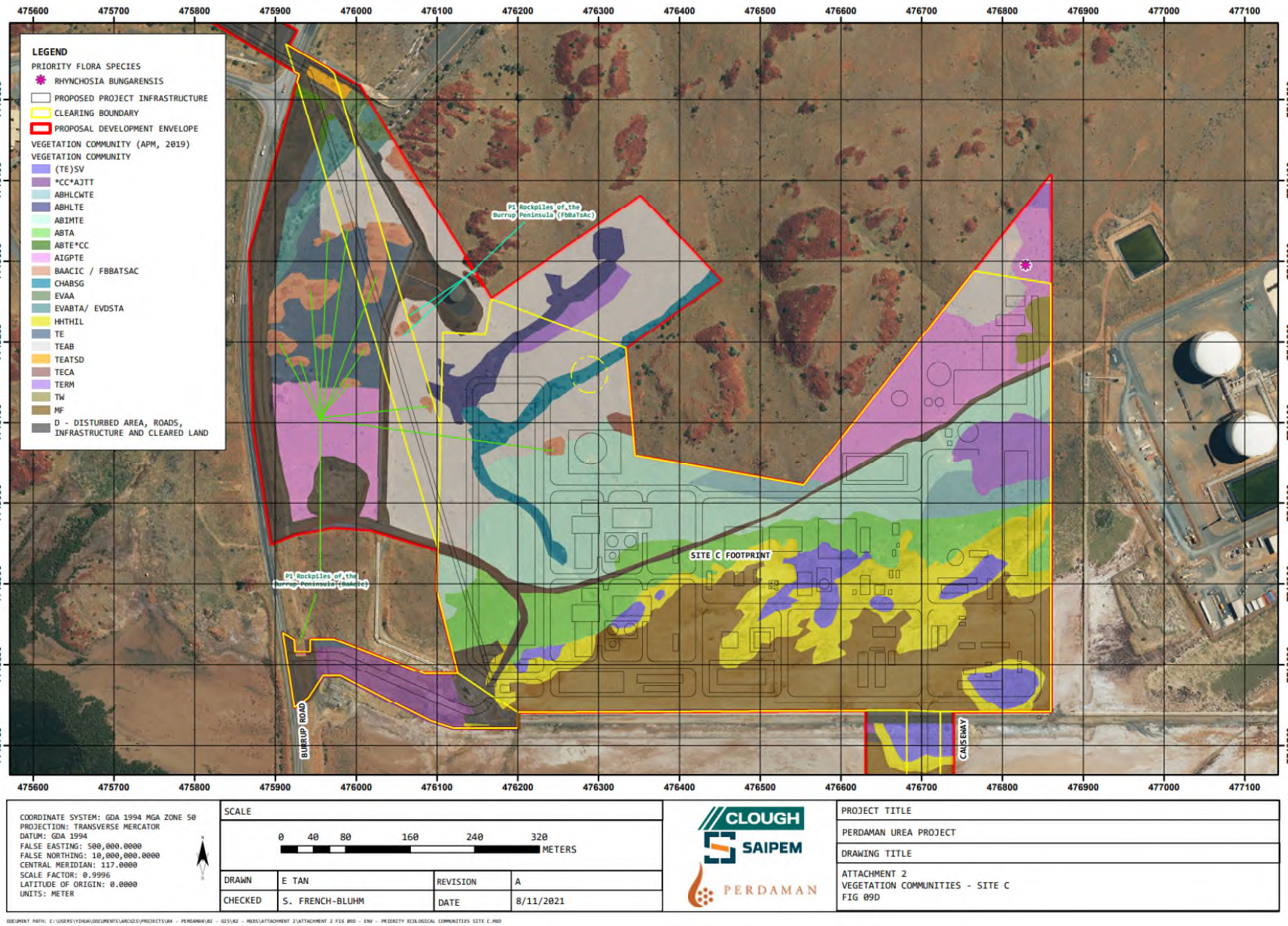

Figure 2-2 Site C and Conveyor and Corridor Priority Ecological Community.

2.3 Environmental Monitoring – Flora and Vegetation

Perdaman shall conduct regular inspections and audits of the EPC Contractors work sites and undertake monitoringof specific environmental aspects and impacts.

Additionally, Perdaman shall conduct monitoring to assess whether the management actions are effective against the environmental objectives for flora and vegetation and inland waters.

A summary of the monitoring required for each trigger and threshold criterion relating to flora and vegetation is outlined in Table 2-1 and Table 2-2 along with the associated response actions. Monitoring required against the management targets and associated actions is outlined in Table 2-2. To summarise the monitoring methodology and program for the Project Table 2-3 provides an outline for flora and vegetation.

The guiding objectives of the projects monitoring program include:

- Measure adverse impacts of activities during construction and operations on native vegetation within the sites and areas under Perdaman's' controls.
- Monitor and measure success of the management measures implemented to ensure clearing extents specified in Condition 4-1 are achieved.
- Monitor and measure compliance with trigger and threshold criterion and document the instances of exceedance (if any)
- Monitor and measure the success of management measures to inform an adaptive management approach (refer to Section 3).
- Identify if vegetation changes are impacting or threatening to impact the native vegetation values (identified in Section 1.5.1), particularly through plant stress indicators and vegetation condition.
- Determine if changes to Native vegetation within the areas and sites Perdaman has control over are as a direct or indirect result of Perdaman activities during construction and operations.

Operational monitoring will be informed by findings of the monitoring program implemented by Perdaman as the data becomes available and the exceedances in outcomes (if any). These findings may lead to ongoing changes and refinements of this FMP and its associated management actions and measures to ensure adaptive management is applied.

2.3.1 Flora & Vegetation Monitoring Trigger & Threshold Levels

The purpose of monitoring is to assess performance, collate data and evidence. Monitoring results will be recorded/reported and used to determine the effectiveness of this Plan and if the outcomes are or are not being achieved.

The overall objective of the monitoring program implemented by Perdaman is to measure performance against the environmental outcomes and whether trigger level actions or threshold contingency actions need to be implemented. Triggers and Threshold criterion associated monitoring is detailed in Table 2-1 and monitoring related to environmental objectives is detailed in Table 2-2.

Perdaman is to submit to the CEO of the EPA the first Compliance Assessment Report (CAR) fifteen (15) months from the date of issue of MS 1180, with additional CAR's required annually from the date of submission of the first CAR, as required by Condition 15-6 of MS 1180. These reports will demonstrate compliance with the applicable ministerial Conditions through reporting the monitoring results in comparison to the established trigger and threshold criteria. This will assist to identify non-compliances and describe the corrective and preventative actions to be taken to maintain compliance.

The CAR shall be provided as per direction given in the Compliance Assessment Plan (CAP), which is to be submitted to the CEO at least 6 months prior to the first CAR or prior to ground disturbing activities; whichever is sooner.

2.3.1.1 Triggers & Threshold criteria

The magnitude of change for outcome-based provisions is assessed via the use of trigger and threshold Criteria. Trigger and Threshold Criteria, along with the associated management action/contingency actions have been summarised in Section 2.1. Table 2-1 additionally provides the respective monitoring and reporting requirements for each trigger and threshold.

The trigger criteria are set at levels to forewarn of the approach of the threshold criteria and trigger response actions and are set at a conservative level to ensure trigger level actions can be implemented well in advance of the environmental outcome being compromised.

Threshold criteria represent the limit of acceptable impact beyond which there is likely to be significant impact on the environment. Exceedance of the threshold criteria signals the environmental outcome is not being met, implies non-compliance and requires threshold contingency management measures to be implemented.

2.3.1.2 Trigger Level Actions

Where a trigger and threshold criteria are exceeded and the associated management/or contingency actions implemented, Perdaman will record and investigate the cause including a review of the associated flora outcomes, sampling and collection of data methods, equipment calibration and documentation to confirm or dismiss the trigger level exceedance.

Review will also include a gap analysis of current early response actions, trigger response actions and threshold contingency actions to identify non-compliances and where necessary any additional actions that may be required to minimise risk of further exceedance.

Any exceedance of a trigger level will trigger a review of the **Confirmed** Flora Management Plan (PCF-PD-EN-FMP) outcomes and management-based provisions to determine any correlation.

Where the above confirms trigger level exceedance is present an Investigation which aims to determine the following will be carried out:

- Determine the cause of the exceedance (i.e. Ground Disturbance Permit provided to clearing contractor did not specify clearing limit/boundary).
- Cause and Effect, particularly with respect to construction and or operational related causes versus external causes (i.e. rainfall).
- Rate of Change (i.e. risk of a threshold exceedance).

Responses are then based on the outcome of the investigation and the risk of the threshold being exceeded. If risk of exceedance is low, monitoring of appropriate variables at an increased frequency is to be implemented. If risk of exceedance is moderate or above, appropriate contingency management measures are to be implemented to arrest the decline in conjunction with an increase in monitoring frequency of appropriate variables.

An appropriate management response will be determined and will enable exceedances of trigger levels to be reduced back to acceptable levels within a reasonable timeframe.

The most appropriate management measure will be implemented dependent on the cause and the severity of the impact. Ongoing monitoring of the effectiveness of the trigger level contingency management measures will be undertaken to ascertain if the adopted measure/s are effective in mitigating impacts to the affected area, and if further investigations and/or management measures are required to arrest the impact.

Results shall be provided as information for the CEO (EPA) to determine potential environmental harm or alteration of the environment that occurred due to any threshold criteria being exceeded on the project.

If required, additional management actions (early response action, trigger response actions and threshold contingency actions) will be added into the FMP in Table 2-1 and implemented on the project. Any additional management actions or control will require the approval of the office of the EPA.

In instances where thresholds and triggers are exceeded the event will be recorded as an incident as per Section 2.4.1 and Figure 13-1 in PEMP. If Threshold criteria are found to be exceeded this shall be considered an incident of Major classification. Where a Trigger Criteria is not detected prior the exceedance of Threshold criteria it will automatically be recorded as an incident also.

To comply with potential and non-compliances to MS 1180, 2.4 must be followed in the event that trigger criteria or threshold criteria for flora and vegetation aspects are exceeded.

2.3.1.3 Threshold Level Actions

If the threshold level is exceeded, then additional management measures will be undertaken. Threshold level contingency management measures may include a combination of actions, and this will be dependent on the location of the impact identified through the monitoring program. The most appropriate management measure will be implemented dependent on the cause and the severity of the impact.

2.3.2 Flora & Vegetation Monitoring Management Actions & Targets

2.3.2.1 Management Actions

In the event a management action for flora and vegetation aspects are not implemented and or met, the Perdaman Environmental Manager will be notified immediately with all relevant information. All reasonable actions to implement the management action will be undertaken to rectify the non-compliance.

If a management action requires adjustment following evaluation of monitoring data, review of assumptions and uncertainties, re-evaluation of risk assessment, increased understanding of the environmental setting, or changes to the project scope or technology, Perdaman must seek formal approval from the Office of the EPA, DCCEEW and may require consultation with MAC as per Condition 4-6 of MS 1180 if this FMP is reviewed and updated on account of these changes.

Mitigation and management measures for potential impacts have been summarised in Appendix 2B and

management actions specified in Table 2-2.

2.3.2.2 Management Targets

The magnitude of change for management-based provisions is assessed via management targets. Management Targets are focussed on the retention of native vegetation and the key elements within it.

Table 2-3 - Monitoring provisions

Indicator	Method Summary	Monitoring Site	Parameters	Frequency (during construction)	Frequency (post construction)	Early Warning Indicator
New declared weed species not previously present.	Survey for declared weeds. Visual inspections. Photos taken where new declared weeds are identified. Refer to Weed Management Plan (PCF-PD-EN-WMP).	Clearing edge within the development envelope, adjacent to habitat vegetation types (i.e. Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6, Figure 2-1, Figure 2-2).	Number of species of declared weeds present.	Refer to Weed Management Plan (PCF-PD-EN-WMP). Pre-construction (spring) – declared weed survey. Construction – annual surveys for declared weeds. Monthly visual Inspections.	Annually (September).	New non-declared weed species observed along the clearing edge within the development envelope. New infestations of declared weeds. Vehicles or machinery on site without having passed through a clean on entry/exit point.
Spread of weeds to areas not previously infested.	Weed survey mapping. Visual inspections. Refer to Weed Management Plan	Clearing edge within the development envelope, adjacent to habitat vegetation types and vegetation adjacent in excellent condition (i.e.	Mapping of weed areas.	Pre-construction (spring) – weed survey mapping. Construction – annual weed	Annually (September).	New infestations of weeds. Vehicles or machinery

Indicator	Method Summary	Monitoring Site	Parameters	Frequency (during construction)	Frequency (post construction)	Early Warning Indicator
	(PCF-PD-EN-WMP).	Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6, Figure 2-1, Figure 2-2).		survey mapping. Monthly visual Inspections. Refer to Weed Management Plan (PCF-PD-EN-WMP).		on site without having passed through a clean on entry/exit point.
Flora species and vegetation death due to dust smothering.	Visual monitoring for signs of vegetation stress, transect based monitoring at vegetation communities onsite and adjacent to boundary.	Vegetation communities at all sites within the PDE and adjacent to the Project boundary (i.e. Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6, Figure 2-1, Figure 2-2).	Number of observations of dust covering plant leaves.	Ongoing during construction. Quarterly vegetation health, stress and deaths during operations.	Annually. Quarterly vegetation health, stress and deaths during operations.	Excessive dust coating on plant leaves adjacent to the development envelope.
Changes to surface water flows, including increase and decrease in extent of flooding, changes to surface water	Visual monitoring for signs of vegetation stress, transect based monitoring at vegetation communities onsite and adjacent to boundary. Groundwater and surface water quality monitoring as per the Confirmed Surface	Vegetation communities at all sites within the PDE and adjacent to the Project boundary (i.e. Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3Figure 1-4Figure 1-5Figure 1-6Figure 2-1Figure 2-2)	Number or percentage of plants that exhibit signs or symptoms of stress due to changes in water regime (i.e. foliage curling, wilting, dry soil, slow growth, dead leaf tips).	Quarterly.	Annually.	Decline in plant condition / health as indicated by observed stress in plants within a vegetation community.

Indicator	Method Summary	Monitoring Site	Parameters	Frequency (during construction)	Frequency (post construction)	Early Warning Indicator
quality and groundwater regimes.	Water Management Plan (PCF-PD-EN-SWMP).		Water quality parameters indicating contamination or changes to flow regimes.			
Clearing boundaries of PEC (P1) rocky outcrops and total clearing extent of 73.05 ha.	Visual inspection of Survey clearing boundaries, pegging and GDP's.	At all vegetation clearing extents, boundaries and for vegetation habitats within PDE (i.e. Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6, Figure 2-1, Figure 2-2).	Disturbance of buffers and no-go zones during construction works.	Daily during clearing. Weekly.	Quarterly.	Signs of people, track marks, clearing, damaged vegetation, pegging and demarcation not present.
Areas including the project's construction limits shall be demarcated with temporary fencing and survey markers.	Visual inspection of Survey clearing boundaries, markers/pegging, fencing design elements and GDP's.	At all vegetation clearing extents, boundaries and for vegetation habitats within PDE (i.e. Rocky outcrops, Samphire shrublands, Drainage Lines, Hummock Grasslands) (Refer to Figure 1-3, Figure 1-4, Figure 1-5, Figure 1-6, Figure 2-1, Figure 2-2).	Disturbance of buffers and no-go zones during construction works due to missing or incorrectly installed fencing elements	Weekly. (Daily during clearing).	Quarterly.	Signs of people, track marks, clearing, damaged vegetation, pegging and demarcation not present.
Elements that may cause a fire risk.	Visual inspection of fire breaks for debris and vegetation. Inspections of fire response equipment to	At the project clearing boundary for firebreak inspections. Fire response equipment in all vehicles and facilities of the project area.	Inspections to ensure fire break remains free of debris and vegetation.	Monthly fire break inspections. Daily vehicle checks for vegetative debris	Quarterly fire break inspections. Inspections of fire response equipment	Fire response equipment exceeding the use-by date or missing.

Indicator	Method Summary	Monitoring Site	Parameters	Frequency (during construction)	Frequency (post construction)	Early Warning Indicator
	ensure in working order and remains within the operational 'use-by' date. Inspections of vehicle undersides for vegetative debris stuck in the engine. Monitoring of all hot works occurring within 50m of vegetation. Monitoring as per the Emergency Response Management Plan (PCF-PD-EN-ERMP).	Smokers' areas.	Inspections (pre-starts) of vehicle undersides to be free of plant material. Use-by date of fire response equipment. Presence in fire risk areas of relevant fire response equipment. Smoking limited to designated areas only. Hot works to occur at a minimum of 50m from native vegetation.	in the engine. Fire spotter present at all times during hot works within 50 m of vegetation.	throughout operations (i.e. fire extinguishers biannually, fire hose reel testing biannually, fire alarms monthly).	Smoking occurring outside of designated areas. Propagation of vegetation in the firebreak. Vegetative debris in the fire break.

2.4 Environmental Reporting & Compliance Requirements

2.4.1 Environmental Reporting

Perdaman is responsible for the preparation of overall Project related environmental reports including compiling data from monitoring programs.

Perdaman will compile monitoring data and relevant environmental information on a monthly basis.

Perdaman will report to DCCEEW and the CEO on the implementation of this FMP as part of annual compliance reporting and must be in strict accordance with the Project's approval Conditions.

Where compliance audits undertaken by Perdaman identify that the environmental management actions and / or the environmental objectives are not being achieved (i.e., non-compliance or an environmental incident), Perdaman must notify DCCEEW and the CEO as soon as reasonably practicable within seven days.

Consistent with standard document control procedures, Perdaman will maintain copies of all reports submitted to DCCEEW and the CEO.

The reporting and relevant compliance to be conducted for this FMP is identified in Table 2-4.

Table 2-4 Reporting Requirements

Aspect	Compliance Requirement	Responsibility	Authority	Timing	Actions to be taken
Exceedance of environmental outcomes in condition 4-1	MS 1180 Condition 4-8	Environment and Heritage Manager	CEO DCCEEW	Report the exceedance within seven days of the exceedance being identified	Comply with conditions 4-8 (1) to (5) and 15-5 of MS 1180
Monitoring or investigations at any time indicate an exceedance of threshold criteria specified in the Confirmed Flora Management Plan (PCF-PD-EN-FMP)	MS 1180 Condition 4-8	Environment and Heritage Manager	CEO DCCEEW	Report the exceedance within seven days of the exceedance being identified	Comply with conditions 4-8 (1) to (5) and 15-5 of MS 1180
Failure to implement one or more management and/or contingency actions, if the relevant threshold criteria have been exceeded	MS 1180 Condition 4-9	Environment and Heritage Manager	CEO DCCEEW	Report the exceedance within seven days of the exceedance being identified	Comply with conditions 4-8 (1) to (5) and 15-5 of MS 1180
Exceedance of a threshold criteria (regardless of whether the relevant management and/or contingency actions have been or are being implemented)	MS 1180 Condition 4-9	Environment and Heritage Manager	CEO DCCEEW	Report the exceedance within seven days of the exceedance being identified	Comply with conditions 4-8 (1) to (5) and 15-5 of MS 1180
Failure to comply with the requirements of the Confirmed Flora Management Plan (PCF-PD-EN-FMP)	MS 1180 Condition 4-9	Environment and Heritage Manager	CEO DCCEEW	Report the exceedance within seven days of the exceedance being identified	Comply with conditions 4-8 (1) to (5) and 15-5 of MS 1180
Review and revise the Confirmed Flora Management Plan (PCF-PD-EN-FMP)	MS 1180 Condition 4-6	Environment and Heritage Manager	MAC CEO DCCEEW	Submit upon finalisation	Consult with MAC Comply with condition 4-6 (1) and (2) of MS 1180

Aspect	Compliance Requirement	Responsibility	Authority	Timing	Actions to be taken
Submit an Environmental Performance Report to the Minister and the Murujuga Aboriginal Corporation	MS 1180 Condition 12-1	Environment and Heritage Manager	MAC Minister for Environment (WA)	Every 5 years. The first report to be submitted within three months of the expiry of the five year period commencing from the first date of Ground Disturbing Activities, or such other time as may be approved by the CEO	Comply with conditions 12-3, 12-4 and 12-5 of MS 1180
Assess compliance with conditions in accordance with the Confirmed Compliance Assessment Plan and prepare Compliance Assessment Report	MS 1180 Condition 15-3	Environment and Heritage Manager	CEO EPA	The first Compliance Assessment Report due fifteen months from the date of issue of MS 1180 addressing the twelve month period from the date of issue of MS 1180 and then annually from the date of submission of the first Compliance Assessment Report, or at another time agreed in writing by the CEO.	Comply with condition 15-7 (1) to (5) of MS 1180

A series of registers relevant to light management practices will be maintained throughout the life of the Project. These are listed below:

- Training records
- Environmental incident register - record and monitor all environmental incidents within the Project

2.4.2 Ministerial Statement 1180 Compliance Assessment Report

As noted in Table 2-4, Perdaman is to submit to the CEO of the EPA a Compliance Assessment Report (CAR) annually in accordance with Condition 15 of MS 1180. The CAR is to be prepared in accordance with the Confirmed Compliance Assessment Plan (PCF-PD-EN-CAP).

The first CAR is to be submitted fifteen months from the date of issue of MS 1180. The Statement was issued on 24 January 2022. Therefore, the first CAR was due 24 June 2023. CAR's are required annually from the date of submission of the first CAR, therefore, by 24 June, each year.

The CAR demonstrates Perdaman's compliance with MS 1180 through reporting the monitoring results in comparison to the established trigger and threshold criteria. This will help to identify non-compliances and describe the corrective and preventative actions to be taken to maintain compliance.

In accordance with Condition 15-7 of MS 1180, each CAR shall:

1. be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;
2. include a statement as to whether the proponent has complied with the Conditions;
3. identify all potential non-compliances and describe corrective and preventative actions taken;
4. be made publicly available in accordance with the approved Compliance Assessment Plan; and
5. indicate any proposed changes to the Compliance Assessment Plan required by Condition 15-2.

Where the outcome of objective is not met and the trigger / threshold criteria are exceeded during the reporting period, the CAR shall include a description of revised management actions / contingency actions to be implemented to achieve the outcome and objectives during the next reporting period. All changes to management actions will require review and approval by the CEO.

Specific to Flora management outcomes and objectives the CAR will report on the following status presented in Table 2-1 in addition to monitoring results over the reporting period (12 months) against the trigger and thresholds.

Table 2-5 Ministerial Compliance Flora and Vegetation

Ministerial Condition	Trigger/Target Criteria ID	Flora & Vegetation Outcomes & Objectives	Status (achieved, yes/no)
4-1 (1)	Trigger Criterion 1 Trigger Criterion 4 FVM 1 FVM 3 FVM 4 FVM 5	The extent of native vegetation clearing within the development envelope did not exceed 73.05 ha	
4-1 (2)	Trigger Criterion 2 Trigger Criterion 3 Trigger Criterion 4 FVM 1 FVM 3 FVM 4 FVM 5 FVM 6 FVM 7 FVM 8	The extent of clearing within the vegetation community identified as Priority 1 (P1) Priority Ecological Community (PEC) - Burrup Peninsula Rock Pile Communities did not exceed 0.16 ha	
4-2 (1)	FVM 1 FVM 2 FVM 5 FVM 9	All direct impacts (other than the direct impacts authorised under Condition 4-1) were avoided, and indirect impacts to native vegetation were minimised.	

	FVM 10 FVM 11 FVM 12 FVM 13	
4-4	-	The proponent must not commence Ground Disturbing Activities until the CEO has confirmed in writing that the Flora Management Plan satisfies the requirements of condition 4-7
4-5	-	The proponent shall implement the most recent versions of the Confirmed Flora Management Plan until the CEO has confirmed by notice in writing that the proponent has demonstrated that the environmental outcomes in condition 5-1 and objectives detailed in condition 4-2 have been met.
4-8	-	In the event that the environmental outcomes in condition 4-1 are exceeded, or monitoring or investigations at any time indicate an exceedance of threshold criteria specified in the Confirmed Flora Management Plan, the proponent shall comply with condition 5-8 (1) to (5)
4-9	-	Without limiting condition 4-5 (implementation of the plans) and notwithstanding compliance with condition 4-8 (response to exceedance), the proponent must not cause or allow: (1) a failure to implement one or more management and/or contingency actions, if the relevant threshold criteria have been exceeded; (2) the exceedance of a threshold criteria (regardless of whether the relevant management and/or contingency actions have been or are being implemented); and/or (3) a failure to comply with the requirements of the Confirmed Flora Management Plan.

2.4.3 Ministerial Statement 1180 Environmental Performance Report

As noted in Table 2-4, Perdaman is to submit an Environmental Performance Report (EPR) to the Western Australian Minister for Environment and MAC every five years in accordance with Condition 12 of MS 1180.

The first report is to be submitted within three months of the expiry of the five-year period commencing from the first date of Ground Disturbing Activities or another time approved by the CEO. Ground Disturbing Activities commenced on 11 July 2023 by Main Roads WA for the development of Hearson Cove Road. Therefore, the first report is due no later than 11 October 2028.

Relative to flora, the Environmental Performance Report shall report on the following:

- State of flora and vegetation
- State of the holistic environment.

The report shall include a comparison of those values mentioned above at the end of the five-year period against the state of each value at the beginning of the five-year period. Also, a comparison of the environmental values identified above at the end of the five-year period; against the state of the environmental values identified in first Environmental Performance Report submitted in accordance with Condition 12-2. In addition, the report will include the proposed Adaptive Management and continuous improvement strategies.

2.4.4 Submission and Publication of Plans

In accordance with Condition 16 of MS 1180, and subject to condition 16-2, for the remainder of the life of the proposal, Perdaman shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps), management plans and reports relevant to the assessment of this

proposal and implementation of this Statement.

If any data referred to in condition 16-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

2.4.5 Weekly Environmental Inspections

EPC shall undertake weekly environmental inspections (on behalf of Perdaman during construction) of all project work areas and activities of the EPC Contractor personnel and sub-contractors, including those that potentially impact native vegetation. Perdaman shall resume responsibility for these environmental inspections post-construction and following EPC Project hand-over.

This includes relevant aspects such as:

- Hazardous materials storage and handling.
- Dust and other emissions management.
- Weed controls
- Refuelling activities.
- Land clearing and rehabilitation.
- Evidence of vegetation stress (i.e. dust settlement on foliage, curling of foliage, plant deaths and reduction of growth)
- Groundwater usage.
- Stormwater management including sediment basins and ponds.
- Spills, leaks and contaminated ground.
- Topsoil management.
- Liquid Waste management (liquid and solid); and
- Environmental incidents and corrective action close out.

2.4.6 Environmental Audits

Perdaman shall conduct environmental audits of the EPC Contractors activities via an integrated audit schedule. This will be undertaken to ensure all project activities and environmental management processes conform with the planned arrangements and whether the PEMP and its associated sub-plans (i.e. This FMP) has been properly implemented. The key requirements to be reviewed may include:

- Performance against licensing and approvals conditions, project targets, objectives and policy statements.
- Exceedances of triggers & threshold criterion.
- Adequacy of resources and training.
- Complaints and non-conformance management.

The audit schedule will be developed in consultation with relevant EPC Contractor personnel. Results of all audits will be communicated and discussed at management review meetings.

3 Adaptive Management & Flora Management Plan Review

Perdaman will employ adaptive management throughout the vegetation monitoring program to incorporate knowledge from the implementation of mitigation measures, monitoring and evaluation of data against trigger and threshold criteria to meet the environmental outcomes outline more effectively in the Plan. The adaptive management approach of reviewing the trigger/thresholds for flora and vegetation on the project and evaluating and monitoring the applied management and mitigation measures against the outcomes and objectives (Condition 4-1 and 4-2) has been detailed in Section 2.1 and 2.2 of this FMP.

The following approach will be implemented:

- Monitoring data will be systematically evaluated and compared to baseline data or survey data on an annual basis to verify whether vegetation responses to the construction and operation activities are same or similar to the impacts predicted.
- Re-evaluate risk assessments annually.
- Incorporate additional knowledge as it comes to hand to address assumptions and uncertainties to gain a greater understanding of vegetation response.
- Complete review of risk-based priorities after monitoring program is completed.
- Increase understanding of surface water and groundwater hydrology, and vegetation responses to hydrological regimes through annual interpretation, ground-truthing and analysis of monitoring data.
- Undertake revision when management measures are not as effective as predicted, or trigger levels do not have the outcome anticipated or required.
- Incorporate alternative techniques, technologies and methodologies to enhance and improve the program.
- Expand vegetation monitoring as required to respond to additional operational activities that may pose a threat to vegetation health.
- Incorporate and modify the program to include any external changes during the life of the project (e.g. changes to the sensitivity of the vegetation, climate change, implementation of other activities in the area, etc.).

3.1 Flora Management Plan Review

This FMP will be reviewed and updated at least annually throughout the life of the project, where changes are required following the evaluation of monitoring data, review of assumptions and uncertainties, re-evaluation of risk assessment, increased understanding of the environmental setting, or changes to the project scope or technology.

Any revisions or amendments of this FMP must be in consultation with MAC and must be submitted to the CEO and DCCEEW as per Conditions 4-6 and 4-7 of MS 1180..

4 Stakeholder Consultation

The Confirmed Flora Management Plan (PCF-PD-EN-FMP) was prepared in consultation with Murujuga Aboriginal Corporation (MAC) in accordance with Condition 4-3 of MS 1180. Reviews and revision of the FMP will be done in consultation with MAC, with submissions to be sent to the CEO and the DCCEEW.

Perdaman shall provide for the relevant traditional owners to be invited to observe any Ground Disturbing Activities and during construction activities and take reasonable steps to facilitate the observation of those activities by those persons.

Additionally, Perdaman have carried out stakeholder consultation with other key stakeholders. The consultation register in Table 4-1 summarises the consultation and Perdaman responses, and the most recent consultations with the Murujuga Aboriginal Corporation are included as **Attachment C** and **Attachment D** of this plan.

Table 4-1 Stakeholder Consultation Register

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
31 Jan 2022	Murujuga Aboriginal Corporation (MAC) and	Presentation / Meeting / Endorsement of CHMP	• Presentation of the salvage and relocation proposal for the CHMP (Cultural Heritage	• Endorsement of the amended CHMP and of the salvage and

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
	Circle of Elders		Management Plan).	relocation methodology.
24 Jan 2022	Murujuga Aboriginal Corporation (MAC)	Site visit/ Presentation	• MAC Board • Presentation of key aspects of this amended Surface Water Management Plan for discussion. • Opportunities • Potential challenges and solutions.	• None Required.
2019 & 2020 (Various times during this period)	Hon. Alannah MacTiernan	Presentation / Meeting	Project update including: • Community stakeholder consultation & feedback • Environmental Impact Assessment • Common-user infrastructure • Social benefits • Employment opportunities • Training opportunities	• Details discussed including potential social and economic benefits • Commercial arrangements with PPA and Water Corporation
January 2020	MAC	In principle Endorsement of Heritage Charter	• Overarching Project CERES Overarching Position for Heritage Interaction and management, including Rock Art and Murujuga.	• In principle (subject to final Part IV approval of Project) endorsement of Proponent commitment to its overarching position which will underpin Aboriginal Heritage Management Plans, protocols and actions for life of the Project
November & December 2019	Hon. Mark McGowen, Premier	Presentation / Meeting	Project update including • Community stakeholder consultation & feedback • Social benefits • Employment opportunities • Training opportunities • Environmental Impact Assessment • Common-user Infrastructure	• Details discussed including potential social and economic benefits • Commercial arrangements with PPA and Water Corporation
November 2019	Hon. Ben Morton, Assistant Minister to the Prime Minister and Cabinet	Presentation / Meeting	Project update including • Community stakeholder consultation & feedback • Social benefits • Employment opportunities • Training opportunities	• Details discussed including potential social and economic benefits • Commercial arrangements with State GTEs and common-user

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
			• Environmental Impact Assessment • Common-user Infrastructure	infrastructure requirements
27 November 2019	MAC	Agreement Signing	• Signing of Commercial Agreement, transformative opportunities	• Agreement on mutual support for future aspirations of both parties
14 October 2019	Kevin Michel MLA, Karratha	Briefing	• Update on the Environmental Impact Assessment • Update on liaison with other community stakeholders	• Details discussed
14 October 2019	City of Karratha, PDC	Meeting	• Update on the Environmental Impact Assessment • Discussions about the housing strategy, City of Karratha is supportive of a strategy that will provide long-term benefits to the community	• Details discussed • Accommodations for the Project will be integrated to the local community rather than building isolated camps
14 October 2019	Circle of Elders	Presentation / Meeting	• Access to the meeting site in the south-west corner to Site F • Location of the proposed infrastructure on site • Transformative opportunities	• The fence that will be installed aims at preventing site workers to access the cultural site and will not block access for the Traditional Owners (TO) • Refer to Figures in Appendix A of the ERD • Commercial Agreement to be signed with MAC
14 October 2019	MAC	Workshop	• Commercial Agreement, transformative opportunities	• Further discussions to be held between MAC and the Proponent
September 2019	Hon. Ben Wyatt, Treasure	Presentation / Meeting	• Update on Project including the Environmental Impact Assessment	• Details discussed including potential social and economic benefits
20 September 2019	MAC & Advisors	Meeting	• Commercial Agreement, transformative opportunities	• Further discussions to be held between MAC and the Proponent
4 September 2019	MAC & Advisors	Meeting	• Commercial Agreement, transformative opportunities	• Further discussions to be held between MAC and the Proponent
June-August 2019	Pilbara Ports Authority (PPS)	Online form, letter	• Panamax size vessels • Capacity of the shed at the Port	• The Proponent will be using high tides to access the berth • Storage capacity

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
				at the port changed to 65,000 tonnes
05 July 2019	MAC	Presentation / Meeting	• Assessment timeline clarification • Plant design	• The Proponent provided clarification regarding the environmental approval processes • The Proponent provided an update on the plant design • MAC advised that they support the draft ESD and confirmed the Project aligns with their core objectives (ref. email to the EPA of the 8thJuly 2019)
June 2019	Karratha, Roebourne, Dampier and Wickham Community	Information booths, online form	• Project timeline • Employment opportunities	• Refer to Section 2.3.7 of the ERD.
16 May 2019	Pilbara Development Corporation(PDC)	Meeting	• PDC indicated a preference for flexible working hours for employees so they can pursue activities/sports • Visual amenity	• The Proponent is committing to give the opportunity to all employees to request flexibility to pursue nominated activities/hobbies/sports. • Refer to Section 4.9.5 (ERD)
16 May 2019	NYFL	Presentation / workshop	• Approach to monitoring and detriment to rock art • NYFL Chairman requested information about continuous access for Aboriginal people to NHL area thought to be associated with “Fish Thalu” site within the boundary of site F • Any changes to the access to Ngajarlias a result of Hearson Cove Road realignment • Access to the meeting site in the south-west corner of site F • Visual aspects and opportunities	• The Proponent worked with Woodside to obtain a comprehensive regional airshed model (Section 4.8.5 and Appendix D). An Air Quality Management Plan and Heritage Management Plan have been developed (Appendix K) • The Proponent will make access arrangements whereby those with connection to the NHL site would be met at the gate and escorted to

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
				the sacred site. The sacred "Fish Thalu" site is outside the operational site boundary (refer to plan layout, Figure 3,Appendix A) • Hearson Cove Road will be realigned to its official gazetted alignment. Access to Ngajarli will be maintained • The construction-phase boundary has been modified to ensure this cultural site is outside of the fenced area and its use is not impaired • Discussed opportunities to use the wall surfaces of project buildings and facilities as a medium for Aboriginal artworks and as a visual medium to communicate heritage stories
April 2019	Woodside	Meeting	• Air Quality modelling	• Data share agreement
February 2019	Senator Michaelia Cash, Federal Minister for Employment, Skills, Small and Family		• Update on Project including –Potential social benefits –Potential employment & training opportunities –Potential economic opportunities	• Details discussed
25 February 2019	Water Corporation	Letter	• Discharge in the MUBRL and seawater intake	• Appendix J of the ERD
12 February 2019	Murujuga Aboriginal Corporation (MAC) City of Karratha	Site visit / Presentation	MAC: • Construction phase, Site preparation, Plant erection • Potential Heritage issues • Plant emissions / impacts on Burrup Rock Art	• Section 2.3.3 of the ERD • Section 2.2.4 of the ERD • Third option 'C' added to the Port infrastructure location options. o Refer to

Date	Stakeholder	Consultation Type	Issues, Topic Raised	Proponent Response
			• General processing plant understanding • Employment, training and business opportunities • MAC could benefit from • Work undertaken to evaluate a Project location at Maitland City of Karratha: • The City of Karratha would prefer that the Dampier public wharf be used, and the shed located north of proposed options A & B.	Section 2.2.6 of the ERD

4.1 Internal and External Communication

Regular updates of environmental issues and related matters will be communicated to all Project personnel. This communication will include the induction process, through regular team meetings and toolbox talks, and via written communications including emails and newsletters disseminated electronically or in hard copy.

All external communications will be managed by the Project Director. No other Project personnel or Contractors are to provide comment or information to external organisations or individuals without the consent of the Project Director.

4.2 External Incident Notification

Only the Environment and Heritage Manager, in consultation with the Project Director, is authorised to notify external regulatory agencies of any Project related environmental incidents.

This communication will be in accordance with individual agencies' reporting and notification requirements.

5 Changes to FMP

This plan has been amended from the previous version PCF-PD-EN-FMP_PCF2 to update formatting, spelling and grammar, and minor updating of information that do not substantially change management actions. This plan has been reviewed to ensure that all commitments and Conditions required in accordance with MS 1180 are captured and addressed.

All changes to this Flora Management Plan post-assessment must be provided separate to compliance reports and submitted to registrar@dwer.wa.gov.au, and the DCCEEW.

Table 5-1 Changes to Flora Management Plan Table

Complexity of changes	Minor revisions ☒	Moderate revisions ☐	Major revisions ☐	
Number of Key Environmental Factors	One ☒	2-3 ☐	> 3 ☐	
Date revision submitted to EPA:				
Proponent's operational requirement timeframe for approval of revision. Reason for Timeframe: **Approval of revision not required**.		< One Mth ☐	< Six ☐ Months	> Six ☐ Months None ☒

Item no.	EMP section no.	EMP page no.	Summary of change	Reason for change
1.	ALL		Update to include references to current legislative requirements and reporting	Current legislative requirements and reporting
5.	1.1.1	4	Scope & Requirement for the Plan	Justification for revision of FMP
6.	1.1.2	4	Responsibility	Update
7.	1.2.1	5	Flora & Vegetation Values	Update to list to reflect Biodiversity Conservation Act Section 40 Authorisation.
8.	1.2.1.5	9	Impact on Vegetation Associations	Additional information provided on vegetation associations.
9.	Table 2-1	10	Update on legislative reporting requirements	Update on legislative reporting requirements
10.	1.2.2.1	17	Update clearing	Update of area to be cleqara3ed to reflect approximate Ground Disturbance Area categorised by fauna habitat and condition as determined in October 2023.
11.	1.3	20	Part IV Approval Condition Requirements	Additional MS 1180 requirements.
12.	1.5.1	21	Survey & Study Findings	Inclusion of recent flora survey findings.
13.	1.5.5	24	Key Assumptions & Uncertainties	Inclusion of 2022 acid sulfate soils study and 2020 geotechnical study findings.
14.	2.4.4	62	Submission and Publication of Plans	Update
57.	Appendix 2	84	Key Surveys & Findings Summary	Removed

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7 Definitions

Contractor

The Contractor on the project is any individual or party engaged directly or indirectly by Perdaman, that is not an employee of Perdaman, to carry out the project.

Environmental Representative

The Environmental Representative includes Perdaman's Environment and Heritage Manager, the Environmental Coordinator or their delegated representative.

Environment and Heritage Manager

The Environment and Heritage Manager is Perdaman's site based Environmental Representative who has the authority and responsibility for managing the implementation, compliance and effectiveness of the project's environmental and heritage requirements.

Ground Disturbance Permit

A Ground Disturbance Permit (GDP) is a permit issued to a Subcontractor, by the Contractor, enabling Works within defined battery limits to manage any impacts on native vegetation, heritage or other environmentally sensitive values. It includes the key approval commitments and obligations obtained by or issued to the Contractor or Owner by regulators, tenure holders and other third parties.

May

Indicates that the Subcontractor is permitted to do something, or the Contractor reserves the right to do something according to the text.

Must

Indicates a requirement or action that must be followed to comply with legal framework for the project and environmental approval conditions.

Perdaman

Perdaman Chemicals and Fertilisers Pty Ltd is the proponent of the project.

Project Personnel

Project Personnel includes all persons working on the project directly employed by Perdaman, or its Contractors.

Project Work Sites

The project work sites include Area C, Area F, the causeway linking these two areas, the conveyor corridor to the Port and the Port storage and loading infrastructure. It can also include any other project relevant location under operational control of Perdaman.

No-Go Zones

No-Go Zones are defined areas within the project's footprint which are not entered and or disturbed by project activities. These areas are established to protect environmental, cultural heritage, infrastructure and other values from damage or other detrimental impacts.

Shall

Indicates that a statement is mandatory.

Should

Indicates a recommendation.

Weed

A weed is a plant that is regarded as not endemic and considered undesirable in a particular location or region.

Will

Indicates a requirement or action that Perdaman or the Contractor will be implementing or complying with during the project activities to ensure compliance with legal framework for the project and environmental approval conditions.

Works

Works includes all work which SNC-Lavalin and or its Subcontractors are required to perform to comply with its obligations under the Contract.

8 Abbreviations

Table 8-1 Abbreviations & Acronyms

Abbreviation	Description
APM	Animal Plant Mineral Pty Ltd
Burrup SIA	Burrup Strategic Industrial Agreement
CAR	Compliance Assessment Report
CEO	CEO of the Environmental Protection Authority
DAWE	Department of Agriculture, Water and the Environment
DCCEEW	Department of Climate Change, the Environment, Energy and Water
DBCA	Department of Biodiversity Conservation and Attractions
DoEE	Department of the Environment and Energy
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPC	Engineering, Procurement and Construction
EPBC	Environmental Protection and Biodiversity Conservation Act 1999
ERD	Environmental Review Document
EWSC	Burrup East West Services Corridor
FaMP	Fauna Management Plan
FEED	Front End Engineering and Design
FMP	Flora Management Plan
GDA	Ground Disturbing Activities
GDP	Ground Disturbance Permit
IBRA	Interim Biogeographical Regionalisation for Australia
MAC	Murujuga Aboriginal Corporation
Mtpa	Million tonnes per annum
MNES	Matters of national environmental Significance
PDE	Project Development Envelope
PEC	Priority Ecological Community
PEMP	Project Environmental Management Plan
PPA	Pilbara Ports Authority
TEC	Threatened Ecological Community

9 Project Delivery Applicability

Table 9-1 Project Delivery Applicability

Proposals	☒ EPC	☒ Construction
Studies	☒ Project Management	☒ Commissioning
Preliminary Engineering	Technical Services	Site Services
FEED	Procurement	☒ Ops and Maintenance
☒ Detailed Design	☒ Construction Management	

Appendix 1 – Ministerial Statement (MS) 1180 Conditions Compliance Table

<table>
<tr><th>Condition No.</th><th>Condition</th><th>Section of this Plan</th></tr>
<tr><td>1</td><td>Limitations and extent of proposal

When implementing the proposal, the proponent shall ensure the proposal does not exceed the following extents or ranges:

<table>
<tr><th>Proposal element</th><th>Location
(as defined by the proposal amended under s 43A (12 May 2021))</th><th>Maximum extent or range</th></tr>
<tr><td colspan="3">Physical elements</td></tr>
<tr><td>Development envelope (Site C and F)</td><td>Figures 1, 2, 3 & 4</td><td>106.7 ha</td></tr>
<tr><td>Disturbance footprint (Site C and F)</td><td>Figures 1, 2, 3 & 4</td><td>73.05 ha.
Avoiding Cultural Heritage Sites IDs 9439, 26008, 9296, and MAC 004.</td></tr>
<tr><td>Laydown Area (Site F)</td><td>Figure 2</td><td>6.8 ha (temporary and episodic use).</td></tr>
<tr><td>Utility Block (Site C)</td><td></td><td>Power generation (installed Combined Cycle Gas Turbine – 100 MW capacity and installed solar – 3.5 MW capacity).</td></tr>
<tr><td colspan="3">Operational elements</td></tr>
<tr><td>Urea production plant</td><td>Figure 2</td><td>6,200 t/day</td></tr>
<tr><td>Ammonia plant</td><td>Figure 2</td><td>3,500 t/day</td></tr>
<tr><td>Saline water discharge</td><td></td><td>20 GL/yr (including excess treated wastewater) discharged into the existing Water Corporation Multi-User Brine Return Line.</td></tr>
<tr><td>Product storage areas</td><td>Figure 2</td><td>Urea (plant site): 75,000 t capacity, fully enclosed shed.
Urea (Dampier Port site): 75,000 t capacity, fully enclosed shed.</td></tr>
<tr><td>Urea shiploading system</td><td>Figure 2</td><td>Loading capacity of 2,200 t/h</td></tr>
<tr><td>Causeway</td><td>Figure 2</td><td>Culvert outflow velocities of less than 1.0 m/s</td></tr>
<tr><td colspan="3">Timing elements</td></tr>
<tr><td>Project life</td><td></td><td>Up to 80 years from date of this Statement</td></tr>
</table>
NB: Figure references within the EPA Assessment Report 1180.</td><td>Section 2.1</td></tr>
<tr><td>4-1</td><td>4-1 The proponent shall implement the proposal to meet the following environmental outcomes:
(1) the extent of native vegetation clearing within the development envelope shall not exceed 73.05 ha; and
(2) the extent of clearing within the vegetation community identified as Priority 1 (P1) Priority Ecological Community (PEC) - Burrup Peninsula Rock Pile Communities shall not exceed 0.16 ha.</td><td>Section 2.1</td></tr>
<tr><td>4-2</td><td>4-2 The proponent shall implement the proposal to achieve the following environmental objective:
(1) all direct impacts (other than the direct impacts authorised under condition 4-1) are avoided and minimise indirect impacts to native vegetation.</td><td>Section 2.2</td></tr>
<tr><td>4-3</td><td>At least six (6) months prior to Ground Disturbing Activities, or such lesser time approved in writing by the CEO, the proponent shall submit to the CEO and the DAWE, a revised version of the Flora Management Plan, Perdaman Urea Project Burrup Peninsula, Western Australia (Version PCF 1, 12 January 2021) which has been prepared in consultation with the Murujuga Aboriginal Corporation and meets the requirements of condition 4-7.</td><td>Section 1.1.1</td></tr>
</table>

Condition No.	Condition	Section of this Plan
4-4	The proponent must not commence Ground Disturbing Activities until the CEO has confirmed in writing that the Flora Management Plan submitted under condition **4-3** satisfies the requirements of condition **4-7.**	Section 1.3
4-5	The proponent shall implement the most recent version of the Confirmed Flora Management Plan until the CEO has confirmed by notice in writing that the proponent has demonstrated that the environmental outcomes in condition **4-1** and objectives detailed in condition **4-2** have been met.	Section 2.3.2
4-6	The proponent, in consultation with the Murujuga Aboriginal Corporation: (1) may review and revise a Confirmed Flora Management Plan and submit it to the CEO and the DAWE; and (2) shall review and revise a Confirmed Flora Management Plan and submit it to the CEO and the DAWE as and when directed by the CEO.	Section 3
4-7	Any revision of the Flora Management Plan, Perdaman Urea Project Burrup Peninsula, Western Australia (Version PCF 1, 12 January 2021) or a Confirmed Flora Management Plan submitted to the CEO shall: (1) demonstrate how the outcomes in condition **4-1** and the objective in condition **4-2** will be achieved; (2) include provisions to manage impacts from: (a) clearing; (b) changes to surface water flows, including increase and decrease in extent of flooding; (c) changes to surface water quality; (d) changes to groundwater regimes; (e) dust; (f) weeds; and (g) fire; (3) provide for relevant traditional owners to be invited to observe any Ground Disturbing Activities and during construction, and take reasonable steps to facilitate the observation of those activities by those persons. (4) specify trigger criteria that will trigger the implementation of management and/or contingency actions to prevent direct or indirect impacts to the vegetation communities listed in conditions **4-1(1)** and **4-1(2)**; (5) specify threshold criteria to demonstrate compliance with condition **4-1** and condition **4-2;** (6) specify monitoring methodology to determine if trigger criteria and threshold criteria have been met; (7) specify management and/or contingency actions to be implemented if the trigger criteria required by condition **4-7(4)** and/or the threshold criteria required by condition **4-7(5)** have not been met; and (8) provide the format and timing for the reporting of monitoring results against trigger criteria and threshold criteria to demonstrate that conditions **4-1** and **4-2** have been met over the reporting period in the Compliance Assessment Report required by condition **15-6**.	Section 2.1 Section 2.2
4-8	In the event that the environmental outcomes in condition 4-1 are exceeded, or monitoring or investigations at any time indicate an	Section 2.4

Condition No.	Condition	Section of this Plan
	exceedance of threshold criteria specified in a Confirmed Flora Management Plan, the proponent shall: (1) report the exceedance in writing to the CEO and the DAWE within seven days of the exceedance being identified; (2) implement the management and/or contingency actions required by condition **4-7(7)** within seven days of the exceedances being reported as required by condition **4-8(1)** or such lesser time set out in the Confirmed Flora Management Plan and continue implementation of those actions until the CEO has confirmed by notice in writing that it has been demonstrated that the threshold criteria are being met and implementation of the management and/or contingency actions are no longer required; (3) investigate to determine the cause of the threshold criteria being exceeded; (4) investigate to provide information for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded; (5) provide a further report to the CEO and the DAWE within twenty-one (21) days of the exceedance being reported as required by condition **4-8(1)**, which shall include: (a) details of the management and/or contingency actions implemented; (b) the effectiveness of the management and/or contingency actions implemented against the threshold criteria; (c) the findings of the investigations required by conditions **4-8(3)** and **4-8(4);** (d) measures to prevent the threshold criteria being exceeded in the future; (e) measures to prevent, control or abate the environmental harm which may have occurred; and (f) justification of the threshold criteria remaining, or being adjusted based on better understanding, demonstrating that outcomes will continue to be met.	
4-9	Without limiting condition **4-5** (implementation of the plan) and notwithstanding compliance with condition **4-8** (response to exceedance), the proponent must not cause or allow: (1) a failure to implement one or more management and/or contingency actions, if the relevant threshold criteria have been exceeded; (2) the exceedance of a threshold criteria (regardless of whether management and/or contingency actions have been or are being implemented), and/or (3) failure to comply with the requirements of the Confirmed Flora Management Plan.	Section 2.3 Section 2.4

Appendix 2A – Environmental Risk Assessment Process & Risk Matrix

Risk Assessment Process	Description	Methodology	Application						Reference Procedures	
			Corporate	Business Division	New Opportunity	Project Planning	Project Execution	Project Close-out		
Business Risk Assessment - HSSE Impacts	Identify, assess and control potential HSSE impacts of conducting Contractor business	Bow-tie	■	■	■	■			Risk Management Procedure	CORP-RA-PR-G-0001
Major Accident Event Hazard Assessment	Identify, assess and control Major Accident Events Hazards	MAE Bow-ties	■		■	■	■	■	MAE Hazard Management Procedure	CORP-HSE-PR-G-0068
Technical HSSE Assessments										
Design risks	Identify, assess and document inherent design risks	HAZID, HAZOP, FMEA			■	■		■	Safety in Design Procedure	CORP-ENG-PR-G-0016
Design reviews - construction, operation, maintenance	Identify, assess and mitigation of HSSE hazards introduced by the design when facility being constructed, operated or maintained	HAZID, HAZOP			■	■			Safety in Design Procedure	CORP-ENG-PR-G-0016
Human Factors analysis	Identify, assess and control potential ergonomic, health impacts of operation as part of design	Human Factors Analysis Study			■	■			Safety in Design Procedure	CORP-ENG-PR-G-0016

Risk Assessment Process	Description	Methodology	Application						Reference Procedures	
			Corporate	Business Division	New Opportunity	Project Planning	Project Execution	Project Close-out		
Fire & Explosion analysis	Identify, assess and control potential sources of fire & explosion, and consequence mitigation through design	Fire and Explosion Study							Safety in Design Procedure	CORP-ENG-PR-G-0016
Threat Specific HSSE Hazard Assessment (where applicable to Project)										
Health Risk Assessment	Identify, assess and mitigate health exposures - travel and site based	HRA							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Environmental / Social Impact Assessment	Identify, assess and mitigate environment and community impacts	EIA, HAZID, Social Impact Study							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Natural Disasters Assessment (Emergency Events)	Identify, assess and mitigate potential natural disaster events which may affect the site (e.g. cyclone, wild fire, tsunami)	HAZID							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Task Based HSSE Hazard Assessment										

Risk Assessment Process	Description	Methodology	Application						Reference Procedures	
			Corporate	Business Division	New Opportunity	Project Planning	Project Execution	Project Close-out		
Project HSSE Assessment	Identify, assess and control potential HSSE impacts specific to the Project & Site	HAZID							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Construction Package HSSE Assessment	Identify, assess and control potential HSSE impacts specific to the Construction package	HAZID							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Subcontractor HSSE Assessment	Assess the HSSE capability of subcontractors to inform management strategy Identify, assess and control potential HSSE impacts of contract scope	PRE-QUAL / HAZID							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Work Team Task Assessment	Work teams identify, assess and control HSSE hazards of planned work	JHA							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Personal Task Assessment	Individuals identify, assess and control HSSE hazards of planned task	TAKE 5							HSSE Risk Management Procedure	CORP-HSE-PR-G-0072

HSSE Risk Matrix

Descriptor		Actual / Potential Consequence				
		Insignificant (5)	Minor (4)	Moderate (3)	Major (2)	Catastrophic (1)
Probability	Has Occurred /Almost Certain	9	16	18	23	25
	Likely	4	11	17	20	24
	Possible	3	10	13	19	22
	Unlikely	2	6	12	14	21
	Rare	1	5	7	8	15

Key			HSSE Risk Response Guide
Risk Level	Rating Range		
Low	1	8	Confirm no further control measures are required to demonstrate the risk ALARP. Responsible Supervisor to ensure all identified control measures are in place prior to the work progressing.
Moderate	9	15	Action is required to identify control measures to reduce the risk to ALARP. Work can only progress at this risk level with approval of Project Management.
High	16	22	Immediate action is required to identify control measures to reduce the risk to ALARP. Risk must be added to Project Risk Register for monitoring. Work can only progress at this risk level with approval of the Project Manager or Clough Senior Management.
Very High	23	25	This denotes unacceptable event or level of risk. Immediate action is required to identify control measures to reduce the risk to ALARP. Risk must be added to Project Risk Register for monitoring.

*The HSSE Risk Matrix and Guidelines DO NOT replace the requirements for risk assessment and treatment carried out in accordance with the Risk Management and Assurance Operating Standard (CORP-RA-OS-G-0003) and should only be used when performing HSSE Risk Assessment at a Project Level.

**The HSSE Risk Matrix shall be used to determine the level and timing of incident notification, classification and investigation. Events rated 19 or above (highlighted by shading and bold border) are considered High Potential Incidents and shall be reported accordingly.

HSE Risk Matrix

HSSE Consequence / Severity Table

Consequence	Health & Safety	Environmental Impact	Security	Business Risk	Financial impact	Murray & Roberts Injury Consequences
Catastrophic	Multiple fatalities, Multiple serious disabling injuries.	Release of pollutants capable of causing irreversible environmental harm requiring national / international resources for remediation.	One or more fatalities Terrorists attacks. Inability to conduct any business.	Company prosecuted. Loss of future work. Project shutdown. Violation of Company policy. Widespread dissatisfaction resulting in legal action.	>$30 Million	**Critical (Level 5)** Fatal injury. Incident has the potential for more than one fatal injury.
Major	Single fatality, serious injury resulting in permanent disability. Multiple injured parties.	Release of pollutants to sensitive areas; Immediate off-site contamination requiring state / regional external resource for remediation. Long term impact (6-12 months)	Deliberate attacks on staff and family resulting in severe injuries. Kidnapping. Severe delays to business operations. Rape.	Adverse national media coverage. Significant reduction in customer satisfaction. Threat to project success with potential for legal action.	$10M - $30M	
Moderate	Lost Time Injury Restricted Duties Injuries Injury reportable to Regulatory body	Environmental harm reportable to Government authority. Breach of licence conditions / lease. Onsite contamination with the potential to cause offsite contamination. Medium term impact (1-6 months)	Threat and intimidation of staff. Assault resulting in minor/no injury. Theft/vandalism/ sabotage of equipment that cannot easily be replaced. Short delays or interruptions to operations.	Local media coverage. Failure causing customer dissatisfaction with moderate delay, rework or extra work requiring additional resource. Client forced to impose penalties.	$2M - $10M	**Major (Level 4)** Incident has the potential for fatal injury **Serious (Level 3)** Lost time injuries. Incident has the potential for permanent disablement.
Minor	Medical Treatment	Minor onsite pollution not within confines of protected area. No long term impact. Clean up within 1 month.	Crime with minimal impact. Theft / Vandalism of nuisance value only. No lasting impact on business operations	Telephone or written complaints. Failure causing slight customer concern and inconvenience, resolved with current levels of resource.	$50K – $2M	**Minor (Level 2)** Medical treatment injuries
Insignificant	First Aid Treatment No treatment required	Localised / Contained impact / Immediate complete fix	Insignificant crime Theft of insignificance. No impact on business operations.	Minimal or no impact to project delivery.	Less than $50K	**Low (Level 1)** First aid treatment injuries

Probability

Probability	Description
Almost Certain	This event is expected to occur or is known to have occurred frequently at Clough in similar situations.
Likely	This event may occur or is known to have occurred at Clough in similar circumstances.
Possible	This event might occur or is known to have occurred at Clough in additional circumstances.
Unlikely	This event could occur or is known to have occurred in the industry but not at Clough.
Rare	This event may only occur in exceptional circumstances or is not known to have occurred in the industry.

Appendix 2B – Flora and Vegetation Risks & Mitigation

Table 3B - Flora & Vegetation Risk Assessment

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
Loss of vegetation and flora as a result of clearing. Clearing of native vegetation, including: • P1 PEC Burrup Peninsula Rock Pile Communities: Pockets of vegetation in rock piles, rock pockets and outcrops. Clearing of conservation significant flora: • Up to 1 individual of Terminalia supranitifolia (P3); and • Up to 1 individual of Rhynchosia bungarensis (P4).	**Avoid:** The original processing facility layout was forecast to impact 21.3 ha of tidal flats and Samphire Shrubland/Saltplains vegetation. Following design optimization, proposed clearing of this vegetation association has been significantly reduced. This includes avoiding the requirement to clear the majority of area between sites C and F, to just that area required for construction of the causeway (1.36 ha). • The project has been designed to avoid PECs and conservation significant flora to the fullest extent practicable. • The extent of PECs and the presence of Priority flora will be identified and demarcated by an Environmental Representative and avoided where possible. These extents will be used to form boundaries of clearing areas as 'exclusion zones'. • A suitably qualified Environmental Representative will also be present during clearing within or near PECs to guide operators and ensure clearing outside of boundaries does not occur. • The location and identification of *Terminalia supranitifolia* (P3) and *Rhynchosia bungarensis* (P4) to be retained will be clearly communicated to construction personnel prior to construction activity to avoid accidental disturbance and/or clearance to this species. • High quality vegetation located on the northern margins of Murujuga National Park (southern perimeter of Site F) has been avoided by selecting the northern Hearson Cove Road re-alignment option. **Minimise:** • Develop and implement a Ground Disturbance Permit (GDP). • Ground disturbance and clearing of vegetation will be kept to a minimum necessary for safe and efficient construction and operation. • Topsoil and vegetation will be stripped and stockpiled for use in rehabilitation prior to commencement of construction works. Sites for stockpiling vegetation and topsoil and vegetation are to be clearly defined prior to clearing. • Land clearing will be undertaken progressively and incrementally during construction, in order to minimise the pressure on the carrying capacity of native vegetation surrounding the site. • Plan clearing to retain vegetation where possible, such as around carparks and infrastructure,	Unlikely	Major	14

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
	and landscaped areas. • Agreed and approved clearing limits will be marked clearly on construction design plans and pegged in the field prior to any clearing taken place. Areas outside the construction footprint will be protected by temporary fencing and/or flagging. • Vegetation will be progressively cleared to prevent soil erosion, dust generation and weed introduction/ colonization. • Local provenance seeds will be collected prior to native vegetation clearing. Where required, native seeds will be collected within a 20 km radius of the project area to help supplement seed supplies. Seeds will be stored to promote longevity of the seeds and ensure viability upon rehabilitation. • Seeds for use in rehabilitation will be allocated to precise areas and will be marked. Vegetation will be visually monitored to assess any reduction in vegetation health. **Rehabilitate:** • Where possible, cleared areas will be progressively rehabilitated where they are no longer required for project activities. • Local provenance seed will be used in rehabilitation activities in order to facilitate preservation of local genetic diversity within the re-established vegetation. • Topsoil will be stockpiled and re-spread over disturbed areas to maximise germination of pioneer species from the soil seedbank			
Degradation of Vegetation as a Result of ingress of Weeds Clearing and/ or movement of vehicles containing weed seeds throughout project area could result in	**Avoid:** • Any imported fill material / soil will be obtained from weed free sources to prevent further spread of weeds. • Prior the importation of any fill material to the project site, a written verification from the supplier will be obtained certifying that the material is weed free and meets the criteria of clean fill as defined in the DWER Landfill Waste Classification and Waste Definition 1996 (as amended 2018). **Minimise:** • To prevent the spread and/or distribution of weeds within the project area and to surrounding areas a Weed Management Plan will be prepared prior to the commencement of construction. This Plan will outline weed hygiene and management procedures to be undertaken during construction and operations, particularly in referring to controlling the spread of *Cenchrus ciliaris*	Unlikely	Minor	6

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
increased weed abundance.	(Buffel Grass). • Active management of edge effects will be employed which may involve weeding to ensure no creep of disturbance responsive weed species into remaining vegetation. • Appropriate eradication of problematic species will be employed within construction and operation areas, so that weed control measures do not adversely affect adjacent native vegetation. • Clean entry procedures will be enforced for all vehicles, equipment and personnel entering the project past public carparks. Vehicles will be required to go through a site entry check and wash down. All employees and contractors will be inducted and trained in wash down procedures. • All vehicles and equipment are restricted to designated roads and other paved areas to prevent excessive disturbance and dispersal of weed species. • Ongoing weed monitoring will occur within the project site and along the site boundary for new infestations during and following construction activities. • Weed risk areas will be identified on weed maps and through the Ground Disturbance Permit (GDP) process and shall be treated as avoidance sites wherever possible.			
Dust deposition During the construction phase of the project dust generation is likely, particularly during thedry periods and earthworks.	**Minimise:** • A Dust Management Procedure shall be developed and submitted to and approved by the Environment and Heritage Manager prior to commencing Works likely to generate dust emissions. • Dust suppression techniques (e.g. water trucks) shall be used on unsealed roads and access tracks, cleared areas and at locations of high dust risk. • Dust suppression measures shall be implemented where dust is visible, except during topsoil stripping. • Saline water (> 5000 mg/L TDS) shall not be used for dust suppression unless approved by the Environment and Heritage Manager. • Where the use of saline water for dust suppression (> 5000 mg/L TDS) is approved, dribble bars shall be used to control overspray onto adjacent vegetation. • A log of water used for dust suppression will be maintained and reported in the Monthly Environmental Report. Information reported will include, where relevant, the source of the water (eg: bore reference number or standpipe reference), date and time, volume removed (including meter reading at start and finish), location where water was used. • Vegetation clearing and exposed surfaces shall be kept to a minimum wherever practicable.	Unlikely	Minor	6

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
	• Vehicle speeds on access tracks and around work sites shall be reduced where necessary to minimise dust emissions. Vehicles shall remain within designated roads and park only in allocated areas. • Dust suppressant additives or methods that reduce overall water consumption should be used wherever practicable. This shall include restricting traffic within cleared areas until access is needed. • Vegetation clearing, grubbing and earthworks during high winds (>40 km/hr) should be avoided. Where these works are required to be conducted during high winds, additional management measures must be implemented to minimise and control dust emissions. • Where community complaints are received regarding dust emissions Perdaman may install dust monitors. • Dust emissions from the conveyor, product storage sheds and shiploading operations will be monitored and minimised throughout the life of the project. Should emissions exceed the project's approval conditions, corrective actions must be implemented, as soon as practicable, to reduce emissions to the permitted level.			
Changes to surface and groundwater quality Changes to the quality and quantity of surface and groundwater flow regimes have the potential to impact the condition of surrounding flora and vegetation.	**Avoid:** The design scope for the fully enclosed conveying and ship loading system eliminates of the risk of loss of urea product as fugitive dust emissions or spills with the consequential loss of valuable product and potential environment impacts of degradation of water quality in the terrestrial environment. **Minimise:** *During Construction* *Drainage, Erosion and Sediment Pollution Controls* The following controls shall be installed prior to commencement of construction to prevent contamination of surface water and receiving environments. **Drainage Controls** • Existing drainage lines will be protected, and any diversion of these lines should be kept to a minimum. • Flow management across the site will prevent the concentration and diversion of waters onto steep or erosion prone slopes. • Any diversion of drainage lines will be directed to slopes that are not prone to erosion. • External water flows entering the project's battery limits will be diverted around the construction footprint, using drainage structures such as catch drains and bunds.	Unlikely	Major	14

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
	• Temporary drainage structures will be designed to reduce run-off velocities by using wider inverts, flat bottomed drains rather than V-shaped drains, check dams (or similar), silt fencing and revegetation of completed areas. • All drainage lines likely to receive run-off from disturbed areas, such as those downstream of worksites, will be fitted with geotextile silt fences. Rock checks should also be used in drains to slow flows and provide a lining to prevent scouring of underlying surfaces. Sediment basins will be added to drainage lines as necessary. Basins shall be designed relative to the catchment and likely flow levels for higher rainfall events. • Where silt fences are installed for sediment control, they must be constructed with a centre section lower than the ground levels at the end of the silt fence to avoid outflanking during heavy rainfall events. • Silt and sediment fences shall be maintained until the areas above them have been adequately stabilised to minimise the erosion risk such that the controls can be removed. • All stormwater proposed for discharge will first be contained in an appropriately lined sediment basin, to all sediment to settle out. • Construction activities will be scheduled to avoid periods of heavy rainfall, strong winds or peak water flow. **Erosion and Sediment Pollution Controls** • Sediment controls are designed to prevent the transportation of sediment and other pollutants from worksites to waterways. They will be installed across the project sites in areas where land is disturbed. In order to minimise the land exposure and potential risk of erosion, all land disturbances should be confined to a minimum practical working area and within the vicinity of the identified work areas. • Where possible, existing vegetation surrounding the construction site will be used as a buffer zone to help filter surface runoff and should not be disturbed unless necessary for the purpose of construction. • To ensure that silt from batters, cut-off drains, table drains, and road works is retained on site and replaced as soon as practicable, sediment controls will be installed downstream of any disturbed land such as worksites, prior to that work being undertaken. • Run-off controls will be developed and maintained to the following standards: o Controls will be designed to take predicted flows, based on 140436-000-41EG-0001 Standard Specification Geographic, Climatic and Wind / Seismic Data. o Exposed ground will have control measures that minimise the level of erosion.			

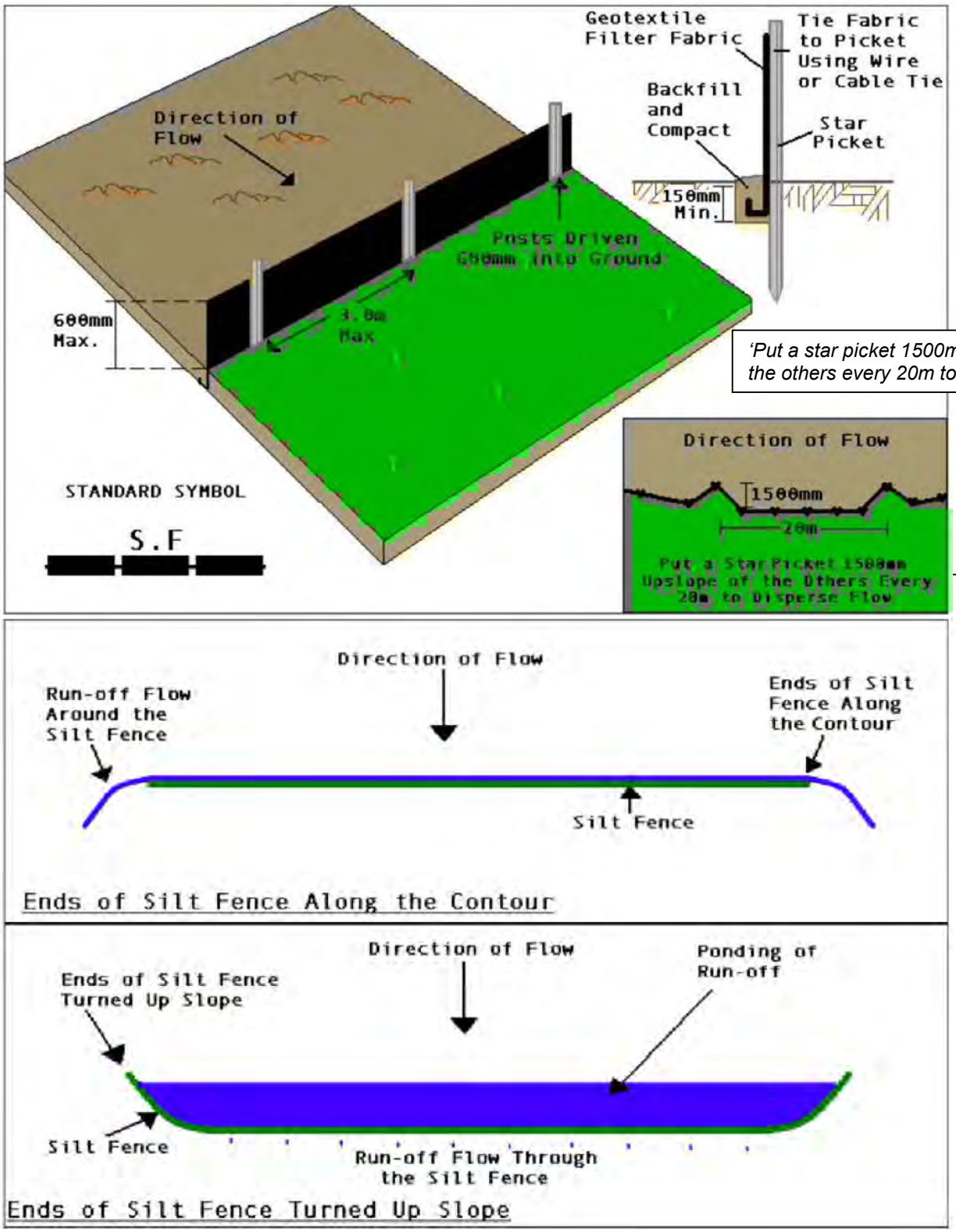
Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
	o Drains will be installed across the site to divert clean surface water to stable areas and away from parts of the site where soil is exposed. o Installation of sediment traps and basins with a riser pipe or flexible pipe and spillway to avoid adverse flood risk to adjoining properties. These systems shall allow for the gradual discharge of the clearest water during a storm event as detailed in 6.1.3. o Geotextile silt fences shall be installed in surface water flow areas to minimise the sediment discharge from the site (refer to **Attachment A**). o Should hay bales be used for sediment control, they will be made of straw sourced from cereal crops and be free of weed seeds. o If any areas of localised erosion develop, they will be remediated as soon as practicable to prevent further erosion or sediment deposition in offsite areas. o Regularly inspect stormwater drainage and sediment control structures to ensure hydraulic integrity and erosion and pollution control effectiveness. If the control structures are obstructed or have their capacity reduced by 30% or more through the accumulation of silt, litter, vegetation and other debris, they shall be cleared, with silt returned to a stabilised part of the project. o Sediment control structures at waterway crossings will be developed during the detailed design process before any such work takes place. o Where possible, rehabilitation of disturbed areas will be progressively undertaken, or as soon as practicable, following completion of specific works. **Post- Construction** The following principals shall be applied: • The granular urea product is much harder than prilled urea, therefore creating less fines and dust when handled and transported which minimizes the urea fines and dust that could be accidentally released during conveying and ship loading activities. • Spill contingency and emergency response plans and procedures will be developed and implemented to address environmental risks and potential impacts specifically related to the operational phase. • The stormwater pond includes an oil skimmer for removal of oil traces. These are sent to the oily water collection pit/processing. • For paved areas of the urea processing plant, there will be stormwater collection pits (epoxy coated concrete pit) where the first 15mm of stormwater can be collected. Stormwater collected will be treated by steam stripping or other means to bring ammonia (Total Kjeldahl			

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
	Nitrogen) in water within limit, prior to reuse within the process plant. **Ongoing Monitoring** Regular inspections and audits will be undertaken to ensure the environmental protection outcomes of the project are achieved. Inspection and maintenance activities will follow the Monitoring and Compliance requirements outlined in the Project Environmental Management Plan (PEMP) and will include: • Review of Erosion and Sediment Control Plans and validate that the proposed erosion and sediment controls have been implemented and, where relevant, revised to accommodate the changing environment. • Inspections to observe and record any scouring, erosion and sediment transfer particularly beyond the project footprint. • Cleaning of sedimentation basins when the accumulated sediment has reduced the basin capacity by more than 30%, as indicated by depth pegs. • Cleaning of all drains to remove silt, vegetation (where capacity is reduced) and litter. • Weekly inspection of access roads and hardstand areas to identify erosion damage in need of maintenance. Remediation is to occur within one month or earlier if heavy rains are likely. • Discharge from any oily water separator shall be monitored to ensure it contains less than 5ppm Total Recoverable Hydrocarbons (TRH) and complies with project approval conditions before it can be used for dust suppression or discharged into the environment. Written approval from the Contractor's Environment Manager must be obtained prior to reuse or discharge to the environment. **Contingency measures include:** • Where erosion or sediment deposition occurs, rehabilitation corrective actions shall be implemented as soon as practicable. • Where sedimentation occurs the source of the sediment should be determined to identify likely erosion in up gradient areas. The sediment should be removed and deposited, if possible as part of erosion controls. • Where erosion is identified and requires rehabilitation the impacted area shall be filled, compacted and contoured to merge with the surrounding landscape.			

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
Loss of vegetation and/or flora from fire Altered fire regimes resulting from projectactivities could result in increased loss of native vegetation and/ or flora due to fire impacts.	**Minimise:** • Manage fire to reduce frequency and intensity around the project area and the local area. Staff will be trained in the use of fire extinguishers. • Spot fire control measures will be devised. • All vehicles will be fitted with fire extinguishers. • A Hot Work Permit system will be devised and implemented. • Cigarette disposal units will be designated in approved smoking areas on site. Employees will not be permitted to smoke in vehicles within the project area. • Vehicles will be required to remain on established tracks and roads only and will be instructed in avoiding leaving vehicles idling over vegetation, regrowth or dry grass, in the summer months. • No smoking/ignition sources are permitted within 5 m of fuel storage or 3 m of other flammable materials. • Burning of construction waste, rubbish, vegetation (including topsoil) and domestic waste is strictly prohibited. • Deliberately lit fires are prohibited on the project. • No plant, vehicles and machinery to be left idling on-site without an operator. • Water trucks to be located on-site and used in fire mitigation/ control where practicable. • Machinery used in high fire risk periods that could discharge sparks must be fitted with spark arrestors, appropriate exhaust systems and set-up away from dry vegetation. • Vehicles will be fitted with firefighting equipment. • A serviced and in-date fire extinguisher must be present where hot works are being carried out. If a fire extinguisher is not available, a water truck must be on standby. • Personnel conducting 'hot-works' will be adequately trained in fire prevention, safety and basic firefighting skills. • Work areas shall be cleared of all combustible material and rubbish prior to hot works being conducted. • A fire watcher (spotter) is required when hot works are undertaken within 50m of vegetation and if there is a potential for delayed start-up of a fire after the hot work or clearing has been completed.	Unlikely	Major	14

Potential Impact	Mitigation Measures	Likelihood	Consequence	Residual Risk
OBJECTIVE: *To protect flora and vegetation so that biological diversity and ecological integrity are maintained*				
Rehabilitation Loss of seed viability and poor survival rates during rehabilitation due to improper seed storage and sourcing, poor topsoil management and improper revegetation techniques.	• Perdaman shall develop a Decommissioning and Rehabilitation Plan in accordance with MS 1180 Conditions 13-1 and 13- 2 requiring the proposal to be decommissioned and rehabilitated in an ecologically sustainable manner. • Ensure correct storage and management of soil stockpiles, outlined in the Erosion, Sediment and Surface Water Management Protocol and the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP). • Collect seeds representative of the vegetation diversity of the project area (as notified by relevant flora surveys). This may include seed collection during different seasons prior to construction works. • Ensure that relevant permits are obtained under the BC Act 2016 prior to seed collection if Perdaman is required to take seeds from adjacent crown land or the Murujuga NP. Compliance with Confirmed Decommissioning and Rehabilitation Plan (TBD at least 5 years prior to the forecasted completion of operational phase i.e. Submit no later than the Year 2097, assumption made on a 80 year project operational life).	Minor	Unlikely	6

Attachment A Geotextile Silt Fence Design



'Put a star picket 1500mm upslope of the others every 20m to disperse flow.'

Attachment B APM 2019 Pre- and Post-wet Season Biological Survey

June
2019

PERDAMAN UREA PROJECT
Pre and Post-wet Season Biological Survey

Burrup Peninsula, WA

Prepared on behalf of Cardno by:

Animal Plant Mineral Pty Ltd

Burrup Peninsula:

Site F: TR 70/5461

Site C: TR 70/6697

Completed by: Animal Plant Mineral Pty Ltd

ABN: 86 886 455 949

Tel:

Fax:

Address :

Website:

For further information on this report please contact:

Email:

Disclaimer

In the preparation of this document, Animal Plant Mineral Pty Ltd (APM) has relied on data, plans and other information provided by Cardno. Except as otherwise stated in the Report, APM has not verified the accuracy or completeness of the information. APM will not be liable in relation to incorrect conclusions or recommendations should any data or information, be incorrect, misrepresented or otherwise not fully disclosed to APM. Within the limitations imposed by the commission, the assessment of the site and preparation of the report have been undertaken in accordance with generally accepted practices using a degree of care ordinarily exercised by professional Resource and Environmental Consultants. No other warranty expressed or implied is made.

PERDAMAN INDUSTRIES
CHEMICALS & FERTILISERS

FOREWORD

CLARIFICATION OF PROJECT AREA

Some technical reports, including this one, were completed in the early planning and design phases of the Project. As such, some of the maps and aerial views depict the following anomalies associated with the actual Project area:

i. The Project boundary of Site F does not have an extension from the south west corner.

ii. The southern alignment of Hearson Cove Road is not applicable. Only the alignment on the north side of Site F will apply to the Project.

iii. The footprint of the port area is limited to the area depicting the *Storage Shed – Port* and *Shiploader – Feed Conveyor.* It does not extend out along the Bulk Liquids Berth Jetty.

Figures A and B below provide further clarification of these discrepancies.

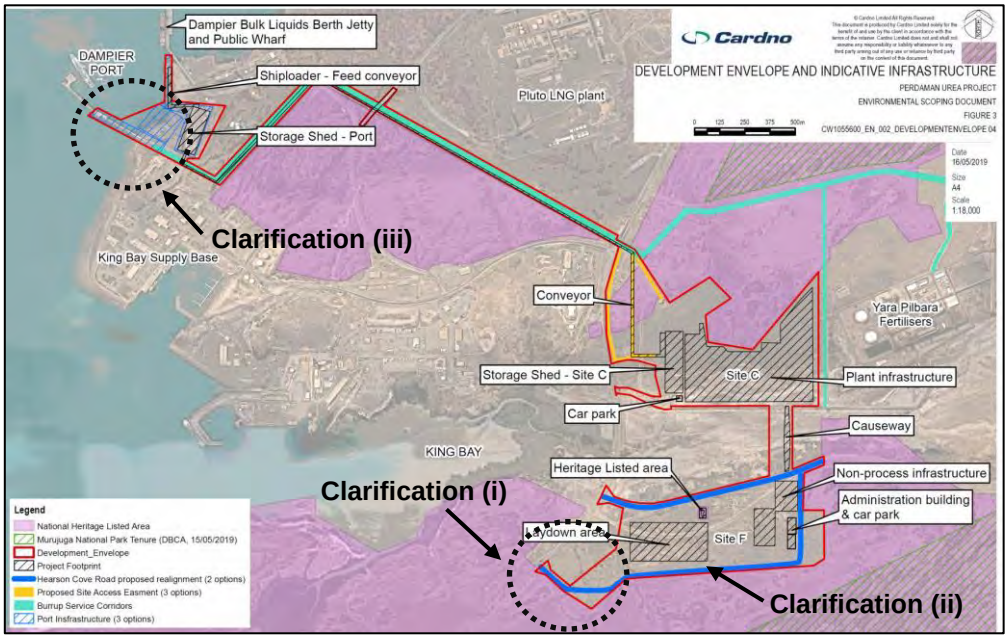


Figure A: Incorrect / superseded Project Area.

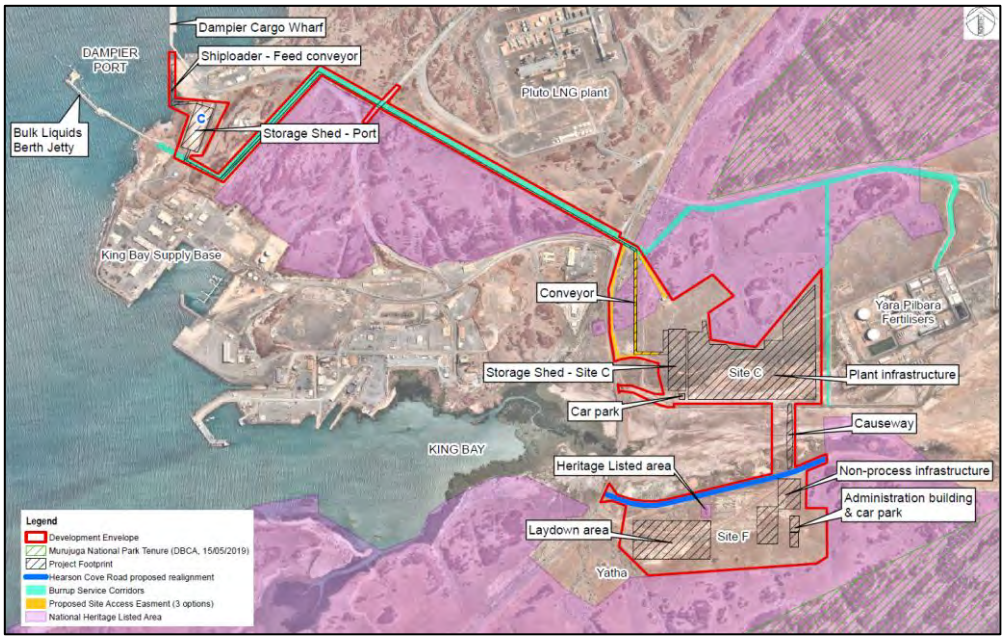


Figure B: Correct Project Area.

EXECUTIVE SUMMARY

The Perdaman Urea Plant Project (the **Project**) is located within the Burrup Strategic Industrial Area, on the Burrup Peninsula, approximately 13 km northwest of Karratha and 1,300 km north of Perth (Figure ES 1). The Burrup Peninsula is a narrow strip of land extending approximately 22 km from the mainland and is part of the Dampier Archipelago, a group of 42 islands and islets. Large outcrops and ranges of fractured red / brown rock and spinifex-covered scree slopes dominate the landscape of the Burrup Peninsula. The land is elevated from the typically low and flat coastal plains of the West Pilbara. Numerous gorges, creeks and drainage lines cutting across the landscape provide heterogeneity in the topography and the vegetation communities it supports. The landscape is distinctive in its appearance and is restricted to the Burrup Peninsula, some nearby islands and adjacent mainland (Department of Environment and Conservation, 2013).

To inform an environmental review document for the Project, Animal Plant Mineral was engaged to undertake:

- Desktop flora, vegetation and fauna studies of the Study Area; and
- Multi-season flora, vegetation and terrestrial vertebrate fauna surveys of the Study Area.

The Project Area and Biological Study Area is shown in Figure ES 1.

The post-wet season field surveys followed the passage of Cyclone Veronica which crossed Karratha in March 2019. The Karratha Aero weather station (BOM station 00408310, 10 km to the south of the Survey Area) recorded 70 mm of rainfall associated with the passage of the cyclone. This rainfall created adequate post-wet season survey conditions.

26 rocky outcrops were identified that constitute the P1 Priority Ecological Community – Rockpiles of the Burrup Peninsula. These locations are not presently listed on the Department of Biodiversity, Conservation and Attractions database. Seven vegetation associations have been classified in this assessment to be synonymous with vegetation associations listed by M.E. Trudgen & Associates (2002) as being of conservation significance because they have less than 10 occurrences across the Burrup Peninsula and Angel, Gidley and Dolphin Islands. Two flora species of conservation significance were identified inside the Project Area. *Terminalia supranitifolia* (P3) trees occur on rockpiles in the southern extent of the Project Area which are also classified as the P1 PEC - Rockpiles of the Burrup Peninsula. *Rhynchosia bungarensis* (P4) was collected in the eastern Project Area boundary in a shallow drainage area.

Two fauna surveys were conducted at the Project Area; an initial level 1 fauna survey prior to the wet season of 2018 / 2019 and a level 2 survey conducted immediately after that wet season. A full bird census, camera trapping, spotlight surveys, and bat surveys were carried out in both surveys, while a full terrestrial fauna trapping survey was conducted in the post-wet season survey. Four broad fauna habitats are present within the Project Area; rocky outcrops, hummock grasslands on mid-slopes, drainage lines, and samphire shrublands and supra-tidal flats. A range of migratory shorebirds and waders were observed including the Red-capped Plover (*C. ruficapillus*), Grey-tailed Tattler (*T. brevipes*), and the Common Greenshank (*T. nebularia*). However, no Threatened bird species were recorded during the survey. Supra-tidal flats within the Project Area and mangrove vegetation surrounding King Bay to the west provide locally important habitat for a range of species, especially waders and shorebirds. The Project, however, will avoid direct disturbance of this habitat type. In addition, the vehicle access that crosses the supra-tidal flats will be designed with culverts to avoid alteration of surface water flows, mitigating potential indirect impacts to downstream habitats.

The Ghost Bat (*Macroderma gigas*) was recorded using acoustic bat detectors on two occasions during the post-wet season survey. It is listed as Vulnerable under both Federal and State legislation. However, no roost sites were identified during the surveys, indicating that the bats roost nearby (possibly at Murujuga National Park to

the south), and forage over the Project Area. The drainage line in the south-west of the Project Area provides suitable foraging habitat for this species- disturbance of this area should be avoided where possible.

Rocky outcrops present at the northern and southern fringes of the Project Area were searched for the Northern Quoll (*Dasyurus hallucatus*) and the Pilbara Olive Python (*Lialis olivaceus barroni*). While neither of these species was recorded during the survey, both are highly cryptic, and may occur within the Project Area. Disturbance of rocky outcrops should therefore be minimised.

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KING BAY RD

GRIFFIN RD

VILLAGE RD

BURRUP PENINSULA RD

HEARSON COVE RD

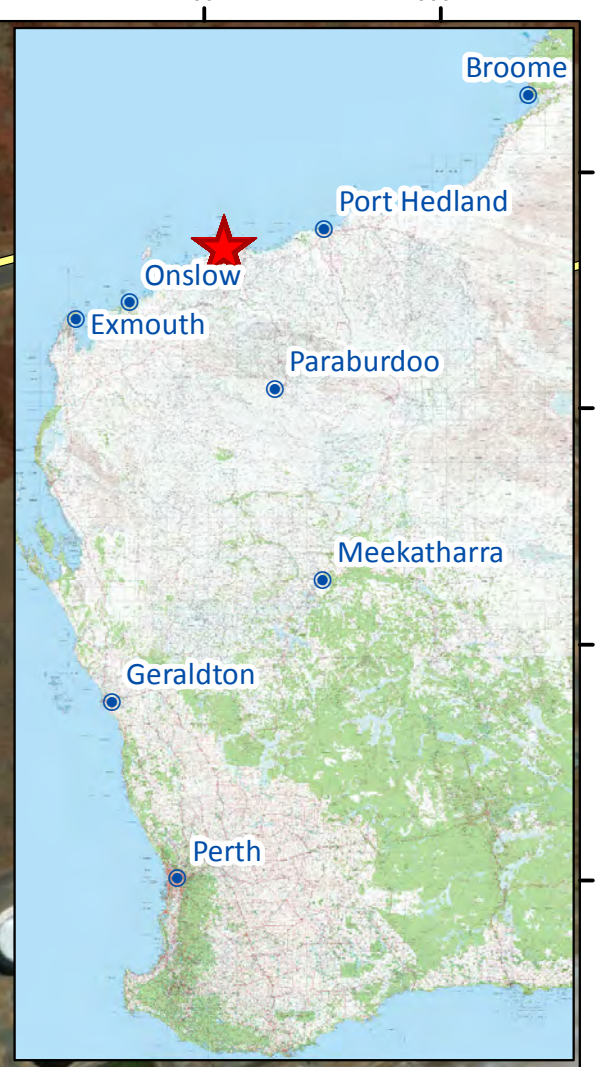

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Figure ES 1: Study Location

Legend

Study Area

Proposed Project Footprint

Main Roads WA

N

175 87.5 0 175 Meters

1 centimeter = 80 meters

Date: 12/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

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ABBREVIATIONS

Abbreviation	Meaning
APM	Animal Plant Mineral
BAM Act	Biosecurity and Agriculture Management Act 2007
BC Act	*Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
BSIA	Burrup Strategic Industrial Area
Cth	Commonwealth
DBCA	Department of Biodiversity Conservation and Attractions
DEC	Department of Environment and Conservation
DoEE	Department of the Environment and Energy
EPA	Environmental Protection Authority of Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
MNES	Matter of National Environmental Significance
PEC	Priority Ecological Communities
WA	Western Australia

1 INTRODUCTION

1.1 PROJECT AND LOCATION

The Perdaman Urea Plant Project (the **Project**) is located within the Burrup Strategic Industrial Area (**BSIA**), on the Burrup Peninsula, approximately 13 km northwest of Karratha and 1,300 km north of Perth (Figure 1-1). The Burrup Peninsula is a narrow strip of land extending approximately 22 km from the mainland and is part of the Dampier Archipelago, a group of 42 inshore islands. Large outcrops and ranges of fractured red / brown rock and spinifex-covered scree slopes dominate the landscape of the Burrup Peninsula. The land is elevated from the typically low and flat coastal plains of the West Pilbara. Numerous gorges, creeks and drainage lines cutting across the landscape provide heterogeneity in the topography and the vegetation communities it supports. The landscape is distinctive in its appearance and is restricted to the Burrup Peninsula, some nearby islands and the adjacent mainland (Department of Environment and Conservation (**DEC**), 2013).

The Project Area is defined here as the proposed disturbance envelope, where land is to be cleared to allow the construction and operation of infrastructure. The Biological Study Area is a larger area that encompasses the Project Area. Small changes were made to the Study area between the pre- and post-wet season field surveys as the layout of the Project Area evolved to minimise impact to sensitive environmental areas. The Project Area is shown in Figure 1-1.

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KING BAY RD

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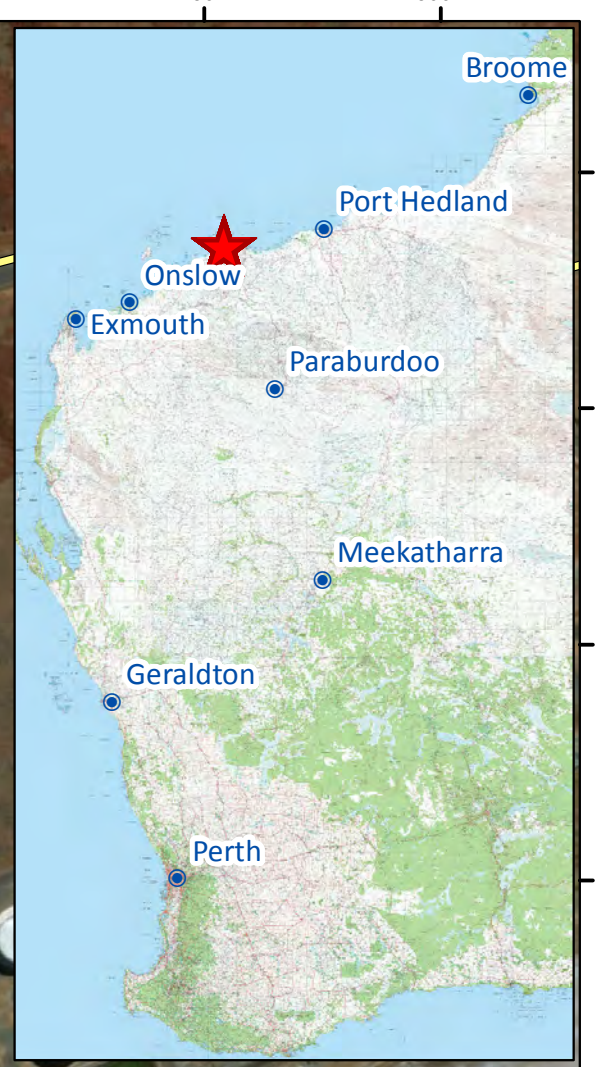

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Figure 1-1: Study Location

Legend

Study Area

Proposed Project Footprint

Main Roads WA

N

175 87.5 0 175 Meters

1 centimeter = 80 meters

Date: 12/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

1.2 SCOPE OF WORK

To inform an environmental review document for the Project, Animal Plant Mineral (**APM**) was engaged to undertake:

- Desktop flora, vegetation and fauna studies of the Study Area; and
- Multi-season flora, vegetation and terrestrial vertebrate fauna surveys of the Study Area.

1.2.1 Flora and Vegetation

The aims of the desktop survey were to:

- Establish vegetation associations previously determined for the site and the region in order that field results can be compared for assessment;
- Identify species previously determined as present on site including Declared Rare and Priority Flora (under the provisions of the *Biodiversity Conservation Act 2016* (**BC Act**) and *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**));
- Identify species previously determined as present on site regarded as being "significant" at both local and regional scales;
- Identify vegetation types previously determined as present on site regarded as being "significant" at both local and regional scales;
- Identify weed species previously determined as present on site in particular any Declared Weeds;
- Identify and describe areas previously determined as present on site that are designated as conservation areas based on flora and vegetation significance;
- Identify potentially suitable habitat for conservation significant flora known from the region; and
- Identify suitable field survey timing and methodology.

The aims of the field survey were to:

- Determine vegetation associations on the site;
- Identify species present on site including Declared Rare and Priority Flora (under the provisions of the BC Act and EPBC Act);
- Identify species present on site that are regarded as being "significant" at both local and regional scales;
- Identify vegetation types present on site that are regarded as being "significant" at both local and regional scales;
- Locate and identify, as far as possible, weed species, in particular any Declared Weeds;
- Map the vegetation and sensitive species; and
- Identify and describe areas within the Study Area that are designated as conservation areas based on flora and vegetation significance.

1.2.2 Terrestrial Fauna

The aims of the desktop survey were to:

- Establish the faunal assemblage previously determined for the site and the region;
- Identify species previously determined as present on site including Threatened and Priority Fauna (under the provisions of the BC Act and EPBC Act);
- Identify species previously determined as present on site regarded as being "significant" at both local and regional scales;
- Identify habitat types previously determined as present on site regarded as being "significant" at both local and regional scales; and
- Identify introduced species previously determined as present on site.

The aims of the field survey were to:

- Survey the species assemblage present at the site;
- Identify the fauna habitat values present at the site;
- Identify habitat that may be suitable for Threatened and Priority Fauna (under the provisions of the BC Act and EPBC Act);
- Assess the likelihood of occurrence of Threatened and Priority Fauna (under the provisions of the BC Act and EPBC Act);
- Assess the likelihood of occurrence of species that are regarded as being "significant" at both local and regional scales; and
- Assess the habitat suitability and likelihood of occurrence of introduced species.

2 BACKGROUND AND SUPPORTING INFORMATION

2.1 RELEVANT LEGISLATION

2.1.1 Environmental Protection and Biodiversity Conservation Act 1999

Matters of National Environmental Significance (**MNES**) are protected under the EPBC Act. Under this Act, activities that may have a significant impact on MNES must be referred to the Department of the Environment and Energy (**DoEE**) for assessment. The MNES include:

- Listed threatened species and communities
- Listed migratory species
- Ramsar wetlands of international importance
- Commonwealth marine environment
- World heritage properties
- National heritage places
- Great Barrier Reef Marine Park
- Nuclear actions; and
- A water resource, in relation to coal seam gas development and large coal mining development.

Migratory birds are further protected under the following agreements:

- 1974 Japan and Australian Migratory Bird Agreement (**Commonwealth**);
- 1975 Ramsar Convention on Wetlands;
- 1983 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention);
- 1986 China and Australian Migratory Bird Agreement (Cth);
- 2004 Agreement on the Conservation of Albatrosses and Petrels;
- 2007 Republic of Korea-Australian Migratory Bird Agreement; and
- 2006 East Asian – Australasian Flyway Partnership.

All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as MNES under the EPBC Act.

2.1.2 Western Australian Legislation

On 1 January 2019, the BC Act and *Biodiversity Conservation Regulations 2018* replaced both the *Wildlife Conservation Act* 1950 and the *Sandalwood Act* 1929 and their associated regulations. The BC Act and *Biodiversity Conservation Regulations 2018* provide protection for biodiversity through the Listing of native species, ecological communities, threatening processes and critical habitat, administration of the Licensing scheme and the protection and management of fauna.

The Department of Biodiversity Conservation and Attractions (**DBCA**) classifies specially protected flora and fauna into eight categories as listed in Appendix A. These categories also include potentially threatened species that do not meet survey criteria or are otherwise data deficient; such species are listed as Priority 1, 2 or 3. While species that are adequately known, are rare but not threatened, are listed as Priority 4.

The *Biosecurity and Agriculture Management Act 2007* (**BAM Act**) and the *Biosecurity and Agriculture Management Regulations 2013* designate which weeds are Declared as Prohibited or requiring Control Actions in WA.

2.2 STANDARDS AND GUIDELINES

The following guidelines were used to define the objectives and methodology of the Biological Survey:

- *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessments* (Environmental Protection Authority of Western Australia (**EPA**), 2016a);
- *Environmental Factor Guideline: Flora and Vegetation* (EPA, 2016b);
- *Technical Guidance: Terrestrial Fauna Surveys* (EPA, 2016c)
- *Technical Guidance: Sampling methods for terrestrial vertebrate fauna* (EPA, 2016d); and
- *Environmental Factor Guideline: Terrestrial Fauna* (EPA, 2016e).
- *EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DoEE, 2017)

2.3 LAND USE

The BSIA is a well-established industrial estate with vacant land for strategic industry in close proximity to gas, port and other key infrastructure facilities in the Pilbara region. The BSIA is located within the City of Karratha. Under the City's Town Planning Scheme No.8, the BSIA is zoned 'Strategic Industry'.

The Burrup Peninsula Land Use Plan and Management Strategy (O'Brien Planning Consultants, 1996) was commissioned by the Burrup Peninsula Management Advisory Board for the purpose of allocating land for industry, conservation, heritage and recreation. This document also provides management objectives and outlines acceptable uses and development considerations. The plan was endorsed by Cabinet in 1996.

The BSIA has been created to take advantage of the region's natural gas resources and other competitive advantages. Industries currently located within the BSIA include:

- Woodside-operated North West Shelf Venture project – a joint venture between Woodside, Shell, BHP Billiton, BP, Chevron and Japan Australia LNG;
- Woodside Pluto LNG plant;
- Yara Pilbara Fertilisers plant; and
- Yara Pilbara Nitrates technical ammonium nitrates plant.

The Department of Jobs, Tourism, Science and Innovation is the lead agency for the development of the BSIA and LandCorp is the estate manager.

The Project Area is on land parcels C and F of the BSIA and will also require an 'amalgamated C and F' zone between the two lots. Parts of Site F and the 'amalgamated C and F' zone have previously been disturbed for a construction camp and are rehabilitated.

The Project Area has previously been investigated for two projects that did not go ahead.

Site C was investigated for the proposed Ammonia-Urea Plant by Dampier Nitrogen Pty Ltd (EPA, 2002). The EPA ruled that the project was capable of being managed in an environmentally acceptable manner given the proponents commitments. The commitments relevant to this study were to minimise clearing of conservation significant flora and vegetation and conservation significant fauna habitat.

Site F was investigated for the proposed Gas to Synthetic Hydrocarbons Plant by Syntroleum Sweetwater LLC (EPA, 2000). The Minister ruled that the project was capable of being managed in an environmentally acceptable manner given specific conditions and procedures were adhered to. The conditions and procedures relevant to this study required:

- 100 % replacement of any destroyed Priority flora;
- Collection of native seed of Priority and other native plant species;
- Machine hygiene for weed control;
- A rehabilitation plan including a weed management plan and topsoil management plan;
- Ongoing floristic survey to ensure 100% of the floristic diversity was understood;
- The use of clearing techniques that minimise harm to soil structure;
- Minimisation of impacts to the drainage features in the west of the Project Area;
- Field survey of 30 to 40 ha for snails in the rocky terrain to the south of the Project Area to quantify impacts on the biodiversity and abundance of molluscs;
- Further fauna survey to ensure 100% of the faunal diversity was understood; and
- Minimisation of impacts to flora and fauna during the construction and operation of the facility.

Particular consideration was given to the drainage features in the west of the Project Area.

2.4 CLIMATE

The Burrup Peninsula lies at the western edge of the semidesert tropical Pilbara region within Australia's arid zone. The climate is commonly described as having two seasons: warm and dry winters from May to November, and hot summers with periodic heavy rains from December to March.

The climate is monsoonal and seasonally controlled by the large high pressure cells that pass from west to east across the Australian continent. Strong easterly winds prevail in the winter due to the development and intensification of anticyclones over southern WA or South Australia. In summer prevailing winds are generally warmer and from the northwest and southwest.

Dampier Salt weather station (12 km to the south of the site, Station 005061) opened in 1969 and Karratha Airport weather station opened in 1971 (10 km to the south of the site, Station 004083) (Bureau of Meteorology (**BoM**), 2019). Rainfall data is available for the duration of opening for both stations. Recent temperature data is available only from Karratha Airport for the period 1993 to 2019.

For the period 1993 to 2019 the annual mean maximum recorded temperature at Karratha Airport is 32.4°C, with an annual mean minimum recorded of 20.8°C. Monthly mean maximum temperatures recorded range from

26.3°C in July to 36.2°C in March. Monthly minimum temperatures range from 13.8°C in July to 26.8°C in January (BoM, 2019).

Annual rainfall in the region is characterised by low, highly variable and very localised rain events due to thunderstorm and tropical cyclone activity in the summer months. Average annual rainfall recorded at Karratha Airport is 285.4 mm whereas median annual rainfall is 119.4 mm (BoM, 2019). Rainfall in the region is seasonal, usually with two peaks per year. The first peak is from January to March due to tropical cyclones, tropical lows or rain-bearing depressions and tropical thunderstorms. The second peak is from May to June due to the passage of low pressure systems through the south of Western Australia (**WA**). Monthly average rainfall for the area ranges between 75.4 mm in February to 0.4 mm in October. Due to tropical cyclones, the area is prone to isolated extreme rainfall events. The highest rainfall recorded in a single month was 348.8 mm in February 2011, while all calendar months have at one stage recorded 0 mm of rainfall (BoM, 2019). Median monthly rainfall and the total monthly rainfall for 2018 and 2019 is shown in Figure 2-1.

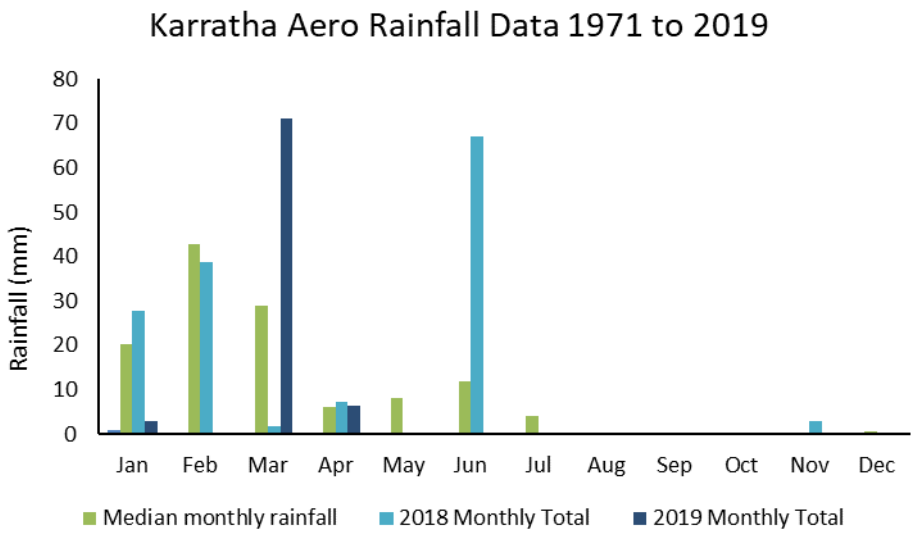

Figure 2-1: Median monthly rainfall and the total monthly rainfall for 2018/19 recorded at Karratha Aero (BoM Station 004083).

Rainfall for 2018 was below average for the period January to March yet was not dissimilar to the median values for those months. Rainfall for the period June to August was 126 % higher than average, with 67.2 mm falling between the 6th and 7th of June, but no rainfall in July and August. Rainfall in January and February 2019 was below median values but the rainfall associated with a tropical cyclone led to 71 mm of rainfall recorded at Karratha aero between the 18th and 27th of March.

Wind direction at the Burrup Peninsula is predominately from the east during the winter months of April, May, June, July and August with average wind speeds ranging between 17 – 24 km/h. East to southeasterly winds are dominant in the mornings, shifting to northeasterly in the afternoon and easing in the evening in response to diurnal land temperature changes. From October through to February winds are predominantly westerly in the morning, shifting to dominant northwesterly onshore winds in the afternoon with mean wind speeds varying between 19 and 30 km/h. The months of February, March and September are transition months with less dominant wind patterns, with mean wind speeds varying between 19 and 28 km/h. Extreme wind conditions may be generated in the region by tropical cyclones, strong easterly pressure gradients, squalls and tornados. Tropical cyclones generate the most significant storm conditions in the region, wind gusts of 259 km/h at Mardie

being measured during cyclone Trixie in February 1975, and Dampier recording wind gusts of 183 km/h from cyclone Orson in 1989 (BoM, 2019).

2.5 BIOGEOGRAPHIC REGIONALISATION

The Interim Biogeographic Regionalisation for Australia (version 7) represents a landscape-based approach to classifying the land surface of Australia. 89 biogeographic regions and 419 sub regions have been delineated, each reflecting a unifying set of major environmental influences which shape the occurrence of flora and fauna and their interaction with the physical environment across Australia.

The Burrup Peninsula is within the Pilbara biogeographic region, within the Roebourne subregion (Department of the Environment, 2012). The '*Bioregional Summary of the 2002 Biodiversity Audit for Western Australia*' (Mckenzie *et al*. 2003) describes the Roebourne subregion, as follows:

> *"Quaternary alluvial and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of Acacia stellaticeps or A. pyrifolia and A. inaequilatera. Uplands are dominated by Triodia hummock grasslands. Ephemeral drainage lines support Eucalyptus victrix or Corymbia hamersleyana woodlands. Samphire, Sporobolus and mangal occur on marine alluvial flats and river deltas. Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite. Islands are either Quaternary sand accumulations, or composed of basalt or limestone, or combinations of any of these three. Climate is arid (semi-desert) tropical with highly variable rainfall, falling mainly in summer. Cyclonic activity is significant, with several systems affecting the coast and hinterland annually".*

The Burrup Peninsula lies within the Fortescue Botanical District, which is part of the biogeographical region known as the Eremaean Botanical Province (Beard, 1975).

The Burrup Peninsula, approximately 22 km long and 5 km wide, was originally an island that formed part of the Dampier Archipelago. It was joined to the mainland in the mid-1960s by a road causeway, forming the Burrup Peninsula. The Burrup Peninsula is bound by Mermaid Sound to the west and Nickol Bay to the east, and is distinguished by large areas of weather resistant rocky outcrops and scree slopes. These high scree slopes form part of an extensive high scree range which runs throughout most of the Burrup Peninsula, rises to 60 m above sea level in places, and serves as the main catchment for water during rainfall events.

Rocky outcrops exist in the northern and southern sections of the Project Area, with steeply inclined valleys occurring along fault lines forming minor drainage lines feeding into shallow drainage gullies through the mid to lower slopes of the site. These gullies then drain to the supra-tidal flats that run through the centre of the site before flowing in a westward direction to King Bay.

The topography of the Project Area is dominated by the supra-tidal flats that form an east-west trending valley at approximately 4 m Australian Height Datum from King Bay in the west to Hearson Cove in the east and divide the Burrup Peninsula into two separate units. The floor of this valley is composed of marine sediment.

The geology of the Burrup Peninsula has been previously investigated by the Geological Survey of WA and has been described by O'Brien Planning Consultants (1996). The Burrup Peninsula is composed mainly of an intrusive Proterozoic igneous rock outcrop known as the Gidley Granophyre, which is approximately 2,200 million years old. The main outcrop of Gidley Granophyre occurs in the Dampier Archipelago and the adjacent mainland, along basal unconformity of the Fortescue Group (Hickman, 1983).

The base of the intrusion consists of a differentiated coarse-grained gabbro and the main body is a fine-grained granophyre. The gabbro weathers to a dark brown and the granophyre to a lighter red-brown, and both rock

types are resistant to erosion and form aggregates of split boulder screes. Rapid weathering of dolerite dykes that are also present has resulted in the formation of deeply incised, narrow valleys, amongst the exposed granophyre bedrock, generally trending either southwest to northeast or east to west throughout the Burrup Peninsula.

The proposed Project site includes exposed granophyre bedrock, and colluvium of sand, silt and gravel in outwash fans of the supra-tidal flats that run through the middle of the Project Area and indicate a soil profile associated with a low energy marine depositional environment. The soil profile is largely comprised of sandy loams to silty sands generally brown to grey in colour. The sediments are typically organically rich and often contain a thin veneer of shelly lenses.

2.5.1 Land Systems

Two land systems as described by van Vreeswyk *et al*. (2004) are present at the Project Area: Granitic and Littoral. The Granitic land system is described by van Vreeswyk *et al*. (2004) as:

"Rugged granitic hills supporting shrubby hard and soft spinifex grasslands."

The Littoral land system is described by van Vreeswyk *et al*. (2004) as:

"Bare coastal mudflats with mangroves on seaward fringes, samphire flats, sandy islands, coastal dunes and beaches."

Granitic and Littoral land systems make up 2.2 % and 0.9 %, respectively, of the Pilbara Rangeland surveyed by Vreeswyk *et al*. (2004). TheGranitic land system is present at the northern and southern sections of the Project Area, while the Littoral land system is present across the central section (Figure 2-2).

475500 000000 475750 000000 476000 000000 476250 000000 476500 000000 476750 000000 477000 000000 477250 000000

7720000 000000 7719750 000000 7719500 000000 7719250 000000 7719000 000000 7718750 000000 7718500 000000 7718250 000000 7718000 000000 7717750 000000

BURRUP PENINSULA RD

VILLAGE RD

KING BAY RD

GRIFFIN RD

Granitic Land System

Littoral Land System

HEARSON COVE RD

Granitic Land System

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Figure 2-2: Land Systems of the Study Area

Legend

Study Area

Main Roads WA

Landsystems_Burrup

Granitic Land System

Littoral Land System

N

160 80 0 160 Meters

1 centimeter = 75 meters

Date: 6/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Project Area soils are of Group 423 - Red shallow sands, Soil sub-group - Red shallow sands on granite, which are described in van Vreeswyk *et al*. (2004) as:

> *"These soils are uniform textured coarse sands or medium textured sands overlying weathered granite, sandstone or red-brown hardpan at shallow (25-50 cm) depth. Some soils occur over substrates such as conglomerate or quartz and are incorporated into this group. The soils are red to dark red in colour and non-calcareous with a weakly acidic to neutral soil reaction trend. The soils are mostly found within or adjacent to the parent rock resulting in gritty sands. The lower subsoil mostly overlies partially weathered granite rock and coarse fragments of quartz and granite are common throughout the profile. These soils often have a common to abundant (10>50%) stony mantle. Slightly saline soils may infrequently occur at the base of occasional large granite domes or outcrops. Domes and tors of bare rock are included in this soil group."*

2.5.2 Surface Water

No very small, small, medium or large water bodies occur in the Project Area (Department of Water and Environmental Regulation, 2018). Small ephemeral creeks drain water from the rocky outcrops in the north and south to the supra-tidal flats between King Bay and Hearson's Cove, in the centre of the Project Area.

2.5.3 Wetlands and Environmentally Sensitive Areas

The Project Area does not include and is not in close proximity to any wetlands listed as Ramsar sites (Department of Water and Environmental Regulation, 2018), nor does it occur within an Environmentally Sensitive Area. The Project Area is within an area zoned for Industrial Development on the Burrup Peninsula.

2.5.4 Previous Surveys

Many Private Industry Developments have commissioned independent studies on the Burrup Peninsula. Some of these are publicly available through the EPA assessment process. Table 2-1 lists previous assessments that overlapped, or were in close proximity to, the Project Area.

Table 2-1: Existing Flora and Fauna Surveys and Investigations within the Burrup Peninsula and Surrounds Relevant to the Project

Report Title	Consultant	Year	Survey Type	Purpose
Flora and Vegetation				
Flora and Vegetation Survey of the Proposed Gas to Synthetic Hydrocarbons Plant	Astron Environmental	1999	Detailed Survey	To map vegetation present on the site and to sample flora in order to confirm or negate the presence of flora of conservation significance.
Flora and Vegetation Survey of the Proposed Ammonia Plant	Astron Environmental	2001	Reconnaissance Survey	To map vegetation present on the site and to sample flora in order to confirm or negate the presence of flora of conservation significance. This site is adjacent to the Project Area and the survey area overlaps the project. Results of this survey are discussed in more detail in Section 4.1.3
A Flora, Vegetation and Floristic Survey of the Burrup Peninsula, some adjoining areas and part of the Dampier Archipelago, with comparisons to the floristics of areas on the adjoining mainland (Volume 2)	M. E. Trudgen & Associates	2001	Detailed Survey	To map vegetation present on the site and to sample flora in order to confirm or negate the presence of flora of conservation significance. This study is the most comprehensive assessment of the regional significance of flora and vegetation. Results of this survey are discussed in more detail in Section 4.1.3
A Flora, Vegetation and Floristic Survey of the Burrup Peninsula, some adjoining areas and part of the Dampier Archipelago, with comparisons to the floristics of areas on the adjoining mainland (Volume 1)	M. E. Trudgen & Associates	2002	Detailed Survey	To map vegetation present on the site and to sample flora in order to confirm or negate the presence of flora of conservation significance. This study is the most comprehensive assessment of the regional flora and vegetation. Results of this survey are discussed in more detail in Section 4.1.3
A detailed survey of the samphire vegetation in the Hearson's Cove/King Bay inlet on behalf of URS.	Astron Environmental	2002	Detailed Survey	To map vegetation present on the site and to sample flora in order to confirm or negate the presence of flora of conservation significance. This study is the most comprehensive assessment of the supratidal inlet flora and vegetation. Results of this survey are discussed in more detail in Section 4.1.3
King Bay Eastern Lease Area Industrial Estate Vegetation and Flora Report	Astron Environmental	2003	Reconnaissance Survey	To map vegetation types at a broad scale and identify any significant flora or vegetation and weed species present on site to assist relevant government bodies in achieving a low-level assessment. This study was reviewed.
Dampier Nitrogen Plant Site Wet Season Vegetation and Flora Survey Report as prepared for URS Consultants (Ref: 3909 2005-RV-01)	Astron Environmental	2005	Detailed Survey	To map the vegetation and supplement information presented in the Astron 1997 dry-season report by conducting a wet-season survey to identify all Priority and Threatened flora, weeds and Declared weeds.

Report Title	Consultant	Year	Survey Type	Purpose
Pluto LNG Development Vegetation and Flora Survey Site A	Astron Environmental	2005	Detailed Survey	To map the vegetation and compare previously mapped vegetation associations to be used in significance assessment. Identify Priority and Threatened flora, weeds and Declared weeds in order to designate areas of sensitivity and conservation. This study was reviewed.
Technical Ammonium Nitrate Production Facility. Public Environmental Review for Burrup Nitrates Pty Ltd	Environmental Resources Management Flora and Vegetation assessment by Outback Ecology (2009)	2009	Reconnaissance Survey	To provide a comprehensive desktop assessment of the area (Site D) for the Technical Ammonium Nitrate Production Facility including vegetation communities, the extent of the now Murujuga National Park, broad landscape and vegetation attributes and hydrology and drainage. This site is within the same catchment as the Project Area. Results of this survey are discussed in more detail in Section 4.1.3
Pluto LNG Development Site B North – Flora and Vegetation Assessment Survey	ENV Australia	2006	Detailed Survey	To identify all flora and vegetation associations occurring within Site B North in order to assess conservation significance. This study was reviewed.
Pluto LNG Development Proposed Gas Trunkline Option 1: Flora and Vegetation Condition Assessment	ENV Australia	2006	Targeted Survey	To search and assess presence or absence of Priority flora and undertake a vegetation condition assessment for the Pluto LNG Development Proposed Pipeline Route Terminating at Gas Trunkline Option 1 where vegetation is likely to be disturbed along the pipeline route. This study was reviewed.
Pre-Wet Season Biological Survey	APM	2018	Detailed Survey	To undertake a pre-wet season survey to assess vegetation associations of Sites C and F and the 'C and F amalgamation' zone through detailed sampling of flora to identify the types of species assemblages and vegetation communities that are present within the Project and to shape the survey efforts for the following season survey and adequately determine if significant flora or vegetation are likely to occur at the Project, given the distribution of habitats.
Fauna				
Fauna and Marine Biota. In: Burrup Peninsula Draft Land Use and Management Plan, Technical Appendices. Unpublished report by O'Brien Planning Consultants	H. Butler	1996		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Burrup Liquid Ammonia Plant targeted fauna survey. Unpublished report for Sinclair Knight Merz Pty Ltd	Biota Environmental Services	2001		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available

Report Title	Consultant	Year	Survey Type	Purpose
Terrestrial Fauna and Habitats. In: Methanex Australia Pty Ltd, Methanol Complex, Burrup Peninsula Western Australia, Public Environmental Review (Section 5.8)	Biota Environmental Services	2002		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Burrup Fertilisers Pty Ltd. Fauna of the Burrup Peninsula and the Proposed Ammonia Plant (Revised version). Unpublished report to Sinclair Knight Merz Pty Ltd	Astron Environmental	2001		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Natural Gas to Synthetic Oil Project Product and Feed pipelines, Vegetation, Flora and Fauna Survey. Unpublished report for Syntroleum Corporation	Astron Environmental	1999		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Terrestrial Fauna and Habitats. In: Burrup Peninsula Fertilisers Pty Ltd, Proposed 2,200 tpd Ammonia Plant, Burrup Peninsula Western Australia, Public Environmental Review (Section 5.8). August 2001. Prepared for Sinclair Knight Merz	Astron Environmental	1999		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Vegetation, Flora and Fauna Survey. In: Syntroleum, Proposed Gas to Synthetic Hydrocarbons Plant, Burrup Peninsula Western Australia, Consultative Environmental Review. November 1999. Prepared for HLA – Envirosciences Pty Ltd	Astron Environmental	2001		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Annual Report on Environmental Investigations and Monitoring	Woodside Offshore Petroleum Pty Ltd	1995		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Annual Report on Environmental Investigations and Monitoring	Woodside Offshore Petroleum Pty Ltd	1997		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Annual Report on Environmental Investigations and Monitoring	Woodside Offshore Petroleum Pty Ltd	1998		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Annual Report on Environmental Investigations and Monitoring	Woodside Energy Pty Ltd	1999		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Pluto LNG Development Survey of Non-marine Molluscs	S.M. Slack-Smith	2005	Targeted Survey	Cited in Worley Astron 2006 – A targeted assessment of the non-marine mollusc fauna of the Burrup Peninsula to allow assessment of the probable effect of the land based components associated with the Plutos LNG Development proposed by Woodside.
Fauna assessment surveys of the Pluto LNG Development pipeline corridors	ENV Australia	2006		Cited in Worley Astron 2006 – Scope and methodology of report not known as report is no longer available
Pluto LNG Development Holden Beach Sea Turtle Habitat Use Survey	Pendoley Environmental	2006	Targeted Survey	To search for evidence of sea turtle nesting activity within the vicinity of a trunkline shore crossing location associated with the proposed Pluto LNG Development at Holden Beach

Report Title	Consultant	Year	Survey Type	Purpose
Terrestrial Fauna of the Burrup Peninsula, unpublished report prepared for BGC Contracting	Astron Environmental	2003	Desktop Survey	To provide a comprehensive desktop assessment of the King Bay Eastern Leases area and determine fauna of significance that may inhabit the lease of adjoining areas
Pluto LNG Development Desktop Fauna Report	Worley Astron	2006	Level 1 Desktop Survey	To provide a comprehensive desktop assessment of the Pluto LNG Development area and determine fauna of significance that will be required to be assessed for presence/absence in future targeted surveys.
Technical Ammonium Nitrate Production Facility. Public Environmental Review for Burrup Nitrates Pty Ltd	Environmental Resources Management	2009	Reconnaissance Survey	To provide a comprehensive desktop assessment of the area (Site D) for the Technical Ammonium Nitrate Production Facility including noise monitoring sites, noise contouring and reduction measures, the extent of the now Murujuga National Park, broad landscape and vegetation attributes and hydrology and drainage.

3 METHODOLOGY

3.1 CONTRIBUTING AUTHORS

The planning and design of this survey was conducted by APM Principal Zoologist Dr Mitch Ladyman, Senior Botanist Dr Eleanor Hoy, and Senior Zoologist Dr Stuart Dawson. Fieldwork was carried out by E. Hoy, S. Dawson, Senior Zoologist Dr Genevieve Hayes, Environmental Scientist Sarah Flemington, Senior Ornithologist Dr Floyd Holmes, and Graduate Environmental Scientist Arlen Hogan-West.

The report was drafted by S. Flemington, E. Hoy, S. Dawson, and M Ladyman, while Environmental Scientist Tony Smith conducted GIS analysis.

3.2 CONSTRAINTS

Constraints and their impacts on survey outcomes are discussed in Table 3-1.

Table 3-1: Constraints and the impacts on survey outcomes

Factor	Impact on survey outcomes
Access Problems	Most of the site was only accessible by foot. This was not a limiting factor, however, and all areas were adequately surveyed.
Experience levels	The personnel that executed these surveys included practitioners that are regarded as suitably qualified in their respective fields. • Dr Eleanor Hoy – Senior Botanist (10 years experience) • Dr Stuart Dawson – Senior Zoologist (5 years experience) • Dr Geneieve Hayes - Senior Zoologist (5 years experience) • Sarah Flemington – Environmental Scientist (2 years experience) • Dr Floyd Holmes – Senior Ornithologist (5 years experience) • Arlen Hogan-West – Graduate Environmental Scientist (1 years experience).
Scope: Flora	No constraints.
Scope: Vegetation	The survey was limited to the Study Area, excepting a small number of vegetation units in proximity to the Study Area that were included for statistical rigor of the analysis of vegetation types. Actual rather than predicted impact assessment of the proposed development may require verification of vegetation communities outside of the proposed development area.
Scope: Fauna	The scope of the fauna survey was a level 2 survey. In order to achieve the survey effort outlines in the guidelines for biodiversity surveys, trapping was conducted over 7 trap nights, and all methods of sampling were achieved within this time period. The spotlight surveys were targeted to sample the Northern Quoll and Pilbara Olive Python, two species that are cryptic and often in low densities. As a result of their cryptic nature, the absence of records does not necessarily indicate that these species are absent. In addition, the rocky outcrops where these species are likely to be present are relatively inaccessible with many rocky holes and caves for species to hide, making the probability of detection of these species limited. Two sites were placed in rocky outcrop habitat during the March/April survey, however due to the rocky nature of the substrate, no pitfall traps were used at these sites. To compensate, additional funnel traps were deployed.
Timing, weather, season, cycle	This biological report includes data gathered from field surveys conducted in November 2018 and March, April and May 2019. As such, surveys were conducted in a broad range of seasonal conditions. The 2019 wet season (Jan-March) experienced lower than average rainfall. This is likely to result in diversity and abundance of fauna and ephemeral flora being slightly lower than average years. While the survey timing did not include a period of spring tide, during which the tidal salt flats would be inundated, a cyclonic event just prior to fieldwork resulted in abundant

Factor	Impact on survey outcomes
	available water on the plains. This availability of water negates the limitation of the lack of spring tide.
Sources of information	The flora of the Burrup Peninsula is well studied. The regional work by M. E. Trudgen & Associates (2002) maps the current site and many flora and vegetation assessment surveys have been undertaken as part of the Environmental Impact Assessment process on development sites adjacent to the Project. Similarly, the fauna assemblage of the Burrup Peninsula is well studied, largely due to the number of different facilities that have been built on the peninsula in the last 30 years, and the resulting biological surveys. Many of these surveys are not freely available, however, while being referred to in more recent documents. The literature search is therefore deliberately limited to include surveys that include data directly comparable to our survey. Given the number of previous surveys and database searches, this is not considered a limitation.
Completeness: Flora and vegetation	The field survey recorded 86 taxa in November 2018 and an additional 42 taxa in May 2019 totalling 127 taxa (including species, subspecies and variants) from 34 Families. 390 taxa have been recorded for the Burrup Peninsula (Astron Environmental, 2005). Astron Environmental (2005) recorded 143 taxa from 44 families for an area greater than but including Site C and the 'Site C and F amalgamation' zone. Astron (2001a) recorded 131 species in the BFPL site immediately to the east of the Study Area.
Completeness: Fauna	305 vertebrate fauna taxa have either been recorded or are expected to occur in the Burrup Peninsula (Worley Astron, 2006). The level 2 biological survey conducted in early 2019, coupled with the level survey conducted in late 2018, represents an appropriate survey effort to provide a reasonable inventory of species occupying the site. Similarly, the bird survey was conducted in accordance with guidelines. The data gathered in this survey, coupled with previous surveys on the Burrup Peninsula, and appropriate database searches, provides an adequate understanding of the faunal assemblage at the site, such that completeness is not considered a limitation. Trapping could not be conducted in the floodplain during the March/April survey, due to the area being waterlogged from the recent rainfall. Given the area is completely devoid of cover, this area is unlikely to support many small animals.

3.3 DATABASE SEARCHES

Table 3-2 lists the database searches that were conducted prior to field survey. Some fauna studies have previously been undertaken in the surrounding area of the Burrup Peninsula and Dampier Archipelago. Relatively little fauna survey work, however, has been completed in the immediate proximity of or within the actual Project Area.

Table 3-2: Database Searches Conducted Prior to Field Survey

Database	Area Searched	Information	Administering Agency
Flora and Vegetation			
Australian Government Protected Matters Search Tool	Central co-ordinate within the Project Area with a 100 km buffer (Appendix C)	Matters of national significance and matters protected by EPBC Act	Department of Energy and Environment
Directory of Important Wetlands in Australia	Roebourne Biogeographic Subregion	Details of specific Ramsar and Directory Wetlands (Internationally and Nationally important wetlands, respectively)	
Threatened (Declared Rare) Flora Database	270 km of coastline plus the islands within 16 km, including the entire Burrup Peninsula (Appendix D)	Validated populations of declared rare flora and some priority flora	Department of Biodiversity Conservation and Attractions
Western Australian Herbarium Specimen Database		All records of declared Rare and Priority species from the Western Australian Herbarium collection of specimens, includes un-validated historical specimens	
Declared Rare and Priority Flora List		Declared Rare Flora and Priority Flora – provides a list of species and general distribution in an area of interest	
Priority Ecological Communities List		Priority Ecological Communities	
Fauna			
Australian Government Protected Matters Search Tool	Central co-ordinate within the Project Area with a 5 km buffer (Appendix C)	Matters of national significance and matters protected by *Environmental Protection and Biodiversity Conservation* (EPBC) *Act 1999*	Department of Energy and Environment
Atlas of Living Australia	Central co-ordinate within the Project Area with a 10 km buffer (Appendix E)	All species records that have been lodged with the database	Atlas of living Australia
NatureMap	Central co-ordinate within the Project Area with a 10 km buffer (Appendix F)	All species records that have been lodged with the database	Department of Biodiversity Conservation and Attractions (DBCA, WA)
Threatened Fauna Database	Area surrounding Project Area, including the entire Burrup Peninsula and islands within ~25 km (Appendix D)	Threatened and Priority Species listed under the *WC Act*	

3.4 FLORA AND VEGETATION FIELD SURVEY

3.4.1 Flora and Vegetation Survey Methodology

Vegetation classification is the process of identifying and characterising discrete vegetation units using empirical data. The aim of vegetation classification is to identify and describe the vegetation units present within a survey area, identify the local or regional significance of the identified units and provide sufficient information to enable analysis of impact significance. Two primary methods are used to classify vegetation units in WA: one is based on dominant species and vegetation structure and the other is based on analysis of floristic composition data.

A consistent approach to vegetation classification and description across surveys in similar regions is critical for the assessment of cumulative impacts at the local and regional scales. Differences in classification and analysis methods, consideration of scale, interpretation of floristic and structural vegetation information and terminology can lead to incompatibility between assessments. In identifying the appropriate methodology for the current survey, consideration was given to the methodology used in other local and regional assessments and adherence to the EPA (2016) *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment*.

The fieldwork was conducted in two periods: a four-day survey was carried out by a Senior Botanist and assisting Environmental Scientist from the 19th to the 22nd of November 2018 and a 5-day survey from the 11th to 15th of May 2019 completed by a Senior Botanist. Flora surveys were undertaken in all the vegetation/soil types/landform units present in the study area, at representative locations established following the desktop assessments and initial site reconnaissance. Figure 3-1 shows the survey site locations and APM's vegetation assessment survey tracks .

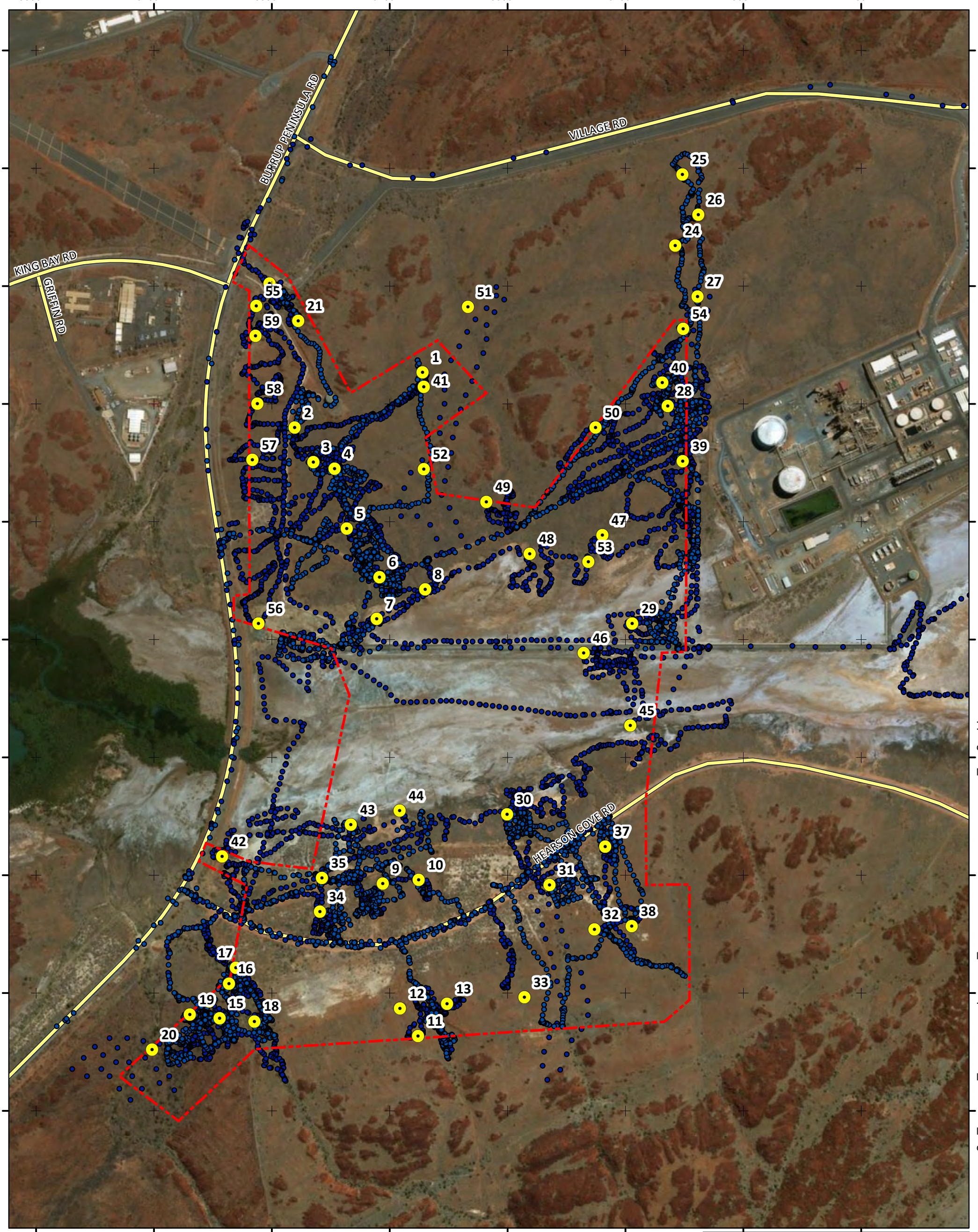

Figure 3-1: APM Multi-Season Detailed Flora Survey Sites

Legend

- *APM Survey Locations*
- *Track Logs for Flora and Vegetation Survey*
- *Study Area*
- Main Roads WA

N

160 80 0 160 Meters

1 centimeter = 75 meters

Date: 10/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Document Path: \\MAINSERVER\Documents\APM GIS and Mapping\03_Client\APM2018-19GIS\CAR\02_GIS Maps\20190610_CAR002_Fig3-1 Flora and Vegetation Survey Locations.mxd

Vegetation was mapped at the association scale. Survey sites were allocated to identified vegetation types to accurately describe the vegetation association. Vegetation units were identified, and boundaries delineated using a combination of aerial photography, topographical features and field data/observations. Vegetation units were allocated mapping codes with reference to previously described vegetation types in the region (see section 4.1.2) based on structure, dominant taxa and cover characteristics. Field observations on the distribution of vegetation units were made using traverses, where notes on the location, dominant species and vegetation condition were taken to help with the extrapolation of vegetation type and condition.

Survey sites represent Full Characterisation Sites (EPA, 2016) and were sampled using quadrats of 50 m x 50 m where possible. In riparian areas or where the vegetation types were of an irregular distribution, quadrat dimensions were altered but the 2,500 m^2 search area was retained where possible. A number of vegetation units were substantially smaller than 2,500 m^2. These areas had clearly defined boundaries due to changes in vegetation composition, and the entirety of these vegetation units were sampled.

Field data at each survey site was recorded on a *pro-forma* data sheet and included the parameters detailed in Table 3-3. Details of survey sites are provided in Appendix G. A flora inventory was compiled from taxa listed in described survey sites and from opportunistic floristic collections throughout the survey area, with at least one collection made for every taxon encountered. 215 specimens were identified by an experienced botanical taxonomist in the Herbarium using published reference material. The nomenclature applied is consistent with Florabase (Western Australian Herbarium, 2019). The conservation status of all recorded flora was compared against the current lists available from DBCA (Wildlife Conservation (Rare Flora) Notice 2018 and Threatened and Priority Flora List 5 December 2018) and the EPBC Act List of Threatened Flora (DoEE, 2018a). Conservation categories are described in Appendix A.

Table 3-3: Parameters recorded at each Survey location

Variable	Parameters
Collection attributes	Personnel/recorder; date, quadrat dimensions and marking method, photographs of the quadrat from the northwest and south east corners, site code
Physical features	Landform, aspect, soil attributes, ground surface cover, rock type and physical attributes
Community Size	Width (m) if linear (e.g. riparian) or size (ha) if non-linear
Location	Coordinates recorded in GDA94 datum using a hand-held Global Positioning System (GPS) tool (Garmin) to accuracy approximately ± 5 m.
Vegetation condition	Vegetation condition was assessed using the condition rating scale devised by Trudgen (1988)
Disturbance	Level and nature of disturbances (e.g. weed presence, fire and time since last fire, impacts from grazing, infrastructure works).
Flora	List of dominant flora from each structural layer. List of all species within the quadrat including average height and cover

Vegetation Condition was assigned using the scale developed for the Eremaean and Northern Botanical Provinces adapted from Trudgen (1988) as recommended in EPA (2016a). Table 3-4 details the six potential categories.

Table 3-4: EPA (2016a) Vegetation Condition Scale

Vegetation Condition	Eremaean and Northern Botanical Provinces adapted from Trudgen (1988)
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs

3.4.2 Flora and Vegetation Data Analyses

Floristic composition vegetation classification methodology was applied to the full suite of species present within quadrats, to determine whether the sites fall into clusters of similar communities. The Primer 7 (Clarke and Gorley, 2015) software was used to perform the non-parametric multivariate statistical analysis. A species by site matrix was prepared using species projected cover values and square root transformation applied. The square root transformation was selected to moderate the effect of the most dominant species without giving the singleton and sporadic species excessive weight. A resemblance matrix was constructed using the Bray Curtis similarity measure on the transformed data set. A cluster analysis was performed using group averages to identify sites with similarities in species composition and cover values, and the results displayed in a dendogram. The SIMPROF routine was used to test the hypothesis that the species and/or abundances are different at each group of sites using 999 permutations and a significance level of 5%.

The statistical methodology was selected to replicate that of Trudgen and Associates (2002).

Floristic composition vegetation classification methodology created high level groupings but did not adequately allow for comparison with previous surveys where data had not been statistically analysed by other biological survey practitioners. Structural vegetation classification was also retained to allow for comparison with previously described vegetation associations.

Structural vegetation classification uses vegetation structure and dominant species to describe differences between vegetation units. Structural vegetation classification provides information on height of strata, foliar cover and dominant species.

3.4.3 Priority Flora Targeted Searches

Targeted searches were conducted in all vegetation types with particular attention given around the rocky outcrops, drainage features and the fringes of the tidal inlet. Known locations of *Rhynchosia bungarensis* (P4) and *Stackhousia clementii* (P4) were searched and healthy plants identified so as to determine suitable conditions for searches of these species. Track logs of targeted searches are displayed in Figure 3-1.

Taxa with uncertain taxonomy (as identified in M.E. Trudgen & Associates, 2002) were systematically collected across the site for detailed determination at the herbarium.

3.5 TERRESTRIAL VERTEBRATE FAUNA

The terrestrial vertebrate fauna survey was conducted in two discrete periods, the initial, pre-wet season Level 1 survey, and the follow-up, post-wet season Level 2 survey.

The initial survey occurred between the 19th and 22nd of November 2018 and was conducted by Dr. S Dawson and Dr. F. Holmes. Fauna habitat was surveyed using nine survey points, distributed throughout the site and sampling the range of habitats present. At each survey point, a range of substrate, landform, vegetation, and structural parameters were measured. Any fauna sighted during recording at these points was recorded. Some areas adjacent to the Project Area that represented unique or significant habitat values were also surveyed. Morning and evening bird surveys were conducted, and camera traps and bat detectors were deployed in habitat appropriate for Threatened fauna. Spotlight surveys were also conducted each evening.

The post-wet season Level 2 survey was carried out between the 27th of March and the 5th of April 2019. This survey was conducted by Dr S. Dawson, Dr G. Hayes, Dr F. Holmes, S. Flemington and A. Hogan-West. This survey consisted of the deployment of six trap sites across the habitats available within the site, including cage traps, aluminium box traps, pitfall traps, funnel traps, camera traps, and acoustic bat recorders. In addition, morning and afternoon bird surveys and nocturnal spotlight surveys were conducted.

3.5.1 Trapping

During the post-wet season survey, conducted in March / April 2019, traps were deployed at six sites, two in each of the three major habitat types; rocky outcrop, mid-slope, and samphire. The flood plain in the centre of the site could not be sampled during trapping as it was waterlogged.

The trap effort and details of each site are shown in Table 3-5. Each trap site consisted of a single line of 5 drift fences (10 m), with one pitfall trap and a pair of funnels on each fence. Two lines of 10 aluminium box traps, one on each side, were set parallel to the line of fences, and cages were set on each end of both lines of box traps. In rocky outcrop habitat, pitfall traps were not used (as the substrate was too rocky to excavate), and an extra three pairs of funnels were deployed to compensate. Funnels and pit traps were checked twice daily, while cages and aluminium box traps were checked in the morning, closed throughout the day, then opened and re-baited in the evening. General marsupial bait (rolled oats, sardines, and peanut butter) was used.

Table 3-5. The location and details of each trap site used in the March/April survey.

Trap Site	Habitat	Easting	Northing	Cage	Aluminium Box	Funnel	Pit	Trap nights	Description
C01	Mid-Slope	0476587	7718117	4	20	10	5	7	Rocky substrate with scattered trees and tall shrubs over hummock grasses (25% ground cover). Creek line runs through the site.
C02	Rocky Outcrop	0476383	7717975	4	20	16	0	7	Rocky slope with scattered tall shrubs over hummock grasses (30% ground cover), near large rockpiles.
C03	Samphire	0476127	7718320	4	20	10	5	7	Flat plains with rocky sandy clay soils, Mixed low samphire shrubs (25% ground cover), fringed by hummock grassland.
C04	Samphire	0476753	7718968	4	20	10	5	7	Mix of sandy rises and clay plains. Sandy rises contain scattered tall shrubs over tussock grasses (50% ground cover), while clay plains contain low scattered shrubs (5% ground cover).
C05	Mid-Slope	0476337	7718943	4	20	10	5	7	Gentle slopes with clay soils. Scattered tall shrubs over hummock grasses, (50% ground cover).
C06	Rocky Outcrop	0476201	7719279	4	20	16	0	7	Rocky slopes with scattered tall shrubs, over hummock grasses (60% cover), near large rockpiles.
		Total trap nights		**168**	**840**	**504**	**140**		

3.5.2 Camera Trapping & Bat Acoustic Recorders

Camera traps and acoustic bat detectors were deployed in both the November 2018, and the March / April 2019 survey. All camera traps were Reconyx HC500 HyperFire™ Semi-Covert IR, while two types of bat detectors were used: AnaBat Swift Passive Bat Detectors and D500x Ultrasound Detector / Recorders. Camera trap deployment details are provided in Table 3-6.

Table 3-6: Camera trap and bat detector survey effort across all surveys

Type	Survey	Habitat	Locations	No. of traps	Total trap nights
Camera trap	Nov 18	Rocky Outcrop	BC001, BC002, BC006	3	12
		Mid-slope	BC003, BC004, BC008, BC009	5	16
		Mangrove (outside Study Area)	BC005	1	4
		Rocky outcrop (outside Study Area)	BC010	1	3
				Total	**35**
	Mar 2019	Rocky Outcrop	C02, C06	4	32
		Mid-slope	C01, C05	4	32
		Samphire	C03, C04	4	32
		Rocky outcrop (outside Study Area)	QC01, QC02, QC03	3	24
				Total	**120**
Bat detector	Nov 18	Rocky Outcrop	BC001, BC006	2	8
		Mid-slope	BC004, BC009	2	8
				Total	**16**
	Mar 2019	Rocky Outcrop	C02, C06	2	16
		Mid-slope	C01, C05	2	8
		Samphire	C03, C04	2	8
				Total	**32**

3.5.3 Bird Surveys

Bird surveys were conducted during the November 2018 and March 2019 survey periods. Bird surveys were conducted in the morning, immediately after sunrise, and in the evening, just prior to sunset. The method involves searching 2 ha plots for 20 minutes and recording each species (and the number of individuals). Around 8-12 plots were searched each day. Plots were spread throughout all habitat types present at the site, with a focus on the floodplain and fringing habitat in order to sample migratory wader or shorebird species. All bird surveys were conducted in accordance with *EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DoEE, 2017)

3.5.4 Targeted Searching

Searches of rocky outcrop areas were carried out during both surveys, targeting both the Northern Quoll and the Pilbara Olive Python. This included diurnal searches largely focused on habitat assessments and recording of sign (scats and tracks). Nocturnal spotlight surveys were conducted during both surveys, searching

appropriate habitat for foraging nocturnal species. In total approximately 6 hours of spotlighting was carried out in both the pre-wet season and post-wet season surveys.

4 FLORA AND VEGETATION RESULTS

4.1 DESKTOP SURVEY

4.1.1 General Site Description

The King Bay to Hearson Cove valley is the only open valley of the Burrup Peninsula which crosses east-west across the Peninsula. The Project straddles the western end of the valley with a catenary sequence from the elevated rocky hills in the north and to the south, to upper and mid slopes incised by drainage features, through hummock grasslands and plains to the floor of the valley which has a large area of saline mud flats fringed by samphire and sandy swales of tussock grasslands.

4.1.2 Previous Surveys

Beard (1975) described the vegetation of the botanical province as predominantly open grassy plains or mixed grass and spinifex with shrub steppe occurring further inland on the granite plains. Beard (1975) broadly classified the vegetation of the Burrup Peninsula as *Triodia pungens* hummock grassland with very few shrubs.

Thackway and Cresswell (1995) described the vegetation as "Quaternary alluvial plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia translucens* (now *A. stellaticeps*) over *Triodia pungens* (now *T. epactia*). Samphire, *Sporobolus* and Mangal occur on marine alluvial flats".

Blackwell and Cala (1979) looked specifically at the vegetation of the Burrup Peninsula and described a group of five basic vegetation units for the area that were further divided into 28 communities. Blackwell and Cala (1979) recognised the Burrup Peninsula as part of the Abydos Plain which forms the landscape on the mainland, but also identified it as containing a unique mixture of coastal and Eremaean species in close association with species more typical of the Northern (Kimberley) Botanical Province.

In anticipation of future development, the DEC commissioned a study of the vegetation of the Burrup Peninsula, Dolphin, Angel and Gidley Islands and Inland Ranges (M.E. Trudgen & Associates, 2002). The study identified 240 vegetation associations (each with a small area of occurrence), a rich flora for its size (383 native vascular plant species from 54 families), and a high number of geographically restricted or uncommon species (M.E. Trudgen & Associates, 2002). A significant geographic based pattern for the distribution of floristic units on the peninsula, in accordance with landscape groups (i.e. rock piles, slopes, drainage lines, etc.), was also identified (Trudgen and Griffin, 2001; M.E. Trudgen & Associates, 2002). The vegetation of the Burrup Peninsula was found to be generally in very good or excellent condition, except in areas of coastal sand (M.E. Trudgen & Associates, 2002).

Trudgen & Griffin (2001) assessed the regional significance of vegetation on the Burrup Peninsula using the (Trudgen and Associates 2002) vegetation mapping as a base. It was outside of the terms of reference to map the Samphire flats in detail and scale limitations led rock outcrops and rock pockets to be mapped as a single unit, but with descriptions of 11 rock outcrop and rock pocket vegetation units included in Volume 1. These limitations aside, the mapping and vegetation association descriptions as well as the analysis of significance for flora and vegetation associations detailed in Trudgen & Griffin (2001) and M.E. Trudgen & Associates (2002) are the most comprehensive treatments of regional flora available. The two volumes form the basis of impact assessments for developments on the Burrup Peninsula subsequent to 2001.

Many private industry developments have commissioned independent studies on the Burrup Peninsula. Studies that overlap or are adjacent to the Project are summarised below. Although the vegetation associations mapped

by Trudgen and those mapped by botanists commissioned by private industry are generally similar, some differences are evident. The reasons for the differences generally include:

- Detailed description of samphire and beach vegetation associations. These were broadly mapped by Trudgen as one unit as they were not a part of the scope for that study;
- Detailed mapping of rockpile vegetation that was previously mapped by Trudgen as one unit/association due to scale restrictions when mapping the entire Core Study Area;
- Differences in rainfall prior to the surveys and subsequent effect on the dominance of shorter-lived perennial shrub species (e.g. *Acacia colei*, *Acacia bivenosa*); and
- More detailed survey/inspection of the site-specific survey area. The Trudgen mapping covered most of the Burrup Peninsula and to achieve mapping on that scale it was required to use aerial photo interpreted mapping in some areas.

Syntroleum Sweetwater – Astron Environmental (2001a)

The Syntroleum Sweetwater project was proposed for the southern section of the current Project Area. It was surveyed for vegetation and floristic characteristics in 1999 with a survey area extending further to the south and south west than the current Study Area. Approximately one third of the area had been previously disturbed. Six broad vegetation associations were identified and within these associations 14 vegetation assemblages were identified. *Terminalia supranitifolia* (P3) was identified during the survey. Weeds found during the survey included **Cenchrus ciliaris* (Buffel Grass), **Cenchrus setigerus* (Birdwood Grass), **Aerva javanica* (Kapok) and **Stylosanthes hamata* (Caribbean stylo). It was noted that the tall stands of *Eucalyptus victrix* and *Terminalia circumulata* (formerly *Terminalia canescens*) woodland occurring in the drainage areas and deep gullies provided important faunal habitat (moisture, shade, nesting sites etc) and add aesthetic value to the Burrup.

BFPL Ammonia – Astron Environmental (2001b)

The BFPL Ammonia processing site is immediately adjacent to the Project and a portion of the vegetation mapped by Astron Environmental (2001a) overlaps the current Project Area. Astron Environmental (2001a, 2001b) conducted two vegetation surveys to coincide with the wet summer season and the dry season. Seven broad vegetation types and 15 vegetation assemblages were found to occur within the project lease.

The vegetation assemblages considered of conservation significance based on criteria compiled from Astron Environmental (2001a, 2001b) and Trudgen *et al*. (2001), included:

- Vegetation assemblage 1a – rock pile vegetation;
- Vegetation assemblages 5a, 5b, 5c – drainage lines and broad drainage zone vegetation (especially mixed grevillea heath);
- Vegetation assemblages 6a, 6b and 6c – samphire communities;
- *Dolichandrone heterophylla* stand (rare on the Burrup) (now *Dolichandrone occidentalis*)

A total of 131 vascular species (100 dry season, 117 wet season) were recorded within the Study Area. However, as the rainfall for the wet and dry season was low, this may not represent the full total. No Declared Rare Flora was identified within the Study Area, but one Priority 3 Flora species (*Terminalia supranitifolia,* at the time of survey was classified as P1) was found. A total of 38 *Terminalia supranitifolia* individuals were located on or around the base of scree slopes and small rocky outcrops.

Dampier Nitrogen Pty Ltd Detailed Wet Season Survey (2005) and Addendum (2009) – Astron Environmental (2005)

Dampier Nitrogen Pty Ltd proposed a development of Site C within the King Bay / Hearson Cove Industrial Area. The area surveyed by Astron Environmental (2005) overlaps much of the northern end of the current Study Area as well as the tidal inlet and fringing vegetation in the centre of the current Project site. The Astron Environmental (2005) assessment covers a greater area than the current Project, encompassing a large area of rocky outcrop vegetation and tidal inlet that are outside of the current Project Area. Vegetation associations of the rock outcrops, samphire and tussock grass areas were described in detail. Twelve broad vegetation groups are divided into 79 associations.

The 2005 field survey recorded 143 flora taxa from 44 families. 23 *Terminalia supranitifolia* (P3) and 2 *Rhynchosia bungarensis* (P4) were identified. Two introduced species were recorded, **Cenchrus ciliaris* (buffel grass) and **Aerva javanica* (kapok bush). Two rockpile communities were considered to be of particular conservation significance. These occur outside of the current Project Area.

The mapping of the samphire vegetation in the Hearson Cove / King Bay Valley conducted by Astron Environmental in 2002 and included in the wet season report in 2005 is the most comprehensive assessment of the distribution of these vegetation assemblages on the Burrup Peninsula.

Pluto LNG Development Site B North - ENV Australia (2006)

Site B North is situated less than 500 m northwest of the Project.

One hundred and twelve taxa were collected from within the study site. One species of Priority flora, *Terminalia supranitifolia* (P3), was located at four sites within rockpiles and drainage lines. Eight special interest flora taxa were recorded (as per M. E. Trudgen & Associates, 2002). One in particular is considered of greater significance in relation to the Site B North project. *Fimbristylis* aff. *dichotoma* (M75-4) is not uncommon where it occurs. However, it is fairly restricted and a newly recognised taxon. Collection records exist at 21 locations on the Burrup Peninsula.

Two introduced species were recorded, **Cenchrus ciliaris* (buffel grass) and **Aerva javanica* (kapok bush).

One vegetation association mapped by M.E. Trudgen & Associates (2002) within Site B North is of conservation significance: *Triodia epactia* (Burrup form), *Cymbopogon ambiguus* hummock / tussock grassland (TeCa). The area of TeCa within Site B North represents less than 1% of the total area mapped for this association, and there is a relatively large number of occurrences on the peninsula. This association is only represented by 4% in the conservation zone, hence its significance.

Burrup Nitrates – Outback Ecology (2009)

The Burrup Nitrates Project is located adjacent to the BFPL ammonia project and less than 1 km to the east of the Project. Five broad vegetation types were identified during the flora survey. The five broad vegetation types identified on the Site correspond to those vegetation assemblages previously identified and mapped as occurring within the area (as per M. E. Trudgen & Associates, 2002). These vegetation types also broadly correspond with the vegetation associations mapped at the adjacent BFPL site by Astron Environmental (2001a).

Vegetation condition was described as Good to Very Good (Keighery, 1994). Three introduced species, **Cenchrus ciliaris* (Buffel Grass), **Aerva javanica* (Kapok bush) and **Vachellia farnesiana* were found during the survey. It was noted that the introduced **Cenchrus ciliaris* has increased its cover and dominance in the Coastal Flats vegetation type since the time of the M.E. Trudgen & Associates (2002) report.

No conservation significant flora species were identified within the site. While no Threatened or Priority Ecological Communities (**PEC**) are known on the Burrup Peninsula Based, analysis of the M.E. Trudgen & Associates (2002) mapping undertaken by ENV Australia (2006) identified that the community mapped as Sm and described as Saline Inlet and Supra-tidal Flats was considered to represent a significant vegetation association. It was noted that approximately 56% of this community's extent was represented within the proposed Burrup Peninsula Conservation Reserve.

4.1.3 Conservation Significant Vegetation

No Threatened Ecological Communities listed under the EPBC Act or BC Act are known to occur on the Burrup Peninsula (DBCA 2018).

Two PECs are known from the Burrup Peninsula:

- Burrup Peninsula rock pool communities. Priority 1: Calcareous tufa deposits. Interesting aquatic snails. Threats: recreational impacts, and potential development; possibly NO_x and SO_x emissions, weed invasion including **Passiflora foetida* (stinking passion flower); and
- Burrup Peninsula rock pile communities. Priority 1: Pockets of vegetation in rock piles, rock pockets and outcrops. Comprise a mixture of Pilbara and Kimberley species, communities are different from those of the Hamersley and Chichester Ranges. Short-range endemic land snails. Threats: industrial development dust emissions. Weed invasion including **Cenchrus ciliaris* (Buffel Grass) and **Passiflora foetida* (stinking passion flower)

Locations of PECs listed in the DBCA databases for the Burrup Peninsula are shown in Figure 4-1. No known PECs are listed in the DBCA database as occurring in the Project area.

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WITHNELL BAY ACCESS RD

ROB VITENBERGS DR (P)

MOF RD

KING BAY RD

STRECKFUSS PL (P)

VILLAGE RD

HEARSON COVE RD

BURRUP PENINSULA RD

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Figure 4-1: Conservation Significant Communities Identified by Department of Biodiversity Conservation and Attractions Database Search as Occurring in the Vicinity of the Study Area

Legend

DBCA_TecPec_Results

- Burrup Peninsula rock pile communities - P1
- Burrup Peninsula rock pool communities - P1
- *Study Area*
- Main Roads WA

N

750 375 0 750 Meters

1 centimeter = 346 meters

Date: 6/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Trudgen & Griffin (2001) assess "rarity" (and therefore significance) of vegetation based on methodologies outlined by Abrahams *et al*. (1995), using the minimum area for protection of an ecosystem as recommended by the International Union for the Conservation of Nature, and English and Blyth (1997). Using the formulas developed in these references, Trudgen & Griffin (2001) calculates vegetation rarity as governed by area, with 2,000 ha as the lower limit for definition of a "rare" undisturbed vegetation association and 30% remaining as the threshold for "threatened" status. Given this definition, all vegetation on the Burrup is "significant".

A map showing the frequency of vegetation types on the Burrup was produced by the Department of Mineral and Petroleum Resources (2002) utilising the results of M. E. Trudgen & Associates (2002). This map has a frequency scale ranging from 1 to 100 or more occurrences on the Burrup Peninsula. The map is a useful tool in assessing the regional significance of vegetation on any one area of the Burrup Peninsula. According to M. E. Trudgen & Associates (2002), ten or fewer occurrences of any vegetation association should be treated as significant, and more so if those occurrences are limited to the area zoned for industry.

Using Trudgen & Griffin's (2001) significance assessment criteria, the vegetation communities identified by M. E. Trudgen & Associates (2002) from the Study Area that are considered significant are listed in Table 4-1. There are a number of statistical artefacts in the dataset that elevate map units to significance without merit. These are identified in the comments of Table 4-1. Units coloured yellow indicate there are at least ten occurrences and as such do not qualify as significant under the classification scheme. They have been included in the table here as other developments on the Burrup may have reduced the number below ten occurrences and thus need to be considered as part of the cumulative impact of development on the Peninsula.

Table 4-1: Vegetation Communities from the Study Area that are Considered Significant using M. E. Trudgen & Associates (2002) Significance Assessment Criteria

Association Code	Association Name	Comments
***CcTs**	**Cenchrus ciliaris*, (*Triodia epactia* (BF)), (*Triodia angusta* (BF))grassland/hummock grassland with *Tephrosia* aff. *supina* (MET 12, 357), *Rhynchosia* cf. *minima* herbland	*Cc is a weed. This is red by simple reason of being unique but is not considered significant vegetation. Without the *Cc it would likely be TaTsRm which is also red but together would be 2 occurrences therefore dark orange.
ItTa/AbTa	This is mapped as a combination of ItTa and AbTa.	As individually they are both light orange, this is considered to be light orange also
Sm/*Cc/D	This is mapped as a combination of Samphire, **Cenchrus ciliaris* and Disturbed.	Sm is dark green, *Cc is a weed and D is disturbed so this vegetation is not of conservation significance.
Sm/Sv	This is mapped as a combination of Sm and Sv	Sm and Sv are medium and light green respectively so this is not considered to be of conservation significance, excepting that a discussion of the conservation significance of the tidal inlet vegetation is found below.
Sv	*Sporobolus virginicus* tussock grassland	Most of this vegetation is mapped as (Te)Sv, which indicates with or without *Triodia epactia*. It is considered here that Sv is synonymous with (Te)Sv (mapped light green) and therefore is not of conservation significance.
TaTsRm	*Triodia angusta* (BF) *Triodia epactia* grassland with *Tephrosia* aff. *supina* (MET 12,375) herbland and *Rhynchosia* cf. *minima* lianes	1 occurrence, but see note for *CcTs
AbCgTe	*Acacia bivenosa*, *Cassia glutinosa* open shrubland to shrubland over *Triodia epactia* (BF), **Cenchrus ciliaris* grassland	Trudgen: Dark Orange 2 to 4 Occurrences
ChAbSg	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup form) hummock grassland	Trudgen: Dark Orange 2 to 4 Occurrences
Ev*CcTe	*Eucalyptus victrix* low open woodland to low woodland over (*Pittosporum phylliraeoides* var. *phylliraeoides*, *Rhagodia eremaea* high shrubs to shrubs) over **Cenchrus ciliaris*, *Triodia epactia* (BF) tussock/hummock grassland	Trudgen: Dark Orange 2 to 4 Occurrences
AbImTe	*Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* (BF) scattered low shrubs to low open shrubland over *Triodia epactia* (BF) hummock grassland to closed hummock grassland	Trudgen: Light Orange 4 to 9 Occurrences

AbTa	*Acacia bivenosa* high open shrubs over *Triodia angusta* (BF) hummock grassland	Trudgen: Light Orange 4 to 9 Occurrences
AbWaTe	*Acacia bivenosa* high shrubland over *Whiteochloa airoides*, *Triodia epactia* (BF) tussock/hummock grassland with patches of **Cenchrus ciliaris* grassland	Trudgen: Light Orange 4 to 9 Occurrences
EvAa	*Eucalyptus victrix* low woodland over A*cacia ampliceps* open heath over *Cyperus vaginatus, Eriachne tenuiculmis, Triodia angusta* (Burrup form) sedgeland and tussock/hummock grassland	Trudgen: Light Orange 4 to 9 Occurrences
ItTa	*Indigofera trita* low shrubland over *Triodia angusta* (BF), (*Triodia epactia* (BF)) hummock grassland	Trudgen: Light Orange 4 to 9 Occurrences
ChImTe	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa, Acacia coriaceae* subsp. *coriaceae*) scattered tall shrubs over *(Dichrostachys spicata)* scattered shrubs over *Indigofera monophylla* (BF) low open shrubs to low shrubland over *Triodia epactia* (BF) hummock grassland	Trudgen: Yellow 10 to 24 occurrences
EvDsTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata, (Acacia coriaceae subsp. coriaceae)* tall scattered shrubs to low open shrubland over *Triodia angusta* (BF) hummock grassland	Trudgen: Yellow 10 to 24 occurrences
GpCwTe	*Grevillea pyramidalis* subsp. *pyramidalis* open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (BF) hummock grassland	Trudgen: Yellow 10 to 24 occurrences
TcEtSe	*Terminalia circumulata* low woodland over *Eriachne tenuiculmis*, *Triodia epactia* (BF) grassland/hummock grassland with *Sesbania cannabina* herbland	Trudgen: Yellow 10 to 24 occurrences

Red = 1 occurrence; **Dark Orange** = 2 to 4 Occurrences; **Light Orange** = 5 to 9 Occurrences; **Yellow** = 10 to 24 Occurrences.

Additionally, Astron Environmental (2005) considered two of the seven rockpile vegetation types to be very rarely occurring. These are:

- 2e DhTs Low woodland of *Dolichandrone occidentalis* (formerly *heterophylla*), *Terminalia supranitifolia* with *Brachychiton acuminatus* over very open grassland of *Triodia epactia* (Burrup form) and *Cymbopogon ambiguous*; and

- 2f ErvDhBa Low woodland of *Erythrina vespertilio* with *Dolichandrone occidentalis* and *Brachychiton acuminatus* over very open grasses of *Cymbopogon ambiguus* with *Triodia epactia* (Burrup form) over annual herbs.

Because the Study Area contains the only known occurrence of *Dolichandrone occidentalis* on the Burrup, its occurrence on the rock piles here is considered to have very high conservation value. Additionally, although *Erythrina vespertilio* does occur elsewhere on the Burrup, it is not abundant or widespread. Its occurrence with *Dolichandrone occidentalis* gives this community high conservation value. These mapped areas do not occur in the Project Area but are close to the border in the central section between the two north stretching arms.

ENV Australia (2006) mapped the *Triodia epactia* (Burrup form), *Cymbopogon ambiguus* hummock / tussock grassland (TeCa). This association is only represented by 4% in the conservation zone, hence its significance. There are more than 100 occurrences of this vegetation association on the Peninsula.

M. E. Trudgen & Associates (2002) identifies the tidal inlet between Hearson Cove and King Bay as being of conservation significance. The basic vegetation units mapped by M. E. Trudgen & Associates (2002) in the tidal inlet were designated Sm and (Te)Sv. In the assessment of occurrence Sm is represented by 50 to 99 occurrences and (Te)Sv is represented by 25 to 49 occurrences, both above the 10-occurrence threshold. Outback Ecology (2009) note also that there is approximately 56% of the Sm extent represented within the Burrup Peninsula Conservation Reserve (now the Murujuga National Park), above the 30 % threshold proposed by M. E. Trudgen & Associates (2002).

4.1.3.1 Conservation Significant Flora

No plants declared rare or threatened under the EPBC Act are known from the Burrup Peninsula, or within 100 km of the Study Area. No plants declared rare under the WC Act are known from the Burrup Peninsula.

DBCA Database Searches did not identify any known Priority flora locations within the Study Area. Priority Flora located in the Roeburn Bioregion coastal zone and Islands is shown in Figure 4-2. Table 4-2 identifies known habitat associations, distribution and flowering times of these taxa and makes an assessment of the likelihood of occurrence for each taxon given the habitats present in the Study Area. For the taxa assessed as likely to occur in the Project Area, an assessment is made about the likelihood of detection given the climatic conditions during survey. Table 4-2 identifies five taxa of conservation significance that may occur in the Project.

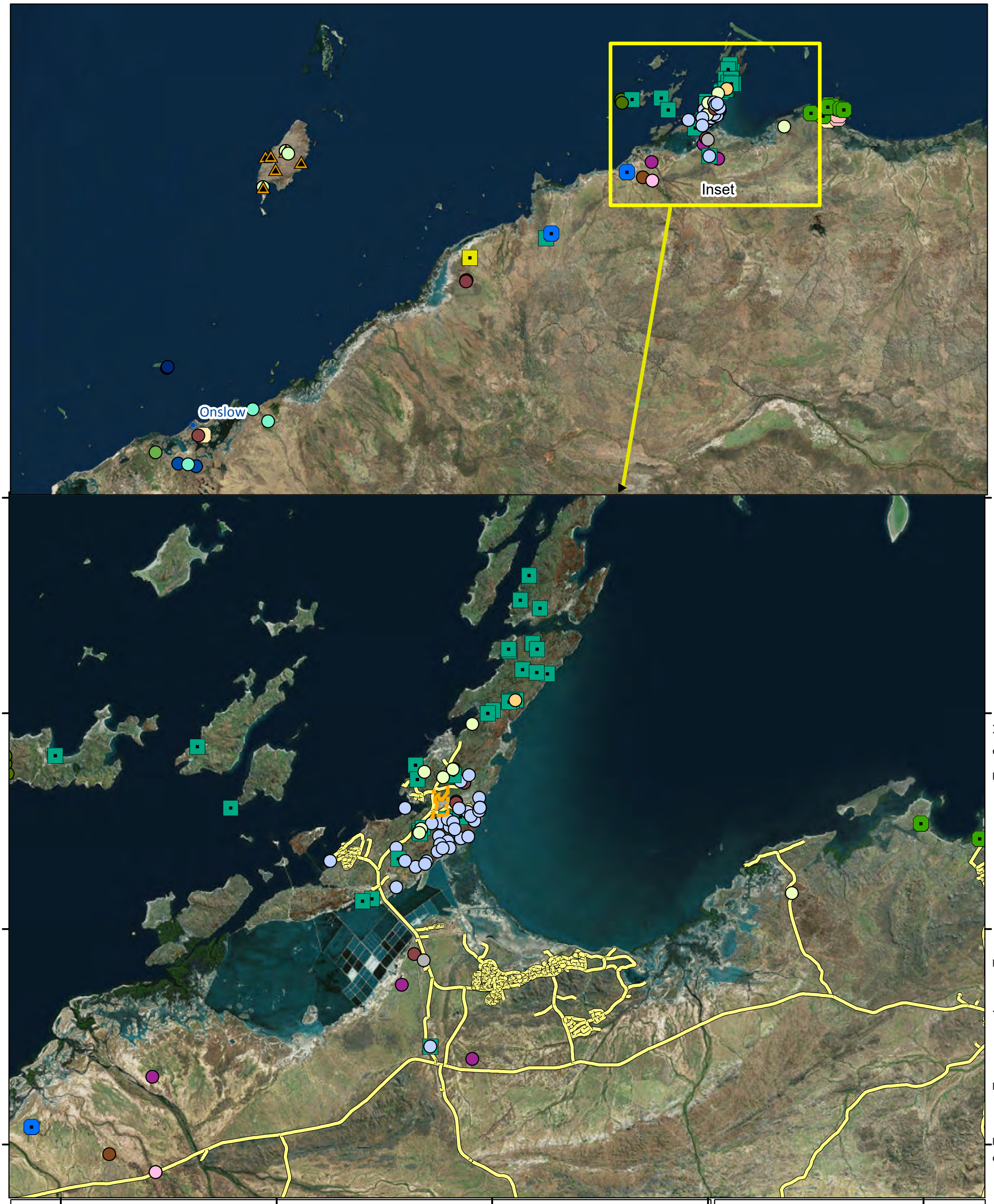

Figure 4-2: Conservation Significant Flora Identified by Department of Biodiversity Conservation and Attractions Database Search as Occuring in the Vicinity of the Study Area

Legend

Conservation Significant Flora

- Abutilon sp. Pritzelianum (S. van Leeuwen 5095), P1
- Goodenia pallida, P1
- Helichrysum oligochaetum, P1
- Tephrosia rosea var. Port Hedland (A.S. George 1114), P1
- Cucumis sp. Barrow Island (D.W. Goodall 1264), P2
- Pentalepis trichodesmoides subsp. hispida, P2
- Atriplex lindleyi subsp. conduplicata, P3
- Carpobrotus sp. Thevenard Island (M. White 050), P3
- Corchorus congener, P3
- Eleocharis papillosa, P3
- Eragrostis lanicaulis, P3
- Eragrostis surreyana, P3
- Eremophila forrestii subsp. viridis, P3
- Gomphrena cucullata, P3
- Gomphrena leptophylla, P3
- Gymnanthera cunninghamii, P3
- Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479), P3
- Owenia acidula, P3
- Schoenus punctatus, P3
- Stackhousia clementii, P3
- Terminalia supranitifolia, P3
- Themeda sp. Hamersley Station (M.E. Trudgen 11431), P3
- Triumfetta echinata, P3
- Vigna triodiophila, P3
- Goodenia nuda, P4
- Rhynchosia bungarensis, P4

N

4.52.25 0 4.5 Kilometers

1 centimeter = 2,500 meters

Date: 6/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

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Table 4-2: Conservation Significant Flora identified from the Database Searches

Species	Current WA Conservation Status	Description & Habitat	Likelihood of Occurrence in Project Area and likelihood of Detection if Present
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	P1	Shrub to 1.5 m Red stony loam with *Acacia inaequilatera*, *Sida* sp., *A. coriacia, Hibiscus leptocladus*.	**Possible**. Known from 1 location 40 km to the east on the mainland.
Goodenia pallida	P1	Balmoral Homestead. Corolla very pale purple. Plain, dry red sand. Annual grassland, Acacia steppe.	Unlikely. No suitable Habitat.
Helichrysum oligochaetum	P1	Erect annual, herb, to ca 0.25 m high. Fl. yellow, Aug to Nov. Red clay. Alluvial plains.	Unlikely. No suitable habitat
Tephrosia rosea var. Port Hedland (A.S. George 1114)	P1	Erect, spreading shrub 1 m Straggly open tomentose perennial. All parts densely grey/white felt, except inner petals. Deep burgundy flowers. Lower leaves becoming large. Raceme terminal 22-38 cm long. Legume 2.5-3 cm, tomentose. coastal dune sands, Open shrubland of *Acacia coriacea* subsp. *coriacea* and *Acacia sabulosa* over scattered shrubs of *Tephrosia rosea* var. Port Hedland over *Triodia epactia*, **Cenchrus ciliaris* and **Aerva javanica*. Also Small rocky hillcrest adjacent to lower-lying saline drainage areas at or just above sea level. with *Triodia wiseana, T. epactia* hummock grassland.	**Possible** but most locations on rocky terrain closer to the coast.
Pentalepis trichodesmoides subsp. hispida	P2	0.5 m tall x 1.5 m wide with long stems extending from the base, or just above. Phyllodes, green-yellow lanceolate, tomentose, 8 x 0.9 cm, 3 prominent veins. Flowers yellow with 5 petals. Bracts present. Banks of creeks and edges of basalt screes	Unlikely. No suitable habitat.
Atriplex lindleyi subsp. conduplicata	P3	Open straggly rotund shrub, growing up to 0.2 m tall. Sparse tussock grassland of *Eragrostis xerophila*. Crabhole plains.	Unlikely. No suitable habitat.
Cucumis sp. Barrow Island (D.W. Goodall 1264)	P3	Barrow Island Nature Reserve Herbaceous climber, 0.4 m high, 0.4 m wide. Very sticky creeper. Stems and leaves hirsute. Leaves mid-green, trifoliate, simple from nodes at regular intervals. One leaf and flower at each node. Perianth 0.5 cm long, 5 bright yellow petals. Flower approximately 0.5 cm diameter. Gentle calcrete slope. Red, sandy loam. *Triodia angusta* with scattered *Grevillea pyramidalis*. Species in vicinity (burn area*): Acacia bivenosa, Acanthocarpus verticillatus, Adriana tomentosa, Corchorus congener, Diplopeltis eriocarpa*	Unlikely. Restricted to Barrow Island 140 km to the west. Flowering known from June and October.
Carpobrotus sp. Thevenard Island (M. White 050)	P3	Thevenard Island. Prostrate succulent, glabrous plant. Leaves sessile, triangular in cross section to 10 cm in length. Sides 17mm wide. Flowers cream, solitary, 3-5 cm in diameter on thick peduncles 4-5, 2 large, leaflike, others small. Fruit turbinate. Coarse white sand on top of dune. Disturbed area.	Unlikely. No suitable Habitat. Restricted to Thevenard Island 200 km to the south-west.
Corchorus congener	P3	Barrow Island. Spreading plant to 75 cm diameter. Old stems grey-brown. New stems pale green and plumose. Leaves pale green, dentate, oval, 1-3 cm long x 1-1.5 cm	Unlikely. Restricted to Barrow Island 140 km to the west. Flowering known from June and October.

Species	Current WA Conservation Status	Description & Habitat	Likelihood of Occurrence in Project Area and likelihood of Detection if Present
		wide, plumose. Flowers in umbels along stems. 4 bright yellow petals, numerous bright yellow stamens.	
Eleocharis papillosa	P3	Broad drainage area through sandy coastal plain Red clay over granite, open clay flats. Claypans. Mosaic of *Tecticornia* (formerly *Halosarcia*) low shrubland with mixed tussock grassland of *Sporobolus mitchellii, Eriachne benthamii, Eulalia aurea*.	Unlikely. No suitable habitat.
Eragrostis lanicaulis	P3	Knotty or bulbous rhizomatous, perennial, grass-like or herb, 0.45-0.5 m high. Fl. Mar to May or Aug to Oct. Red sandy clay. Flats.	Unlikely. No suitable habitat.
Eragrostis surreyana	P3	Tufted annual grass 1-2 cm high. Seepage/wetland areas on boulder/rocky areas. Stoney soil of red-brown sandy-clay. *Cyperus vaginatus, Schoenus falcatus, Fimbristylis rara, Schoenoplectus littoralis, Eragrostis* sp. Mt Montague, sedgeland - tussock grassland with *Stemodia grossa, Pluchea rubelliflora, Stylidium fluminense, Peplidium* sp. E herbland.	Unlikely. No suitable habitat
Eremophila forrestii subsp. viridis	P3	Shrub, 0.8 - 1.5 m tall, Flowers pink-cream. Red sands - red/brown sandy loams of flat interdunal swales (not within dunes). Generally occurs on the flats where a hardpan develops in between inland dunes. *Acacia tetragonophylla, A. stellaticeps, Triodia epactia.*	Unlikely. No suitable habitat
Gomphrena cucullata	P3	Prostrate, compact herb 20 cm high x 55 cm wide. Wiry red stems, young stems slightly hairy. Revolute, linear leaves, acute 10-47 mm long x 1 mm wide. Flowers white-pink, orange stamens, corolla 4 mm long. Flower head cylindrical, 20 mm long x 7 mm wide. Floodplain, red loam, Grassland	Unlikely. No suitable habitat
Gomphrena leptophylla	P3	Prostrate, compact herb 20 cm high x 60 cm wide. Stem leaves acute, mucronate, revolute linear leaves 10-30 mm long x 1-2 mm wide. Flowers green, yellow stamens. Axillary corolla 5 mm long. Cylindrical flower head 20 mm long x 7 mm wide. Bracts incurved. Flowers white, Mar to Sep. Sand, sandy to clayey loam, granite, quartzite. Open flats, sandy creek beds, edges salt pans & marshes, stony hillsides.	**Possible**. Diverse range of habitat associations.
Gymnanthera cunninghamii	P3	Enderby Island, Erect, multistemmed shrub to 2 m tall, Stem very pliable, bronze colour, glabrous. Leaves opposite, margins undulating, glossy, lime green above, dull beneath. Petioles 2-2.5 cm long. Milky sap. Growing in beach sand at base of dolerite hills.	Unlikely. No suitable Habitat. Records of flowering in all months.
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	Alluvial silt and clay in floodplain. Brown clay loam, Tussock Grassland of *Eriachne* sp. over Very Open Herbs.	Unlikely. No suitable habitat
Owenia acidula	P3	Mardie Station. Small tree to 3m, often dense stands as suckers. Leaves pseudopinnate. Known from sand dune, Shrub steppe,	**Possible**. Easily detected from vegetative growth all year.

Species	Current WA Conservation Status	Description & Habitat	Likelihood of Occurrence in Project Area and likelihood of Detection if Present
Rhynchosia bungarensis	P4	Burrup Peninsula. Creeper Viscid, spreading 1 m high. Steeply sloping rock pile (boulder scree) on valley side, E facing. Orange brown loam between cobbles (vegetated patch). Medium grained volcanic. Fire >10 years. *Terminalia circumulata* high open shrubland (low open woodland) over *Acacia coriacea* subsp. *coriacea, Flueggia virosa* subsp. *melanthesoides* high open shrubland over *Scaevola spinescens* (narrow form), *Rhagodia eremaea* scattered shrubs over *Triodia epactia*	**Occurs in Project Area**. Locally common on the Burrup Peninsula. Suitable habitat exists on the rocky outcrops and slopes. Closest DBCA record less than 300 m from the Project Area. Specimens positively detected in Project Area by APM.
Schoenus punctatus	P3	Tufting plant to 80 cm high. Mid green leaves and culms. Leaf base dark red. Heads fine panicles above leaves. Spikelets brown to dark brown. Growing near *Stylidium fluminense, Cyperus* sp. and other water dependent spp. in creekline mud.	Unlikely. No suitable habitat
Stackhousia clementii	P3	King Bay - Hearson Cove tidal inlet, Burrup Peninsula. Lime-green, more or less leafless plant (or scale like leaves) to 45 cm with numerous erect slender branches. Flowers in clusters, forming a cylindrical spike. Woody base. Soft, silty saline soil over limestone - with much limestone and coral rubble, on small 'island' within tidal inlet (very rarely inundated). But also with Tall shrubland of Acacia bivenosa over open hummock grassland of Triodia epactia with open tussock grassland of *Cenchrus ciliaris, on sandy clay loam flats.	**Likely.** Located in the supratidal zone common to the Project Area. Records located 600 m to the east of the Project Area visited and healthy individuals noted. Records of flowering in all months.
Terminalia supranitifolia	P3	Rocky outcrops. Stunted canopy tree, very gnarled twisted trunk, intricate branches, grey in colour. Leaves glossy, silvery silky tomentum. Flowers lemon, fruits not winged. Leaves lemon-green colour.	**Occurs in Project Area**. Locally common in the central area of the Burrup Peninsula. Suitable habitat exists on the rocky outcrops. Closest DBCA record less than 300 m from the Project Area. Fertile specimen positively detected in Project Area by APM.
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	1.8m tall upright grass bases not buried in ground. Flowers Aug. Red clay. Clay pan, grass plain.	Unlikely. No suitable habitat
Triumfetta echinata	P3	Prostrate perennial shrub, spreading to ca 1 m diameter. sand dune with Soft spinifex.	Unlikely. No suitable habitat
Vigna triodiophila	P3	Burrup Peninsula. Herb. Slender vine entwined in *Triodia epactia* and rocks. Vine with thickened root - probably perennial but dying back to rootstock in dry. Flowers yellow. Rockpiles.	**Likely.** Locally common in the central area of the Burrup Peninsula. Suitable habitat exists on the rocky outcrops. Closest DBCA record is 700 m from the Project Area. Fertile material recorded in June.
Goodenia nuda	P4	Mardie Station Erect herb 0.3 m high x 0.2 m wide. Flowers yellow. Plain. Dry, red sand. Mesquite scrub.	Unlikely. No suitable Habitat.

M. E. Trudgen & Associates (2002) identified a number of species of conservation significance (Table 4-3). These are species identified as having high conservation value for being at the extent of their range or those for which there is a lack of scientific knowledge, or because their distribution is limited. Nine of these species are perennials, 16 are annuals, six are annual / ephemerals and five are ephemerals (one species was unknown). Some of the flora taxa of special interest listed by Trudgen has been accepted as a natural variation of a known and described taxa. *Rhynchosia* sp. Burrup (82-1C) is now known as *Rhynchosia bungarensis* (P4).

From the review of previous surveys it was noted that the Astron Environmental (2005) survey identified 23 *Terminalia supranitifolia* (P3). Most of these occur outside of the current Study Area. *Rhynchosia bungarensis* (P4) was also located in 2 areas.

Table 4-3: Flora Taxa of Special Interest as described by M. E. Trudgen & Associates (2002)

Characteristic of Interest	Flora Taxa
Uncommon or rare, very restricted, newly recognised taxa	*Stackhousia* sp. (BMor 153), *Euphorbia* sp. (B34-11), *Amaranthus* aff. *pallidiflorus* (D89), *Sida* aff. *cardiophylla* (B22-37), *Tephrosia* aff. *clementii* (5) B184, *Sida* aff. *fibulifera* (B181-5B), *Tephrosia* aff. *densa* (B16-22), *Sida* aff. *fibulifera* (B235-7), *Vigna* sp. Burrup (B18), *Sida* aff. *fibulifera* (D109).
Not common, very restricted, newly recognised taxa	*Cheilanthes* aff. *tenuifolia* (B18), *Euphorbia* sp. (G133), *Amaranthus* sp. (D111), *Triumfetta* cf. *propinqua* (B13-13), *Euphorbia* sp. (BPBS2), *Ehretia* ?(B23-22), *Euphorbia* sp. (D105-1)
Apparently rare, fairly geographically restricted, habitat restricted taxa	*Eragrostis* sp. Mt Montagu (M.E.Trudgen 15,246), *Rhynchosia* sp. King Bay (B181-13)
Apparently quite uncommon, but widespread taxa	*Cyperus blakeanus, Euphorbia* aff. *australis* type 1 (erect stems)
Locally common, moderately restricted, newly recognised taxa	*Paspalidium tabulatum* (Burrup form), *Themeda* sp. Burrup (B84)
Very uncommon, quite restricted, newly recognised taxa	*Tephrosia* aff. *clementii* (4) (M35-14), *Euphorbia* sp. (B170-4), *Abutilon* sp. Fortescue (M. Maier 28A-4), *Sida* aff. *fibulifera* (B64-13B)
Not uncommon where occurs, fairly restricted, newly recognised taxa	*Fimbristylis* aff. *dichotoma* (M75-4), *Tephrosia* aff. *densa* (B17)
Locally very common to abundant, moderately restricted, newly recognised taxa	*Triodia angusta* (Burrup form), *Corchorus walcottii, Triodia epactia* (Burrup form) *Triumfetta appendiculate* (Burrup form), *Triodia wiseana* (Burrup form), *Euphorbia tannensis* subsp. *eremophila* (Burrup form), *Rhynchosia* sp. Burrup (82-1C)
Species at or near their southern end of range and not common locally	*Abutilon indicum* var. *australiense*

4.1.4 Introduced Flora

No Declared weeds under the BAM Act have been previously recorded in the Study Area. Under the *Environmental Weed Strategy for Western Australia* (Department of Conservation and Land Management, 1999) weeds are rated according to three criteria:

- Invasiveness: ability to invade bushland in good to excellent condition or ability to invade waterways;
- Distribution: wide current or potential distribution including consideration of known history of widespread distribution elsewhere in the world; and
- Environmental Impacts - ability to change the structure, composition and function of ecosystems. In particular an ability to form a monoculture in a vegetation community.

The rating of each weed is then given according to the following scoring system:

- High: a weed species would have to score yes for all three criteria. Rating a weed species as high would indicate prioritising this weed for control and / or research i.e. prioritising funding to it;
- Moderate: a weed species would have to score yes for two of the above criteria. Rating a weed species as moderate would indicate that control or research effort should be directed to it if funds are available, however it should be monitored (possibly a reasonably high level of monitoring);
- Mild: a weed species scoring one of the criteria. A mild rating would indicate monitoring of the weed and control where appropriate; and
- Low: a weed species would score none of the criteria. A low ranking would mean that this species would require a low level of monitoring.

Weeds species previously known from the Burrup Peninsula and their rating are:

- **Aerva javanica* - Kapok — High
- **Cenchrus ciliaris* - Buffel Grass — High
- **Cenchrus setigerus* - Birdwood Grass — High
- **Cenchrus enchinatus* - Mossman River Grass — Low
- **Rumex vesciarius* - Ruby Dock — High
- **Stylosanthes hamata* - Caribbean stylo — Mild
- **Bidens bipinnata* - Bipinnate Beggar-Ticks — TBA
- **Euphorbia hirsuta* - Strawberry Weed — Moderate
- **Passiflora foetida* - Wild Passionfruit — High
- **Solanum nigrum* - Nightshade — Moderate
- **Chloris barbata* - Purple-top chloris — Low
- **Pennisetum setaceum* - Fountain grass — Mild

- **Malvastrum americanum* – Spiked Malvastrum Moderate

Trudgen *et al*. (2001) noted weed invasion of species not well established on the Peninsula which is occurring through the movement of seed on vehicles and establishing on roadsides. Some of these are native species that are very uncommon on the Burrup Peninsula but are appearing on roadsides and may become invasive. Three species of Acacia – *A. stellaticeps*, *A. trachycarpa* and *A. ancistrocarpa* are of noted as of concern for these reasons.

4.2 FIELD SURVEY

4.2.1 Survey Conditions

The post-wet season field survey followed the passage of Cyclone Veronica which crossed Karratha in March 2019. The Karratha Aero weather station (BOM station 00408310, 10 km to the south of the Survey Area) recorded 70 mm of rainfall associated with the passage of the cyclone. This rainfall created adequate post-wet season survey conditions.

4.2.2 Summary of the quadrat data

Fifty-nine detailed surveys were conducted within the Study Area. The field survey recorded 127 taxa, including species, subspecies and variants, from 34 Families. Three hundred and ninety taxa have been recorded for the Burrup Peninsula (Astron Environmental, 2005). Astron Environmental (2005) recorded 143 taxa from 44 families for Site C and the 'Site C and F amalgamation' zone that overlaps the current Study Area. As the Astron Environmental (2005) survey area was much larger and contained more vegetation associations than the current Study Area, it is not expected that the same level of floristic richness will be obtained from the Study Area.

A higher rainfall, closer to a seasonal long-term average, preceding the survey may have returned a greater number of total species present on the site. Given the knowledge available from previous surveys, however, the expected difference would be less than 5%. A higher rainfall may have had greater influence over the abundance of a small suite of ephemeral and short-lived perennial species recorded at each site, which were recorded in low densities in the present survey but at higher densities in previous surveys.

4.2.3 Floristic composition vegetation classification

Cluster analysis returned 12 groups of sites. The results of the cluster analysis are displayed as a dendrogram in Figure 4-3. The analysis broadly groups the survey sites based on their position in the landscape, as shown in Table 4-4 and Figure 4-4.

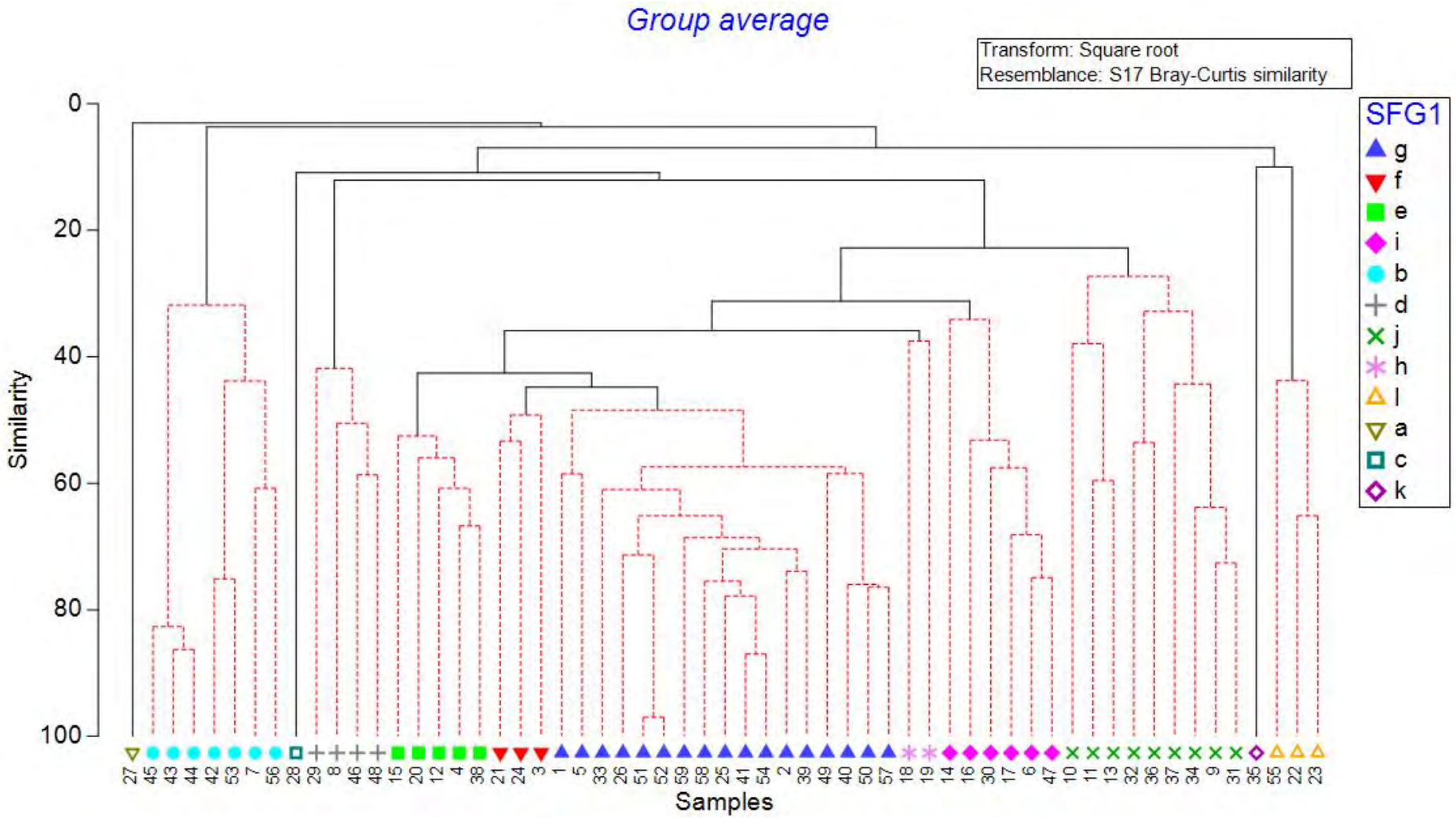

Figure 4-3: Cluster Analysis of the APM Vegetation Communities of the Study Area

Table 4-4: Groups of sites determined from Cluster analysis and their landscape position

CLUSTER group	Detailed Survey Sites	Landscape Position	CLUSTER group	Detailed Survey Sites	Landscape Position
a	27	Slope	g	50	upper slope
b	7	Inlet		51	upper slope
	42	Sandbank		52	upper slope
	43	Inlet		54	lower slope
	44	Inlet		57	lower slope
	45	Inlet		58	lower slope
	53	Sandbank		59	mid slope
	56	Sandbank	h	18	lower slope
				19	lower slope
c	28	Lower slope	i	6	lower slope
d	8	Sandbank		14	lower slope
	29	Sandbank		16	lower slope
	46	Sandbank		17	lower slope
	48	Sandbank		30	lower slope
				47	lower slope
e	4	Shallow drainage	j	9	lower slope
	12	Lower slope		10	outcrop
	15	Lower slope		11	outcrop
	20	Lower slope		13	outcrop
	38	Mid slope		31	rehabilitation
f	3	Outcrop		32	mid slope
	21	Outcrop		34	lower slope
	24	Outcrop		36	lower slope
				37	lower slope
g	1	drainage	k	35	Sandbank
	2	mid slope	l	22	drainage
	5	lower slope		23	drainage
	25	upper slope		55	drainage
	26	outcrop			
	33	mid slope			
	39	low rocky rise			
	40	slope			
	41	low rocky rise			
	49	lower slope			

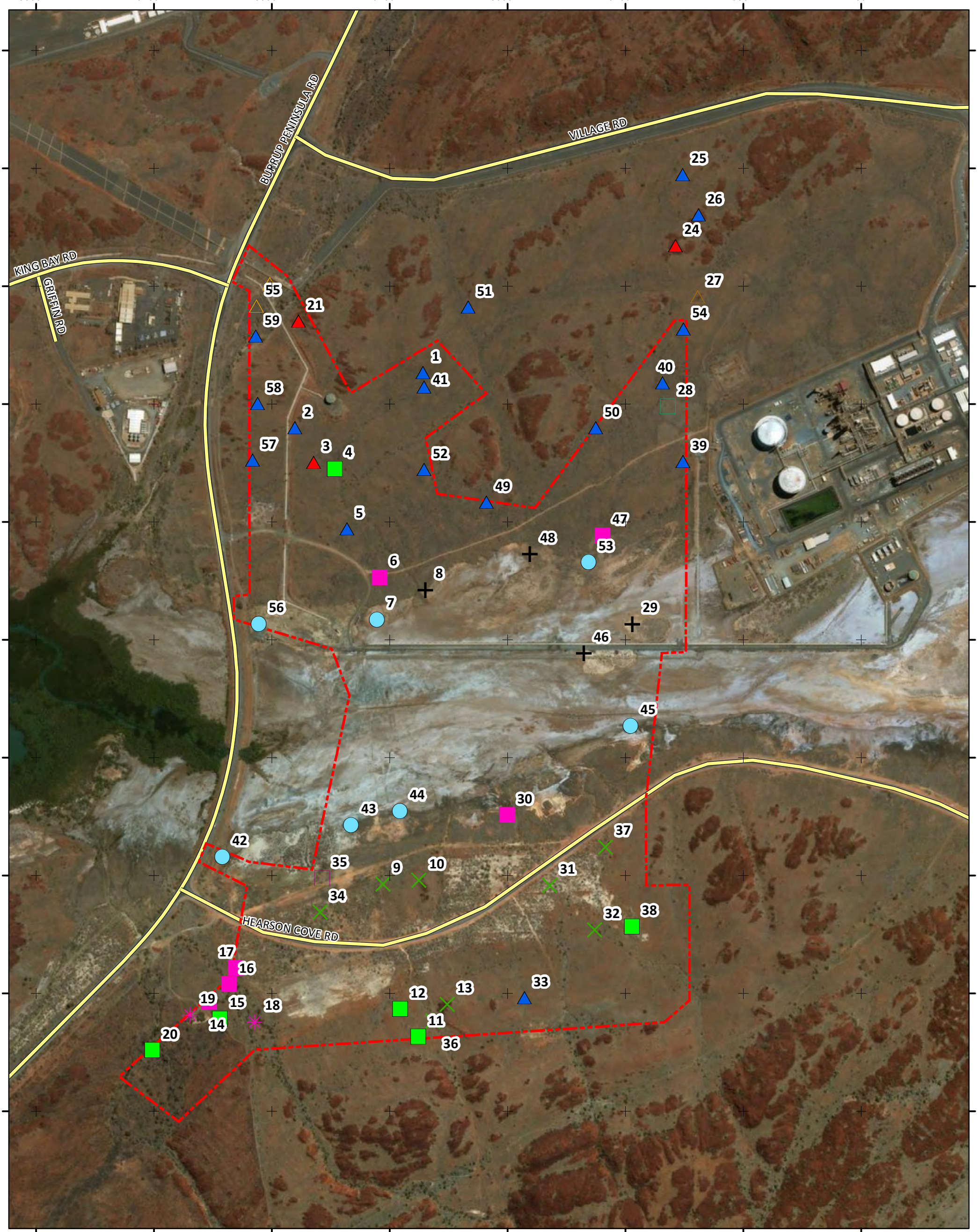

Figure 4-4: Detailed Survey Sites Grouped by Cluster Analysis

Legend

△	a	+	d	▲	g	×	j
●	b	■	e	✳	h	□	k
□	c	▲	f	■	i	△	l

N

160 80 0 160 Meters

1 centimeter = 75 meters

Date: 7/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Document Path: \\MAINSERVER\Documents\APM GIS and Mapping\03_Client\APM2018-19GIS\CAR\02_GIS Maps\20190606_CAR002_Fig4-4 Detailed Survey Sites Grouped by Cluster Analysis.mxd

4.2.4 Structural vegetation classification

Vegetation has been mapped using structural descriptions to the level of Association across the Study Area by M. E. Trudgen & Associates (2002), and across much of the northern and all of the central and southern sections of the Study Area by Astron Environmental (1999, 2005). As M. E. Trudgen & Associates (2002) mapped the region at the association scale, APM have prioritised retention of descriptions published in the 2002 report where they are still relevant. This is to facilitate impact assessment as many completed projects on the Burrup use the 2002 report associations which allows for calculation of cumulative impact. Astron Environmental (2005) provides a more detailed description and mapping of rocky outcrop and tidal inlet vegetation associations and has mapped the area of tidal inlet extensively beyond the current project. APM have prioritised retention of the 2005 report descriptions where relevant, to allow for calculations of local cumulative impact.

In a few situations neither the M. E. Trudgen & Associates (2002) or Astron Environmental (2005) mapping adequately described the vegetation present. Astron Environmental (2005) also noted discrepancies between the vegetation present in 2005 and that recorded by M. E. Trudgen & Associates (2002). It is considered that the vegetation of the Burrup Peninsula is highly dynamic as a consequence of the stochastic nature of the magnitude and frequency of rainfall events. The dominance of short-lived perennial species in the vegetation composition means there can be significant fluctuations in the structure and floristic composition of specific locations over time.

35 vegetation associations were mapped by APM at the Study Area. Each association and its abbreviation is listed in Table 4-5. The mapped locations of these associations within the Study Area are shown in Figure 4-5 (north section) and Figure 4-6 (south section). A species by site matrix is presented in Appendix I.

Table 4-5: APM Vegetation Associations and Abbreviations

Abbreviation	APM Vegetation Community Description
(Te)Sv	Grassland of *Sporobolus virginicus*, *Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia*. Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.
*Cc*AjTt	**Cenchrus ciliaris*, **Aerva javanica* with *Trianthema turgidifolia.*
*CcTs	**Cenchrus ciliaris*, (*Triodia epactia* (BF)), (*Triodia angusta* (BF))grassland / hummock grassland with *Tephrosia supina* (MET 12, 357), *Rhynchosia* cf. *minima* herbland
AbCgTe	*Acacia bivenosa*, *Cassia glutinosa* open shrubland to shrubland over *Triodia epactia* (BF), **Cenchrus ciliaris* grassland
AbHlCwTe	High shrubland of *Acacia bivenosa* with scattered *Hakea lorea*, *Dolichandrone occidentalis*, *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) with occasional *Triodia angusta*
AbHlTe	Tall shrubland of *Acacia bivenosa* over open shrubland of *Hakea lorea*, *Acacia colei* over hummock grassland of *Triodia epactia* (Burrup form) over herbland.
AbImTe	*Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* (BF) scattered low shrubs to low open shrubland over *Triodia epactia* (BF) hummock grassland to closed hummock grassland
AbTa	*Acacia bivenosa* high open shrubs over *Triodia angusta* (BF) hummock grassland
AbTe*Cc	Previously disturbed and rehabilitated. *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris*
AbTtPt	High scattered (<2%) to very open shrubland (2-5%; 2m) *A. bivenosa* over low shrubland (10-30%; <1m) *Trianthema turgidifolia* over tussock grassland (10-30%) of *Paspalidium tabulatum*
AiGpTe	Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) over herbland of *Gomphrena cunninghamii*, *Abutilon lepidum*, *Trichodesma zeylanicum*, *Trachymene oleracea*
BaAcIc	Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea*, *Scaevola* aff *spinescens*, *Ipomoea costata* over herbs and very open grassland of *Triodia epactia* (Burrup form) with *Cymbopogon ambiguus* and *Paspalidium clementii*

ChAbSg	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup form) hummock grassland
ChImTe	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa, Acacia coriacea* subsp. *coriacea*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla* (BF)
ChTh	*Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa*, *Acacia colei*, scattered tall shrubs to low open shrubland over *Indigofera monophylla* over *Triodia epactia*, *Themeda* sp. *Burrup* hummock / tussock grassland
Ev*CcTe	*Eucalyptus victrix* low open woodland to low woodland over (*Pittosporum phillyreoides* var. *phillyreoides*, *Rhagodia eremaea* high shrubs to shrubs) over **Cenchrus ciliaris*, *Triodia epactia* (BF) tussock/hummock grassland
EvAa	*Eucalyptus victrix* scattered low trees to low open woodland over *Acacia bivenosa* scattered tall shrubs to high open shrubland over *Triodia angusta* (Burrup form) hummock grassland
EvAbTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Acacia bivenosa* scattered tall shrubs to high open shrubland over *Triodia angusta* (Burrup form) hummock grassland
EvDsTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata*, (*Acacia coriacea* subsp. *coriacea*) tall scattered shrubs to low open shrubland over *Triodia angusta* (BF) hummock grassland
EvTc	*Eucalyptus victrix* and *Terminalia circumulata* over Acacia coriacea with *Cyperus vaginatus*, *Cenchrus ciliaris* and *Passiflora foetida*
FbBaTsAc	Open low woodland of *Ficus brachypoda*, *Brachychiton acuminatus*, *Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea*, *Scaevola* aff *spinescens*, *Rhagodia preissii* subsp *obovata* over open *Cymbopogon ambiguus* with *Triodia epactia* (Burrup form).
FvRpAc	Shrubland of *Flueggea virosa* subsp. *melanthesoides*, *Rhagodia preissii* subsp. *obovata*, *Alectryon oleifolius* subsp. *oleifolius*, *Scaevola* aff. *spinescens*, *Acacia coriacea* over very open *Triodia epactia* (Burrup form)
GpCwTe	*Grevillea pyramidalis* subsp. *pyramidalis* open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (BF) hummock grassland
Lv	Dwarf Shrubland over Low Open Grassland On slightly elevated sandy silts or fringes of inlet
TaTsRm	*Triodia angusta* (BF) *Triodia epactia* grassland with *Tephrosia* aff. *supina* (MET 12,375) herbland and *Rhynchosia* cf. *minima lianes*
TcEtSe	*Terminalia canescens* low woodland over *Eriachne tenuiculmis*, *Triodia epactia* (BF) grassland / hummock grassland with *Sesbania cannabina* herbland
Te	*Triodia epactia* (BF) hummock grassland
TeAb	*Triodia epactia* (BF) hummock grassland with scattered *Acacia bivenosa* shrubs
TeAtSd	(previously disturbed) Scattered *Acacia trachycarpa* over *Triodia epactia* hummock grassland with *Streptaglossa decurrens* herbfield
TeCa	*Triodia epactia* (BF), *Cymbopogon ambiguus* hummock / tussock grassland
TeRm	*Triodia epactia* (BF) hummock grassland with *Rhynchosia* cf. *minima lianes*
TeTh	*Triodia epactia* (BF), *Themeda* sp. *Burrup* (B84) hummock / tussock grassland
Tht	Open (2%) to dwarf shrubland (10-20%; <0.5m) of *Tecticornia halocnemoides* subsp. *tenuis* with occasional (2%) *Tecticornia pruinosa*, *Tecticornia indica* subsp. *leiostachya*, *Trianthema turgidifolia*.
ThtTil	Dwarf open shrubland to heath (varies from 2-10% to 20-40%; <0.5m) of *Tecticornia halocnemoides* subsp. *tenuis* with *Tecticornia indica* subsp. *leiostachya*
Tw	*Triodia wiseana* hummock grasslands

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7719000.000000

Roads and Infrastructure
TeRm
FbBaTsAc
TeRm
BaAcIc
BaAcIc
BaAcIc
TeCa
TeRm
TeAb
AiGpTe
Tw
AiGpTe
Roads and Infrastructure
AbImTe
TeRm
AbHlCwTe
AbImTe
Roads and Infrastructure
AbTa
Roads and Infrastructure
AbTtPt
Lv
ThtTil
(Te)Sv
(Te)Sv
ThtTil
ThtTil
(Te)Sv
ThtTil
(Te)Sv
ThtTil
(Te)Sv
Roads and Infrastructure
ThtTil
Roads and Infrastructure
Roads and Infrastructure
ThtTil
Roads and Infrastructure
Roads and Infrastructure
(Te)Sv
ThtTil
ThtTil
Roads and Infrastructure
Tht
TeAtSd
EvAbTa
TeAtSd
Roads and Infrastructure
AbTe*Cc
EvAa
EvAa
EvAbTa
EvAa
Roads and Infrastructure
EvTc
EvAbTa
BaAcIc
TeAb
TeAb
BaAcIc
BaAcIc
BaAcIc
FvRpAc
FvRpAc
Roads and Infrastructure
BaAcIc
Te
AbHlTe
TeAb
TeRm
TeAb
TeAb
FbBaTsAc
FbBaTsAc
BaAcIc
BaAcIc
Te
BaAcIc
Roads and Infrastructure
BaAcIc
TeAb
ChAbSg
TeCa
AiGpTe
BaAcIc
TeAb
AbImTe
ChAbSg
roads and infrastructure
Te
BaAcIc
BaAcIc
Te
AbImTe
AbImTe
Te
BaAcIc
roads and infrastructure
roads and infrastructure
*Cc*AjTt
Roads and Infrastructure
ThtTil
ThtTil
(Te)Sv
ThtTil

Figure 4-5: APM (2019) Vegetation Communities of the Study Area (North)

Legend

- *Study Area*

APM 2018/2019

- (Te)Sv
- *Cc*AjTt
- *CcTs
- AbCgTe
- AbHlCwTe
- AbHlTe
- AbImTe
- AbTa
- AbTe*Cc
- AbTtPt
- AiGpTe
- BaAcIc
- ChAbSg
- ChAbTe
- ChImTe
- ChTh
- Ev*CcTe
- EvAa
- EvAbTa
- EvDsTa
- EvTc
- FbBaTsAc
- FvRpAc
- GpCwTe
- Lv
- Roads and Infrastructure
- TaTsRm
- TcEtSe
- Te
- TeAb
- TeAtSd
- TeCa
- TeRm
- TeTh
- Tht
- ThtTil
- Tw
- roads and infrastructure

Veg_Mudflats

- Veg_Mudflats

N

90 45 0 90 Meters

1 centimeter = 40 meters

Date: 11/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Document Path: \\MAINSERVER\Documents\APM GIS and Mapping\03_Client\APM2018-19GIS\CAR\02_GIS Maps\20190611_CAR002_Fig4-5 Vegetation communities north.mxd

476000.000000 476500.000000

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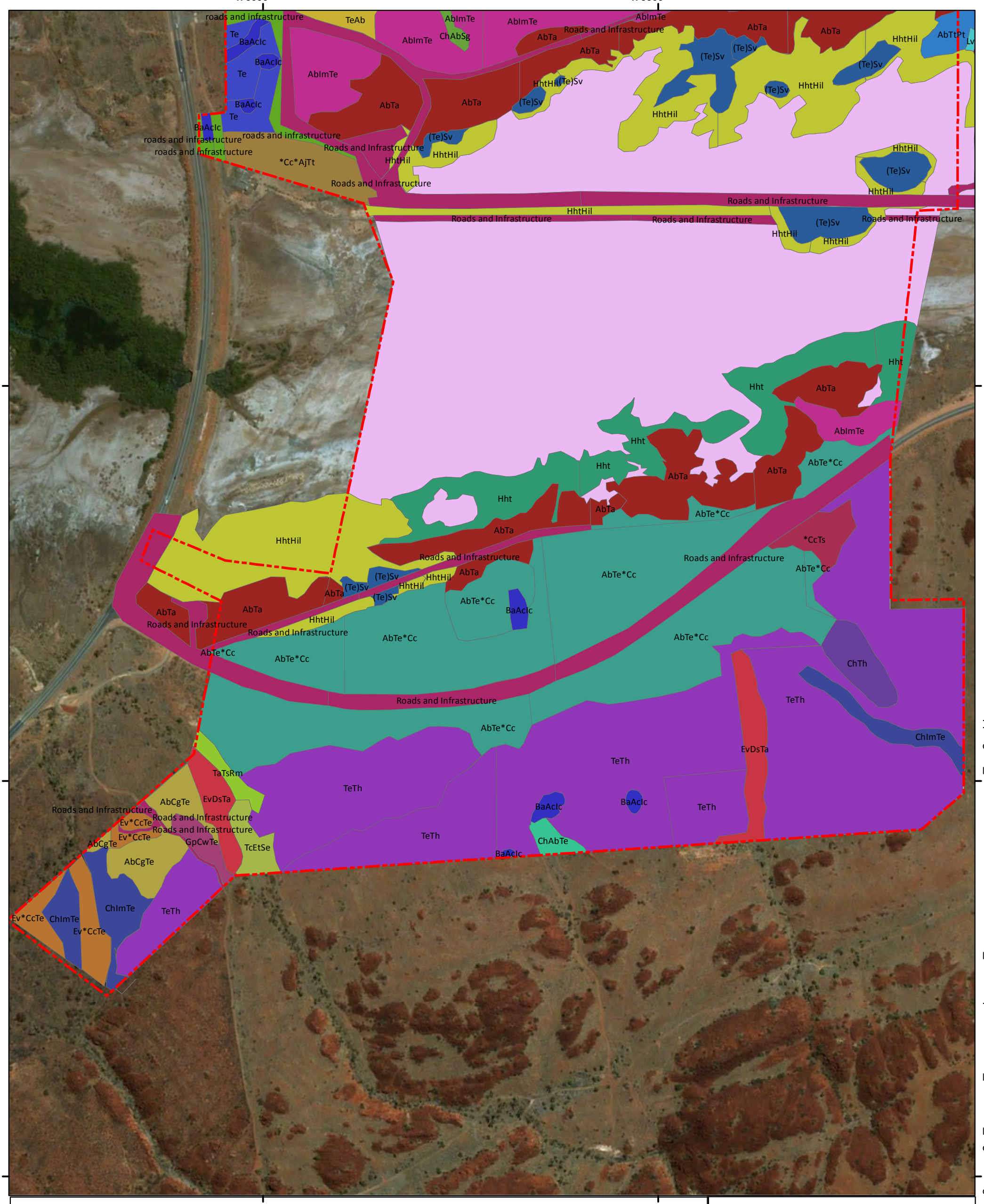

Figure 4-6: APM (2019) Vegetation Communities of the Study Area (South)

Legend

- *Study Area*
- **APM 2018/2019**
  - (Te)Sv
  - *Cc*AjTt
  - *CcTs
  - AbCgTe
  - AbHlCwTe
  - AbHlTe
  - AbImTe
  - AbTa
  - AbTe*Cc
  - AbTtPt
  - AiGpTe
  - BaAcIc
  - ChAbSg
  - ChAbTe
  - ChImTe
  - ChTh
  - Ev*CcTe
  - EvAa
  - EvAbTa
  - EvDsTa
  - EvTc
  - FbBaTsAc
  - FvRpAc
  - GpCwTe
  - Hht
  - HhtHil
  - Lv
  - Roads and Infrastructure
  - TaTsRm
  - TcEtSe
  - Te
  - TeAb
  - TeAtSd
  - TeCa
  - TeRm
  - TeTh
  - Tw
  - roads and infrastructure
- **Veg_Mudflats**
  - Veg_Mudflats

N

90 45 0 90 Meters

1 centimeter = 45 meters

Date: 11/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Document Path: \\MAINSERVER\Documents\APM GIS and Mapping\03_Client\APM2018-19GIS\CAR\02_GIS Maps\20190611_CAR002_Fig4-6 Vegetation communities south.mxd

The vegetation associations recorded by APM for the Study Area organised by Formation Code (e.g. 10.4.2; Type 1 as appears in the original publications) and Formation Description are:

10.4.*2* *Eucalyptus victrix* scattered low trees, low open woodlands and low woodlands. These vegetation associations occur in small shallow creek lines that are dry for much of the year. There are no rockpools associated with this vegetation type in the Study Area.

EvDsTa *Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata*, (*Acacia coriaceae* subsp. coriaceae) tall scattered shrubs to low open shrubland over *Triodia angusta* (BF) hummock grassland

Ev*CcTe *Eucalyptus victrix* low open woodland to low woodland over (*Pittosporum phylliraeoides* var. *phylliraeoides*, *Rhagodia eremaea* high shrubs to shrubs) over **Cenchrus ciliaris*, *Triodia epactia* (BF) tussock/hummock grassland

EvAbTa *Eucalyptus victrix* scattered low trees to low open woodland over *Acacia bivenosa* scattered tall shrubs to high open shrubland over *Triodia angusta* (Burrup form) hummock grassland

EvAa *Eucalyptus victrix* low woodland over *Acacia ampliceps* open heath over *Cyperus vaginatus*, *Eriachne tenuiculmis*, *Triodia angusta* (Burrup form) sedgeland and tussock/hummock grassland

10.4.5 *Corymbia hamersleyana* scattered low trees to low woodlands.

ChImTe *Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa*, *Acacia coriaceae* subsp. *coriaceae*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla* (BF)

ChTh *Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa, Acacia colei*, scattered tall shrubs to low open shrubland over *Indigofera monophylla* over *Triodia epactia*, *Themeda* sp. Burrup hummock/tussock grassland

ChAbTe *Corymbia hamersleyana* scattered trees to low open woodland over *Acacia bivenosa* open shrubland over *Triodia epactia* (Burrup form) open to closed hummock grassland

ChAbSg *Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup form) hummock grassland. *Stemodia grossa* was present in lower abundance due to late wet season rainfall, but a large number of juvenile plants were observed.

10.4.7 *Terminalia circumulata* scattered low trees to low forest

TcEtSe *Terminalia circumulata* low woodland over *Eriachne tenuiculmis, Triodia epactia* (BF) grassland/hummock grassland with *Sesbania cannabina* herbland. *Sesbania cannabina* was less abundant in 2018/19 than described by Trudgen and Associates 2002, likely due to seasonal conditions.

10.4.13 *Grevillea pyramidalis* subsp. *pyramidalis* scattered shrubs to high shrublands

GpCwTe *Grevillea pyramidalis* subsp. pyramidalis open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (BF) hummock grassland. *Corchorus walcottii* was not recorded in the 2018/19 survey, however that may be as a result of seasonal conditions.

10.4.18 *Acacia bivenosa* (with various other species) scattered shrubs to high shrubland

AbTe*Cc *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris.* All areas mapped as this unit are previously disturbed.

AbTa *Acacia bivenosa* high open shrubs over *Triodia angusta* (BF) hummock grassland

AbCgTe *Acacia bivenosa*, *Senna glutinosa* subsp. *glutinosa* (formerly *Cassia glutinosa*) open shrubland to shrubland over *Triodia epactia* (BF), **Cenchrus ciliaris* grassland. *Senna glutinosa* subsp. *glutinosa* was less abundant in 2018/19 than described by Trudgen, however that is likely a consequence of seasonal conditions, and as such, the original description is retained.

AbImTe *Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* (BF) scattered low shrubs to low open shrubland over *Triodia epactia* (BF) hummock grassland to closed hummock grassland

10.4.28 Hummock grasslands, hummock/tussock grasslands

TaTsRm *Triodia angusta* (BF) *Triodia epactia* grassland with *Tephrosia* aff. *supina* (MET 12,375) herbland and *Rhyncosia* cf. *minima lianes*

Te *Triodia epactia* (BF) hummock grassland. Found on plateaus and upper slopes where the soils are red brown loam with pebbles. Associated species include *Grevillea pyramidalis* subsp. *pyramidalis* and *Indigofera monophyla*.

TeAb *Triodia epactia* (BF) hummock grassland with scattered *Acacia bivenosa* shrubs

TeCa *Triodia epactia* (BF), *Cymbopogon ambiguus* hummock/Tussock grassland

TeTh *Triodia epactia* (BF), *Themeda* sp. Burrup (B84) hummock/tussock grassland. The Themeda collected was identified as *Themeda triandra* and was in lower abundance in 2018/19 than described by Trudgen and Associates 2002. The nomenclature is due to taxonomic revision and the abundance is likely a result of climatic conditions.

TeRm *Triodia epactia* (BF) hummock grassland with *Rhynchosia* cf. *minima* lianes

Tw *Triodia wiseana* hummock grasslands

10.4.29 Tussock grasslands and tussock/hummock grasslands

(Te)Sv *Sporobolus virginicus* tussock grassland: Recorded on the edge of mud and tidal flats in soil of brown sandy loam with shell fragments. This unit varies to include *Triodia epactia* and *Eragrostis falcata* grassland.

*CcTs **Cenchrus ciliaris*, (Triodia epactia (BF)), (*Triodia angusta* (BF))grassland/hummock grassland with *Tephrosia* aff. *supina* (MET 12, 357), *Rhyncosia* cf. *minima* herbland

Astron 2005 Type 1 Mixed open shrubland over low open shrubland of *Tephrosia* aff *supina*/*Indigofera monophylla* over hummock grassland of *Triodia epactia* (Burrup form).

AbHlCwTe High shrubland of *Acacia bivenosa* with scattered *Hakea lorea, Dolichandrone occidentalis, Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) with occasional *Triodia angusta.* The distribution of this vegetation community mapped in 2018/19 is significantly less than Astron 2005, with the surrounding vegetation descriptions in 2018/19 retaining those mapped by Trudgen and Associates 2002.

AiGpTe Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) over herbland of *Gomphrena cunninghamii, Abutilon lepidum, Trichodesma zeylanicum, Trachymene oleracea*

Astron 2005 Type 2 Low (pocket) woodland of *Terminalia supranitifolia*, *Brachychiton acuminatus*, *Ficus brachypoda* over open low shrubland of *Dichrostachys spicata, Ipomoea costata* over very open grassland of *Cymbopogon ambiguus, Triodia epactia* (Burrup form).

BaAcIc Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea, Scaevola* aff *spinescens, Ipomoea costata* over herbs and very open grassland of *Triodia epactia* (Burrup form) with *Cymbopogon ambiguus* and *Paspalidium clementii*

FbBaTsAc Open low woodland of *Ficus brachypoda, Brachychiton acuminatus, Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea, Scaevola* aff *spinescens, Rhagodia preissii* subsp *obovate* over open *Cymbopogon ambiguus* with *Triodia epactia* (Burrup form). Note, no *Terminalia supranitifolia (P3)* present inside the survey boundary.

FvRpAc Shrubland of *Flueggea virosa* subsp *melanthesoides, Rhagodia preissii* subsp *obovata, Alectryon oleifolius* subsp *oleifolius, Scaevola* aff *spinescens, Acacia coriacea* over very open *Triodia epactia* (Burrup form)

Astron 2005 Type 4 Shrubland of *Acacia inaequilatera/Hakea lorea/Acacia bivensoa* over low shrubland of *Indigofera monophylla/Triumfetta appendiculate* (Burrup form) over hummock grassland of *Triodia epactia* (Burrup form) and *Cymbopogon ambiguus* .

AbHlTe Tall shrubland of *Acacia bivenosa* over open shrubland of *Hakea lorea, Acacia colei* over hummock grassland of *Triodia epactia* (Burrup form) over herbland.

Astron 2005 Samphire Vegetation Group 2 Dwarf Shrubland over Low Open Grassland On slightly elevated sandy silts or fringes of inlet

HhtHil Dwarf open shrubland to heath (varies from 2-10% to 20-40%; <0.5m) of *Tecticornia halocnemoide*s subsp. *tenuis* with *Tecticornia indica* subsp. *leiostachya*.

Hht Open (2%) to dwarf shrubland (10-20%; <0.5m) of *Tecticornia halocnemoide*s subsp. *tenuis* with occasional (2%) *Tecticornia pruinosa, Tecticornia indica* subsp *leiostachya, Trianthema turgidifolia*. Occurs along southern border of inlet, with stony mantle and is interrupted by "fingers" of *Triodia angusta* (Burrup form) grassland.

Astron 1999 Unit 4 Drainage Lines and Gully Floors

4a Low Woodland-Forest B (20-50%) of *Terminalia circumulata* and *E. victrix* with Low Scrub B (10-30%, 1-1.5m) and Open Grassland (10-30%).

APM Detailed survey Vegetation Associations not adequately described by M. E. Trudgen & Associates (2002) and Astron Environmental (1999, 2005):

*Cc*AjTt Tussock grassland of **Cenchrus ciliaris*, herbland of **Aerva javanica* and dwarf open shrubland of *Trianthema turgidifolia* on disturbed land.

Lv Dwarf open shrubland of *Lawrencia viridigrisea* (30-70%; 0.3 m)

TeAtSd (Previously disturbed) Scattered *Acacia trachycarpa* over *Triodia epactia* hummock grassland with *Streptaglossa decurrens* herbfield.

Table 4-6 lists the vegetation associations recorded by APM at the Study Area and compares them to those mapped by M. E. Trudgen & Associates (2002) and Astron Environmental (2005).

Table 4-6: Vegetation Associations Recorded by APM at the Study Area Compared with those Mapped by Astron Environmental (2005) and M. E. Trudgen & Associates (2002).

Polygon ID	APM 2019	Trudgen and Associates (2002)	Astron (1999, 2005)
43	(Te)Sv	(Te)Sv	1999 5a
44	(Te)Sv	Sv	1999 5a
47	(Te)Sv	Sv	1999 5a
61	(Te)Sv	(Te)Sv	HdHhtSv
64	(Te)Sv	(Te)Sv	HdHhtSv
55	(Te)Sv	(Te)Sv	HdHhtSv
105	(Te)Sv	(Te)Sv	AbTtWa
106	(Te)Sv	(Te)Sv	AbTtWa
108	(Te)Sv	(Te)Sv	HdHhtSv
109	(Te)Sv	(Te)Sv	HdHhtSv
125	(Te)Sv	(Te)Sv	AbTtWa
130	(Te)Sv	(Te)Sv	ScWa
161	*Cc*AjTt	D	not mapped
11	*CcTs	*CcTs	1999 6a
27	AbCgTe	AbCgTe	1999 3b
35	AbCgTe	AbCgTe	1999 3a
37	AbCgTe	AbCgTe	1999 3c
133	AbHlCwTe	AbImTe	AbHlCwTe
159	AbHlCwTe	AbImTe	AbHlCwTe
85	AbHlTe	AbCwTe	4b. AbHlTe
54	AbImTe	AbImTe	1999 3b
60	AbImTe	AbIm/TeRm	not mapped
73	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
77	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
78	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
80	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
86	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
87	AbImTe	AbImTe	1e + dolhet: AbHlCwTe
16	AbTa	ItTa/AbTa	AbTa
18	AbTa	ItTa/AbTa	1999 3b
41	AbTa	Sm/*Cc/D	1999 5a
48	AbTa	ItTa/AbTa	AbTa
50	AbTa	ItTa	AbTa
52	AbTa	ItTa	AbTa
45	AbTa	ItTa	AbTa
51	AbTa	AbTa	not mapped
68	AbTa	AbTa	1e + dolhet: AbHlCwTe
69	AbTa	AbTa	1e + dolhet: AbHlCwTe
71	AbTa	AbTa	1e + dolhet: AbHlCwTe
75	AbTa	AbTa	1e + dolhet: AbHlCwTe
112	AbTa	AbTa	1g: AiAbTe
145	AbTa	Sv	AbTa
158	AbTa	AbTa	1999 5a
166	AbTe*Cc	D	not mapped
10	AbTe*Cc	TeTh	1999 6a
12	AbTe*Cc	D	1999 6a/6b
13	AbTe*Cc	D	1999 3a
15	AbTe*Cc	AbWaTe	1999 4b
19	AbTe*Cc	D	1999 3a
40	AbTe*Cc	D	1999 5a
42	AbTe*Cc	*Cc	1999 6b

Polygon ID	APM 2019	Trudgen and Associates (2002)	Astron (1999, 2005)
49	AbTe*Cc	D	
53	AbTe*Cc	D	
136	AbTe*Cc	D	not mapped
129	AbTa	(Te)Sv	AbAeTe
115	AiGpTe	TeRm	AiGpTe
116	AiGpTe	AbImTe	1a/1c
135	AiGpTe	TeRm	AiGpTe
162	AiGpTe	TeAb	not mapped
6	FbBaTsAc	R	1999 1a
14	FbBaTsAc	R	1999 1a
88	BaAcIc	R	not mapped
95	BaAcIc	R	not mapped
122	BaAcIc	R	2a BaAcIc
123	BaAcIc	R	not mapped
124	BaAcIc	R	not mapped
1	FbBaTsAc	R	1999 1a
5	BaAcIc	R	not mapped
156	BaAcIc	TeRm	2a BaAcIc
167	BaAcIc	R	not mapped
168	BaAcIc	R	not mapped
169	BaAcIc	R	not mapped
170	BaAcIc	R	not mapped
171	BaAcIc		not mapped
172	BaAcIc		not mapped
173	BaAcIc		not mapped
179	BaAcIc	D	not mapped
180	BaAcIc	AbImTe	not mapped
181	BaAcIc	AbImTe	not mapped
182	BaAcIc	AbImTe	not mapped
79	ChAbSg	AbImTe	not mapped
81	ChAbSg	ChAbSg	3e: ChDsSgTe
7	ChAbTe	TeTh	1999. 4c
134	ChImTe	TeTh	1999. 4c
38	ChImTe	ChImTe	1999 4b
188	ChImTe	ChImTe	1999 2a
2	ChTh	ChTh	1999 2b
31	Ev*CcTe	Ev*CcTe	1999 3b
36	Ev*CcTe	Ev*CcTe	1999 3a
187	Ev*CcTe	Ev*CcTe	1999 4b
189	Ev*CcTe	Ev*CcTe	1999 4b
97	EvAa	EvAbTa	Not mapped
100	EvAa	EvAa	Not mapped
103	EvAa	EvAa	not mapped
96	EvAbTa	EvAbTa	not mapped
98	EvAbTa	EvAbTa	not mapped
99	EvAbTa	EvAbTa	not mapped
3	EvDsTa	EvDsTa	1999. 4c
26	EvDsTa	EvDsTa	1999 4b
160	19994a	EvAbTa	not mapped
83	FbBaTsAc	R	2c FbBaTsAc
84	FbBaTsAc	R	2c FbBaTsAc
148	FbBaTsAc	R	2a BaAcIc
89	FvRpAc	R	2b FvRpAc
90	FvRpAc	R	2b FvRpAc
32	GpCwTe	GpCwTe	1999 3d
140	Tht	Sam	Hht
141	Tht	Sam	Hht

Polygon ID	APM 2019	Trudgen and Associates (2002)	Astron (1999, 2005)
142	Tht	Sam	Hht
143	Tht	Sam	Hht
144	Tht	Sam	Hht
46	ThtTil	Sv	1999 5a
62	ThtTil	Sam	HhtHil
63	ThtTil	Sam	HhtHil
65	ThtTil	Sam	HhtHil
66	ThtTil	Sam	HhtHil
107	ThtTil	Sam	BMF
110	ThtTil	Sam	HhtHil
76	ThtTil	Sam	HdHhtSv
126	ThtTil	Sam	HdHhtSv
128	ThtTil	Sam	HdHhtSv
131	ThtTil	Sam	HdHhtSv
132	ThtTil	Sam	HdHhtSv
139	ThtTil	Sam	Hht
146	ThtTil	Sm/Sv	1999 5a
147	ThtTil	Sam	1999 5a
186	ThtTil	Mud Flat	Mud Flat
138	Lv	APM new	AbAeTe
9	Roads and Infrastructure	Roads and Infrastructure	Roads and Infrastructure
17	Roads and Infrastructure	Roads and Infrastructure	Roads and Infrastructure
20	Roads and Infrastructure	Hearson Cove Road	Roads and Infrastructure
23	Roads and Infrastructure	Hearson Cove Road	Roads and Infrastructure
28	Roads and Infrastructure	Munjugura NP Road	not mapped
29	Roads and Infrastructure	Munjugura NP Camp area	not mapped
30	Roads and Infrastructure	Ev*CcTe	not maped
39	Roads and Infrastructure	D	1999 5a
34	Roads and Infrastructure	Infrastructure	
56	Roads and Infrastructure	D	not mapped
70	Roads and Infrastructure	Road	
58	Roads and Infrastructure	Pipeline	
67	Roads and Infrastructure	Infrastructure	
72	Roads and Infrastructure	Pipeline	
74	Roads and Infrastructure	Infrastructure pipeline and road	
111	Roads and Infrastructure	Road	
113	Roads and Infrastructure	Road and infrastructure	
149	Roads and Infrastructure	road and pipeline	
150	Roads and Infrastructure	road	
151	Roads and Infrastructure	road	
152	Roads and Infrastructure	road	
153	Roads and Infrastructure	road	
155	Roads and Infrastructure	road	
174	roads and infrastructure	roads and infrastructure	not mapped
176	roads and infrastructure	AbImTe	
177	roads and infrastructure	roads and infrastructure	not mapped
178	roads and infrastructure	roads and infrastructure	not mapped
24	TaTsRm	TaTsRm	1999 3b
25	TcEtSe	TcEtSe	1999 4a
164	Te	TeAb	not mapped
165	Te	TeAb	not mapped
183	Te	AbImTe	not mapped
184	Te	AbImTe	not mapped
185	Te	AbImTe	not mapped
57	TeAb	TeAb	1c: AbTe
59	TeAb	TeAb	1b: TeCa
91	TeAb	TeAb	1c: AbTe

Polygon ID	APM 2019	Trudgen and Associates (2002)	Astron (1999, 2005)
93	TeAb	TeAb	1c: AbTe
94	TeAb	TeAb	1c: AbTe
104	TeAb	TeAb	1a GpAbTe
119	TeAb	TeAb	1b: TeCa
163	TeAb	TeAb	not mapped
101	TeAtSd	D	not mapped
102	TeAtSd	D	not mapped
82	TeCa	TeCa	1b: TeCa
121	TeCa	TeCa	1b: TeCa
120	TeRm	TeRm	1b: TeCa
127	TeRm	TeRm	TeCa
157	TeRm	TeAb	1a GpAbTe
4	TeTh	D	1999 2b
8	TeTh	TeTh	1999 2b
21	TeTh	TeTh	1999 2a
33	TeTh	TeTh	1999 2a
137	TeTh	D	not mapped
92	Tw	Tw	1b
114	TeRm	TeRm	1g: AiAeTe

4.2.5 Conservation Significant Ecological Communities

26 rocky outcrops were identified in the APM survey that constitute the PEC:

- Burrup Peninsula rock pile communities. Priority 1: Pockets of vegetation in rock piles, rock pockets and outcrops. Comprise a mixture of Pilbara and Kimberley species, communities are different from those of the Hamersley and Chichester Ranges. Short-range endemic land snails. Threats: industrial development dust emissions. Weed invasion including **Cenchrus ciliaris* (Buffel Grass) and **Passiflora foetida* (stinking passionflower)

The locations of these are displayed in Figure 4-7. Vegetation associations of conservation significance using the M. E. Trudgen & Associates (2002) classification that occur in the Study Area are listed in Table 4-7.

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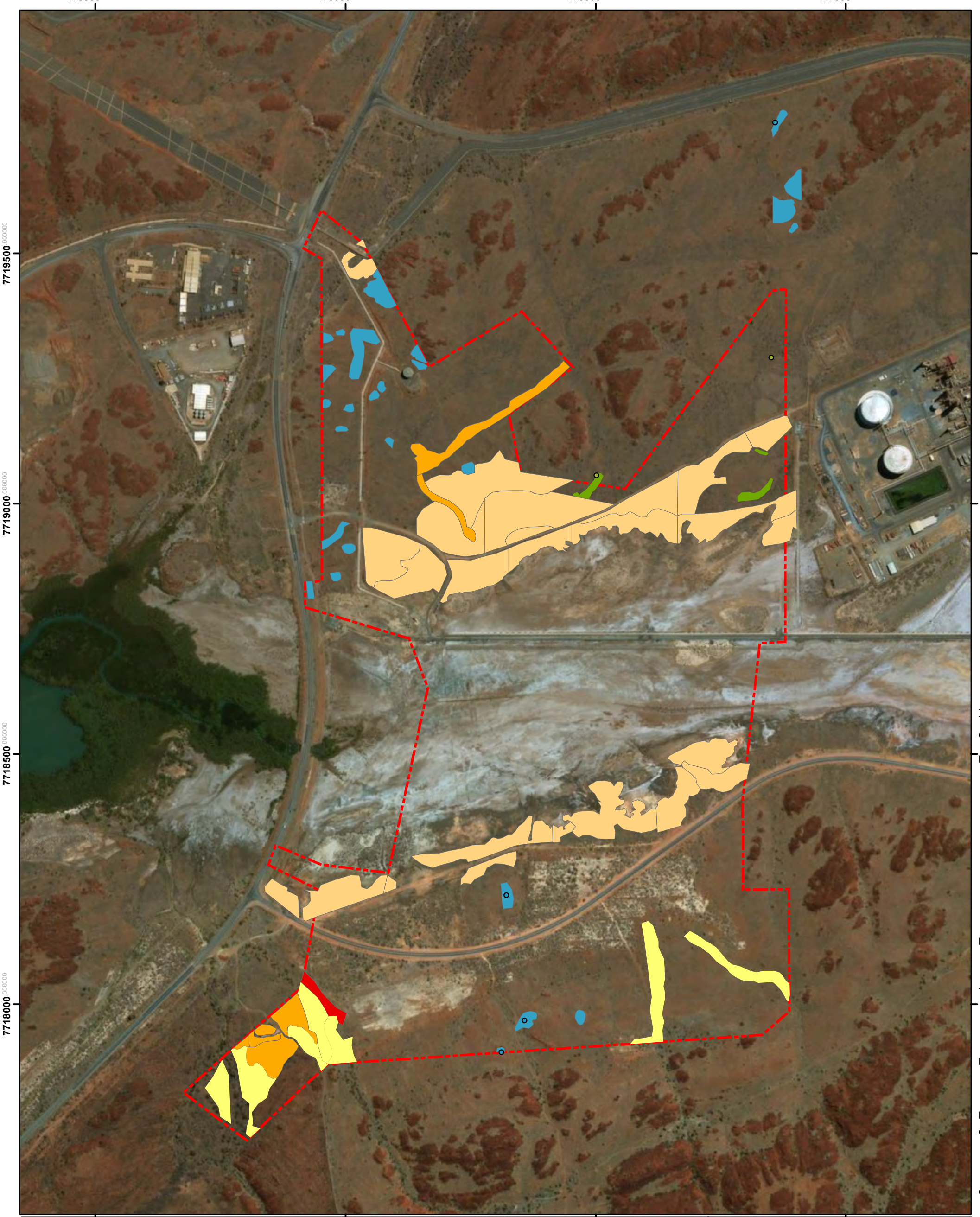

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Figure 4-7: APM Conservation Significant Flora and Vegetation Communities of the Study Area

Legend

Priority Taxon

- Rhynchosia bungarensis (P4)
- Terminalia supranitifolia (P3)

- Priority Ecological Community: P1 Burrup Peninsula Rock Pile Communities
- Trudgen: Dark Orange 2 to 4 occurences
- Trudgen: Light Orange 5 to 9 occurances
- Trudgen: Red 1 occurrence
- Trudgen: Yellow 10 to 24 occurrences
- *Locally Significant Flora*

N

150 75 0 150 Meters

1 centimeter = 70 meters

Date: 25/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Table 4-7: Vegetation Associations that Occur in the Study Area that May Have Local Conservation Significance according to the Classification System devised by M. E. Trudgen & Associates (2002)

APM 2018 vegetation mapping code	Association Description	M. E. Trudgen & Associates (2002) Significance Rating
TaTsRm	*Triodia angusta* (BF) *Triodia epactia* grassland with *Tephrosia* aff. *supina* (MET 12,375) herbland and *Rhyncosia* cf. *minima* lianes	Red 1 occurrence
AbCgTe	*Acacia bivenosa, Cassia glutinosa* open shrubland to shrubland over *Triodia epactia* (BF), **Cenchrus ciliaris* grassland	Dark Orange 2 to 4 occurrences
ChAbSg	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup form) hummock grassland	Dark Orange 2 to 4 occurrences
Ev*CcTe	*Eucalyptus victrix* low open woodland to low woodland over (*Pittosporum phylliraeoides* var. *phylliraeoides*, *Rhagodia eremaea* high shrubs to shrubs) over **Cenchrus ciliaris*, *Triodia epactia* (BF) tussock/hummock grassland	Dark Orange 2 to 4 occurrences
EvAa	*Eucalyptus victrix* low woodland over *Acacia ampliceps* open heath over *Cyperus vaginatus, Eriachne tenuiculmis, Triodia angusta* (Burrup form) sedgeland and tussock/hummock grassland	Light Orange 5 to 9 occurrences
AbImTe	*Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* (BF) scattered low shrubs to low open shrubland over *Triodia epactia* (BF) hummock grassland to closed hummock grassland	Light Orange 5 to 9 occurrences
AbTa	*Acacia bivenosa* high open shrubs over *Triodia angusta* (BF) hummock grassland	Light Orange 5 to 9 occurrences
ChImTe	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa, Acacia coriaceae* subsp. *coriaceae*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla* (BF)	Yellow 10 to 24 occurrences
EvDsTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata,* (*Acacia coriaceae* subsp. *coriaceae*) tall scattered shrubs to low open shrubland over *Triodia angusta* (BF) hummock grassland	Yellow 10 to 24 occurrences
GpCwTe	*Grevillea pyramidalis* subsp. *pyramidalis* open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (BF) hummock grassland	Yellow 10 to 24 occurrences
TcEtSe	*Terminalia circumulata* low woodland over *Eriachne tenuiculmis, Triodia epactia* (BF) grassland/hummock grassland with *Sesbania cannabina* herbland	Yellow 10 to 24 occurrences

Additionally, the area mapped by APM as AbHlCwTe contains *Dolichandrone occidentalis* (formerly *occidentalis)*. Astron Environmental (2005) notes that this locality is the only known occurrence of *Dolichandrone occidentalis* on the Burrup Peninsula. The densest population areas lie to the north west of the APM mapped area and are not within the Study Area. The density of *Dolichandrone occidentalis* within the APM mapped area is scattered shrubs, whereas in the areas outside of the Study Area the species is a canopy dominant. The species also has a large distribution across the tropical regions to the east and north (Atlas of Living Australia, 2018). The Burrup Peninsula is close to the westernmost distribution of this species. The most western occurrence of the species is in the Barrow Island Class A Reserve (Atlas of Living Australia, 2018).

4.2.6 Vegetation Condition

Vegetation ranges from Excellent condition to Completely Degraded. Vegetation condition is displayed in Figure 4-8. Areas classified as completely degraded contain roads and infrastructure and are maintained in a vegetation free state. One narrow area in the south western part of the Study Area has been classified as Degraded condition. This is a rehabilitated road that has not returned to a good cover or diversity of vegetation.

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Figure 4-8: Vegetation Condition in the Study Area

Legend

Vegetation Condition

- Excellent
- Very Good
- Good
- Poor
- Degraded
- Completely Degraded

Previously disturbed

- Yes

N

150 75 0 150 Meters

1 centimeter = 70 meters

Date: 25/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

The area classified as in Poor condition in the south of the Study Area contains the vegetation association TeTh. This area is previously disturbed and rehabilitated and large shelly lens in close proximity to the surface has been exposed during the rehabilitation process which provides poor quality soil and has slowed the rehabilitation trajectory in this area. Although it has a reasonable abundance of *Triodia epactia* the cover and diversity of plants is lower than would be expected under undisturbed conditions. The time since rehabilitation indicates the area is unlikely to regain pre-disturbance structure without further intervention. There is also a presence of the aggressive weed **Cenchrus ciliaris*.

A number of areas have been designated in Good condition. These are distributed across the Study Area. The large areas to the south surrounding Hearson Cove Road are previously disturbed and rehabilitated and although there is also some poorer quality subsoils present at the surface, there is a reasonable diversity of species and a high abundance of plants in multiple strata. The introduced species **Cenchrus ciliaris* and / or **Aerva javanica* were found in these areas. Smaller areas designated Good condition are generally undisturbed or near to a disturbance (such as a road or pipeline corridor) and have significant infestations of the introduced species **Cenchrus ciliaris*, **Aerva javanica* and **Passiflora foetida.*

Areas in the vegetation fringing the tidal inlet have been classified as Good Condition in par due to the presence of **Cenchrus ciliaris* and **Aerva javanica* but also due to the lower species diversity recorded there than by Astron (2005). Astron (2005) considered changes to the surface flow conditions caused by the pipeline infrastructure to be impacting the health of the vegetation in these areas, and the lower species diversity recorded by APM confirm this.

Areas designated in Very Good condition have vehicle tracks or other infrastructure nearby that are causing some level of disturbance to the continuity of the landscape but are otherwise not disturbed. All other areas are in Excellent condition and displayed no signs of disturbance.

A large amount of dust was noted on the foliage of shrubs and trees across the entire survey area during the dry season. A large number of shrubs were noted to have died in many areas across the Study Area however it is difficult to speculate on the cause of death differing from expected senescence of short-lived perennial shrub species common on the Burrup Peninsula.

4.2.7 Conservation Significant Flora

Two flora of conservation significance were located in the Study Area (Table 4-8). *Rhynchosia bungarensis* is synonymous with *Rhynchosia* sp. Burrup listed as flora of conservation significance by M. E. Trudgen & Associates (2002). Locations of the Priority flora located by APM are shown in Figure 4-7.

Table 4-8: Flora of Conservation Significance Recorded within the Study Area

Species	Conservation Status	Recorded in APM Quadrat(s)	Recorded in APM Targeted Search(es)	No. of Individuals Recorded
Terminalia supranitifolia	P3	3	OC6	4
Rhynchosia bungarensis	P4	40	OC29-1	2

Four *Terminalia supranitifolia* trees were recorded in the Study Area. *Terminalia supranitifolia* is typically found as a low spreading tree on rockpiles on the Burrup Peninsula. Rock pile vegetation communities, of which *Terminalia supranitifolia* is a component, have PEC status. ENV Australia (2006) recorded this species at four sites within the Pluto LNG 'Site B North' study area to the north east of the Study Area. It was found at rockpiles

and drainage lines, with one or "a few" individuals at each site. *Terminalia supranitifolia* has been discovered in scattered populations in the Chichester Ranges, leading to a reclassification from P1 to P3 in 2005.

Rhynchosia bungarensis (P4) was added to the Priority Flora List in 2009. It is reasonably widespread on the Burrup Peninsula although less common than *Rhynchosia minima* (M. E. Trudgen & Associates, 2002). It is frequently found along the more sheltered bases of rockpiles, along gully walls or in more dense vegetation where it is protected. The species occurs as scattered populations within the Pilbara.

Known populations of *Stackhousia clementii* (P3) to the east of the Study Area were visited in the Post Wet-Season survey and healthy individuals located. Extensive searching within suitable habitat of the Study Area did not locate the priority species.

4.2.8 Introduced Flora

Four introduced species were recorded in the Study Area. No Declared weeds or weeds with control categories under the BAM Act were located in the Study Area.

The introduced species **Cenchrus ciliaris* (buffel grass) was scattered across the Study Area with the greatest abundances occurring in previously disturbed areas or in ephemeral creek lines under shady canopies.

**Aerva javanica* (kapok) occurs in highest abundances in the sandy swale areas adjacent to the tidal inlet and in disturbed areas particularly near roads. In undisturbed vegetation its presence is scattered and very low abundance.

**Passiflora foetida* var. *foetida* (stinking passionflower) is restricted to the riparian vegetation in the north west corner of the Study Area. Although the distribution is restricted, where it does occur it has a very aggressive infestation and is likely to cause significant decline to the quality of the vegetation in the near future if not controlled.

**Malvastrum americanum*, a naturalised herbaceous weed occurred as two individuals at one location.

The native species *Acacia ancistrocarpa* and *A. synchronicia* are common in the Pilbara but not common on the Burrup Peninsula. They were recorded as an opportunistic collection near Hearson Cove Road and are likely to have arrived in the area by transport of seed on vehicles (M. E. Trudgen & Associates, 2002).

5 TERRESTRIAL VERTEBRATE FAUNA RESULTS

5.1 DESKTOP SURVEY

Across the four online database searches (AoLA, NatureMap, DBCA, and the EPBC PMST), 214 terrestrial vertebrate fauna were identified as having the potential to occur, including 4 amphibians, 123 birds, 23 mammals, and 64 reptiles. The most extensive species list was the NatureMap database, with 146 species, followed by the AoLA database with 120. The DBCA Database and PMST databases both identified 42 species. An additional 35 species of marine mammals and reptiles were identified but are not further considered.

Worley Astron (2006) conducted a review of previous biological surveys carried out in the immediate vicinity and combined them in one collated database containing 305 species, including 14 non-volant mammals, 18 bats, 4 introduced mammals, 186 birds, 79 reptiles and 4 amphibians. Of these, 221 species were recorded in field surveys, providing an extensive species list, especially with additional online database searches conducted by APM for this study.

In total, 99 conservation significant species were identified across all database searches (Table 5-1). Of these, 98 were from database searches or the Worley Astron (2006) report, and one additional species was recorded during APM surveys that had not been recorded previously. For simplicity, all conservation significant fauna recorded during the APM surveys are also included in Table 5-1, but are discussed in more detail in Section 5.2.6. Refer to Appendix H for a discussion of the likelihood of occurrence of each of the identified conservation significant fauna and their habitat descriptions and requirements. Figure 5-1 shows the locations of conservation significant fauna in the vicinity of the Study Area identified by a DBCA database search.

Table 5-1: Conservation Significant Fauna Identified in the Database Searches and/or Recorded by APM (2018, 2019) or Worley Astron (2006)

Species	Common Name	Cons. Code		Database			Biological Surveys		
		Cth	State	NatureMap (10 km buffer)	AoLA (10 km buffer)	DBCA (~25 km buffer)	EPBC (5 km buffer)	Worley Astron 2006	APM
Birds									
Accipiter fasciatus	Brown Goshawk	M[1]	-					x	x
Acrocephalus australis	Australian Reed Warbler	M	-		x				
Actitis hypoleucos	Common Sandpiper	IA[2], M	IA	x	x	x	x	x	
Anous stolidus	Common Noddy	IA, M	IA	x	x	x	x		
Anthus novaeseelandiae	Australasian pipit	M	-		x			x	x
Apus pacificus	Fork-tailed Swift	IA, M	IA			x	x	x	
Ardea alba	Great Egret	M	-				x	x	
Ardea ibis	Cattle Egret	M	-				x		
Ardenna pacifica	Wedge-tailed Shearwater	IA, M	IA					x	
Arenaria interpres	Ruddy Turnstone	IA	IA	x	x	x		x	
Cacomantis pallidus	Pallid Cuckoo	M	-	x	x			x	x
Calidris acuminata	Sharp-Tailed Sandpiper	IA, M	IA		x	x	x	x	
Calidris alba	Sanderling	IA, M	IA			x		x	
Calidris canutus	Red Knot	EN, IA, M	EN			x	x	x	
Calidris ferruginea	Curlew Sandpiper	CR, IA, M	CR			x	x	x	
Calidris melanotos	Pectoral Sandpiper	IA, M	-				x		
Calidris ruficollis	Red-necked stint	IA, M	IA			x		x	x

[1] Listed as a Marine species under the *EPBC Act* (1999).

[2] Listed as a Migratory species under International Agreement under the *EPBC Act* (1999).

Species	Common Name	Cons. Code		Database			Biological Surveys		
		Cth	State	NatureMap (10 km buffer)	AoLA (10 km buffer)	DBCA (~25 km buffer)	EPBC (5 km buffer)	Worley Astron 2006	APM
Calidris subminuta	Long-toed Stint	IA, M	IA					x	
Calidris tenuirostris	Great knot	CR, IA, M	CR					x	
Calonectris leucomelas	Streaked Shearwater	IA, M	IA				x		
Chalcites osculans	Black-eared Cuckoo	M	-				x	x	x
Charadrius leschenaultii	Greater Sand Plover	VU, IA	VU, IA	x		x		x	
Charadrius mongolus	Lesser Sand Plover	EN, IA	EN, IA			x		x	
Charadrius ruficapillus	Red-capped Plover	M	-	x	x			x	x
Charadrius veredus	Oriental plover	IA, M	IA			x	x		
Chlidonias hybrida	Whiskered tern	M	-					x	x
Chlidonias leucopterus	White-winged Black Tern	IA, M	IA					x	
Chroicocephalus novaehollandiae	Silver Gull	M	-	x	x			x	x
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	M	-		x			x	
Circus approximans	Swamp harrier	M	-					x	
Coracina novaehollandiae	Black-faced Cuckoo-shrike	M	-	x	x			x	x
Egretta garzetta	Little Egret	M	-		x			x	x
Egretta sacra	Eastern Reef Egret	M	-		x			x	
Esacus Mgnirostris	Beach Stone-Curlew	M	-	x	x			x	
Eurostopodus argus	Spotted nightjar	M	-					x	
Falco cenchroides	Nankeen Kestrel	M	-	x	x			x	x
Falco peregrinus	Peregrine Falcon	-	OS	x	x	x			
Fregata ariel	Lesser Frigatebird	IA, M	IA		x	x	x	x	
Gelochelidon nilotica	Gull-Billed Tern	IA	IA	x	x			x	
Glareola Mldivarum	Oriental pratincole	IA, M	IA				x		
Grallina cyanoleuca	Magpie-lark	M	-	x	x			x	x
Haliaeetus leucogaster	White-bellied Sea-Eagle	M	-	x	x		x	x	x

Species	Common Name	Cons. Code		Database			Biological Surveys		
		Cth	State	NatureMap (10 km buffer)	AoLA (10 km buffer)	DBCA (~25 km buffer)	EPBC (5 km buffer)	Worley Astron 2006	APM
Haliastur indus	Brahminy Kite	M	-	x	x			x	x
Haliastur sphenurus	Whistling Kite	M	-	x	x			x	x
Himantopus himamtopus	Black-winged Stilt	M	-					x	x
Hirundo neoxena	Welcome Swallow	M	-	x	x			x	x
Hirundo rustica	Barn swallow	IA, M	IA				x		
Hydroprogne caspia	Caspian Tern	IA	IA		x	x		x	x
Limicola falcinellus	Broad-billed Sandpiper	IA, M	-					x	
Limosa lapponica	Bar-tailed Godwit	IA, M	IA				x		
Limosa lapponica baueri	Bar-tailed Godwit	VU, IA	VU, IA	x	x	x	x	x	
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit	CR, IA, M	CR, IA, M				x		
Limosa limosa	Black-tailed Godwit	IA	IA			x		x	
Macronectes giganteus	Southern Giant-Petrel	EN, IA, M	IA				x		
Merops ornatus	Rainbow Bee-eater	M	-	x	x		x		x
Motacilla cinerea	Grey Wagtail	IA, M	IA				x		
Motacilla flava	Yellow Wagtail	IA, M	IA				x		
Ninox novaeseelandiae	Southern boobook	M	-					x	
Numenius minutus	Little Whimbrel	CR, IA, M	IA		x	x			
Numenius madagascariensis	Eastern Curlew	IA	CR	x	x	x	x	x	
Numenius phaeopus	Whimbrel	IA	IA	x	x	x		x	x
Nycticorax caledonicus	Nankeen night heron	M	-					x	
Oceanites oceanicus	Wilson's storm-petrel	IA	IA			x			
Onychoprion anaethetus	Bridled Tern	IA	IA				x		
Pandion cristatus	Eastern Osprey	IA, M	IA	x	x	x		x	x
Pelecanus conspicillatus	Australian pelican	M	-					x	
Petrochelidon nigricans	Tree Mrtin	M	-	x	x			x	x

Species	Common Name	Cons. Code		Database			Biological Surveys		
		Cth	State	NatureMap (10 km buffer)	AoLA (10 km buffer)	DBCA (~25 km buffer)	EPBC (5 km buffer)	Worley Astron 2006	APM
Pezoporus occidentalis	Night Parrot	EN	CR				x		
Phalaropus lobatus	Red-necked Phalarope	IA, M	-					x	
Pluvialis fulva	Pacific golden plover	IA, M	IA						x
Pluvialis squatarola	Grey plover	IA	IA			x		x	
Recurvirostra novaehollandiae	Red-necked Avocet	M	-					x	
Rostratula australis	Australian Painted-Snipe	EN	EN				x		
Sterna dougallii	Roseate Tern	IA, M	IA		x	x		x	
Sterna hirundo	Common Tern	IA	IA			x		x	
Sternula albifrons	little tern	IA	IA			x			
Sternula nereis nereis	Australian Fairy tern	VU	VU			x	x	x	
Stiltia isabella	Australian pratincole	M	-					x	
Sula leucogaster	Brown Booby	IA	IA		x	x		x	
Thalasseus bengalensis	Lesser Crested Tern	M	-	x	x			x	x
Thalasseus bergii	Crested Tern	IA	IA	x	x	x		x	
Todiramphus sanctus	Sacred Kingfisher	M	-	x	x			x	
Tringa brevipes	Grey-tailed Tattler	IA	IA, P4	x	x	x		x	x
Tringa glareola	wood sandpiper	IA	IA			x			
Tringa nebularia	Common Greenshank	IA, M	IA	x	x	x	x	x	x
Tringa stagnatilis	marsh sandpiper, little greenshank	IA	IA			x		x	
Tringa totanus	Common Redshank	IA, M	IA		x				
Xenus cinereus	Terek sandpiper	IA	IA			x		x	
Reptile									
Ctenotus angusticeps	Northwestern Coastal Ctenotus	VU	P3				x		
Liasis olivaceus subsp. barroni	Pilbara Olive Python	VU	VU	x		x	x		

Species	Common Name	Cons. Code		Database			Biological Surveys		
		Cth	State	NatureMap (10 km buffer)	AoLA (10 km buffer)	DBCA (~25 km buffer)	EPBC (5 km buffer)	Worley Astron 2006	APM
Notoscincus butleri	Lined-soil Crevice Skink (Dampier)	-	P4					x	
Mammal									
Dasyurus hallucatus	Northern Quoll	EN	EN	x		x	x	x	
Hydromys chrysogaster	Water-rat	-	P4			x		x	
Macroderma gigas	Ghost Bat	VU	VU	x		x	x		x
Macrotis lagotis	Greater Bilby	VU	VU				x		
Mormopterus cobourgianus	Northern Coastal Free-tailed Bat	-	P1	x		x		x	x
Petrogale lateralis	Rock-wallaby	EN	-					x	
Pseudomys chapmani	Western Pebble-mound Mouse	-	P4	x		x			
Rhinonicteris aurantia	Pilbara Leaf-Nosed Bat	VU	P4				x		

Database Search Area

Inset

Figure 5-2: Conservation Significant Fauna Identified by Department of Biodiversity Conservation and Attractions Database Search as Occuring in the Vicinity of the Project Area

Legend

- <all other values>
- **NAME_SCI**
- Actitis hypoleucos
- Anous stolidus
- Apus pacificus
- Arenaria interpres
- Calidris acuminata
- Calidris alba
- Calidris canutus
- Calidris ferruginea
- Calidris ruficollis
- Caretta caretta
- Charadrius leschenaultii
- Charadrius mongolus
- Charadrius veredus
- Chelonia mydas
- Chlidonias leucopterus
- Dasyurus hallucatus
- Dugong dugon
- Eretmochelys imbricata
- Falco peregrinus
- Fregata ariel
- Gelochelidon nilotica
- Hydromys chrysogaster
- Hydroprogne caspia
- Liasis olivaceus barroni
- Limosa lapponica
- Limosa limosa
- Macroderma gigas
- Megaptera novaeangliae
- Mormopterus (Ozimops) cobourgianus
- Natator depressus
- Numenius madagascariensis
- Numenius minutus
- Numenius phaeopus
- Oceanites oceanicus
- Onychoprion anaethetus
- Pandion cristatus
- Pluvialis fulva
- Pluvialis squatarola
- Pseudomys chapmani
- Puffinus pacificus
- Stenella longirostris
- Sterna dougallii
- Sterna hirundo
- Sternula albifrons
- Sternula nereis nereis
- Sula leucogaster
- Thalasseus bergii
- Tringa brevipes
- Tringa glareola
- Tringa nebularia
- Tringa stagnatilis
- Xenus cinereus

N

0.90.45 0 0.9 Kilometers

1 centimeter = 493 meters

Date: 12/12/2018

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

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Of the 99 conservation significant species that have been recorded, or have the potential to occur, 88 are birds, many of which listed as migratory or marine under the EPBC Act. A range of threatened species also have the potential to occur. The Curlew Sandpiper (*Calidris ferruginea*), Great Knot (*Calidris tenuirostris*), and Eastern Curlew (*Numenius madagascariensis*) are all listed as Critically Endangered and have been recorded in previous surveys at neighbouring sites. The Northern Quoll (*Dasyurus hallucatus*) and the Black-footed rock wallaby (*Petrogale lateralis*) are both listed as Endangered and have been recorded in previous surveys in the vicinity. The Pilbara Olive Python (*Liasis olivaceus barroni*) and Ghost Bat (*Macroderma gigas*) are listed as Vulnerable, and while records exists for both species in the database searches, they were not recorded by Worley Astron (2006).

Introduced species identified by database searches as likely or potentially occurring at the Study Area, and / or recorded by Worley Astron (2006) and APM, are listed in Table 5-2.

Table 5-2: Introduced Fauna Identified in the Database Searches and/or Recorded by Worley Astron (2006), and APM (2018, 2019)

Species name	Common Name	Listing		Database				Biological Surveys	
		Cth[3]	State [4]	DBCA (~25 km buffer)	NatureMap (10 km buffer)	AoLA (10 km buffer)	EPBC (5 km buffer)	Worley Astron (2006)	APM
Birds									
Columba livia	Domestic Pigeon	Int.	s11				x		
Passer domesticus	House Sparrow	Int.	s12, C1				x		
Passer montanus	Eurasian Tree Sparrow	Int.	s12, C1				x		
Mammals									
Canis lupis familiaris	Dog	Int.	s22, C3		x			x	x
Equus caballus	Horse	Int.	s22, C3				x		
Felis catus	Cat	Int.	s11		x			x	x
Mus musculus	House Mouse	Int.	s11					x	
Oryctolagus cuniculus	Rabbit	Int.	s22, C3				x		
Rattus rattus	Black Rat	Int.	s11					x	x
Vulpes vulpes	Red Fox	Int.	s22, C3		x			x	
Reptiles									
Hemidactylus frenatus	Asian House Gecko	Int.	s22, C3		x		x		
Ramphotyphlops braminus	Flowerpot Snake	Int.	s22				x		

[3] Listed as Introduced under the *EPBC Act* (1999)

[4] Declared Pest Status (BAM Act, 2007)

5.2 FIELD SURVEY

5.2.1 Survey Conditions

The post-wet season field survey followed the passage of Cyclone Veronica which crossed Karratha in March 2019. The Karratha Aero weather station (BOM station 00408310, 10 km to the south of the Survey Area) recorded 70 mm of rainfall associated with the passage of the cyclone. This rainfall created adequate post-wet season survey conditions. The overall sampling effort was assessed by applying a Species Accumulation Curve (Appendix L).

5.2.2 Birds

APM recorded 63 bird species across the pre-wet and post-wet season surveys (Table 5-3). In total, 150 bird species have been recorded on the Burrup Peninsula in surveys conducted in 1994, 1998, 2002, 2005 (Worley Astron, 2006) and the two surveys by APM (NB: the total of 186 bird species noted in section 5.1 included records off the Burrup Peninsula but in similar habitat). Six of the species recorded by APM were not recorded in previous surveys or database searches including the migratory species, the Pacific Golden Plover (*Pluvialis fulva*).

While survey timing was appropriate to target migratory species, late 2018 and early 2019 was an unseasonably dry period on the Burrup Peninsula. In the week leading up the March 2019 survey, a large cyclone in the region resulted in a moderate rainfall event (71 mm total). As such, the March survey represented a time where total seasonal rainfall was below average, but the recent cyclonic rainfall in March alone was above average. In addition, the recent rainfall had resulted in areas of available surface water on the floodplain areas (often due to raised earthworks for infrastructure stopping drainage). The availability of fresh water is likely to have increased the use of the site by migratory waders and shorebirds, therefore increasing the probability of being recorded during surveys.

Seven of the species recorded during APM surveys are listed as Migratory; the Caspian Tern (H*ydroprogne caspia*), Whimbrel (*Numenius phaeopus*), Grey-tailed Tattler (*Tringa brevipes*), which is also listed as Priority 4 at the state level, Red-necked Stint (*Calidris ruficollis*), Eastern Osprey (*Pandion haliaetus*), Pacific Golden Plover (*Pluvialis fulva*), and the Common Greenshank (*Tringa nebularia*).

The avifauna records from APM surveys, and the habitat types the records were made within, are listed in Table 5-3.

Table 5-3: APM Avifauna Survey Records and Associated Habitat Types

Order	Family	Species	Common Name	Mid-slope	Rocky Outcrop	Samphire
ANSERIFORMES	Anatidae	*Anas gracilis*	Grey Teal		x	x
CHARADRIIFORMES	Charadriidae	*Charadruis ruficapillus*	Red-capped Plover	x	x	x
		Pluvialis fulva	Pacific Golden Plover			x
CHARADRIIFORMES	Laridae	*Chlidonias hybrida*	Whiskered Tern	x	x	x
		Chroicocephalus novaehollandiae	Silver Gull			x
		Hydroprogne caspia	Caspian Tern			x
		Thalasseus bengalensis	Lesser Crested Tern		x	
	Recurvirostridae	*Himantopus leucocephalus*	Pied Stilt		x	x
	Scolopacidae	*Calidris ruficollis*	Red-Necked Stint			x
		Numenius phaeopus	Whimbrel			x
		Tringa brevipes	Grey-tailed Tattler		x	x
		Tringa nebularia	Common Greenshank	x	x	x
CICONIIFORMES	Ardeidae	*Egretta garzetta*	Little Egret	x	x	x
		Egretta novaehollandiae	White-faced Heron			x
COLUMBIFORMES	Columbidae	*Geopelia cuneata*	Diamond Dove	x	x	
		Geopelia placida	Peaceful Dove	x		x
		Geophaps plumifera	Spinifex Pigeon	x	x	x
		Ocyphaps lophotes	Crested Pigeon	x	x	x
CORACIIFORMES	Alcedinidae	*Todiramphus pyrrhopygius*	Red-Backed Kingfisher	x	x	x
	Meropidae	*Merops ornatus*	Rainbow Bee-eater	x		
CUCULIFORMES	Cuculidae	*Cacomantis pallidus*	Pallid Cuckoo	x	x	
		Chalcites osculans	Black-Eared Cuckoo	x	x	
FALCONIFORMES	Accipitridae	*Accipiter fasciatus*	Brown Goshawk	x		
		Aquila audax	Wedge-Tailed Eagle	x		
		Circus assimilis	Spotted Harrier	x		x
		Elanus axillaris	Black-shouldered Kite	x	x	x
		Haliaeetus leucogaster	White-bellied Sea-Eagle		x	

Order	Family	Species	Common Name	Mid-slope	Rocky Outcrop	Samphire
		Haliastur indus	Brahminy Kite	x		x
		Haliastur sphenurus	Whistling Kite	x	x	x
		Pandion haliaetus	Eastern Osprey		x	
	Falconidae	*Falco berigora*	Brown Falcon	x	x	x
		Falco cenchroides	Nankeen Kestrel	x	x	x
		Milvus migrans	Black Kite		x	
GALLIFORMES	Phasianidae	*Coturnix ypsilophora*	Swamp Quail	x		
PASSERIFORMES	Acanthizidae	*Smicrornis brevirostris*	Weebill	x	x	
	Alaudidae	*Mirafra javanica*	Horsfield's Bushlark	x		
	Artamidae	*Artamus cinereus*	Black-faced Woodswallow	x	x	x
		Cracticus nigrogularis	Pied Butcherbird	x	x	x
	Campephagidae	*Coracina papuensis*	White-bellied Cuckooshrike	x	x	x
		Lalage tricolor	White-Winged Triller	x	x	
	Corvidae	*Corvus orru*	Torresian Crow	x	x	x
	Estrildidae	*Emblema pictum*	Painted Finch	x	x	x
		Neochmia ruficauda	Star Finch	x	x	
		Taeniopygia guttata	Zebra Finch	x	x	x
	Hirundininae	*Hirundo neoxena*	Welcome Swallow		x	x
		Petrochelidon ariel	Fairy Martin	x	x	
		Petrochelidon nigricans	Tree Martin			x
	Locustellidae	*Megalurus mathewsi*	Rufous Songlark	x	x	x
	Maluridae	*Malurus leucopterus*	White-Winged Fairy-wren	x		
	Meliphagidae	*Epthianura tricolor*	Crimson Chat	x	x	
		Gavicalis virescens	Singing Honeyeater	x	x	x
		Lichmera indistincta	Brown Honeyeater	x	x	x
		Manorina flavigula	Yellow-Throated Miner	x	x	x
		Ptilotula penicillata	White-Plumed Honeyeater	x	x	
	Monarchidae	*Grallina cyanoleuca*	Magpie-Lark		x	x

Order	Family	Species	Common Name	Mid-slope	Rocky Outcrop	Samphire
	Motacillidae	*Anthus novaeseelandiae*	Australasian Pipit	x	x	x
	Pardalotidae	*Pardalotus rubricatus*	Red-Browed Pardalote	x		
		Pardalotus striatus	Striated Pardalote	x	x	
	Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	x	x	x
PELECANIFORMES	Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant			x
PSITTACIFORMES	Cacatuidae	*Cacatua sanguinea*	Little Corella	x	x	x
		Eolophus roseicapilla	Galah	x	x	x
	Psittacidae	*Melopsittacus undulatus*	Budgerigar		x	
			Total	**45**	**45**	**41**

5.2.3 Mammals

APM recorded 15 mammal species over the two surveys (Table 5-4, Table 5-5); 7 non-volant mammals and 8 bat species. The mammal assemblage at the site is typical of many areas in the Pilbara region, with Euros (*Osphranter robustus*) being the largest and most common species, while various small and medium sized mammals are also present, including the Short-Beaked Echidna (*T. aculeatus*), Delicate Mouse (*Psuedomys delicatulus*) and Desert Mouse (*P. desertor*). A range of naturalised (i.e. Dingo/dog, *Canis familiaris*) and introduced (i.e. Feral cat, *Felis catus*; Black rat, *Rattus rattus*), were also recorded.

Table 5-4: Records of Non-volant Mammal Species across Two APM surveys

Scientific name	Common Name	Record Type					Habitat		
		Camera	Scat	Cage	Elliot	Pit	Mid-slope	Rocky Outcrop	Samphire
Osphranter robustus	Euro	23					13	7	3
Pseudomys delicatulus	Delicate Mouse					1			1
Pseudomys desertor	Desert Mouse				1				1
Tachyglossus aculeatus	Echidna		1					1	
Canis familiaris	Dog/Dingo		1				1		
Felis catus	Cat	3	1	2			1	3	2
Rattus rattus	Black Rat	1						1	

Table 5-5: Nights which Bat Species were Recorded in each Habitat

Scientific name	Common name	Mid-slope	Rocky Outcrop	Samphire
Austronomus australis	White-striped Free-tailed Bat		1	1
Chaerephon jobensis	Greater Northern Free-tailed Bat		1	2
Chalinolobus gouldii	Gould's Wattled Bat			1
Macroderma gigas	Ghost Bat	1	1	
Mormopterus cobourgianus	Northern Coastal Free-tailed Bat	6	14	7
Scotorepens greyii	Little Broad-nosed Bat	8	21	8
Taphozous georgianus	Common Sheath-tailed Bat	13	23	8
Vespadelus finlaysoni	Finlayson's Cave Bat	8	18	8

In total, 21 non-volant mammals have been recorded on the Burrup Peninsula, inclusive of APM and other published report survey results (years 1994-2002) (Worley Astron, 2006). Many of these species, however, are likely to inhabit the unique and diverse rocky outcrops present throughout the region (NB: the total of 32 native mammal species noted in section 5.1 included records off the Burrup Peninsula but in similar habitat). The APM surveys targeted areas that were likely to be disturbed by the proposed construction, which are on the mid-slope and samphire areas. *Psuedomys desertor* was recorded in the 2019 APM survey, but had not been recorded in either database searches, or during the Worley Astron (2006) survey.

Targeted spot surveys were conducted, looking for the Northern Quoll (*Dasyurus hallucatus*), Rock Wallaby (*Petrogale lateralis*), and Rothschild's rock wallaby (*Petrogale rothschildi*), in the rocky outcrops within, and

immediately adjacent to, the Study Area. These species were not recorded during APM surveys, however, have been recorded in the broader area (Worley Astron, 2006). The Northern Quoll is discussed in a later section.

While Rothschild's rock wallaby (*Petrogale rothschildi*) is present on islands of the Dampier Archipelago, any mainland populations south of Withnell Bay are now rare or completely absent (Pearson & Eldridge, 2008). At sites in the northern parts of the Burrup Peninsula, rock wallaby populations are recovering in response to fox baiting operations. While foraging habitat is present in creeklines containing diverse grasses and shrubs, the absence of deep caves required by this species for diurnal shelter make it highly unlikely that this species will be present in the Study Area (Department of Parks and Wildlife, 2013). Plains of small-sized rocks may represent appropriate habitat for the Western pebble-mound mouse (*Pseudomys chapmani*), however the species has not been recorded in the Study Area. Recent work has suggested that the species is only patchily distributed in the central and southern Pilbara (Western Wildlife, 2008). The outcrops within the Study Area are small and isolated, and likely to be less important than the larger outcrops to the south, which provide greater connectivity and opportunity for secure and productive habitat.

During the APM surveys, eight bat species were recorded on acoustic bat detectors, deployed throughout the Study Area (Table 5-5). The most common species, recorded on multiple occasions across all habitat types at the site, were the Northern Coastal Free-tailed Bat (*Mormopterus cobourgianus*), Little Broad-nosed Bat (*Scotorepens greyii*), Common Sheath-tailed Bat (*Taphozous georgianus*), and Finlaysons's Cave Bat (*Vespadelus finlayson's*). In addition, flying foxes (*Pteropus* sp.) have been observed in the mangroves to the west of the Study Area during the APM 2018 survey and in previous surveys (Worley Astron, 2006). The most frequent records were on detectors deployed in rocky outcrop habitats, suggesting that these areas, and the adjacent rockpiles, may provide important habitat for many bat species.

During the 2019 APM survey, Ghost Bats (*Macroderma gigas*) were detected on two nights in rocky outcrop and mid-slope habitats (Table 5-5). The Ghost Bat, in addition to the White-striped Free-tailed Bat (*Austronomus australis*), Greater Northern Free-tailed Bat (*Chaerephon jobensis*) and the Little Broad-nosed Bat (S. *greyii*) have not been recorded in database searches or previous surveys adjacent to the Study Area. This may reflect recent developments in sensitivity of technology used in modern bat detectors more than any lack of previous survey effort, or a shift in species occurrence.

5.2.4 Reptiles and Amphibians

Twenty-eight species of reptiles and amphibians were recorded by APM, all of which during the post wet-season trapping survey (Table 5-6). Despite the low diversity and density of amphibians on the Burrup Peninsula (likely due to the absence of permanent fresh water), the Mains Burrowing Frog (*Cyclorana maini*) was recorded eight times, all on only 2 nights at the beginning of the survey, just after a major rainfall event.

Table 5-6. The number of records of reptile species during the 2019 APM survey, including the type of record, and the number of records across each habitat type.

Scientific name	Common Name	Record Type					Habitat			Total
		Camera	Opp.	Elliot	Funnel	Pit	Mid-slope	Rocky Outcrop	Samphire	
Frog										
Cyclorana maini	Main's Frog				3	5	5	3		8
Gecko										
Gehyra punctata	Spotted Dtella		1		11		1	11		12
Strophorus elderi	Jewelled Gecko					1	1			1
Heteronotia binoei	Bynoe's Gecko				5			1	4	5
Skink										
Lerista bipes	North-Western Sandslider		1		10	26	21		16	37
Carlia tricantha	Desert rainbow-skink				2			2		2
Cryptoblepharus plagiocephalus	Péron's snake-eyed skink					1	1			1
Ctenotus leonhardii	Leonhards Ctenotus				5	2	5	1	1	7
Ctenotus rubicundus	Ruddy Ctenotus			1			1			1
Ctenotus saxatillis	Rock Ctenotus				44	6	12	23	15	50
Egernia depressa	Pygmy Spiny-tailed Monitor		2		1			1	2	3
Eremiascincus isolepis	Northern Bar-lipped Skink				1	2			3	3
Menetia surda	Western Dwarf Skink				5	4	2	2	5	9
Morethia ruficauda exquisita	Lined Firetail Skink		1		15	1	1	14	2	17
Pygopod										
Delma borea	Rusty-topped Delma				1		1			1
Delma pax	Peace Delma					1	1			1
Lialis burtonis	Burton's Legless Lizard				1	1	1		1	2
Dragon										
Ctenophorus caudicinctus	Ring-tailed Dragon				2	3	1		4	5
Ctenophorus isolepis isolepis	Central Military Dragon					1	1			1
Lophognathus gilbertii	Gilbert's Dragon					1			1	1
Pogona minor mitchelli	Western Bearded Dragon				4	3	7			7
Varanid										
Varanus acanthurus	Spiny-tailed Monitor				3	1		2	2	4
Varanus panoptes	Yellow-spotted Monitor	1						1		1
Snake										
Anilios ammodytes	Sand-diving Blind Snake				1	2		2	1	3
Anilios grypus	Long-beaked Blind Snake				1	1	1	1		2
Antaresia perthensis	Pygmy Snake		7					5	2	7
Pseudechis australis	Mulga Snake		1		1			2		2
Pseudonaja mengdeni	Western Brown Snake		1		1		2			2

The reptile assemblage on the Burrup Peninsula is generally consistent with the nearby mainland. The most common species were the North-western Sandslider (*Lerista bipes*), Rock Ctenotus (*Ctenotus saxatillis*), Spotted Dtella (*Gehyra punctata*), and Western Dwarf Skink (*Menetia surda*) (Table 5-6). Two of the species recorded by APM, the Pygmy spiny-tailed Skink (*Egernia depressa*) and Mitchell's Bearded Dragon (*Pogona minor mitchelli*), have not been recorded in previous surveys (Worley Astron, 2006) and were not present in database searches of the Study Area. Worley Astron (2006) recoded 50 reptile and two amphibian species in surveys adjacent to the Study Area.

Spotlight surveys were conducted during both APM surveys in rocky outcrop areas in an effort to record the Pilbara Olive Python (*Lialis olivaceus barroni*). However, this species was not sampled in either survey.

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Figure 5-2: Fauna Habitats and Fauna Data Collection Points of the Study Area

Legend

Study Area

Survey Type
- Bat Detector
- Camera Trap
- Snail survey
- Trapping Grid

Fauna_habitat
- Disturbed
- Drainage
- Hummock Grassland on Midslopes
- Rocky Outcrops
- Samphire Shrublands/Supra-tidal Flats

N

150 75 0 150 Meters

1 centimeter = 70 meters

Date: 11/06/2019

Coordinate System: GDA 1994 MGA Zone 50

Author: ems@animalplantmineral.com.au

Document Path: \\MAINSERVER\Documents\APM GIS and Mapping\03_Client\APM2018-19GIS\CAR\02_GIS Maps\20190611_CAR002_Fig5-2 Fauna habitat data points.mxd

5.2.5 Fauna Habitats

Four fauna habitats were present within the Study Area: rocky outcrops, Hummock Grasslands on Mid-slopes, Samphire Shrublands/Saltplains, and Drainage Lines. Habitats and fauna data collection sites are shown in Figure 5-2.

Rocky Outcrops

Plate 5-1: Rocky Outcrop Habitat Trapping Sites

Characteristic of the Burrup Peninsula, the formation of Proterozoic igneous rock outcrops (Gidley Granophyre) within the Study Area, weathered over time and resistant to extensive erosion, produce aggregates of split boulder screes. The structural complexity of these landforms provides cover for reptiles and small terrestrial mammals, while caves may provide roosts for bats. The most common rocky outcrop species in the APM surveys were the Spotted Dtella (*G. punctata*), Lined Firetail Skink (*Morethia ruficauda exquisita*), and Pygmy Python (*Antaresia perthensis*). In addition, the four most commonly recorded bat species were all most frequent in the rocky outcrop habitat; Northern Coastal Free-tailed Bat (*M. cobourgianus*), Little Broad-nosed Bat (*S. greyii*), Common Sheath-tailed Bat (*T. georgianus*), and Finlaysons's Cave Bat (*V. finlayson's*). Echidna (*T. aculeatus*) scats were also frequently recorded on rockpiles within the Study Area. This habitat type is also suitable for the Pilbara Olive Python (*Liasis olivaceus barroni*), and though not recorded during APM surveys or previous adjacent surveys (Worley Astron 2006), it is likely this species will occur in the area.

This habitat type supports many of the conservation significant species that occur on the Burrup Peninsula, and is therefore of high importance. The Study Area contains some rocky outcrop areas (Figure 5-2). This habitat type is more abundant and of higher quality, however, in the areas immediately adjacent to the Study Area. Where possible, development of the Study Area should avoid disturbance of rocky outcrops.

Hummock Grasslands on Mid-slopes

Plate 5-2: Hummock Grasslands on Mid-slope Trapping Sites

The Study Area and wider Burrup Peninsula contain coastal and subcoastal plains with mixed savannah hummock and tussock grasslands, and scattered shrubs of *Acacia pyrifolia* and *Acacia inaequilatera*. The presence of hummock grasses and relatively deep soils within this habitat type provides important shelter for a range of small species such as Main's Frog (*C. maini*), Leonhard's Ctenotus (*Ctenotus leonhardii*) and the Western Bearded Dragon (*Pogona minor mitchelli*), as well as larger snake species, such as the Western Brown Snake (*Pseudonaja mengdeni*).

This habitat type will also provide foraging habitat for grazers; primarily Euros (*O. robustus*). These grasslands are also likely to support small rodents such as the Delicate Mouse (*Pseudomys delicatulus*), Sandy Inland Mouse (*P. hermannsburgensis*), and Desert Mouse (*P. desertor*) (Van Dyck & Strahan, 2008). While no rodents were recorded in the Mid-slope habitat during the 2019 APM survey, the low capture rate of small mammals in that survey suggests that these species were not present in high numbers at the time, possibly due to the dry conditions, and as a result did not occupy the full extent of potential habitat.

A range of bird species are likely to use this grassy habitat for both foraging and nesting, especially given the proximity of the grassland to the ephemeral drainage lines. These include the Star Finch (*Neochmia subclarascens*), Swamp Quail (*Coturnix ypsilophora*), Painted Finch (*Emblema pictum*), and Crimson Chat (*Epthianura tricolor*).

This habitat type is typical of the broader Pilbara region, but less common on the Burrup Peninsula, which is frequently dominated by rocky outcrops. This habitat type is well represented within the Study Area, and is likely to support fewer conservation significant species, and be less sensitive to disturbance, than other habitat types present.

Samphire Shrubland / Supra-tidal Flats

Plate 5-3: Samphire Shrubland / Supra-tidal Flat Trapping Sites

The Burrup Peninsula contains marine alluvial flats and river deltas that support Samphire and mangal ecosystems (mangroves). Although these areas are relatively small in a regional context, the intertidal flats around the Burrup are locally significant (DEC, 2013). Within the Study Area, supra-tidal flats exist in the middle of the area, draining westward into King Bay, and this area is fringed by Samphire Shrubland, consisting of low shrublands on sandy soils. The reptiles recorded most frequently within this habitat type were the Ring-tailed Dragon (*Ctenophorus caudicinctus*), Northern Bar-lipped Skink (*Eremiascincus isolepis*), and Bynoe's Gecko (*Heteronotia binoei*). The Delicate Mouse (*P. delicatulus*), Desert Mouse (*P. desertor*), Greater Northern Free-tailed Bat (*Chaerephon jobensis*), and Gould's Wattled Bat (*Chalinolobus gouldii*) were all recorded within the Samphire Shrubland habitat type more frequently than other habitat types.

The supra-tidal flats area of this habitat type is subject to inundation, due to tidal surges, and also drainage from rainfall events. As such, this area supports a range of shorebirds and waders, including the Red-capped Plover (*Charadrius ruficapillus*), Grey-tailed tattler (*Tringa brevipes*), and Common Greenshank (*T. nebularia*), all of which were recorded frequently in the post wet-season survey. In turn, predatory species such as the Eastern Osprey (*Pandion haliaetus*) are likely to forage over these areas.

Plate 5-4: Examples of Mangrove Vegetation Adjacent to the Study Area, and Supra-tidal Habitat Present within the Study Area

Mangrove vegetation is present in association with King Bay, immediately outside the survey area to the West. These areas are likely to support a diverse range of fauna including many birds that may use the rich organic

marine sediment to forage and potentially nest, such as Brahminy Kite (*Haliastur indus*) and the Mangrove Golden Whistler (*Pachycephala melanura*). Mangrove vegetation may also support a range of mammal species, including the Rakali (*Hydromys chrysogaster*), Northern Coastal Free-tailed Bat (*O. cobourgianus*), and the Little Red Flying Fox (*Pteropus scapulatus*). The mangrove vegetation is outside the Study Area, and will not be directly disturbed by the proposed development.

The Samphire Shrubland / Supra-tidal Flats habitat type provides locally important foraging opportunities for a range of species, particularly migratory shorebirds and waders. Shallow tidal plains such as that within the Study Area are rare on the Burrup Peninsula. Where possible, development within the Study Area should avoid disturbance of this habitat type, and modification of any drainage that would alter the habitat, or the mangroves further downstream.

Drainage Lines

Plate 5-5: Drainage Line Habitat in the Southwest Corner of the Study Area

Weathering of the geology of the area has formed deeply incised narrow valleys amongst the exposed bedrock. These channels trend southwest to northeast and east to west throughout the Burrup Peninsula. The drainage channel present in the Study Area in the southwest corner is quite significant as this habitat type occurs infrequently on the Burrup Peninsula.

Throughout much of arid and semi-arid Australia, ephemeral drainage lines provide important habitat diversity and resources (i.e. water) for many species. Within the Study Area, Drainage Lines are likely to provide important habitat for reptiles, such as Pygmy Pythons (*A. perthensis*) and Yellow Spotted Monitors (*Varanus panoptes*). The large trees associated with these landforms may provide hollows suitable for birds such as the Galah (*Cacatua roseicapilla*) and Little Corella (*Cacatua sanguinea*). Similarly, this habitat provides roosting, nesting,

perching and foraging habitat for the Red-browed Pardalote (*Pardalotus rubricatus*), Red-backed Kingfisher (*Todiramphus pyrrhopygius*) and Black-faced Woodswallow (*Artamus cinereus*).

Trees containing hollows are likely to provide roosting habitat for the Northern Free-tailed Bat (*Chaerephon jobensis*), the Little Broad-nosed Bat (*S. greyii*), as well as foraging habitat for the Ghost bat (*M. gigas*).

Drainage line habitat is relatively limited within the Study Area, and is likely to be of high importance due to the associated tall trees and ephemeral freshwater. Particularly, the creekline in the south-west of the Study Area is unique within the Study Area. This creek line drains from the Murujuga National Park, an area likely to contain suitable roost sites for the Ghost Bat (*M. gigas*), which forages along drainage lines. Development of the Study Area should avoid disturbance to this habitat type.

5.2.6 Conservation Significant Fauna

A range of conservation significant fauna have the potential to occur at the site (Table 5-1). Of these 99 species, 28 have been recorded by APM within the Study Area (Table 5-7). 26 are Migratory or Marine birds, and many share common habitat preferences. These species are discussed in more detail below.

Two conservation significant mammal species were recorded during APM surveys, both of which are bats; the Ghost Bat (*M. gigas*), and the Northern Coastal Free-tailed Bat (*M. cobourgianus*). No conservation significant reptiles or amphibians were identified during the surveys. The Northern Quoll (*D. hallucatus*) and the Pilbara Olive Python (*Liasis olivaceus barroni*) were not recorded by APM, but have the potential to occur, and are important considerations for many developments in the Pilbara region.

Table 5-7: Conservation Significant Fauna recorded by APM, Showing the Number of Bird Individuals observed and the Number of Nights each Bat Species was Recorded

Species	Common Name	Conservation Status		APM Biological Surveys	
		Cth	State	2018 Pre-wet Season	2019 Post-wet Season
Birds					
Accipiter fasciatus	Brown Goshawk	M	-		1
Anthus novaeseelandiae	Australasian pipit	M	-	1	19
Cacomantis pallidus	Pallid Cuckoo	M	-		7
Calidris ruficollis	Red-necked stint	IA, M	IA, Schedule 5	1	
Chalcites osculans	Black-eared Cuckoo	M	-		7
Charadrius ruficapillus	Red-capped Plover	M	-	18	89
Chlidonias hybrida	Whiskered tern	M	-		21
Chroicocephalus novaehollandiae	Silver Gull	M	-	2	1
Coracina novaehollandiae	Black-faced Cuckoo-shrike	M	-	27	15
Egretta garzetta	Little Egret	M	-	2	18
Falco cenchroides	Nankeen Kestrel	M	-	11	17
Grallina cyanoleuca	Magpie-lark	M	-		4
Haliaeetus leucogaster	White-bellied Sea-Eagle	M	-		1
Haliastur indus	Brahminy Kite	M	-	4	1
Haliastur sphenurus	Whistling Kite	M	-	16	5
Himantopus himamtopus	Black-winged Stilt	M	-		13
Hirundo neoxena	Welcome Swallow	M	-		8
Hydroprogne caspia	Caspian Tern	IA	IA, Schedule 5		1
Merops ornatus	Rainbow Bee-eater	M	-	8	
Numenius phaeopus	Whimbrel	IA	IA, Schedule 5		5
Pandion cristatus	Eastern Osprey	IA, M	IA, Schedule 5	2	
Petrochelidon nigricans	Tree Martin	M	-		8

Species	Common Name	Conservation Status		APM Biological Surveys	
		Cth	State	2018 Pre-wet Season	2019 Post-wet Season
Pluvialis fulva	Pacific golden plover	IA, M	IA, Schedule 5		1
Thalasseus bengalensis	Lesser Crested Tern	M	-	1	
Tringa brevipes	Grey-tailed Tattler	IA	IA, Schedule 5, P4		57
Tringa nebularia	Common Greenshank	IA, M	IA, Schedule 5		37
Mammals					
Macroderma gigas	Ghost Bat	VU	VU, Schedule 3		2
Mormopterus cobourgianus	Northern Coastal Free-tailed Bat	-	P1	6	21

5.2.6.1 Migratory and Marine Birds

Of the 26 conservation significant species observed by APM during both surveys, 23 are listed as Marine and 7 are listed as Migratory (a species can be listed as both Marine and Migratory) and are covered under international agreements. None of the species present are listed as Threatened species (under federal or state legislation). The Grey-tailed Tattler (*Tringa brevipes*) is listed as Priority 4 under the BC Act, which means it is Rare or Near Threatened, but not qualifying of listing as Threatened.

The Study Area contains a broad salt plain, draining westwards towards King Bay, with some associated Mangrove vegetation outside the Study Area. As a result, the Study Area provides an important and relatively limited area suitable for migratory waders and shorebirds. Under the guidelines outlined by DoEE (2017), the area does not qualify as Nationally Important Habitat, as there are fewer than 15 migratory species, and less than 2,000 migratory shorebirds that regularly use the area. The Burrup Road, a busy road providing access to the many processing facilities and Port, is situated immediately to the west of the supra-tidal flats. As a result, this area is already subject to noise disturbance from traffic, and the species observed during APM surveys are present despite this disturbance. While further disturbance to this area should be minimised, it is unlikely to present a significant increase to that already created by the Burrup Road.

5.2.6.2 Ghost Bat – *Macroderma gigas*

The Ghost Bat is the largest microchiropteran bat in Australia and the second largest in the world (*Woinarski et al*. 2014; Richards *et al*. 2008). It is the only carnivorous bat in Australia (Michael & Lindenmayer, 2018) and the sole residing member of the family Megadermatidae (False Vampires) in Australia and is endemic to the continent (Woinarski *et al.* 2014; Richards *et al.* 2008). Originally widespread across mainland Australia, the species has experienced a range contraction, and now only persists in in the Pilbara and Kimberley regions and patchily along coastal Queensland and the northern extent of the Northern Territory (Michael and Lindenmayer, 2018; BHP, 2017; Woinarski *et al.* 2008).

The suitability of roost sites is the most influential and limiting factor for the distribution of these bats (BHP, 2017). While ghost bats have exploited abandoned mine shafts and underground pits and found these types of roost sites to be favourable, this species is particularly sensitive to disturbance and is unlikely to return to a site once it has been disturbed in any way (Michael and Lindenmayer, 2018; BHP, 2017; Woinarski *et al.* 2014).

While it is daytime, they roost in deep, complex natural cave systems and rock fissures with stable temperatures of 23°–28° and a relative humidity of 50-100% (Woinarski *et al.* 2014). Approximately 1 hour after sunset the bats will emerge from their roosts and commence hunting for a period of 2 hours (BHP, 2017). The Ghost Bat uses a surface foraging strategy in which it will perch on vegetation with vantage points to either ambush passing prey on the ground or in the air, or it will glean prey from the ground whilst in flight (Woinarski *et al.* 2014). Bats change viewpoints frequently during foraging activity and may move up to 360 metres between viewpoints

(Woinarski *et al.* 2014). Ghost Bats have an average foraging area of 61 ha, with individuals typically ranging as far out as 1.9 kilometres from their day roosts (Woinarski *et al.* 2014). This species is Australia's only truly carnivorous bat, preying on frogs, birds, mice, small lizards, insects and other bats (Michael and Lindenmayer, 2018; Woinarski *et al.* 2014). Ghost Bats typically fly low to the ground, around fence height, and are prone to collisions with wire fences. Due to low fecundity, even infrequent deaths on fences can have a moderate impact on populations (Woinarski *et al.* 2014).

Upon the commencement of mating season in July, Ghost Bats will concentrate upon relatively few roost sites. The gestation period takes three months from which the offspring are born during September to November. Juveniles hunt with their mothers until they become completely independent. Colony sizes range from a few individuals to greater than 100, although large colonies are now rare. In the Pilbara, colony sizes in natural roosts are generally much smaller, often consisting of just a few animals. It is during the time of breeding and rearing young that these bats are most sensitive to disturbance.

No suitable roosting caves were located within the Study Area during APM surveys, although Ghost Bats were detected on two occasions on the south side of the Study Area in close proximity to rocky outcrops. The creekline in the southwest of the Study Area contained large trees and is in close proximity to the rocky outcrops of Murujuga National Park, where roosting habitat may be present. Given the provision of tall trees as vantage points and the proximity to potential roosting habitat, this creekline is considered important Ghost Bat habitat.

5.2.6.3 Northern Coastal Free-tailed Bat - *Mormopterus cobourgianus*

The Northern Coastal Free-tailed Bat is listed as Priority 1 under the BC Act as it is a relatively little-known species. There are few published studies on this species, with most relying on general information about the Genus, or field guides. This species occurs in coastal areas of the Pilbara region in WA, and the Top End of the Northern Territory (Churchill, 2008). The Northern Coastal Free-tailed Bat is brown to grey-brown, with a paler belly that is greyish lemon. They roost in the upper dead branches of the Grey Mangrove (*Avicennia marina*), emerging in groups of up to 100 after sunset and dispersing to forage in pairs or alone (Churchill, 2008).

The Northern Coastal Free-tailed Bat generally forages in mangroves and associated monsoon forests and is known to use openings and linear clearings (such as roads or creeks) to navigate through the canopy (Churchill, 2008). Within the Study Area, this species was recorded throughout all habitats, and on many occasions. It is likely that this species may roost in the mangrove vegetation to the west of the Study Area.

5.2.6.4 Northern Quoll – *Dasyurus hallucatus*

The Northern Quoll is considered Endangered under both Commonwealth and State legislation. In addition to its conservation significance, the species is considered a keystone species in the Pilbara, and one of many 'critical-weight range' mammals under threat across Australia.

Northern Quolls are nocturnal, partially arboreal and omnivorous, primarily feeding on invertebrates, small mammals and reptiles (Schmitt *et al*. 1989). Once thought to have occupied almost the entire northern third of Australia, the distribution of Northern Quolls is suspected to have declined by over 75% (Braithwaite & Griffiths, 1994). The Northern Quoll is generally found in rocky and broken country within open Eucalypt forest, however is can occupy a variety of other habitats, including rainforests, sandy lowlands and beaches, shrubland, grasslands and desert. The Northern Quoll will usually den in hollow tree trunks (Hill & Ward, 2010) or in small caves and crevices in rocky outcrops. These areas can be found within deep drainage lines, steep hills and gorges on the island. Management of the Burrup Peninsula population of Northern Quoll is critical to maintain the mainland distribution. Researchers at DBCA have been strongly advising that predator control on the Burrup be increased in order to return the Peninsula to similar densities to that of the neighbouring islands. However, the number of stakeholders involved in in such management makes progress slow. Aerial deployment of predator baits have recently been conducted across the Burrup Peninsula (Department of Parks and Wildlife, 2017).

Northern Quoll have been recorded in close proximity to the Study Area. One record in 1990 is less than 1 km from the proposed site, and another at a similar time is approximately 2.2km away. The most recent record is from the northern point of King Bay which is approximately 2.7 km from the proposed site. Despite a concerted survey effort by APM during the 2018 and 2019 surveys, including cage and Elliot trapping, camera trapping, spotlight searches, and scat searches, Northern Quolls were not recorded. Given the low density of mainland populations of this species, and its cryptic nature, the lack of detections during APM surveys may not indicate the absence of this species from the area. However, the lack of detections does indicate that this species is rare in habitats at the Study Area.

Northern Quolls on the Burrup Peninsula are likely to inhabit complex landforms of rocky outcrops, which can afford greater cover from predators that more open areas. The current survey area does not include the well-developed and extensive rocky outcrops present immediately north and south of the site.

5.2.6.5 Pilbara Olive Python – *Liasis olivaceus barroni*

The Olive Python is endemic to Australia and only occurs within two distinct regions, giving rise to two distinct subspecies; *Liasis olivaceus olivaceus* which occurs from the Kimberley region to the Great Dividing Range in Queensland, and the Pilbara Olive Python (*Liasis olivaceus barroni*), largely restricted to the Hamersley Range and Dampier Archipelago of the Pilbara region. Other populations of the subspecies have also been recorded in Pannawonica, Tom Price, Millstream and also the Burrup Peninsula (Pearson, 2006).

The Pilbara Olive Python has been recorded in areas with gorges, escarpments in close proximity to water holes (Doughty *et al.* 2011). During the cooler months they will typically hide in caves, crevices and fissures away from water sources. However, in the warmer months they become active and tend to stay near rocky outcrops and water. Their preference for water holes is likely due to resulting abundance of prey, rather than a need for drinking water. This species readily swims in water holes to hunt prey. On the Burrup Peninsula, Olive Pythons have been found to prefer granophyre rock piles and occasionally are found in neighbouring spinifex grasslands.

The Breeding season commences from June through to August. The mating pair will isolate themselves in shelter for up to three weeks. The eggs are deposited around October after a gestation period of 3 months and hatch in January, after which the young disperse.

Introduced predators represent the main threats to the Pilbara Olive Python. Foxes and cats will prey upon juvenile pythons and compete with adults for prey (Carwardine *et al.* 2014). Within isolated areas, such as the Burrup Peninsula, development of mining infrastructure may also have adverse impacts on the Pilbara Olive Python. Further, mining development could alter the availability of prey and increase road deaths of this species.

Rocky outcrop areas inside and immediately adjacent to the Study Area were nocturnally searched during both APM surveys; no Pilbara Olive Pythons, however, were recorded. While the rainfall leading up to the 2019 post-wet season survey was below average, the cyclone event in the preceding week resulted in some fresh water being available. The frequency with which Pygmy Pythons (*Anteresia perthensis*) were detected during the post-wet season survey (5 individuals across 4 nights) suggested that conditions were appropriate for other python species during this survey.

This species is highly cryptic, and occupies complex rocky outcrops and fissures that make detection probability for this species low. As such, it is possible that Pilbara Olive Pythons will use the Study Area. The lack of detections during the APM survey, however, suggest it is infrequent if present. The current survey area does not include the well-developed and extensive rocky outcrops present immediately north and south of the site.

6 CONCLUSION

6.1 VEGETATION OF CONSERVATION SIGNIFICANCE IN THE STUDY AREA

Twenty-six locations in the Study Area have been classified by this assessment as the P1 Priority Ecological Community – Rockpiles of the Burrup Peninsula. These locations are not presently listed on the DBCA database.

Seven vegetation associations have been classified in this assessment to be synonymous with vegetation associations listed by M. E Trudgen & Associates (2002) as being of conservation significance because they have less than 10 occurrences across the Burrup Peninsula and Angel, Gidley and Dolphin Islands. A further 4 have been included as they were listed with 10 to 24 occurrences. Impact assessment on these vegetation types will need to consider the cumulative impact of prior developments.

The EPA (2001) noted that vegetation in the King Bay – Hearson Cove Valley has high conservation value and that part of the floristic variation appears to be uncommon elsewhere on the Peninsula (Trudgen *et al*., 2001). The EPA (2001) stated that the King Bay – Hearson Cove valley appeared to be the only area on the Peninsula and islands where there is development of both an infrequently submerged littoral zone, an extensive area of samphires, and the littoral grass *Sporobolus virginicus*. It considered that more comparative information was required for the valley vegetation, and that subsequent development needed to incorporate the findings from such work into its planning. Astron Environmental (2005) mapped samphire vegetation in the valley, allowing a more detailed impact and cumulative impact assessment. Outback Ecology (2009) noted that the community mapped as Sm and described as Saline Inlet and Supra-tidal Flats by M. E. Trudgen & Associates (2002) had approximately 56% of this community's extent represented within the proposed Burrup Peninsula Conservation Reserve. Although not classified to the vegetation association level, M. E. Trudgen & Associates (2002) mapped 50 to 99 occurrences of Sm and 25 to 49 occurrences of the littoral grass *Sporobolus virginicus.*

The EPA (2001) noted that the valley is the only broad valley with gentle lower slopes and consequently had the best stands of a part of the range of vegetation structural / dominance units on the Burrup Peninsula (Trudgen, 2001). The Burrup Nitrates project along with other industrial developments in the valley have directly impacted vegetation assemblages considered significant and in general have fragmented the catena / topographic sequence on the northern side of the valley. However, the EPA recognises that the Burrup Peninsula Land Use Plan and Management Strategy (O'Brien Planning Consultants, 1996) set aside about 5,400 ha (62%) of the Burrup Peninsula for conservation, recreation and heritage protection, and that the valley has been set aside for industrial development. The EPA (2001) expects proponents to take reasonable measures to minimise impacts on the vegetation communities of highest importance as defined at a local and regional scale, having taken the available information on vegetation surveys into account when planning the footprint of their plants.

6.2 FLORA OF CONSERVATION SIGNIFICANCE IN THE STUDY AREA

Four flora of conservation significance occur inside the Study Area. Three *Terminalia supranitifolia* (P3) trees occur on rockpile vegetation in the south of the Study Area which are also classified as the P1 PEC - Rockpiles of the Burrup Peninsula. One specimen of *R. bungarensis* (P4) was collected from near the eastern boundary in a shallow drainage area. *T. supranitifolia* is found in other areas on the Burrup Peninsula, and other areas of the Pilbara, while *R. bungarensis* is widespread throughout the Burrup Peninsula. As such, development of the Study Area does not represent a significant loss of either of these species.

6.3 IMPACTS ON FLORA AND VEGETATION

The proposed Project Area as displayed in Figure ES-1 has been laid out to minimise the impact to conservation significant flora and vegetation whilst simultaneously considering the impact to fauna and heritage.

No Priority flora located during the field surveys will be impacted by the proposed layout. *Dolichandrone occidentalis* has been identified previously as being of local conservation significance as the distribution on the Burrup Peninsula is limited to one known area, despite it being widespread on the mainland. The Project Area intersects with small pockets of this species; however the greater part of its distribution is to the north of the Study Area and will not be impacted.

Three small rock outcrops that constitute the Priority 1 ecological community Rockpiles of the Burrup Peninsula are partially intersected by and will be impacted by the proposed layout. They contain the vegetation community BaAcIc: Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens*, *Ipomoea costata* over herbs and very open grassland of *Triodia epactia* with *Cymbopogon ambiguus* and *Paspalidium clementii*. The Project Area intersects with 0.031 ha of BaAcIc. There are 21 Priority 1 ecological community Rockpiles of the Burrup Peninsula with the vegetation community BaAcIc in the Study Area ranging in size from 0.013 ha to 0.312 ha. In total the BaAcIc in the Study Area covers 1.656 ha and the impact of 0.031 ha will reduce that cover by 1.9%. The total cover of all Priority 1 ecological community Rockpiles of the Burrup Peninsula in the Study Area is 1.876 ha and the impact of 0.031 ha will reduce that cover by 1.7%. It is also noted that there are large, undisturbed areas of the Priority 1 ecological community Rockpiles of the Burrup Peninsula to the north and south of the Study Area, with a large proportion of the total area on the Burrup Peninsula occurring in Reserve areas. As such the proposed impact is not considered to have a significant effect on the overall sustainability of this vegetation type.

The Project Area intersects a number of vegetation associations identified in Trudgen and Associates (2002) as being of regional conservation significance. The area mapped as TaTsRm: *Triodia angusta*, *Triodia epactia* grassland with *Tephrosia supina* herbland and *Rhyncosia minima* lianes by Trudgen and Associates (2002) was recorded as a single occurrence and thus of high conservation significance. In this Biological Assessment, APM have retained the description given by Trudgen and Associates (2002) but note a much lower abundance of *Tephrosia supina* herbland and *Rhyncosia minima* lianes, likely due to the lower than average rainfall conditions. APM also note that this area is a very narrow (15 m wide) strip of area (both in 2002 and 2019) immediately adjacent to the disturbed and rehabilitated zones to the east. In the Cluster analysis, the site was grouped with other sites based on the presence of *Triodia angusta*, and in the present study this locality is one of the furthest occurrence of *T. angusta* from the inlet. The Project Area intersects 0.024 ha of this mapped vegetation association, or 10% of the total mapped 0.224 ha. Notably, where the Project Area intersects the vegetation association does not contain *T. angusta*, as the majority of the *T. angusta* occurs towards the centre of the mapped distribution.

The Project Area also intersects 0.405 ha (40% of the 1.015 ha in the Study Area) of the vegetation association described by Trudgen and Associates (2002) as ChAbSg *Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* hummock grassland. In the current study APM have retained the description. Trudgen and Associates (2002) recorded 4 occurrences of this vegetation association, including one within the Reserved area, and identify it as regionally significant.

The Project Area also intersects three vegetation associations that were recorded by Trudgen and Associates (2002) as having 5 to 9 occurrences. 5.353 ha (65% of the 8.279 ha in the Study Area) of the vegetation association as AbImTe: *Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* scattered low shrubs to low open shrubland over *Triodia epactia* hummock grassland to closed hummock grassland; 3.143 ha (37% of the 8.486 ha in the Study Area) of the vegetation AbTa: *Acacia bivenosa* high open shrubs over *Triodia angusta* hummock grassland and 0.018 ha (8% of the 0.232 ha in the Study Area) of the vegetation association EvAa: *Eucalyptus victrix* low woodland over *Acacia ampliceps* open heath over *Cyperus vaginatus, Eriachne tenuiculmis, Triodia angusta* sedgeland and tussock/hummock grassland.

The southwestern corner of the Study Area contains a number of vegetation associations regional conservation significance with between 2 and 10 occurrences. The area is a drainage feature and has a high diversity of flora and vegetation associations in a small area. This locality is of local conservation significance due to this localised diversity. The Project layout has been achieved so that this area will not be directly impacted by the Project.

The Project impact to the vegetation fringing the tidal inlet is restricted to the northern sector, where the vegetation is contained within the pipeline that runs from the north of the Study Area on the western side, then crosses the mudflat. Astron (2005) note that this pipeline interrupts the flow of water in the area and was at that time having a negative impact on the health of the vegetation. In this current biological survey APM recorded lower floristic and vegetative diversity in this area than Astron (2005). This is potentially a longer-term consequence of the disruption to water flows described by Astron (2005). In this current survey for the area within the Project layout, APM have retained the description of the sandy swale vegetation consistent with Trudgen and Associates (2002) who mapped over 100 occurrences of the association (Te)Sv; and retained the samphire description of Astron (2005) (updated to current nomenclature) ThtTil. Astron (2005) considered the condition of this vegetation to be impacted by the drainage issues of existing infrastructure to the extent that the proposed project at that time was unlikely to have significant further impact.

6.4 IMPACTS ON FAUNA OF CONSERVATION SIGNIFICANCE

In total, APM recorded 63 bird, 7 non-volant mammal, 8 bat, 27 reptile and 1 amphibian species during two surveys. Within this assemblage, one Threatened fauna species, the Ghost Bat (*M. gigas*), one Priority 4 species, the Northern Coastal Free-tailed Bat (*M. cobourgianus*), and 26 listed bird species were recorded.

Of the migratory and marine bird species recorded within the Study Area, the most numerous species were the Red-capped Plover (*C. ruficapillus*), Grey-tailed Tattler (*T. brevipes*), and Common Greenshank (*T. nebularia*). While the supra-tidal flats in the Study Area represent a locally important habitat type for migratory shorebirds, its importance on a regional scale is low. For example, an average of 19,800 Red-necked Stints (*C. ruficollis*) seasonally feed in Roebuck Bay (DoEE, 2018) where only one was recorded during the APM surveys. As such, the Study Area is not likely to be of key importance to migratory species. In addition, the area is already subject to disturbance from the busy Burrup road, and as a result any species that currently use the areas are likely to be relatively resilient to anthropogenic disturbance. The current design of the development within the Study Area largely avoids any disturbance to the supra-tidal flats or the surrounding Samphire Shrublands. As there is infrastructure being built on both the north and south sides of the supra-tidal flats, there will be a road across the supra-tidal flats to connect the two areas. This road has been designed with culverts to avoid restricting drainage. This will negate the potential for development to impact this supra-tidal flats habitat or the mangrove vegetation outside the Study Area.

A range of other bird species were recorded, especially in the post-wet season survey in March 2019, including 11 species of raptor. However, no threatened bird species were recorded during surveys. The Grey-tailed Tattler is a Priority 4 species, meaning it is considered near-threatened under the Western Australian state legislation. The lack of threatened bird species using the Study Area indicates that the proposed development is unlikely to reduce the availability of habitat for such species.

The Ghost Bat (*M. gigas*), listed as Vulnerable under both federal and state legislation, was recorded on two evenings in the southern section of the Study Area. This species requires well developed caves for roosting, and disturbance of these caves is one of the primary drivers of this species' decline. This species often forages along creeklines, using the taller trees as vantage points from which to spot prey. The creekline in the south west of the Study Area is likely to provide important foraging habitat for the Ghost Bat, especially given its close proximity to Murujuga National Park, which is likely to provide important roosting opportunities. Where

possible, development of the Study Area should avoid disturbance of this creekline, to avoid possible impacts to this species.

The Northern Coastal Free-tailed Bat (*M. cobourgianus*), listed as Priority 4 (poorly-known) in WA, was also recorded at numerous sites, on multiple occasions, throughout the Study Area. This species is known to roost in Grey Mangroves, which are likely to be present in the vicinity of King Bay to the west of the Study Area. It is unlikely that the Project will impact this species.

During both the pre-wet season, and post-wet season surveys, camera traps were deployed in rocky outcrop areas, and nightly spotlight searches were conducted, in an effort to record the Northern Quoll (*D. hallucatus*) and Pilbara Olive Python (*L. o. barroni*). Cage and Elliot trapping conducted in rocky outcrop sites as part of the broader post-wet season survey is also suitable for the Northern Quoll. Despite this survey effort, neither species was recorded during the APM surveys. While the survey design was appropriate, both species are cryptic and often inhabit complex landscapes where detection is difficult. As a result, the lack of records should not be interpreted as an absence of either species. Given the close proximity of recent records of both species, it is possible that both may be present, albeit infrequently within the Study Area.

The development of the Study Area may present a risk to some species via habitat fragmentation, particularly the Northern Quoll. While 4,913 ha of appropriate habitat has been protected in Murujuga National Park, resulting in 44% of the Burrup Peninsula land mass available for this species being protected from further disturbance, development of the Study Area will effectively separate the northern regions of the peninsula from the southern areas and mainland. This may cause significant fragmentation of the Burrup Peninsula Northern Quoll population. Development of the Study Area may also locally exacerbate the factors that have contributed to the decline of this species. Specifically, the development will not impact denning habitat but will decrease foraging habitat by land clearing and may increase the frequency of fires and the presence of introduced predators such as feral cats (*F. catus*) and red foxes (*V. vulpes*), disease and habitat fragmentation (Hill & Ward, 2010).

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APPENDICES

APPENDIX A: DEPARTMENT OF BIODIVERSITY CONSERVATION AND ATTRACTIONS PROTECTED BIOTA CATEGORIES

Department of Parks and Wildlife

CONSERVATION CODES

For Western Australian Flora and Fauna

Specially protected fauna or flora[1] are species[2] which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such.

Categories of specially protected fauna and flora are:

T **Threatened species**

Published as Specially Protected under the *Wildlife Conservation Act 1950,* and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act.

Threatened flora is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**

Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EN **Endangered species**

Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

VU **Vulnerable species**

Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.

EX **Presumed extinct species**

Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.

IA **Migratory birds protected under an international agreement**

Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.

CD Conservation dependent fauna

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.

OS Other specially protected fauna

Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P Priority species

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

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

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

1 Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4 Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

[1] The definition of flora includes algae, fungi and lichens
[2]Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

APPENDIX B: DATABASE (2018) AND HISTORICAL SURVEY TERRESTRIAL FAUNA AND FLORA RECORDS

Taxon	Cons_Code	Latitude	Longitude	Date
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	1	-21.68333333	115.1333333	3/08/1963
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	1	-20.66666667	117.15	/08/1982
Atriplex lindleyi subsp. conduplicata	3	-20.85055556	116.5519444	7/11/1996
Carpobrotus sp. Thevenard Island (M. White 050)	3	-21.46319444	115.0196	24/08/1990
Carpobrotus sp. Thevenard Island (M. White 050)	3	-21.46666667	115.0166667	23/06/1988
Corchorus congener	3	-20.88305556	115.3266667	21/11/1965
Corchorus congener	3	-20.76666667	115.4	/10/1980
Corchorus congener	3	-20.76666667	115.4	/10/1980
Corchorus congener	3	-20.88305556	115.3266667	29/04/1964
Corchorus congener	3	-20.76666667	115.4	4/06/1991
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	-20.80199897	115.449625	1/10/2015
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	-20.76666667	115.4	/10/1980
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	-20.78333333	115.3333333	5/06/1991
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	-20.88305556	115.3266667	/06/1964
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	-20.88305556	115.3266667	26/06/1964
Eleocharis papillosa	3	-21.738935	114.979944	14/03/2011
Eragrostis lanicaulis	3	-20.62972222	117.1897222	/03/1921
Eragrostis lanicaulis	3	-20.62972222	117.1897222	/03/1921
Eragrostis surreyana	3	-20.566933	116.823335	27/06/2000
Eragrostis surreyana	3	-20.56538889	116.8237778	27/05/2009
Eragrostis surreyana	3	-20.56552778	116.824	27/05/2009
Eremophila forrestii subsp. viridis	3	-21.77557918	115.0539952	19/08/2009
Eremophila forrestii subsp. viridis	3	-21.78277778	115.1116667	28/08/1960
Gomphrena cucullata	3	-20.8619	116.58295	11/07/2004
Gomphrena leptophylla	3	-20.8619	116.58295	11/07/2004
Goodenia nuda	4	-21.10981887	115.9935363	31/07/2002
Goodenia pallida	1	-20.83333333	116.5	11/08/1970
Gymnanthera cunninghamii	3	-20.59472222	116.6113889	13/06/1962
Gymnanthera cunninghamii	3	-20.605	116.4833333	/02/1818
Gymnanthera cunninghamii	3	-20.605	116.4833333	/02/1818
Gymnanthera cunninghamii	3	-20.605	116.4833333	13/05/1982
Gymnanthera cunninghamii	3	-20.6	116.4833333	2/09/1987
Helichrysum oligochaetum	1	-20.66	117.18	//
Helichrysum oligochaetum	1	-20.65	117.1833333	//
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	-20.74444	116.74772	21/08/2005
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	-20.80192	116.58086	21/08/2005
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	-20.79114	116.79464	11/09/2004
Owenia acidula	3	-21.18333333	115.9833333	//
Owenia acidula	3	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	-21.18333333	115.9833333	19/08/1966
Owenia acidula	3	-21.18666667	115.9816667	5/03/1953
Pentalepis trichodesmoides subsp. hispida	2	-20.63333333	117.2	8/10/1992
Rhynchosia bungarensis	4	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	-20.69025	116.727778	30/11/2010
Rhynchosia bungarensis	4	-20.56552778	116.824	27/05/2009
Rhynchosia bungarensis	4	-20.63722222	116.788	26/05/2009
Rhynchosia bungarensis	4	-20.56552778	116.824	27/05/2009
Rhynchosia bungarensis	4	-20.57205556	116.8086111	27/05/2009
Rhynchosia bungarensis	4	-20.64794444	116.7592778	29/05/2009
Rhynchosia bungarensis	4	-20.59472222	116.6113889	14/06/1962
Rhynchosia bungarensis	4	-20.50805556	116.84	5/06/1962
Rhynchosia bungarensis	4	-20.63333333	116.6333333	9/11/1987
Rhynchosia bungarensis	4	-20.6	116.5166667	19/07/1980
Rhynchosia bungarensis	4	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	-20.487416	116.832863	29/05/2000
Rhynchosia bungarensis	4	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	-20.502672	116.826804	29/05/2000
Rhynchosia bungarensis	4	-20.502672	116.826804	29/05/2000
Rhynchosia bungarensis	4	-20.574043	116.805097	26/06/2000
Rhynchosia bungarensis	4	-20.61269	116.782273	22/05/2000
Rhynchosia bungarensis	4	-20.534969	116.819554	27/05/2000
Rhynchosia bungarensis	4	-20.606376	116.756965	26/05/2000
Rhynchosia bungarensis	4	-20.533712	116.819134	27/05/2000
Rhynchosia bungarensis	4	-20.615432	116.758045	26/05/2000
Rhynchosia bungarensis	4	-20.533695	116.838079	27/05/2000
Rhynchosia bungarensis	4	-20.533695	116.838079	27/05/2000
Rhynchosia bungarensis	4	-20.566045	116.82089	5/06/2000
Rhynchosia bungarensis	4	-20.549081	116.844855	25/05/2000
Rhynchosia bungarensis	4	-20.640271	116.777358	20/05/2000
Rhynchosia bungarensis	4	-20.546327	116.828242	25/05/2000
Rhynchosia bungarensis	4	-20.638945	116.786661	20/05/2000
Rhynchosia bungarensis	4	-20.665256	116.745265	3/06/2000
Rhynchosia bungarensis	4	-20.645762	116.761779	21/05/2000
Rhynchosia bungarensis	4	-20.69183	116.721464	28/05/2000
Rhynchosia bungarensis	4	-20.648958	116.759739	21/05/2000
Rhynchosia bungarensis	4	-20.566793	116.819181	5/06/2000
Rhynchosia bungarensis	4	-20.548369	116.837843	25/05/2000
Rhynchosia bungarensis	4	-20.78333333	116.7666667	21/09/1983
Rhynchosia bungarensis	4	-21.04651731	116.2398665	7/06/2017
Schoenus punctatus	3	-20.56589139	116.8235573	10/07/1999
Stackhousia clementii	3	-20.63026737	116.784159	30/04/2002
Stackhousia clementii	3	-20.72520548	116.7560462	24/02/2013
Stackhousia clementii	3	-21.68456	115.118028	30/08/2011
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.652806	117.133444	7/10/2007
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.621222	117.150917	9/10/2007
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.624361	117.143611	10/03/2008
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.616417	117.150972	5/10/2007

Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.62675509	117.1810431	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.64340538	117.0941985	3/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.62334288	117.1491159	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.6213672	117.1654401	3/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.62334288	117.1491159	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.62972222	117.1897222	/08/1984
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	-20.63333333	117.2	8/10/1992
Terminalia supranitifolia	3	-20.66666667	116.7	/12/1986
Terminalia supranitifolia	3	-20.67040184	116.7569983	2/11/1998
Terminalia supranitifolia	3	-20.64153748	116.796257	12/11/1998
Terminalia supranitifolia	3	-20.6359749	116.7917049	15/11/1998
Terminalia supranitifolia	3	-20.63333333	116.75	6/12/1978
Terminalia supranitifolia	3	-20.63597546	116.7916969	15/11/1998
Terminalia supranitifolia	3	-20.64153102	116.7962525	12/11/1998
Terminalia supranitifolia	3	-20.67039265	116.7570029	2/11/1998
Terminalia supranitifolia	3	-20.63861588	116.7937555	10/11/1998
Terminalia supranitifolia	3	-20.64257507	116.7732557	26/11/1998
Terminalia supranitifolia	3	-20.65113121	116.7725423	26/11/1998
Terminalia supranitifolia	3	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	-20.78333333	116.7666667	10/02/1982
Terminalia supranitifolia	3	-20.66666667	116.75	21/07/2004
Terminalia supranitifolia	3	-20.66666667	116.7	/12/1971
Terminalia supranitifolia	3	-20.65430143	116.7784031	24/11/1998
Terminalia supranitifolia	3	-20.65839632	116.7796453	5/11/1998
Terminalia supranitifolia	3	-20.65611998	116.773226	24/11/1998
Terminalia supranitifolia	3	-20.64520398	116.7798082	22/11/1998
Terminalia supranitifolia	3	-20.64068437	116.7785477	22/11/1998
Terminalia supranitifolia	3	-20.66687903	116.764387	28/11/1998
Terminalia supranitifolia	3	-20.66859454	116.7634242	2/11/1998
Terminalia supranitifolia	3	-20.66073537	116.7717119	3/11/1998
Terminalia supranitifolia	3	-20.64303766	116.7677738	28/11/1998
Terminalia supranitifolia	3	-20.65870665	116.7750463	3/11/1998
Terminalia supranitifolia	3	-20.63536052	116.7993944	10/11/1998
Terminalia supranitifolia	3	-20.63333333	116.8	/05/1983
Terminalia supranitifolia	3	-20.65249621	116.7871513	8/11/1998
Terminalia supranitifolia	3	-20.65143609	116.7921831	8/11/1998
Terminalia supranitifolia	3	-20.63373596	116.7859391	20/11/1998
Terminalia supranitifolia	3	-20.64244207	116.78226	20/11/1998
Terminalia supranitifolia	3	-20.64676249	116.7832234	18/11/1998
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	3	-20.72916667	116.7622222	20/08/1992
Triumfetta echinata	3	-21.77707459	115.0853797	1/11/2009
Triumfetta echinata	3	-21.63805556	115.3438889	25/10/1980
Triumfetta echinata	3	-21.59972222	115.2938889	5/11/1996
Vigna triodiophila	3	-20.61416667	116.7752778	9/06/2011
Vigna triodiophila	3	-20.609139	116.782	21/05/2000
Vigna triodiophila	3	-20.648704	116.759173	21/05/2000
Vigna triodiophila	3	-20.58063	116.79481	22/05/2000
Vigna triodiophila	3	-20.64661469	116.7606137	29/05/2009
Vigna triodiophila	3	-20.68711287	117.0081136	26/05/2009
Vigna triodiophila	3	-20.649002	116.75947	21/05/2000
Vigna triodiophila	3	-20.61074796	116.7630429	31/03/2011

COM_NAME	**STATE_CATG**
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Burrup Peninsula rock pool communities	Priority 1
Burrup Peninsula rock pool communities	Priority 1

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5	-20.5	1980
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5	-20.5	1983
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5	-20.5	1977
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5	-20.5	1981
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5872	-20.4689	1998
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.85	-20.45	2005
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.91	-20.41	0
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.8494	-20.4843	0
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.6283	-20.4564	0
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.6343	-20.5843	0
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5194	-20.6069	1983
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5194	-20.6069	1983
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5194	-20.6069	1984
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.6343	-20.5843	1984
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.8494	-20.4843	1990
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5194	-20.6069	1990
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.6343	-20.5843	1990
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.5872	-20.4689	1998
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.85	-20.45	2005
Actitis hypoleucos	Actitis	hypoleucos	common sandpiper	116.6283	-20.4564	0
Anous stolidus	Anous	stolidus	common noddy	116.7833	-20.5833	1988
Anous stolidus	Anous	stolidus	common noddy	116.6283	-20.4564	0
Anous stolidus	Anous	stolidus	common noddy	116.5381	-20.4778	1983
Anous stolidus	Anous	stolidus	common noddy	116.6254	-20.4528	1983
Anous stolidus	Anous	stolidus	common noddy	116.6283	-20.4564	0
Apus pacificus	Apus	pacificus	fork-tailed swift	116.5194	-20.6069	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5	-20.5	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5	-20.5	1977
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5	-20.5	1974
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5	-20.5	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5	-20.5	1966
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.58	-20.58	1979
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.58	-20.58	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5808	-20.4758	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5872	-20.4689	1998
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6583	-20.525	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.91	-20.41	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7768	-20.5405	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6592	-20.6094	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6225	-20.4697	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5381	-20.4778	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6283	-20.4564	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6396	-20.4392	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5936	-20.4817	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6343	-20.5843	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8064	-20.4931	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8056	-20.3858	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7768	-20.5405	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.4444	-20.6572	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6831	-20.6547	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6225	-20.4697	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5194	-20.6069	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8317	-20.3889	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5381	-20.4778	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	1982
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6283	-20.4564	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6283	-20.4564	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6283	-20.4564	1990

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7768	-20.5405	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5194	-20.6069	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7768	-20.5405	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8317	-20.3889	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.4444	-20.6572	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6393	-20.4388	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5381	-20.4778	1983
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5194	-20.6069	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8056	-20.3858	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8064	-20.4931	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5936	-20.4817	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8317	-20.3889	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6393	-20.4388	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5936	-20.4817	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5381	-20.4778	1984
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5936	-20.4817	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6343	-20.5843	1990
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6583	-20.525	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5808	-20.4758	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5872	-20.4689	1998
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8494	-20.4843	1978
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6225	-20.4697	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8064	-20.4931	2014
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7768	-20.5405	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6283	-20.4564	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8317	-20.3889	0
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8806	-20.3881	1998
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.8202	-20.5862	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.6583	-20.525	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5822	-20.4745	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5885	-20.4676	1998
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7597	-20.6403	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7047	-20.6662	2010
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7972	-20.6331	1999
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5013	-20.4987	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.918	-20.4153	1980
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.582	1980
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.4153	1980
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.4153	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7513	-20.582	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7513	-20.582	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.582	1981
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.4153	1978
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5013	-20.4987	1977
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.582	1979
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5847	-20.4153	1979
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.7513	-20.582	1979
Arenaria interpres	Arenaria	interpres	ruddy turnstone	116.5013	-20.4987	1980
Calidris acuminata	Calidris	acuminata	sharp-tailed sandpipe	116.5194	-20.6069	1984
Calidris acuminata	Calidris	acuminata	sharp-tailed sandpipe	116.4444	-20.6572	1990
Calidris acuminata	Calidris	acuminata	sharp-tailed sandpipe	116.5194	-20.6069	1990
Calidris acuminata	Calidris	acuminata	sharp-tailed sandpipe	116.7513	-20.582	1981
Calidris alba	Calidris	alba	sanderling	116.5	-20.5	1983
Calidris alba	Calidris	alba	sanderling	116.85	-20.45	2005
Calidris alba	Calidris	alba	sanderling	116.8513	-20.4487	2005
Calidris alba	Calidris	alba	sanderling	116.8806	-20.3881	1998
Calidris alba	Calidris	alba	sanderling	116.8513	-20.4487	2005
Calidris alba	Calidris	alba	sanderling	116.5013	-20.4987	1981
Calidris canutus	Calidris	canutus	red knot, knot	116.4444	-20.6572	1990
Calidris canutus	Calidris	canutus	red knot, knot	116.5	-20.5	1980
Calidris canutus	Calidris	canutus	red knot, knot	116.8494	-20.4843	1978
Calidris canutus	Calidris	canutus	red knot, knot	116.5013	-20.4987	1980
Calidris ferruginea	Calidris	ferruginea	curlew sandpiper	116.8494	-20.4843	1990
Calidris ferruginea	Calidris	ferruginea	curlew sandpiper	116.5194	-20.6069	1990
Calidris ferruginea	Calidris	ferruginea	curlew sandpiper	116.5	-20.5	1977
Calidris ferruginea	Calidris	ferruginea	curlew sandpiper	116.5	-20.5	1966
Calidris ferruginea	Calidris	ferruginea	curlew sandpiper	116.5013	-20.4987	1977
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5936	-20.4817	1984
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.8494	-20.4843	1990
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5936	-20.4817	1990
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5	-20.5	1977
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5	-20.5	1983
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5	-20.5	1980
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5	-20.5	1981
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.85	-20.45	2005
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.8513	-20.4487	2005
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.8513	-20.4487	2005
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.7988	-20.6323	2010
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.7972	-20.6331	1999
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5013	-20.4987	1981
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5847	-20.4153	1978
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5013	-20.4987	1978
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5013	-20.4987	1977
Calidris ruficollis	Calidris	ruficollis	red-necked stint	116.5013	-20.4987	1980
Caretta caretta	Caretta	caretta	loggerhead turtle	116.917	-20.3999	2008
Caretta caretta	Caretta	caretta	loggerhead turtle	116.8317	-20.3889	1984
Caretta caretta	Caretta	caretta	loggerhead turtle	116.917	-20.3999	2008
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, l	116.6283	-20.4564	0

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.8494	-20.4843	1990
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.5381	-20.4778	1990
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.675	-20.5178	1990
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.6283	-20.4564	1983
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.675	-20.5178	1983
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.5	-20.5	1983
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.5	-20.5	1966
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.8064	-20.4931	2014
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.6283	-20.4564	0
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.8202	-20.5862	1999
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.8183	-20.5817	1999
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.7597	-20.6403	1999
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.7819	-20.5903	1999
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.7988	-20.6323	2010
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.7047	-20.6662	2010
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.7972	-20.6331	1999
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.5013	-20.4987	1981
Charadrius leschenaultii	Charadrius	leschenaultii	greater sand plover, la	116.5847	-20.4153	1981
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.8494	-20.4843	1990
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.5194	-20.6069	1990
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.6283	-20.4564	1990
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.5936	-20.4817	1990
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.5936	-20.4817	1982
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.6283	-20.4564	1983
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.5194	-20.6069	1984
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.85	-20.45	2005
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.85	-20.45	2005
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.8494	-20.4843	1978
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.8806	-20.3881	1998
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.8513	-20.4487	2005
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.7988	-20.6323	2010
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.7513	-20.582	1977
Charadrius mongolus	Charadrius	mongolus	lesser sand plover	116.5847	-20.4153	1977
Charadrius veredus	Charadrius	veredus	oriental plover	116.5194	-20.6069	1990
Charadrius veredus	Charadrius	veredus	oriental plover	116.6283	-20.4564	1990
Charadrius veredus	Charadrius	veredus	oriental plover	116.5194	-20.6069	1984
Chelonia mydas	Chelonia	mydas	green turtle	116.6623	-20.5327	2015
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5389	-20.5356	0
Chelonia mydas	Chelonia	mydas	green turtle	116.675	-20.5178	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	2012
Chelonia mydas	Chelonia	mydas	green turtle	116.5389	-20.5356	1992
Chelonia mydas	Chelonia	mydas	green turtle	116.8064	-20.4931	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.8056	-20.3858	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.8494	-20.4843	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.4444	-20.6572	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.5389	-20.5356	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.8317	-20.3889	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.6283	-20.4564	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.8806	-20.3881	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.675	-20.5178	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.6343	-20.5843	1990
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.5	-20.6	2010
Chelonia mydas	Chelonia	mydas	green turtle	116.675	-20.5178	1984
Chelonia mydas	Chelonia	mydas	green turtle	116.8597	-20.4044	1984
Chelonia mydas	Chelonia	mydas	green turtle	116.8317	-20.3889	1984
Chelonia mydas	Chelonia	mydas	green turtle	116.5389	-20.5356	1984
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	2004
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	2004
Chelonia mydas	Chelonia	mydas	green turtle	116.8064	-20.4931	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8119	-20.5735	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8494	-20.4843	0
Chelonia mydas	Chelonia	mydas	green turtle	116.4444	-20.6572	0
Chelonia mydas	Chelonia	mydas	green turtle	116.6831	-20.6547	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8211	-20.4486	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8806	-20.3881	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	0
Chelonia mydas	Chelonia	mydas	green turtle	116.4444	-20.6572	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8211	-20.4486	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8064	-20.4931	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8806	-20.3881	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8494	-20.4843	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8119	-20.5735	0
Chelonia mydas	Chelonia	mydas	green turtle	116.6831	-20.6547	0
Chelonia mydas	Chelonia	mydas	green turtle	116.4444	-20.6572	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8211	-20.4486	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5194	-20.6069	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8064	-20.4931	0
Chelonia mydas	Chelonia	mydas	green turtle	116.5936	-20.4817	0
Chelonia mydas	Chelonia	mydas	green turtle	116.8806	-20.3881	0
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
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Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2008
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.917	-20.3999	2009
Chelonia mydas	Chelonia	mydas	green turtle	116.5074	-20.6218	2013
Chelonia mydas	Chelonia	mydas	green turtle	116.5745	-20.4629	2013
Chelonia mydas	Chelonia	mydas	green turtle	116.5074	-20.6218	2013

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Chelonia mydas	Chelonia	mydas	green turtle	116.5745	-20.4629	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1899
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1900
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.748	-20.6227	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4854	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8344	-20.4842	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8345	-20.4839	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8347	-20.4837	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8345	-20.4839	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4833	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8351	-20.4831	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8337	-20.4833	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8296	-20.4902	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.834	-20.4865	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8343	-20.4864	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8358	-20.4844	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8364	-20.4838	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8365	-20.4836	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8334	-20.4839	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8308	-20.4889	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.4836	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8807	-20.4282	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8824	-20.4267	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8828	-20.4256	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8798	-20.4334	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8827	-20.4264	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8791	-20.4337	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.882	-20.427	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4816	2014

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8337	-20.4833	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8365	-20.4836	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8331	-20.4849	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8824	-20.4267	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8798	-20.4334	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8828	-20.4256	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8827	-20.4264	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.881	-20.4279	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4821	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8296	-20.4902	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.881	-20.4279	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.882	-20.427	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8786	-20.4337	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8828	-20.426	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8302	-20.4896	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4879	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8332	-20.4876	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4874	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8315	-20.4882	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8844	-20.4825	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8825	-20.4825	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8004	-20.5705	1990
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.7723	-20.6376	1990
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.809	-20.5724	1990
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.7884	-20.638	1990
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8324	-20.4874	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8235	-20.5176	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8235	-20.5176	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8247	-20.5164	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8314	-20.4885	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.833	-20.4822	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8331	-20.4822	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.4825	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.4844	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8344	-20.4865	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4852	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8353	-20.4833	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8247	-20.5164	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4855	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8299	-20.49	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8307	-20.4891	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4883	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8726	-20.4366	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8697	-20.4392	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8727	-20.4374	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8726	-20.4366	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8734	-20.4351	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4843	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8242	-20.5171	2015

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.872	-20.4372	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8734	-20.4351	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8317	-20.4881	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8339	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.834	-20.4869	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8712	-20.4375	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8727	-20.4365	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4816	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8306	-20.4894	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8337	-20.4872	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4856	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4847	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8359	-20.4822	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.484	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.486	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8337	-20.4872	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8351	-20.4832	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8357	-20.4825	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8359	-20.4822	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8346	-20.486	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4875	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8302	-20.4896	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8326	-20.487	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8362	-20.4819	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.482	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4816	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8354	-20.483	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4816	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.486	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8297	-20.4902	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8328	-20.4886	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8301	-20.4897	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8376	-20.4801	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8304	-20.4895	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8	-20.5	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.9	-20.5	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1900
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.5	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.85	-20.4833	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	1978
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	1970
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	2012

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5119	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8217	-20.5118	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8522	-20.4495	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8525	-20.4493	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8522	-20.4495	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8525	-20.4493	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8217	-20.5118	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8212	-20.5119	2012
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.835	-20.4855	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8307	-20.4891	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8339	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8727	-20.4365	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4883	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.833	-20.4822	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8324	-20.4874	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.4844	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8326	-20.487	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8362	-20.4819	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.482	2015
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8334	-20.4839	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8308	-20.4889	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8335	-20.4836	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8807	-20.4282	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8331	-20.4849	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8315	-20.4882	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8844	-20.4825	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8825	-20.4825	2014
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8494	-20.4843	2016
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8503	-20.4987	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.7713	-20.6087	0
Dasyurus hallucatus	Dasyurus	hallucatus	northern quoll	116.8508	-20.4987	0
Dugong dugon	Dugong	dugon	dugong	116.8333	-20.3833	0
Dugong dugon	Dugong	dugon	dugong	116.7568	-20.6047	2006
Dugong dugon	Dugong	dugon	dugong	116.6111	-20.4762	2012
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5194	-20.6069	1978
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.675	-20.5178	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2012
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	1992
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8064	-20.4931	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8494	-20.4843	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.4444	-20.6572	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.6225	-20.4697	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5194	-20.6069	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.675	-20.5178	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	1990
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.9336	-20.4109	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.6225	-20.4697	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.675	-20.5178	1984
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8317	-20.3889	1984
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	1984
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	2004
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8494	-20.4843	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.4444	-20.6572	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5479	-20.5379	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.6225	-20.4697	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5194	-20.6069	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8211	-20.4486	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8806	-20.3881	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8494	-20.4843	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.4444	-20.6572	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8211	-20.4486	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8806	-20.3881	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5194	-20.6069	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5479	-20.5379	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.6225	-20.4697	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5389	-20.5356	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8494	-20.4843	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.4444	-20.6572	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8211	-20.4486	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.8806	-20.3881	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5194	-20.6069	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5936	-20.4817	0
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.862	-20.4621	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2008
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.917	-20.3999	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.9336	-20.4109	2009
Eretmochelys imbricata	Eretmochelys	imbricata	hawksbill turtle	116.5905	-20.4846	2017
Falco peregrinus	Falco	peregrinus	peregrine falcon	116.8022	-20.5909	2006
Falco peregrinus	Falco	peregrinus	peregrine falcon	116.8013	-20.6153	2000
Falco peregrinus	Falco	peregrinus	peregrine falcon	116.7513	-20.582	1980
Falco peregrinus	Falco	peregrinus	peregrine falcon	116.5013	-20.4987	1977
Falco peregrinus	Falco	peregrinus	peregrine falcon	116.7513	-20.582	1979
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8056	-20.3858	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7768	-20.5405	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8494	-20.4843	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6225	-20.4697	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5194	-20.6069	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6283	-20.4564	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6943	-20.5202	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5936	-20.4817	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5936	-20.4817	1982
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8064	-20.4931	1982
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6225	-20.4697	1983
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8056	-20.3858	1983
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6283	-20.4564	1983
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5936	-20.4817	1984
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8806	-20.3881	1984
Fregata ariel	Fregata	ariel	lesser frigatebird	116.4444	-20.6572	1984
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8075	-20.3877	1984
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6943	-20.5202	1983
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7768	-20.5405	1983
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5194	-20.6069	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5808	-20.4758	1999
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6675	-20.5203	2002
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6675	-20.5203	2002
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6667	-20.5194	2000
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6943	-20.5202	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7768	-20.5405	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6225	-20.4697	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6283	-20.4564	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.8806	-20.3881	1998
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5	-20.5	1974
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5	-20.5	1981
Fregata ariel	Fregata	ariel	lesser frigatebird	116.53	-20.55	1962
Fregata ariel	Fregata	ariel	lesser frigatebird	116.58	-20.58	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.58	-20.58	1977
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5808	-20.4758	1999
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6667	-20.5194	2000
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6675	-20.5203	2002
Fregata ariel	Fregata	ariel	lesser frigatebird	116.91	-20.41	0
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5822	-20.4745	1999
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6675	-20.5203	2002
Fregata ariel	Fregata	ariel	lesser frigatebird	116.6675	-20.5203	2002
Fregata ariel	Fregata	ariel	lesser frigatebird	116.668	-20.5181	2000
Fregata ariel	Fregata	ariel	lesser frigatebird	116.918	-20.4153	1980
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7513	-20.582	1980
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.4153	1980
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7513	-20.582	1980
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7513	-20.582	1981
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.4153	1981
Fregata ariel	Fregata	ariel	lesser frigatebird	116.7513	-20.582	1981
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.4153	1978
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.4153	1977
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.582	1977
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.582	1979
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5847	-20.582	1979

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Fregata ariel	Fregata	ariel	lesser frigatebird	116.5013	-20.4987	1980
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8056	-20.3858	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.5936	-20.4817	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8069	-20.3845	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.5949	-20.4803	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8597	-20.4044	1984
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8597	-20.4044	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.5936	-20.4817	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8597	-20.4044	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8073	-20.3847	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.7713	-20.6087	1997
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.5953	-20.4807	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.8069	-20.3845	0
Hydromys chrysogaster	Hydromys	chrysogaster	water-rat, rakali	116.5949	-20.4803	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8314	-20.3889	1987
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8314	-20.3889	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8314	-20.3889	1991
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6292	-20.4571	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6939	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5946	-20.4797	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5204	-20.6007	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4449	-20.6588	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5204	-20.6007	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5204	-20.6007	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4449	-20.6588	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8044	-20.3856	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.777	-20.5399	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.777	-20.5399	1982
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5	-20.5	1974
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5	-20.5	1978
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5	-20.5	1981
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5747	-20.5931	2008
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.58	-20.58	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5872	-20.4689	1998
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.63	-20.58	1901
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6583	-20.525	1999
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6667	-20.5194	2000
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6675	-20.5203	2002
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.85	-20.45	2005
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8519	-20.4492	2002
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8875	-20.3917	2000
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.91	-20.41	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6943	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1987
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8064	-20.4931	2000
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1982
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1991
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6169	-20.4441	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1982
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8494	-20.4843	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5381	-20.4778	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.675	-20.5178	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6943	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6737	-20.4485	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6732	-20.4512	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5079	-20.4995	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6149	-20.5694	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6343	-20.5843	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6169	-20.4441	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8494	-20.4843	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5389	-20.5356	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1982
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5381	-20.4778	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.675	-20.5178	1982
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7754	-20.5404	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.584	-20.5753	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.654	-20.5059	1983

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Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.675	-20.5178	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8332	-20.3806	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4513	-20.6649	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5079	-20.4995	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4487	-20.6526	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8336	-20.3834	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6737	-20.4485	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6343	-20.5843	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6149	-20.5694	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8336	-20.3834	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6737	-20.4485	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6169	-20.4441	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5381	-20.4778	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5079	-20.4995	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6343	-20.5843	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4449	-20.6588	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5204	-20.6007	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6939	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6292	-20.4571	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.654	-20.5059	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8494	-20.4843	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5389	-20.5356	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6737	-20.4485	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5946	-20.4797	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8494	-20.4843	1978
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8064	-20.4931	2014
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8064	-20.4931	2000
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1971
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1991
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1987
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6943	-20.5202	1971
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	1983
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8597	-20.4044	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4313	-20.6537	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6149	-20.5694	1990
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6943	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.654	-20.5059	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	1984
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8806	-20.3881	2000
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8168	-20.5091	2015
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	1918
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	1918
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8056	-20.3858	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.7768	-20.5405	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.4444	-20.6572	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5194	-20.6069	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.8317	-20.3889	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6283	-20.4564	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.6943	-20.5202	0
Hydroprogne caspia	Hydroprogne	caspia	Caspian tern	116.5936	-20.4817	0
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8486	-20.4884	1993
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.752	-20.633	2004
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7073	-20.6668	2005
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.767	-20.6571	2001
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.782	-20.593	2014
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.777	-20.599	2015
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.777	-20.598	2015
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.782	-20.592	2015
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7685	-20.624	2015
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7712	-20.6065	2016
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7785	-20.5949	2015

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Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7785	-20.5949	2015
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.777	-20.599	2016
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.771	-20.589	2016
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7675	-20.6131	2016
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.779	-20.595	2017
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.768	-20.613	2017
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7619	-20.6086	2018
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.7727	-20.6113	2018
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8494	-20.4843	1990
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.6343	-20.5843	1990
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8486	-20.4884	1993
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8494	-20.4843	0
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8119	-20.5735	0
Liasis olivaceus barroni	Liasis	olivaceus	Pilbara olive python	116.8494	-20.4843	0
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.85	-20.45	2005
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8494	-20.4843	0
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.4444	-20.6572	1983
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8494	-20.4843	1984
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8064	-20.4931	1990
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8494	-20.4843	1990
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.4444	-20.6572	1990
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.85	-20.45	2005
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8494	-20.4843	1978
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7588	-20.6062	1998
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8105	-20.6059	1999
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8105	-20.6059	1999
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7597	-20.6403	1999
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.8513	-20.4487	2005
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7988	-20.6323	2010
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7047	-20.6662	2010
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7972	-20.6331	1999
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.5013	-20.4987	1981
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.918	-20.4153	1980
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.7513	-20.582	1977
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.5013	-20.4987	1978
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.5013	-20.4987	1978
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.5013	-20.4987	1977
Limosa lapponica	Limosa	lapponica	bar-tailed godwit	116.5013	-20.4987	1980
Limosa limosa	Limosa	limosa	black-tailed godwit	116.5013	-20.4987	1981
Macroderma gigas	Macroderma	gigas	ghost bat	116.8022	-20.5909	2006
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.8013	-20.5653	1999
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.9267	-20.3733	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.9267	-20.3733	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.9267	-20.3733	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.9267	-20.3733	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.9133	-20.3725	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.865	-20.3433	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.865	-20.3433	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.865	-20.3433	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.75	-20.35	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.75	-20.35	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.7367	-20.4533	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.7333	-20.3667	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.6467	-20.3967	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.69	-20.37	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.69	-20.37	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.69	-20.37	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.69	-20.37	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.61	-20.41	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.61	-20.41	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.61	-20.41	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.61	-20.41	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.52	-20.47	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.52	-20.47	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.52	-20.47	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.5	-20.48	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.46	-20.52	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.46	-20.52	2014
Megaptera novaeangliae	Megaptera	novaeangliae	humpback whale	116.46	-20.52	2014
Mormopterus (Ozimops) cobourgianus	Mormopterus	(Ozimops) cobourgiar	north-western free-ta	116.8022	-20.5909	2006
Mormopterus (Ozimops) cobourgianus	Mormopterus	(Ozimops) cobourgiar	north-western free-ta	116.8057	-20.6068	2001
Natator depressus	Natator	depressus	flatback turtle	116.8333	-20.6167	0
Natator depressus	Natator	depressus	flatback turtle	116.5194	-20.6069	1978
Natator depressus	Natator	depressus	flatback turtle	116.5936	-20.4817	2012
Natator depressus	Natator	depressus	flatback turtle	116.5194	-20.6069	1990
Natator depressus	Natator	depressus	flatback turtle	116.8317	-20.3889	1990
Natator depressus	Natator	depressus	flatback turtle	116.8806	-20.3881	1990
Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
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Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008

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Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
Natator depressus	Natator	depressus	flatback turtle	116.917	-20.3999	2008
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NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
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NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
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NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
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Natator depressus	Natator	depressus	flatback turtle	116.6283	-20.4564	0
Natator depressus	Natator	depressus	flatback turtle	116.8806	-20.3881	0
Natator depressus	Natator	depressus	flatback turtle	116.8222	-20.4231	0
Natator depressus	Natator	depressus	flatback turtle	116.8181	-20.4136	0
Natator depressus	Natator	depressus	flatback turtle	116.5936	-20.4817	0
Natator depressus	Natator	depressus	flatback turtle	116.5479	-20.5379	0
Natator depressus	Natator	depressus	flatback turtle	116.6225	-20.4697	0
Natator depressus	Natator	depressus	flatback turtle	116.5389	-20.5356	0
Natator depressus	Natator	depressus	flatback turtle	116.6461	-20.6533	0
Natator depressus	Natator	depressus	flatback turtle	116.6283	-20.4564	0
Natator depressus	Natator	depressus	flatback turtle	116.8119	-20.5735	0
Natator depressus	Natator	depressus	flatback turtle	116.8317	-20.3889	0
Natator depressus	Natator	depressus	flatback turtle	116.8222	-20.4231	0
Natator depressus	Natator	depressus	flatback turtle	116.8181	-20.4136	0
Natator depressus	Natator	depressus	flatback turtle	116.7768	-20.5405	0
Natator depressus	Natator	depressus	flatback turtle	116.8064	-20.4931	0
Natator depressus	Natator	depressus	flatback turtle	116.8211	-20.4486	0
Natator depressus	Natator	depressus	flatback turtle	116.4444	-20.6572	0
Natator depressus	Natator	depressus	flatback turtle	116.8806	-20.3881	0
Natator depressus	Natator	depressus	flatback turtle	116.5194	-20.6069	0
Natator depressus	Natator	depressus	flatback turtle	116.5936	-20.4817	0
Natator depressus	Natator	depressus	flatback turtle	116.6831	-20.6547	0
Natator depressus	Natator	depressus	flatback turtle	116.8494	-20.4843	0
Natator depressus	Natator	depressus	flatback turtle	116.5479	-20.5379	0
Natator depressus	Natator	depressus	flatback turtle	116.6225	-20.4697	0
Natator depressus	Natator	depressus	flatback turtle	116.5389	-20.5356	0
Natator depressus	Natator	depressus	flatback turtle	116.6461	-20.6533	0
Natator depressus	Natator	depressus	flatback turtle	116.6283	-20.4564	0
Natator depressus	Natator	depressus	flatback turtle	116.8119	-20.5735	0
Natator depressus	Natator	depressus	flatback turtle	116.8317	-20.3889	0
Natator depressus	Natator	depressus	flatback turtle	116.8222	-20.4231	0
Natator depressus	Natator	depressus	flatback turtle	116.8181	-20.4136	0
Natator depressus	Natator	depressus	flatback turtle	116.7768	-20.5405	0
Natator depressus	Natator	depressus	flatback turtle	116.8064	-20.4931	0
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NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
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Natator depressus	Natator	depressus	flatback turtle	116.9336	-20.4109	2009
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.868	-20.6487	1966
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.868	-20.6487	1966
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.868	-20.6487	1966
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.868	-20.6487	1966
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.6283	-20.4564	1983
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.8494	-20.4843	1984
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.8494	-20.4843	1990
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.85	-20.45	2005
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.8494	-20.4843	1978
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.8513	-20.4487	2005
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.7513	-20.582	1981
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.5013	-20.4987	1978
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.5013	-20.4987	1977
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.5013	-20.4987	1978
Numenius madagascariensis	Numenius	madagascariensis	eastern curlew	116.5013	-20.4987	1977
Numenius minutus	Numenius	minutus	little curlew, little whi	116.7105	-20.6551	2010
Numenius minutus	Numenius	minutus	little curlew, little whi	116.7513	-20.582	1981
Numenius minutus	Numenius	minutus	little curlew, little whi	116.7513	-20.582	1981
Numenius minutus	Numenius	minutus	little curlew, little whi	116.7513	-20.582	1977
Numenius minutus	Numenius	minutus	little curlew, little whi	116.5013	-20.4987	1977
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.85	-20.45	2005
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6169	-20.4441	0
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5194	-20.6069	0
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6737	-20.4485	0
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6732	-20.4512	0
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8211	-20.4486	1982
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6283	-20.4564	1983
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5194	-20.6069	1983
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5194	-20.6069	1984
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5194	-20.6069	1984
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6737	-20.4485	1984
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6169	-20.4441	1984
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8064	-20.4931	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6169	-20.4441	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5194	-20.6069	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8211	-20.4486	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6283	-20.4564	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8806	-20.3881	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6737	-20.4485	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.6343	-20.5843	1990
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8513	-20.4487	2005
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8494	-20.4843	1978
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8806	-20.3881	1998
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8265	-20.4836	2015
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8215	-20.5195	2015
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8014	-20.5711	2001
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8105	-20.6059	1999
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7822	-20.6595	2004
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7597	-20.6403	1999
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7819	-20.5903	1999
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.8513	-20.4487	2005
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7988	-20.6323	2010
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7972	-20.6331	1999
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1981
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7513	-20.582	1980
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7513	-20.582	1981
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7513	-20.582	1981
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1978
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1977
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.7513	-20.582	1978
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1977
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1979
Numenius phaeopus	Numenius	phaeopus	whimbrel	116.5013	-20.4987	1980
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.5	-20.5	1974
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.91	-20.41	0
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.8494	-20.4843	0
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.4444	-20.6572	0
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.6343	-20.5843	1983
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.6404	-20.4913	1983
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.4444	-20.6572	1984
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.8064	-20.4931	1984
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.7408	-20.4168	1984
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.5528	-20.4818	1984
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.8494	-20.4843	0
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.7322	-20.5958	2008
Oceanites oceanicus	Oceanites	oceanicus	Wilson's storm-petrel	116.918	-20.4153	1979
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1981
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1974
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1981
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.5	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5747	-20.5931	2008
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.58	-20.58	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.58	-20.58	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.58	-20.58	1977

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Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5808	-20.4758	1999
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5825	-20.585	2008
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5872	-20.4689	1998
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.61	-20.58	1901
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.63	-20.58	1901
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.63	-20.58	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6583	-20.525	1999
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6667	-20.5194	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6675	-20.5203	2002
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.85	-20.45	2005
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8519	-20.4492	2002
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8875	-20.3917	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.91	-20.41	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.45	-20.666	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5	-20.6	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.616	-20.583	1901
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.866	-20.383	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.866	-20.383	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1987
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5479	-20.5379	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1987
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5946	-20.4797	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1976
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6169	-20.4441	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6592	-20.6094	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4313	-20.6537	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6225	-20.4697	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8211	-20.4486	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6796	-20.5419	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5381	-20.4778	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6396	-20.4392	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6737	-20.4485	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6732	-20.4512	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5079	-20.4995	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6149	-20.5694	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8211	-20.4486	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6787	-20.5216	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5327	-20.5428	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6225	-20.4697	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.653	-20.5039	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6796	-20.5419	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8321	-20.3883	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8024	-20.385	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6269	-20.4543	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5793	-20.5805	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6538	-20.5043	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8321	-20.3883	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4498	-20.6647	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5816	-20.579	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8024	-20.385	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4313	-20.6537	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5079	-20.4995	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5816	-20.579	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6786	-20.5218	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6149	-20.5694	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8056	-20.3858	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6737	-20.4485	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6169	-20.4441	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5381	-20.4778	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6149	-20.5694	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8505	-20.4796	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5204	-20.6007	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6742	-20.5151	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8049	-20.4927	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6342	-20.5841	1976
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4449	-20.6588	1987
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.777	-20.5399	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6253	-20.4526	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6292	-20.4571	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8314	-20.3889	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.654	-20.5059	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8056	-20.3858	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6796	-20.5419	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.88	-20.3861	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6943	-20.5202	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5473	-20.5379	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6737	-20.4485	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6225	-20.4697	1981
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1970
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	1980
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1987
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5479	-20.5379	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1982
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1984

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1976
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1983
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1976
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1977
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6169	-20.4441	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8597	-20.4044	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6831	-20.6547	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6225	-20.4697	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4313	-20.6537	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8211	-20.4486	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6796	-20.5419	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5381	-20.4778	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6943	-20.5202	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6393	-20.4388	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6393	-20.4388	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6149	-20.5694	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	1990
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.654	-20.5059	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6796	-20.5419	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	1978
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5389	-20.5356	1984
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	2000
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	2004
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8169	-20.5092	2015
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8273	-20.5152	2015
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8347	-20.4846	2015
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8222	-20.4231	2015
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8181	-20.4136	2015
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	1918
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8064	-20.4931	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.7768	-20.5405	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8494	-20.4843	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.4444	-20.6572	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5479	-20.5379	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5194	-20.6069	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8317	-20.3889	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6254	-20.4528	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6283	-20.4564	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.8806	-20.3881	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.675	-20.5178	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.5936	-20.4817	0
Pandion cristatus	Pandion	cristatus	osprey, eastern ospre	116.6343	-20.5843	0
Pluvialis fulva	Pluvialis	fulva	Pacific golden plover	116.5	-20.5	1980
Pluvialis fulva	Pluvialis	fulva	Pacific golden plover	116.6283	-20.4564	1983
Pluvialis fulva	Pluvialis	fulva	Pacific golden plover	116.7047	-20.6662	2010
Pluvialis fulva	Pluvialis	fulva	Pacific golden plover	116.5013	-20.4987	1980
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.5	-20.5	1983
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.8494	-20.4843	1990
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.4444	-20.6572	1990
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.4485	-20.6657	1983
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.7988	-20.6323	2010
Pluvialis squatarola	Pluvialis	squatarola	grey plover	116.5013	-20.4987	1981
Pseudomys chapmani	Pseudomys	chapmani	western pebble-mour	116.8313	-20.5787	1983
Pseudomys chapmani	Pseudomys	chapmani	western pebble-mour	116.7713	-20.6087	1994
Stenella longirostris	Stenella	longirostris	spinner dolphin	116.6633	-20.5342	2014
Sterna dougallii	Sterna	dougallii	roseate tern	116.538	-20.5352	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6737	-20.4482	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5	-20.5	1974
Sterna dougallii	Sterna	dougallii	roseate tern	116.5	-20.5	1983
Sterna dougallii	Sterna	dougallii	roseate tern	116.58	-20.58	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.91	-20.41	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6732	-20.4512	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5389	-20.5356	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.8597	-20.4044	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.8494	-20.4843	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6943	-20.5202	0

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Sterna dougallii	Sterna	dougallii	roseate tern	116.6396	-20.4392	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6737	-20.4485	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6732	-20.4512	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5079	-20.4995	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5936	-20.4817	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6343	-20.5843	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.8056	-20.3858	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.5381	-20.4778	1983
Sterna dougallii	Sterna	dougallii	roseate tern	116.5079	-20.4995	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.5079	-20.4995	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.8056	-20.3858	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.6737	-20.4485	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.6393	-20.4388	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.5936	-20.4817	1984
Sterna dougallii	Sterna	dougallii	roseate tern	116.8317	-20.3889	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.5381	-20.4778	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.6393	-20.4388	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.6737	-20.4485	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.5079	-20.4995	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.5936	-20.4817	1990
Sterna dougallii	Sterna	dougallii	roseate tern	116.6943	-20.5202	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6343	-20.5843	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5936	-20.4817	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.8494	-20.4843	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.8388	-20.416	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.538	-20.5352	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6737	-20.4482	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5389	-20.5356	1994
Sterna dougallii	Sterna	dougallii	roseate tern	116.6732	-20.4512	1994
Sterna dougallii	Sterna	dougallii	roseate tern	116.8806	-20.3881	1998
Sterna dougallii	Sterna	dougallii	roseate tern	116.5389	-20.5356	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.6732	-20.4512	0
Sterna dougallii	Sterna	dougallii	roseate tern	116.5013	-20.4987	1981
Sterna dougallii	Sterna	dougallii	roseate tern	116.5847	-20.582	1981
Sterna dougallii	Sterna	dougallii	roseate tern	116.7513	-20.582	1981
Sterna dougallii	Sterna	dougallii	roseate tern	116.7513	-20.4153	1981
Sterna dougallii	Sterna	dougallii	roseate tern	116.7513	-20.582	1979
Sterna dougallii	Sterna	dougallii	roseate tern	116.5847	-20.4153	1979
Sterna dougallii	Sterna	dougallii	roseate tern	116.5847	-20.582	1979
Sterna dougallii	Sterna	dougallii	roseate tern	116.7513	-20.582	1979
Sterna dougallii	Sterna	dougallii	roseate tern	116.918	-20.4153	1979
Sterna hirundo	Sterna	hirundo	Common Tern	116.4444	-20.6572	1990
Sterna hirundo	Sterna	hirundo	Common Tern	116.5194	-20.6069	1990
Sterna hirundo	Sterna	hirundo	Common Tern	116.5389	-20.5356	1990
Sterna hirundo	Sterna	hirundo	Common Tern	116.8317	-20.3889	1990
Sterna hirundo	Sterna	hirundo	Common Tern	116.6343	-20.5843	1990
Sterna hirundo	Sterna	hirundo	Common Tern	116.4456	-20.6489	2000
Sterna hirundo	Sterna	hirundo	common tern	116.5758	-20.6397	2000
Sterna hirundo	Sterna	hirundo	common tern	116.4814	-20.6461	2000
Sterna hirundo	Sterna	hirundo	common tern	116.4456	-20.6489	2000
Sternula albifrons	Sternula	albifrons	little tern	116.58	-20.58	2010
Sternula albifrons	Sternula	albifrons	little tern	116.8064	-20.4931	2014
Sternula nereis nereis	Sternula	nereis	fairy tern	116.432	-20.6537	1991
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8044	-20.3856	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8044	-20.3856	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.866	-20.383	1918
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5	-20.5	1974
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4313	-20.6537	1991
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8317	-20.3889	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5381	-20.4778	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.675	-20.5178	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6737	-20.4485	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6732	-20.4512	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5079	-20.4995	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6149	-20.5694	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6283	-20.4564	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.654	-20.5059	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4444	-20.6572	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5381	-20.4778	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5929	-20.5894	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5389	-20.5356	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5079	-20.4995	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5671	-20.4849	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5671	-20.4849	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6149	-20.5694	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6737	-20.4485	1979
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6149	-20.5694	1984
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8064	-20.4931	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8597	-20.4044	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8494	-20.4843	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4444	-20.6572	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5194	-20.6069	1990

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Sternula nereis nereis	Sternula	nereis	fairy tern	116.5389	-20.5356	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5381	-20.4778	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6283	-20.4564	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.675	-20.5178	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5079	-20.4995	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6343	-20.5843	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.432	-20.6537	1991
Sternula nereis nereis	Sternula	nereis	fairy tern	116.654	-20.5059	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8317	-20.3889	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	1983
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6737	-20.4485	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8597	-20.4044	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4313	-20.6537	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.6149	-20.5694	1990
Sternula nereis nereis	Sternula	nereis	fairy tern	116.654	-20.5059	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8317	-20.3889	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.5936	-20.4817	2004
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4444	-20.6572	1918
Sternula nereis nereis	Sternula	nereis	fairy tern	116.8056	-20.3858	0
Sternula nereis nereis	Sternula	nereis	fairy tern	116.4313	-20.6537	0
Sula leucogaster	Sula	leucogaster	brown booby	116.8056	-20.3858	0
Sula leucogaster	Sula	leucogaster	brown booby	116.6737	-20.4485	1979
Sula leucogaster	Sula	leucogaster	brown booby	116.6732	-20.4512	1979
Sula leucogaster	Sula	leucogaster	brown booby	116.7273	-20.533	1983
Sula leucogaster	Sula	leucogaster	brown booby	116.6861	-20.5284	1983
Sula leucogaster	Sula	leucogaster	brown booby	116.6641	-20.5354	1983
Sula leucogaster	Sula	leucogaster	brown booby	116.6799	-20.617	1983
Sula leucogaster	Sula	leucogaster	brown booby	116.6737	-20.4485	1979
Sula leucogaster	Sula	leucogaster	brown booby	116.6737	-20.4485	1979
Sula leucogaster	Sula	leucogaster	brown booby	116.6737	-20.4485	1980
Sula leucogaster	Sula	leucogaster	brown booby	116.8075	-20.3877	1984
Sula leucogaster	Sula	leucogaster	brown booby	116.7454	-20.4188	1984
Sula leucogaster	Sula	leucogaster	brown booby	116.6737	-20.4485	0
Sula leucogaster	Sula	leucogaster	brown booby	116.7513	-20.4153	1980
Sula leucogaster	Sula	leucogaster	brown booby	116.7513	-20.582	1980
Sula leucogaster	Sula	leucogaster	brown booby	116.7513	-20.582	1980
Sula leucogaster	Sula	leucogaster	brown booby	116.7513	-20.4153	1981
Sula leucogaster	Sula	leucogaster	brown booby	116.5847	-20.4153	1978
Sula leucogaster	Sula	leucogaster	brown booby	116.5847	-20.4153	1979
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5758	-20.6397	2000
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8202	-20.5862	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8124	-20.5903	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5822	-20.4745	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.6675	-20.5203	2002
Thalasseus bergii	Thalasseus	bergii	crested tern	116.6675	-20.5203	2002
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8347	-20.6653	2002
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7922	-20.5826	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8105	-20.6059	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8105	-20.6059	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8513	-20.4487	2005
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.5833	2010
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7047	-20.6662	2010
Thalasseus bergii	Thalasseus	bergii	crested tern	116.6283	-20.4603	2011
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7983	-20.6339	2011
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7972	-20.6331	1999
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5013	-20.4987	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.918	-20.4153	1980
Thalasseus bergii	Thalasseus	bergii	crested tern	116.8347	-20.4153	1980
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7513	-20.582	1980
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.582	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7513	-20.582	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7513	-20.4153	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.4153	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7513	-20.582	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.7513	-20.582	1981
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.4153	1979
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.582	1979
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.4153	1979
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5847	-20.582	1979
Thalasseus bergii	Thalasseus	bergii	crested tern	116.5013	-20.4987	1980
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5	-20.5	1977
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5	-20.5	1966
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5	-20.5	1974
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5	-20.5	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.58	-20.58	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6583	-20.525	1999
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6667	-20.5194	2000
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8056	-20.3858	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6592	-20.6094	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6283	-20.4564	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.675	-20.5178	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6343	-20.5843	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.7768	-20.5405	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5194	-20.6069	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5417	-20.5368	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.654	-20.5059	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8494	-20.4843	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5194	-20.6069	1983
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5194	-20.6069	1984

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Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5194	-20.6069	1984
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8056	-20.3858	1984
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8056	-20.3858	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.7768	-20.5405	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8494	-20.4843	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5194	-20.6069	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.5389	-20.5356	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8806	-20.3881	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.675	-20.5178	1990
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6583	-20.525	1999
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6667	-20.5194	2000
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8494	-20.4843	1978
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8064	-20.4931	2014
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.654	-20.5059	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.6283	-20.4564	0
Tringa brevipes	Tringa	brevipes	grey-tailed tattler	116.8806	-20.3881	1998
Tringa glareola	Tringa	glareola	wood sandpiper	116.5	-20.5	1977
Tringa glareola	Tringa	glareola	wood sandpiper	116.5	-20.5	1977
Tringa glareola	Tringa	glareola	wood sandpiper	116.5013	-20.4987	1977
Tringa glareola	Tringa	glareola	wood sandpiper	116.5013	-20.4987	1977
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1966
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1978
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1977
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1983
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5	-20.5	1977
Tringa nebularia	Tringa	nebularia	common greenshank,	116.58	-20.58	0
Tringa nebularia	Tringa	nebularia	common greenshank,	116.85	-20.45	2005
Tringa nebularia	Tringa	nebularia	common greenshank,	116.6225	-20.4697	0
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5194	-20.6069	1983
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5194	-20.6069	1990
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5936	-20.4817	1990
Tringa nebularia	Tringa	nebularia	common greenshank,	116.6343	-20.5843	1990
Tringa nebularia	Tringa	nebularia	common greenshank,	116.8494	-20.4843	1978
Tringa nebularia	Tringa	nebularia	common greenshank,	116.6225	-20.4697	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.8806	-20.3881	1998
Tringa nebularia	Tringa	nebularia	common greenshank,	116.8347	-20.6653	2002
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7597	-20.6403	1999
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7819	-20.5903	1999
Tringa nebularia	Tringa	nebularia	common greenshank,	116.8513	-20.4487	2005
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7047	-20.6662	2010
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5847	-20.582	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5847	-20.4153	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.582	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.4153	1980
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5847	-20.4153	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.582	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.582	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5847	-20.582	1981
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1978
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1977
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1978
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.582	1979
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1977
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1979
Tringa nebularia	Tringa	nebularia	common greenshank,	116.7513	-20.582	1979
Tringa nebularia	Tringa	nebularia	common greenshank,	116.5013	-20.4987	1980
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5	-20.5	1980
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5	-20.5	1977
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5	-20.5	1980
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5	-20.5	1966
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5013	-20.4987	1980
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5013	-20.4987	1977
Tringa stagnatilis	Tringa	stagnatilis	marsh sandpiper, littl	116.5013	-20.4987	1979
Xenus cinereus	Xenus	cinereus	Terek sandpiper	116.5	-20.5	1977
Xenus cinereus	Xenus	cinereus	Terek sandpiper	116.5	-20.5	1981
Xenus cinereus	Xenus	cinereus	Terek sandpiper	116.8268	-20.4836	2015
Xenus cinereus	Xenus	cinereus	Terek sandpiper	116.8215	-20.5195	2015
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.5381	-20.4778	1983
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.4593	-20.631	1983
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.4814	-20.6461	2000
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.5013	-20.4987	1978
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.5013	-20.4987	1977
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.7513	-20.582	1978
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.7513	-20.582	1979
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.5013	-20.4987	1977
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.7513	-20.582	1979
Chlidonias leucopterus	Chlidonias	leucopterus	white-winged black te	116.5013	-20.4987	1980
Gelochelidon nilotica	Gelochelidon	nilotica	gull-billed tern	116.8494	-20.4843	1990
Gelochelidon nilotica	Gelochelidon	nilotica	gull-billed tern	116.5194	-20.6069	1990
Gelochelidon nilotica	Gelochelidon	nilotica	gull-billed tern	116.5	-20.5	1980
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	1988
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5936	-20.4817	1981
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6169	-20.4441	1991

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Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1982
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1992
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1981
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6396	-20.4392	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6737	-20.4485	1980
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	1980
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5079	-20.4995	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1982
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.8056	-20.3858	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5079	-20.4995	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6737	-20.4485	1980
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6743	-20.4475	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6393	-20.4388	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.8056	-20.3858	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.8597	-20.4044	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.8317	-20.3889	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6393	-20.4388	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6737	-20.4485	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5079	-20.4995	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6737	-20.4485	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1981
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1994
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1994
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	1994
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	1988
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	1983
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5936	-20.4817	1977
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	1991
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1988
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	1990
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	1984
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.8806	-20.3881	1998
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6169	-20.4441	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6225	-20.4697	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5389	-20.5356	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6247	-20.6665	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5381	-20.4778	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6283	-20.4564	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.6732	-20.4512	0
Onychoprion anaethetus	Onychoprion	anaethetus	bridled tern	116.5936	-20.4817	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6251	-20.4707	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6251	-20.4707	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5379	-20.4785	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5379	-20.4785	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6292	-20.4571	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6292	-20.4571	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8044	-20.3856	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6168	-20.4438	1991
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5327	-20.5428	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5473	-20.5379	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.538	-20.5352	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6251	-20.4707	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6251	-20.4707	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5379	-20.4785	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.538	-20.5352	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4449	-20.6588	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.538	-20.5352	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.538	-20.5352	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.777	-20.5399	0

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.777	-20.5399	1982
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.506	-20.5002	1974
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6667	-20.5194	2000
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.86	-20.38	1962
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6169	-20.4441	1991
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4444	-20.6572	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5479	-20.5379	1978
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1988
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8056	-20.3858	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	1982
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1991
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5327	-20.5428	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4444	-20.6572	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6796	-20.5419	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5079	-20.4995	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5327	-20.5428	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.654	-20.5059	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5079	-20.4995	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8056	-20.3858	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4449	-20.6588	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.538	-20.5352	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6742	-20.5151	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.777	-20.5399	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6251	-20.4707	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5379	-20.4785	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6292	-20.4571	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6168	-20.4438	1991
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5327	-20.5428	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6169	-20.4441	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.654	-20.5059	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5473	-20.5379	1977
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6169	-20.4441	1991
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4444	-20.6572	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5479	-20.5379	1978
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1994
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1994
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1982
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1983
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1992
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1978
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8056	-20.3858	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	1990

NAME_SCI	GENUS	SPECIES	NAME_COM	GDA_LONG	GDA_LAT	DATE
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8806	-20.3881	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5079	-20.4995	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.654	-20.5059	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6796	-20.5419	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4444	-20.6572	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	1984
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8806	-20.3881	1990
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6169	-20.4441	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.8056	-20.3858	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.7768	-20.5405	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.4444	-20.6572	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5479	-20.5379	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6225	-20.4697	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5327	-20.5428	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5389	-20.5356	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.5381	-20.4778	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.6283	-20.4564	0
Puffinus pacificus	Puffinus	pacificus	wedge-tailed shearwa	116.675	-20.5178	0

APPENDIX C: PROTECTED MATTERS SEARCH TOOL EPBC DATABASE RECORDS (100 KM & 5 KM BUFFERS)

Australian Government
Department of the Environment and Energy

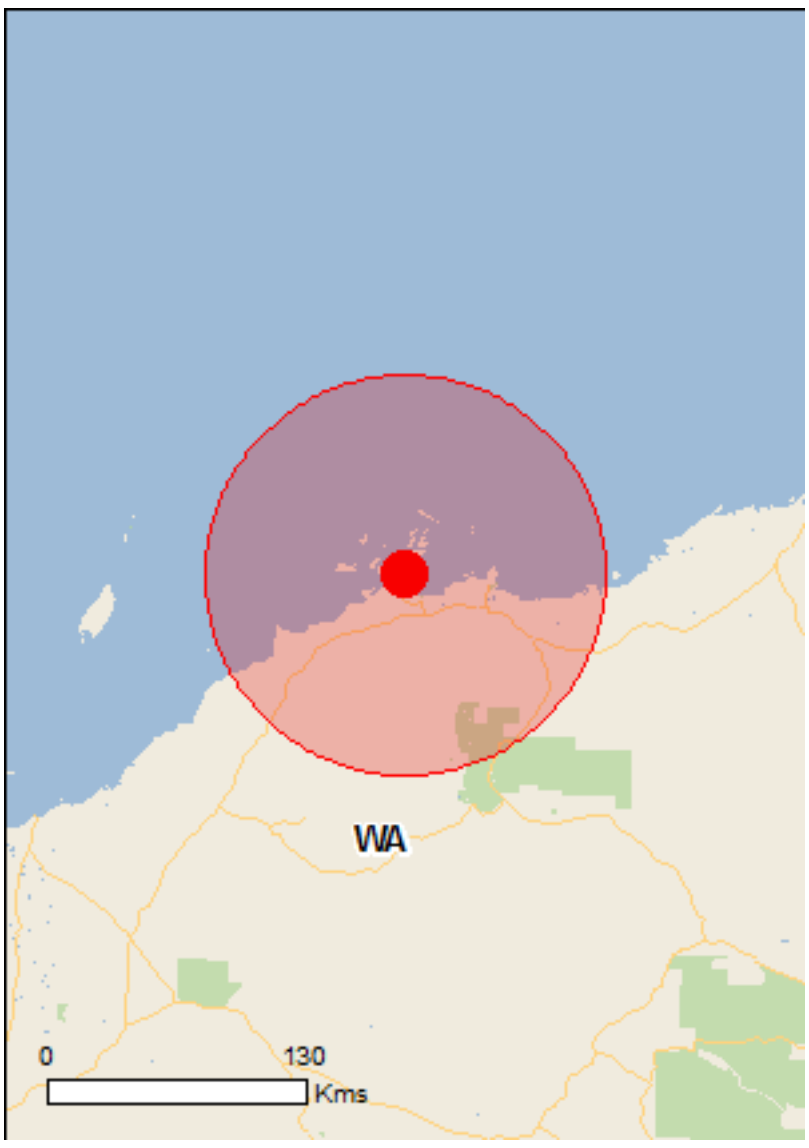
EPBC Act Protected Matters Report

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: 13/11/18 16:13:09



Coordinates
Buffer: 100.0Km

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:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	35
Listed Migratory Species:	66

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:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	113
Whales and Other Cetaceans:	16
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	4

Extra Information

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

State and Territory Reserves:	9
Regional Forest Agreements:	None
Invasive Species:	19
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	1

Details

Matters of National Environmental Significance

National Heritage Properties [Resource Information]

Name	State	Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside the Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

Name
EEZ and Territorial Sea

Marine Regions [Resource Information]

If you are planning to undertake action in an area in or close to the Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

Name
North-west

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
[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, 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 borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat may 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
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
[Macrotis lagotis](#) Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
[Rhinonicteris aurantia (Pilbara form)](#) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
[Aipysurus apraefrontalis](#) Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Breeding known to occur within area
[Ctenotus angusticeps](#) Northwestern Coastal Ctenotus, Airlie Island Ctenotus [25937]	Vulnerable	Species or species habitat likely 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

Name	Status	Type of Presence
Lerista nevinae		
Nevin's Slider [85296]	Endangered	Species or species habitat known to occur within area
Liasis olivaceus barroni		
Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat 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	Foraging, feeding or related behaviour known to 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
Ardenna pacifica		
Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel		
Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor		
Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Hydroprogne caspia		
Caspian Tern [808]		Breeding known to occur 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]		Breeding likely to occur

Name	Threatened	Type of Presence 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 borealis](#) Sei Whale [34]	Vulnerable	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
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	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	Breeding known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Breeding known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	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
[Isurus oxyrinchus](#) Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
[Isurus paucus](#) Longfin Mako [82947]		Species or species habitat likely 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	Foraging, feeding or related behaviour known to occur within area
[Sousa chinensis](#) Indo-Pacific Humpback Dolphin [50]		Species or species habitat known 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
[Arenaria interpres](#) Ruddy Turnstone [872]		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 alba](#) Sanderling [875]		Species or species habitat known to occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to 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 known to occur within area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat known to occur within area
[Calidris subminuta](#) Long-toed Stint [861]		Species or species habitat known to occur within area
[Calidris tenuirostris](#) Great Knot [862]	Critically Endangered	Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		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
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Thalasseus bergii Crested Tern [83000]		Breeding known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species

Name	Threatened	Type of Presence
		habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land -
Defence - KARRATHA TRAINING DEPOT

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 alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		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 alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species

Name	Threatened	Type of Presence
		habitat known to 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 known to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to 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 known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Larus novaehollandiae Silver Gull [810]		Breeding known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		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
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phalaropus lobatus Red-necked Phalarope [838]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Puffinus pacificus Wedge-tailed Shearwater [1027]		Breeding known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat 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 bergii Crested Tern [816]		Breeding known to occur within area
Sterna caspia Caspian Tern [59467]		Breeding known to occur

Name	Threatened	Type of Presence
		within area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Sterna fuscata Sooty Tern [794]		Breeding known to occur within area
Sterna nereis Fairy Tern [796]		Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat known to occur within area
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
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species

Name	Threatened	Type of Presence
		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
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 spinosissimus Hedgehog Seahorse [66239]		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

Name	Threatened	Type of Presence
		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 area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Seasnake [1121]		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	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
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
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis czeblukovi 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 mcdowelli null [25926]		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 borealis Sei Whale [34]	Vulnerable	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
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Delphinus delphis Common Dophin, 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

Name	Status	Type of Presence
		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
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat known 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

Australian Marine Parks	[Resource Information]
Name	Label
Dampier	Habitat Protection Zone (IUCN IV)
Dampier	Multiple Use Zone (IUCN VI)
Dampier	National Park Zone (IUCN II)
Montebello	Multiple Use Zone (IUCN VI)

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Millstream Chichester	WA
Murujuga	WA
Unnamed WA36907	WA
Unnamed WA36909	WA
Unnamed WA36910	WA
Unnamed WA36913	WA
Unnamed WA36915	WA
Unnamed WA38287	WA
Unnamed WA40877	WA

Invasive Species

[Resource Information]

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus asinus Donkey, Ass [4]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		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
Rattus rattus Black Rat, Ship Rat [84]		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
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		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

Name	Status	Type of Presence
		within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat known to occur within area

Key Ecological Features (Marine)

[Resource Information]

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

Name	Region
Glomar Shoals	North-west

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

-20.62919 116.77412

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact Us page.

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Australian Government
Department of the Environment and Energy

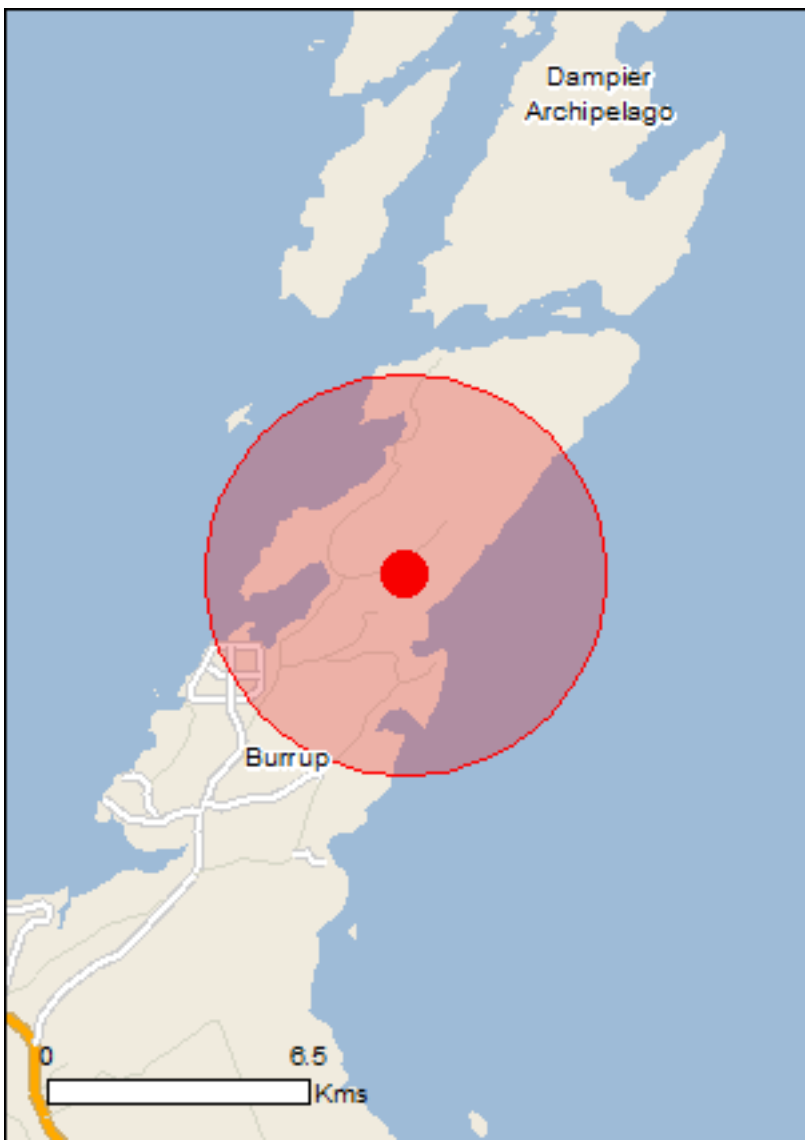
EPBC Act Protected Matters Report

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.

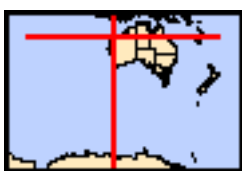
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 20/11/18 13:00:48



Coordinates

Buffer: 5.0Km



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:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	28
Listed Migratory Species:	39

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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	75
Whales and Other Cetaceans:	12
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:	1
Regional Forest Agreements:	None
Invasive Species:	16
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

National Heritage Properties		[Resource Information]
Name	State	Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may 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, 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
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Macrotis lagotis		
Greater Bilby [282]	Vulnerable	Species or species habitat may occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Rhinonicteris aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	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
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Ctenotus angusticeps		
Northwestern Coastal Ctenotus, Airlie Island Ctenotus [25937]	Vulnerable	Species or species habitat may 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
Liasis olivaceus barroni		
Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat 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	Breeding likely 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

Name	Threatened	Type of Presence
[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 within area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may 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
[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
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour 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	Breeding likely 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 likely 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 may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may 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]		Species or species habitat 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

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 alba		
Great Egret, White Egret [59541]		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 may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
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 likely 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 known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may 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]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may 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
Fish		
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

Name	Threatened	Type of Presence
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		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
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

Name	Threatened	Type of Presence
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 area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Seasnake [1121]		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	Foraging, feeding or related behaviour 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

Name	Threatened	Type of Presence
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
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis czeblukovi 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 mcdowelli null [25926]		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 area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		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

Name	Status	Type of Presence
		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 likely to occur within area
[Tursiops truncatus s. str.](#) Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Murujuga	WA

Invasive Species	[Resource Information]

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		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

Name	Status	Type of Presence
		habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		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
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		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		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to 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

-20.57361 116.815

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact Us page.

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APPENDIX D: DEPARTMENT OF BIODIVERSITY CONSERVATION AND ATTRACTIONS DATABASE SEARCH RESULTS FOR THREATENED AND PRIORITY FLORA, ECOLOGICAL COMMUNITIES AND FAUNA

Taxon	Cons_Code	Locality	Latitude	Longitude	Date
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	1	1 km S of Onslow	-21.68333333	115.1333333	3/08/1963
Abutilon sp. Pritzelianum (S. van Leeuwen 5095)	1	Rear Roebourne Oval	-20.66666667	117.15	/08/1982
Atriplex lindleyi subsp. conduplicata	3	Ca 10 km WNW from Karratha Homestead, on main road reserve of Coastal Highway adjacent to circular regeneration pond Karratha Station	-20.85055556	116.5519444	7/11/1996
Carpobrotus sp. Thevenard Island (M. White 050)	3	Thevenard Island between Saladin 4 and jetty area	-21.46319444	115.0196	24/08/1990
Carpobrotus sp. Thevenard Island (M. White 050)	3	Thevenard Island. 500 m from south beach 250 m SW windsock	-21.46666667	115.0166667	23/06/1988
Corchorus congener	3	Barrow Island	-20.88305556	115.3266667	21/11/1965
Corchorus congener	3	Barrow Island	-20.76666667	115.4	/10/1980
Corchorus congener	3	Barrow Island	-20.76666667	115.4	/10/1980
Corchorus congener	3	Barrow Island	-20.88305556	115.3266667	29/04/1964
Corchorus congener	3	Between road and S84 cave on Barrow Island,	-20.76666667	115.4	4/06/1991
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	Barrow Island	-20.80199897	115.449625	1/10/2015
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	Barrow Island	-20.76666667	115.4	/10/1980
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	75 m E of turnoff to R33 on S side of road on Barrow Island	-20.78333333	115.3333333	5/06/1991
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	Barrow Island, off the NW coast	-20.88305556	115.3266667	/06/1964
Cucumis sp. Barrow Island (D.W. Goodall 1264)	2	8,300 metres W of Campsite, Barrow Island	-20.88305556	115.3266667	26/06/1964
Eleocharis papillosa	3	Site: 567_BES622. 17.6 SSE of Onslow, 102 km W of Nanutarra Roadhouse and 124 km NW of Barradale Roadhouse	-21.738935	114.979944	14/03/2011
Eragrostis lanicaulis	3	Near Point Sampson [Samson]	-20.62972222	117.1897222	/03/1921
Eragrostis lanicaulis	3	Near Point Sampson [Samson]	-20.62972222	117.1897222	/03/1921
Eragrostis surreyana	3	Site B233, Burrup Peninsula 5 km NE of North West Shelf Gasworks, Pilbara Bioregion	-20.566933	116.823335	27/06/2000
Eragrostis surreyana	3	Wetland above waterfall, Burrup Peninsula. (Trudgen & Associates Burrup Vegetation Survey Site B233)	-20.56538889	116.8237778	27/05/2009
Eragrostis surreyana	3	Waterhole above waterfall: Burrup Peninsula	-20.56552778	116.824	27/05/2009
Eremophila forrestii subsp. viridis	3	Ca 30 km SW of Onslow, Pilbara	-21.77557918	115.0539952	19/08/2009
Eremophila forrestii subsp. viridis	3	10 miles S of Onslow	-21.78277778	115.1116667	28/08/1960
Gomphrena cuculLata	3	North West Coastal Highway, 35 km S of Karratha	-20.8619	116.58295	11/07/2004
Gomphrena leptophylla	3	North West Coastal Highway, 35 km S of Karratha	-20.8619	116.58295	11/07/2004
Goodenia nuda	4	By side of management track on Mardie Station	-21.10981887	115.9935363	31/07/2002
Goodenia pallida	1	127 miles from Onslow on Roebourne road,	-20.83333333	116.5	11/08/1970
Gymnanthera cunninghamii	3	West Lewis Island, Dampier Archipelago	-20.59472222	116.6113889	13/06/1962
Gymnanthera cunninghamii	3	Enderby's Island, Dampier Archipelago	-20.605	116.4833333	/02/1818
Gymnanthera cunninghamii	3	Enderby's Island, Dampier Archipelago	-20.605	116.4833333	/02/1818
Gymnanthera cunninghamii	3	Enderby Island, W end, near Rocky Headland	-20.605	116.4833333	13/05/1982
Gymnanthera cunninghamii	3	Enderby Island, S side, Fortescue Botanical District	-20.6	116.4833333	2/09/1987
Helichrysum oligochaetum	1	Port Walcott	-20.66	117.18	//
Helichrysum oligochaetum	1	Port Walcott, ca 10 km N of Roebourne	-20.65	117.1833333	//
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	Site: DRW14, 6.4 km S of White Peak, 8.2 km N of Mt Regal, 8.7 km SSE of Dampier, Karratha Station, Pilbara IBRA	-20.74444	116.74772	21/08/2005
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	Site: DRW16, 17.1 km ENE of Yerwararron Hill, 17.5 km WNW of Mt Regal, 18.8 km SW of Dampier, Karratha Station, Pilbara IBRA	-20.80192	116.58086	21/08/2005
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	Site: DRC13, 5.7 km NE of Mt Regal, 13.4 km SSE of White Peak, 8.1 km SW of Karratha, Pilbara IBRA	-20.79114	116.79464	11/09/2004
Owenia acidula	3	Mardi Station	-21.18333333	115.9833333	//
Owenia acidula	3	Mardie Station	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	Mardie Station	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	Mardie Station	-21.18333333	115.9833333	10/12/1949
Owenia acidula	3	Mardie Station	-21.18333333	115.9833333	19/08/1966
Owenia acidula	3	Mardie	-21.18666667	115.9816667	5/03/1953
Pentalepis trichodesmoides subsp. hispida	2	45 km peg, NW Gas Pipeline	-20.63333333	117.2	8/10/1992
Rhynchosia bungarensis	4	900 m SSW of the point near the centre of the NW of the Burrup Peninsula, Pilbara Bioregion, Site B082	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	0.77 km WSW from the intersection of Cinders Road and Dampier Road, 3.54 km SSE of Dampier and 13.41 km NW of Karratha	-20.69025	116.727778	30/11/2010
Rhynchosia bungarensis	4	Waterhole above waterfall, Burrup Peninsula	-20.56552778	116.824	27/05/2009
Rhynchosia bungarensis	4	Deep Gorge, Burrup Peninsula, N of Karratha	-20.63722222	116.788	26/05/2009
Rhynchosia bungarensis	4	Burrup Peninsula, waterhole above waterfall	-20.56552778	116.824	27/05/2009
Rhynchosia bungarensis	4	Burrup Peninsula, dry creekbed crossing near waterfall area	-20.57205556	116.8086111	27/05/2009
Rhynchosia bungarensis	4	3.75 km along Burrup Road from Karratha - Dampier Road; ca 500 m in from road on top of rockpile	-20.64794444	116.7592778	29/05/2009
Rhynchosia bungarensis	4	West Lewis Island, Dampier Archipelago	-20.59472222	116.6113889	14/06/1962
Rhynchosia bungarensis	4	Dolphin Island, Dampier Archipilago	-20.50805556	116.84	5/06/1962
Rhynchosia bungarensis	4	One Shack Bay; East Lewis Island	-20.63333333	116.6333333	9/11/1987
Rhynchosia bungarensis	4	NE end of Enderby Island, Dampier Archipelago	-20.6	116.5166667	19/07/1980
Rhynchosia bungarensis	4	900 m SSW of the point near the centre of the NW of the Burrup Peninsula, Pilbara Bioregion, Site B082	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	Site D013, 3.65 km NNE along the coast from the southern tip of Dolphin Island, Dampier Archipelago, Pilbara Bioregion	-20.487416	116.832863	29/05/2000
Rhynchosia bungarensis	4	900 m SSW of the point near the centre of the NW of the Burrup Peninsula, Pilbara Bioregion, Site B082	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	900 m SSW of the point near the centre of the NW of the Burrup Peninsula, Pilbara Bioregion, Site B082	-20.530114	116.835262	27/06/2000
Rhynchosia bungarensis	4	1.9 km ENE of the SW tip of Dolphin Island and 300 m from the west coast, Site D088, Dampier Archipelago, Pilbara Bioregion	-20.502672	116.826804	29/05/2000
Rhynchosia bungarensis	4	1.9 km ENE of the SW tip of Dolphin Island and 300 m from the west coast, Site D088, Dampier Archipelago, Pilbara Bioregion	-20.502672	116.826804	29/05/2000
Rhynchosia bungarensis	4	Site B235. 600 m E of the inner corner of Withnell Bay, Pilbara Bioregion	-20.574043	116.805097	26/06/2000
Rhynchosia bungarensis	4	2.6 km NE of the inner end of King Bay, Burrup Peninsula, Site B028, Pilbara Bioregion	-20.61269	116.782273	22/05/2000
Rhynchosia bungarensis	4	Site B076, NW part of the Burrup Peninsula, 600 m NE of the N corner of Conzinc Bay	-20.534969	116.819554	27/05/2000

Taxon	Cons_Code	Locality	Latitude	Longitude	Date
Rhynchosia bungarensis	4	Site B064, Burrup Peninsula, Pilbara Bioregion, west coast, adjacent to Holden Beach, between Dampier Port and NW Shelf Gas Works	-20.606376	116.756965	26/05/2000
Rhynchosia bungarensis	4	Site B074, N of Conzinc Bay and 11.2 km ESE of the NW tip of the Burrup Peninsula, Pilbara Bioregion	-20.533712	116.819134	27/05/2000
Rhynchosia bungarensis	4	Site B062, 1.5 km almost due S of Holden Poiint between Dampier Port and North West Shelf Gas plant (on E side of road), Burrup Peninsula, Pilbara Bioregion	-20.615432	116.758045	26/05/2000
Rhynchosia bungarensis	4	Site B066, 1.2 km S of the point near the centre of the end of the Burrup Peninsula, Pilbara Bioregion	-20.533695	116.838079	27/05/2000
Rhynchosia bungarensis	4	Site B066, 1.2 km S of the point near the centre of the end of the Burrup Peninsula, Pilbara Bioregion	-20.533695	116.838079	27/05/2000
Rhynchosia bungarensis	4	Site B193, 2.5 km ENE of the inner end of Withnell Bay, Burrup Peninsula, Pilbara Bioregion	-20.566045	116.82089	5/06/2000
Rhynchosia bungarensis	4	Site B052, 1.74 km ENE of Mt Burrup and 160 m from the E coast of the Burrup Peninsula, Pilbara Bioregion	-20.549081	116.844855	25/05/2000
Rhynchosia bungarensis	4	Site B003, 1.6 km SW of the inner end of King Bay, Burrup Peninsula, Pilbara Bioregion	-20.640271	116.777358	20/05/2000
Rhynchosia bungarensis	4	Site B040, 900 m slightly W of N of Mt Burrup, Burrup Peninsula, Pilbara Bioregion	-20.546327	116.828242	25/05/2000
Rhynchosia bungarensis	4	Site B007, 1.34 km WSW of the southern corner of Hearson Cove, Burrup Peninsula, Pilbara Bioregion	-20.638945	116.786661	20/05/2000
Rhynchosia bungarensis	4	Pistol Range ENE Of Telstra tower, Burrup Peninsula, Site B183, Pilbara Bioregion	-20.665256	116.745265	3/06/2000
Rhynchosia bungarensis	4	Site BO20. 1.7 km SSE of inner end of King Bay, Burrup Peninsula, Pilbara Bioregion	-20.645762	116.761779	21/05/2000
Rhynchosia bungarensis	4	Site B091, White Hill, Pilbara Bioregion S of Dampier Road, NW corner of Dampier Salt lease on W facing exposed slope	-20.69183	116.721464	28/05/2000
Rhynchosia bungarensis	4	1.94 km slightly W of the S of the inner end of King Bay, Site B017, Burrup Peninsula, Pilbara Bioregion	-20.648958	116.759739	21/05/2000
Rhynchosia bungarensis	4	Site B195, 2.25 km ENE of the SE corner of Withnell Bay and 1.5 km inland from the E coast of the Burrup Peninsula, Pilbara Bioregion	-20.566793	116.819181	5/06/2000
Rhynchosia bungarensis	4	Site B031, NE part of Burrup Peninsula, 3.7 km from NE point and 0.6 km from east coast (near Mt Burrup)	-20.548369	116.837843	25/05/2000
Rhynchosia bungarensis	4	Near quadrant on cutting along road to Con. camp; Burrup Peninsula	-20.78333333	116.7666667	21/09/1983
Rhynchosia bungarensis	4	Cape Preston	-21.04651731	116.2398665	7/06/2017
Schoenus punctatus	3	Burrup Peninsula	-20.56589139	116.8235573	10/07/1999
Stackhousia clementii	3	King Bay - Hearson Cove tidal inlet, Burrup Peninsula	-20.63026737	116.784159	30/04/2002
Stackhousia clementii	3	On 7 Mile Flats, 8.4 km SE of Dampier, 9.4 km W of Karratha	-20.72520548	116.7560462	24/02/2013
Stackhousia clementii	3	5.4 km S of Onslow, 35.4 km NNE of Minderoo Homestead and 79.6 km W of Yarraloola Homestead	-21.68456	115.118028	30/08/2011
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	32.1 km E-NE of Karratha town site	-20.652806	117.133444	7/10/2007
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	34.9 km NE of Karratha town site	-20.621222	117.150917	9/10/2007
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	34.1 km NE of Karratha town site	-20.624361	117.143611	10/03/2008
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	35 km NE of Karratha town site	-20.616417	117.150972	5/10/2007
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	W of track to Sams Creek, c. 1.5 km W of Point Samson, c. 5 km NE of Wickham	-20.62675509	117.1810431	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	C. 2 km S of Anketell Point, c. 5 km NW of Wickham	-20.64340538	117.0941985	3/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	C. 2.5 km SW of Cape Lambert Port. C. 6 km N of Wickham	-20.62334288	117.1491159	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	C. 2.5 km S of Cape Lambert Port. C. 5.5 km NNE of Wickham	-20.6213672	117.1654401	3/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	Ca 2.5 km SW of Cape Lambert Port, ca 6 km N of Wickham	-20.62334288	117.1491159	4/09/2012
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	Sams Creek, Point Samson	-20.62972222	117.1897222	/08/1984
Tephrosia rosea var. Port Hedland (A.S. George 1114)	1	Pt Samson	-20.63333333	117.2	8/10/1992
Terminalia supranitifolia	3	Base hills right hand side Dampier Island, near right hand side of Dampier Salt Ltd lease.	-20.66666667	116.7	/12/1986
Terminalia supranitifolia	3	Site 1, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.67040184	116.7569983	2/11/1998
Terminalia supranitifolia	3	Site 12, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64153748	116.796257	12/11/1998
Terminalia supranitifolia	3	Site 13, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.6359749	116.7917049	15/11/1998
Terminalia supranitifolia	3	King Bay - Withnell Bay Road, peninsula between Dampier and Dolphin Island.	-20.63333333	116.75	6/12/1978
Terminalia supranitifolia	3	Burrup Peninsula, Pistol Ranges, S of Hearson Cove Road	-20.63597546	116.7916969	15/11/1998
Terminalia supranitifolia	3	Burrup Peninsula, Pistol Ranges, S of Hearson Cove Road	-20.64153102	116.7962525	12/11/1998
Terminalia supranitifolia	3	Burrup Peninsula, Pistol Ranges, S of Hearson Cove Road	-20.67039265	116.7570029	2/11/1998
Terminalia supranitifolia	3	Site 11, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.63861588	116.7937555	10/11/1998
Terminalia supranitifolia	3	Site 20, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64257507	116.7732557	26/11/1998
Terminalia supranitifolia	3	Site 21, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65113121	116.7725423	26/11/1998
Terminalia supranitifolia	3	Hearson's cove beach	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	Hearson's cove beach	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	Hearson's cove beach	-20.63333333	116.8	11/03/1983
Terminalia supranitifolia	3	Burrup Peninsula	-20.78333333	116.7666667	10/02/1982
Terminalia supranitifolia	3	Near Dampier	-20.66666667	116.75	21/07/2004
Terminalia supranitifolia	3	1.8 miles from Dampier on road to Hearson Cove, Nickol Bay	-20.66666667	116.7	/12/1971
Terminalia supranitifolia	3	Site 18, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65430143	116.7784031	24/11/1998
Terminalia supranitifolia	3	Site 6, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65839632	116.7796453	5/11/1998
Terminalia supranitifolia	3	Site 19, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65611998	116.773226	24/11/1998
Terminalia supranitifolia	3	Site 17, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64520398	116.7798082	22/11/1998
Terminalia supranitifolia	3	Site 16. Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64068437	116.7785477	22/11/1998
Terminalia supranitifolia	3	Site 5, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.66687903	116.764387	28/11/1998
Terminalia supranitifolia	3	Site 2, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.66859454	116.7634242	2/11/1998
Terminalia supranitifolia	3	Site 3, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.66073537	116.7717119	3/11/1998
Terminalia supranitifolia	3	Site 22, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64303766	116.7677738	28/11/1998
Terminalia supranitifolia	3	Site 4, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65870665	116.7750463	3/11/1998
Terminalia supranitifolia	3	Site 10, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.63536052	116.7993944	10/11/1998
Terminalia supranitifolia	3	Rear of beach, Hearson Cove	-20.63333333	116.8	/05/1983
Terminalia supranitifolia	3	Site 7, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65249621	116.7871513	8/11/1998
Terminalia supranitifolia	3	Site 9, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.65143609	116.7921831	8/11/1998
Terminalia supranitifolia	3	Site 15, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.63373596	116.7859391	20/11/1998
Terminalia supranitifolia	3	Site 14, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64244207	116.78226	20/11/1998
Terminalia supranitifolia	3	Site 8, Burrup Peninsula, Pistol Ranges, south of Hearson's Cove Road	-20.64676249	116.7832234	18/11/1998
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	3	10km W of Karratha on road to Dampier opp & Mile Railway sheds on E side of road	-20.72916667	116.7622222	20/08/1992
Triumfetta echinata	3	Ca 16 km S-SW of Onslow	-21.77707459	115.0853797	1/11/2009
Triumfetta echinata	3	20 km E of Onslow	-21.63805556	115.3438889	25/10/1980
Triumfetta echinata	3	Ca 35 km NW from Peedamulla Homestead and 0.5 km back from sea, Peedamulla Station	-21.59972222	115.2938889	5/11/1996
Vigna triodiophila	3	Burrup Road between MOF Road and NorthWest Shelf, opposite Pluto Site ca 500 m from Withnell Bay Road, E side Burrup - Burrup Peninsula	-20.61416667	116.7752778	9/06/2011
Vigna triodiophila	3	Site B024, E of Burrup road at bend before North West Shelf gas plant	-20.609139	116.782	21/05/2000
Vigna triodiophila	3	1.7 km SE of the centre of King Bay, Burrup Peninsula, Pilbara Bioregion, Site B016	-20.648704	116.759173	21/05/2000
Vigna triodiophila	3	Site B025, Burrup Peninsula, ca 250 m indland from the East coast of Withnell Bay	-20.58063	116.79481	22/05/2000
Vigna triodiophila	3	3.75 km along Burrup Road from Karratha - Dampier Road; towards top of rockpile ca 500 m in from road	-20.64661469	116.7606137	29/05/2009
Vigna triodiophila	3	8.2 km along Cleaverville track from North West Coastal Highway, N of Karratha; Pilbara Biological Survey site BRC 11	-20.68711287	117.0081136	26/05/2009
Vigna triodiophila	3	Site B018. Burrup Peninsula, Pilbara Bioregion, 400 m SE of Burrup	-20.649002	116.75947	21/05/2000
Vigna triodiophila	3	On Pluto Lease, adjacent to and W side of Haul Road - Pluto (Burrup Industrial Area) Burrup Peninsula	-20.61074796	116.7630429	31/03/2011

COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUI	FIRST_S_ID	LAST_S_ID	BUFFER	BDY_ID
Burrup Peninsula rock pile communities	Priority 1		1	P9		200	14928
Burrup Peninsula rock pile communities	Priority 1		1	P4		200	14923
Burrup Peninsula rock pile communities	Priority 1		1	P8		200	14927
Burrup Peninsula rock pile communities	Priority 1		1	P5		200	14924
Burrup Peninsula rock pile communities	Priority 1		1	P7		200	14926
Burrup Peninsula rock pile communities	Priority 1		1	P6		200	14925
Burrup Peninsula rock pile communities	Priority 1		1	P12		200	14930
Burrup Peninsula rock pile communities	Priority 1		1	P2		200	14921
Burrup Peninsula rock pile communities	Priority 1		1	P1		200	14920
Burrup Peninsula rock pile communities	Priority 1		1	P38		200	14955
Burrup Peninsula rock pile communities	Priority 1		1	P37(first)		200	14953
Burrup Peninsula rock pile communities	Priority 1		1	P30		200	14946
Burrup Peninsula rock pile communities	Priority 1		1	P31		200	14947
Burrup Peninsula rock pile communities	Priority 1		1	P25		200	14941
Burrup Peninsula rock pile communities	Priority 1		1	P35		200	14951
Burrup Peninsula rock pile communities	Priority 1		1	P22		200	102670
Burrup Peninsula rock pile communities	Priority 1		1	P23		200	14939
Burrup Peninsula rock pile communities	Priority 1		1	P24		200	14940
Burrup Peninsula rock pile communities	Priority 1		1	P16		200	14934
Burrup Peninsula rock pile communities	Priority 1		1	P15		200	14933
Burrup Peninsula rock pile communities	Priority 1		1	P18		200	14936
Burrup Peninsula rock pile communities	Priority 1		1	P44		200	14961
Burrup Peninsula rock pile communities	Priority 1		1	P63		200	14981
Burrup Peninsula rock pile communities	Priority 1		1	P59		200	14977
Burrup Peninsula rock pile communities	Priority 1		1	P49		200	14966
Burrup Peninsula rock pile communities	Priority 1		1	P50		200	14967
Burrup Peninsula rock pile communities	Priority 1		1	P58		200	14976
Burrup Peninsula rock pile communities	Priority 1		1	P60		200	14978
Burrup Peninsula rock pile communities	Priority 1		1	P61		200	14979
Burrup Peninsula rock pile communities	Priority 1		1	P51		200	14968
Burrup Peninsula rock pile communities	Priority 1		1	P56		200	14973
Burrup Peninsula rock pile communities	Priority 1		1	P52		200	14969
Burrup Peninsula rock pile communities	Priority 1		1	P53		200	14970
Burrup Peninsula rock pile communities	Priority 1		1	P54		200	14971
Burrup Peninsula rock pile communities	Priority 1		1	P41		200	14958
Burrup Peninsula rock pile communities	Priority 1		1	P10		200	14929
Burrup Peninsula rock pile communities	Priority 1		1	P13		200	14931
Burrup Peninsula rock pile communities	Priority 1		1	P3		200	14922
Burrup Peninsula rock pile communities	Priority 1		1	P39		200	14956
Burrup Peninsula rock pile communities	Priority 1		1	P47		200	14964
Burrup Peninsula rock pile communities	Priority 1		1	P46		200	14963
Burrup Peninsula rock pile communities	Priority 1		1	P48		200	14965
Burrup Peninsula rock pile communities	Priority 1		1	P43		200	14960
Burrup Peninsula rock pile communities	Priority 1		1	P34		200	14950
Burrup Peninsula rock pile communities	Priority 1		1	P26		200	14942
Burrup Peninsula rock pile communities	Priority 1		1	P27		200	14943
Burrup Peninsula rock pile communities	Priority 1		1	P28		200	14944
Burrup Peninsula rock pile communities	Priority 1		1	P36		200	14952
Burrup Peninsula rock pile communities	Priority 1		1	P37(second)		200	14954
Burrup Peninsula rock pile communities	Priority 1		1	P32		200	14948
Burrup Peninsula rock pile communities	Priority 1		1	P33		200	14949
Burrup Peninsula rock pile communities	Priority 1		1	P29		200	14945
Burrup Peninsula rock pile communities	Priority 1		1	P21		200	14938
Burrup Peninsula rock pile communities	Priority 1		1	P20		200	14937
Burrup Peninsula rock pile communities	Priority 1		1	P14		200	14932
Burrup Peninsula rock pile communities	Priority 1		1	P17		200	14935
Burrup Peninsula rock pile communities	Priority 1		1	P62		200	14980
Burrup Peninsula rock pile communities	Priority 1		1	P42		200	14959
Burrup Peninsula rock pile communities	Priority 1		1	P45		200	14962
Burrup Peninsula rock pile communities	Priority 1		1	P40		200	14957
Burrup Peninsula rock pile communities	Priority 1		1	BRPile2		500	0
Burrup Peninsula rock pile communities	Priority 1		1	BRPile3		500	0
Burrup Peninsula rock pool communities	Priority 1		1	BRPool1		500	0
Burrup Peninsula rock pool communities	Priority 1		1	BRPool2		500	0
Burrup Peninsula rock pool communities	Priority 1		1	BRPool3		500	0

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5	-20.5	1980
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5	-20.5	1983
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5	-20.5	1977
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5	-20.5	1981
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5872	-20.4689	1998
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.85	-20.45	2005
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.91	-20.41	0
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.8494	-20.4843	0
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.6283	-20.4564	0
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.6343	-20.5843	0
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5194	-20.6069	1983
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5194	-20.6069	1983
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5194	-20.6069	1984
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.6343	-20.5843	1984
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.8494	-20.4843	1990
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5194	-20.6069	1990
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.6343	-20.5843	1990
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.5872	-20.4689	1998
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.85	-20.45	2005
Actitis hypoleucos	Scolopacidae	Actitis	hypoleucos	common sandpiper	BIRD	IA	116.6283	-20.4564	0
Anous stolidus	Laridae	Anous	stolidus	common noddy	BIRD	IA	116.7833	-20.5833	1988
Anous stolidus	Laridae	Anous	stolidus	common noddy	BIRD	IA	116.6283	-20.4564	0
Anous stolidus	Laridae	Anous	stolidus	common noddy	BIRD	IA	116.5381	-20.4778	1983
Anous stolidus	Laridae	Anous	stolidus	common noddy	BIRD	IA	116.6254	-20.4528	1983
Anous stolidus	Laridae	Anous	stolidus	common noddy	BIRD	IA	116.6283	-20.4564	0
Apus pacificus	Apodidae	Apus	pacificus	fork-tailed swift	BIRD	IA	116.5194	-20.6069	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5	-20.5	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5	-20.5	1977
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5	-20.5	1974
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5	-20.5	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5	-20.5	1966
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.58	-20.58	1979
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.58	-20.58	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5808	-20.4758	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5872	-20.4689	1998
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6583	-20.525	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.91	-20.41	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7768	-20.5405	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6592	-20.6094	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6225	-20.4697	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5381	-20.4778	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6283	-20.4564	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6396	-20.4392	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5936	-20.4817	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6343	-20.5843	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8064	-20.4931	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8056	-20.3858	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7768	-20.5405	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.4444	-20.6572	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6831	-20.6547	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6225	-20.4697	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5194	-20.6069	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8317	-20.3889	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5381	-20.4778	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	1982
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6283	-20.4564	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6283	-20.4564	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6283	-20.4564	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7768	-20.5405	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5194	-20.6069	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7768	-20.5405	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8317	-20.3889	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.4444	-20.6572	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6393	-20.4388	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5381	-20.4778	1983
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5194	-20.6069	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8056	-20.3858	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8064	-20.4931	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5936	-20.4817	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8317	-20.3889	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6393	-20.4388	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5936	-20.4817	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5381	-20.4778	1984
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5936	-20.4817	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6343	-20.5843	1990
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6583	-20.525	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5808	-20.4758	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5872	-20.4689	1998
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8494	-20.4843	1978
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6225	-20.4697	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8064	-20.4931	2014
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7768	-20.5405	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6283	-20.4564	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8317	-20.3889	0
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8806	-20.3881	1998
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.8202	-20.5862	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.6583	-20.525	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5822	-20.4745	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5885	-20.4676	1998
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7597	-20.6403	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7047	-20.6662	2010
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7972	-20.6331	1999
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5013	-20.4987	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.918	-20.4153	1980
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.582	1980
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.4153	1980
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.4153	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7513	-20.582	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7513	-20.582	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.582	1981
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.4153	1978
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5013	-20.4987	1977
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.582	1979
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5847	-20.4153	1979
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.7513	-20.582	1979
Arenaria interpres	Scolopacidae	Arenaria	interpres	ruddy turnstone	BIRD	IA	116.5013	-20.4987	1980
Calidris acuminata	Scolopacidae	Calidris	acuminata	sharp-tailed sandpiper	BIRD	IA	116.5194	-20.6069	1984
Calidris acuminata	Scolopacidae	Calidris	acuminata	sharp-tailed sandpiper	BIRD	IA	116.4444	-20.6572	1990
Calidris acuminata	Scolopacidae	Calidris	acuminata	sharp-tailed sandpiper	BIRD	IA	116.5194	-20.6069	1990
Calidris acuminata	Scolopacidae	Calidris	acuminata	sharp-tailed sandpiper	BIRD	IA	116.7513	-20.582	1981
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.5	-20.5	1983
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.85	-20.45	2005
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.8513	-20.4487	2005
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.8806	-20.3881	1998
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.8513	-20.4487	2005
Calidris alba	Scolopacidae	Calidris	alba	sanderling	BIRD	IA	116.5013	-20.4987	1981
Calidris canutus	Scolopacidae	Calidris	canutus	red knot, knot	BIRD	IA (& VU	116.4444	-20.6572	1990
Calidris canutus	Scolopacidae	Calidris	canutus	red knot, knot	BIRD	IA (& VU	116.5	-20.5	1980
Calidris canutus	Scolopacidae	Calidris	canutus	red knot, knot	BIRD	IA (& VU	116.8494	-20.4843	1978
Calidris canutus	Scolopacidae	Calidris	canutus	red knot, knot	BIRD	IA (& VU	116.5013	-20.4987	1980
Calidris ferruginea	Scolopacidae	Calidris	ferruginea	curlew sandpiper	BIRD	VU & IA	116.8494	-20.4843	1990
Calidris ferruginea	Scolopacidae	Calidris	ferruginea	curlew sandpiper	BIRD	VU & IA	116.5194	-20.6069	1990
Calidris ferruginea	Scolopacidae	Calidris	ferruginea	curlew sandpiper	BIRD	VU & IA	116.5	-20.5	1977
Calidris ferruginea	Scolopacidae	Calidris	ferruginea	curlew sandpiper	BIRD	VU & IA	116.5	-20.5	1966
Calidris ferruginea	Scolopacidae	Calidris	ferruginea	curlew sandpiper	BIRD	VU & IA	116.5013	-20.4987	1977
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5936	-20.4817	1984
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.8494	-20.4843	1990

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5936	-20.4817	1990
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5	-20.5	1977
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5	-20.5	1983
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5	-20.5	1980
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5	-20.5	1981
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.85	-20.45	2005
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.8513	-20.4487	2005
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.8513	-20.4487	2005
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.7988	-20.6323	2010
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.7972	-20.6331	1999
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5013	-20.4987	1981
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5847	-20.4153	1978
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5013	-20.4987	1978
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5013	-20.4987	1977
Calidris ruficollis	Scolopacidae	Calidris	ruficollis	red-necked stint	BIRD	IA	116.5013	-20.4987	1980
Caretta caretta	Cheloniidae	Caretta	caretta	loggerhead turtle	REPTILE	EN	116.917	-20.3999	2008
Caretta caretta	Cheloniidae	Caretta	caretta	loggerhead turtle	REPTILE	EN	116.8317	-20.3889	1984
Caretta caretta	Cheloniidae	Caretta	caretta	loggerhead turtle	REPTILE	EN	116.917	-20.3999	2008
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.6283	-20.4564	0
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.8494	-20.4843	1990
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.5381	-20.4778	1990
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.675	-20.5178	1990
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.6283	-20.4564	1983
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.675	-20.5178	1983
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.5	-20.5	1983
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.5	-20.5	1966
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.8064	-20.4931	2014
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.6283	-20.4564	0
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.8202	-20.5862	1999
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.8183	-20.5817	1999
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.7597	-20.6403	1999
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.7819	-20.5903	1999
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.7988	-20.6323	2010
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.7047	-20.6662	2010
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.7972	-20.6331	1999
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.5013	-20.4987	1981
Charadrius leschenaultii	Charadriidae	Charadrius	leschenaultii	greater sand plover, large san	BIRD	IA (& VU	116.5847	-20.4153	1981
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.8494	-20.4843	1990
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.5194	-20.6069	1990
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.6283	-20.4564	1990
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.5936	-20.4817	1990
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.5936	-20.4817	1982
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.6283	-20.4564	1983
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.5194	-20.6069	1984
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.85	-20.45	2005
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.85	-20.45	2005
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.8494	-20.4843	1978
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.8806	-20.3881	1998
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.8513	-20.4487	2005
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.7988	-20.6323	2010
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.7513	-20.582	1977
Charadrius mongolus	Charadriidae	Charadrius	mongolus	lesser sand plover	BIRD	EN & IA	116.5847	-20.4153	1977
Charadrius veredus	Charadriidae	Charadrius	veredus	oriental plover	BIRD	IA	116.5194	-20.6069	1990
Charadrius veredus	Charadriidae	Charadrius	veredus	oriental plover	BIRD	IA	116.6283	-20.4564	1990
Charadrius veredus	Charadriidae	Charadrius	veredus	oriental plover	BIRD	IA	116.5194	-20.6069	1984
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.6623	-20.5327	2015
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5389	-20.5356	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.675	-20.5178	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	2012
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5389	-20.5356	1992
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8064	-20.4931	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8056	-20.3858	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8494	-20.4843	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.4444	-20.6572	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5389	-20.5356	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8317	-20.3889	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.6283	-20.4564	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8806	-20.3881	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.675	-20.5178	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.6343	-20.5843	1990
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5	-20.6	2010
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.675	-20.5178	1984
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8597	-20.4044	1984
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8317	-20.3889	1984
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5389	-20.5356	1984
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	2004
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	2004
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8064	-20.4931	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8119	-20.5735	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8494	-20.4843	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.4444	-20.6572	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.6831	-20.6547	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8211	-20.4486	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8806	-20.3881	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.4444	-20.6572	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8211	-20.4486	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8064	-20.4931	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8806	-20.3881	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8494	-20.4843	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8119	-20.5735	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.6831	-20.6547	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.4444	-20.6572	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8211	-20.4486	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5194	-20.6069	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8064	-20.4931	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5936	-20.4817	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.8806	-20.3881	0
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2008
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.917	-20.3999	2009
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5074	-20.6218	2013
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5745	-20.4629	2013
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5074	-20.6218	2013
Chelonia mydas	Cheloniidae	Chelonia	mydas	green turtle	REPTILE	VU	116.5745	-20.4629	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1899
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1900
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.748	-20.6227	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4842	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5115	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4854	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8344	-20.4842	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8345	-20.4839	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8347	-20.4837	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8345	-20.4839	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4876	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4833	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8351	-20.4831	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8337	-20.4833	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8296	-20.4902	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.834	-20.4865	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8343	-20.4864	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8358	-20.4844	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8364	-20.4838	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8365	-20.4836	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8334	-20.4839	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8308	-20.4889	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.4836	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8807	-20.4282	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8824	-20.4267	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8828	-20.4256	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8798	-20.4334	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8827	-20.4264	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8791	-20.4337	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.882	-20.427	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4816	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8337	-20.4833	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8365	-20.4836	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8331	-20.4849	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8824	-20.4267	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8798	-20.4334	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8828	-20.4256	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8827	-20.4264	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.881	-20.4279	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4821	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8296	-20.4902	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.881	-20.4279	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.882	-20.427	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8786	-20.4337	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8828	-20.426	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4843	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8302	-20.4896	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4879	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8332	-20.4876	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4874	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8315	-20.4882	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8769	-20.4343	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8763	-20.4345	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8844	-20.4825	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8825	-20.4825	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8775	-20.4339	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8812	-20.4275	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8004	-20.5705	1990
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.7723	-20.6376	1990
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.809	-20.5724	1990
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.7884	-20.638	1990
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8324	-20.4874	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8235	-20.5176	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8235	-20.5176	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8247	-20.5164	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8314	-20.4885	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8328	-20.4852	2015

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.833	-20.4822	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8331	-20.4822	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.4825	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.4844	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8344	-20.4865	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4852	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8353	-20.4833	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8247	-20.5164	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4855	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8299	-20.49	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8307	-20.4891	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4883	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8726	-20.4366	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8697	-20.4392	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8727	-20.4374	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8726	-20.4366	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8734	-20.4351	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4843	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.872	-20.4372	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8734	-20.4351	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8317	-20.4881	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8339	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.834	-20.4869	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8242	-20.5171	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8712	-20.4375	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8702	-20.4373	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8699	-20.4383	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8727	-20.4365	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4816	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8306	-20.4894	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8337	-20.4872	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4856	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4847	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4837	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8359	-20.4822	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.484	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.486	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8337	-20.4872	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8351	-20.4832	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8357	-20.4825	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8359	-20.4822	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8346	-20.486	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4875	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8302	-20.4896	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8326	-20.487	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8362	-20.4819	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.482	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4816	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8354	-20.483	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4816	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.486	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8297	-20.4902	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8328	-20.4886	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8301	-20.4897	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8376	-20.4801	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8304	-20.4895	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8	-20.5	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.9	-20.5	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1900
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.5	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.85	-20.4833	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1986
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4833	1980
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	1978
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	1970
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5119	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8217	-20.5118	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8522	-20.4495	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8525	-20.4493	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8522	-20.4495	2012

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8525	-20.4493	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8217	-20.5118	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8212	-20.5119	2012
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.835	-20.4855	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8307	-20.4891	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8339	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8333	-20.4818	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8727	-20.4365	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8295	-20.4903	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8336	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8347	-20.4846	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8349	-20.4857	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8351	-20.4848	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4883	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.833	-20.4822	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8324	-20.4874	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.4844	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8196	-20.5163	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8326	-20.487	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8328	-20.4852	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4884	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8316	-20.4883	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8348	-20.484	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8362	-20.4819	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.482	2015
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8207	-20.5126	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.845	-20.5151	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8421	-20.4755	2013
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8346	-20.4861	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8357	-20.4846	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8334	-20.4839	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8361	-20.484	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8329	-20.4867	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8308	-20.4889	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8335	-20.4836	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8815	-20.4271	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8807	-20.4282	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8803	-20.4284	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8331	-20.4849	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8359	-20.4842	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8315	-20.4882	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8844	-20.4825	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8825	-20.4825	2014
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8494	-20.4843	2016
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8503	-20.4987	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.7713	-20.6087	0
Dasyurus hallucatus	Dasyuridae	Dasyurus	hallucatus	northern quoll	MAMMAL	EN	116.8508	-20.4987	0
Dugong dugon	Dugongidae	Dugong	dugon	dugong	MAMMAL	OS	116.8333	-20.3833	0
Dugong dugon	Dugongidae	Dugong	dugon	dugong	MAMMAL	OS	116.7568	-20.6047	2006
Dugong dugon	Dugongidae	Dugong	dugon	dugong	MAMMAL	OS	116.6111	-20.4762	2012
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5194	-20.6069	1978
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.675	-20.5178	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2012
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	1992
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8064	-20.4931	1990

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8494	-20.4843	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.4444	-20.6572	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.6225	-20.4697	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5194	-20.6069	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.675	-20.5178	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	1990
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.9336	-20.4109	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.6225	-20.4697	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.675	-20.5178	1984
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8317	-20.3889	1984
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	1984
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	2004
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8494	-20.4843	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.4444	-20.6572	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5479	-20.5379	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.6225	-20.4697	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5194	-20.6069	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8211	-20.4486	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8806	-20.3881	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8494	-20.4843	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.4444	-20.6572	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8211	-20.4486	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8806	-20.3881	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5194	-20.6069	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5479	-20.5379	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.6225	-20.4697	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5389	-20.5356	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8494	-20.4843	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.4444	-20.6572	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8211	-20.4486	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.8806	-20.3881	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5194	-20.6069	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5936	-20.4817	0
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.862	-20.4621	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2008
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.917	-20.3999	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.9336	-20.4109	2009
Eretmochelys imbricata	Cheloniidae	Eretmochelys	imbricata	hawksbill turtle	REPTILE	VU	116.5905	-20.4846	2017
Falco peregrinus	Falconidae	Falco	peregrinus	peregrine falcon	BIRD	OS	116.8022	-20.5909	2006
Falco peregrinus	Falconidae	Falco	peregrinus	peregrine falcon	BIRD	OS	116.8013	-20.6153	2000
Falco peregrinus	Falconidae	Falco	peregrinus	peregrine falcon	BIRD	OS	116.7513	-20.582	1980
Falco peregrinus	Falconidae	Falco	peregrinus	peregrine falcon	BIRD	OS	116.5013	-20.4987	1977
Falco peregrinus	Falconidae	Falco	peregrinus	peregrine falcon	BIRD	OS	116.7513	-20.582	1979
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8056	-20.3858	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7768	-20.5405	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8494	-20.4843	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6225	-20.4697	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5194	-20.6069	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6283	-20.4564	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6943	-20.5202	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5936	-20.4817	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5936	-20.4817	1982
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8064	-20.4931	1982
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6225	-20.4697	1983
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8056	-20.3858	1983
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6283	-20.4564	1983
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5936	-20.4817	1984
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8806	-20.3881	1984
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.4444	-20.6572	1984
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8075	-20.3877	1984
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6943	-20.5202	1983
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7768	-20.5405	1983
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5194	-20.6069	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5808	-20.4758	1999
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6675	-20.5203	2002
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6675	-20.5203	2002
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6667	-20.5194	2000
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6943	-20.5202	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7768	-20.5405	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6225	-20.4697	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6283	-20.4564	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.8806	-20.3881	1998
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5	-20.5	1974
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5	-20.5	1981
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.53	-20.55	1962
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.58	-20.58	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.58	-20.58	1977
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5808	-20.4758	1999
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6667	-20.5194	2000
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6675	-20.5203	2002
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.91	-20.41	0
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5822	-20.4745	1999
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6675	-20.5203	2002
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.6675	-20.5203	2002
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.668	-20.5181	2000
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.918	-20.4153	1980
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7513	-20.582	1980

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.4153	1980
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7513	-20.582	1980
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7513	-20.582	1981
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.4153	1981
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.7513	-20.582	1981
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.4153	1978
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.4153	1977
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.582	1977
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.582	1979
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5847	-20.582	1979
Fregata ariel	Fregatidae	Fregata	ariel	lesser frigatebird	BIRD	IA	116.5013	-20.4987	1980
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8056	-20.3858	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.5936	-20.4817	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8069	-20.3845	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.5949	-20.4803	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8597	-20.4044	1984
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8597	-20.4044	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.5936	-20.4817	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8597	-20.4044	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8073	-20.3847	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.7713	-20.6087	1997
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.5953	-20.4807	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.8069	-20.3845	0
Hydromys chrysogaster	Muridae	Hydromys	chrysogaster	water-rat, rakali	MAMMAL	P4	116.5949	-20.4803	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8314	-20.3889	1987
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8314	-20.3889	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8314	-20.3889	1991
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6292	-20.4571	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6939	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5946	-20.4797	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5204	-20.6007	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4449	-20.6588	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5204	-20.6007	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5204	-20.6007	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4449	-20.6588	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8044	-20.3856	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.777	-20.5399	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.777	-20.5399	1982
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5	-20.5	1974
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5	-20.5	1978
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5	-20.5	1981
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5747	-20.5931	2008
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.58	-20.58	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5872	-20.4689	1998
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.63	-20.58	1901
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6583	-20.525	1999
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6667	-20.5194	2000
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6675	-20.5203	2002
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.85	-20.45	2005
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8519	-20.4492	2002
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8875	-20.3917	2000
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.91	-20.41	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6943	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1987
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8064	-20.4931	2000
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1982
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1991
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6169	-20.4441	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1982
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8494	-20.4843	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5381	-20.4778	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.675	-20.5178	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6943	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6737	-20.4485	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6732	-20.4512	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5079	-20.4995	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6149	-20.5694	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6343	-20.5843	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6169	-20.4441	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8494	-20.4843	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5389	-20.5356	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1982
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5381	-20.4778	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.675	-20.5178	1982
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7754	-20.5404	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.584	-20.5753	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.654	-20.5059	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.675	-20.5178	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8332	-20.3806	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4513	-20.6649	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5079	-20.4995	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4487	-20.6526	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8336	-20.3834	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6737	-20.4485	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6343	-20.5843	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6149	-20.5694	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8336	-20.3834	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6737	-20.4485	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6169	-20.4441	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5381	-20.4778	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5079	-20.4995	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6343	-20.5843	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4449	-20.6588	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5204	-20.6007	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6939	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6292	-20.4571	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.654	-20.5059	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1983

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8494	-20.4843	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5389	-20.5356	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6737	-20.4485	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5946	-20.4797	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8494	-20.4843	1978
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8064	-20.4931	2014
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8064	-20.4931	2000
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1971
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1991
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1987
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6943	-20.5202	1971
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	1983
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8597	-20.4044	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4313	-20.6537	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6149	-20.5694	1990
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6943	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.654	-20.5059	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	1984
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8806	-20.3881	2000
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8168	-20.5091	2015
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	1918
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	1918
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8056	-20.3858	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.7768	-20.5405	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.4444	-20.6572	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5194	-20.6069	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.8317	-20.3889	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6283	-20.4564	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.6943	-20.5202	0
Hydroprogne caspia	Laridae	Hydroprogne	caspia	Caspian tern	BIRD	IA	116.5936	-20.4817	0
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8486	-20.4884	1993
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.752	-20.633	2004
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7073	-20.6668	2005
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.767	-20.6571	2001
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.782	-20.593	2014
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.777	-20.599	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.777	-20.598	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.782	-20.592	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7685	-20.624	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7712	-20.6065	2016
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7785	-20.5949	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7785	-20.5949	2015
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.777	-20.599	2016
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.771	-20.589	2016
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7675	-20.6131	2016
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.779	-20.595	2017
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.768	-20.613	2017
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7619	-20.6086	2018
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.7727	-20.6113	2018
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8494	-20.4843	1990
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.6343	-20.5843	1990
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8486	-20.4884	1993
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8494	-20.4843	0
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8119	-20.5735	0
Liasis olivaceus barroni	Boidae	Liasis	olivaceus	Pilbara olive python	REPTILE	VU	116.8494	-20.4843	0
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.85	-20.45	2005
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8494	-20.4843	0
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.4444	-20.6572	1983
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8494	-20.4843	1984
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8064	-20.4931	1990
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8494	-20.4843	1990
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.4444	-20.6572	1990
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.85	-20.45	2005
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8494	-20.4843	1978
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7588	-20.6062	1998
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8105	-20.6059	1999
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8105	-20.6059	1999
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7597	-20.6403	1999
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.8513	-20.4487	2005
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7988	-20.6323	2010
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7047	-20.6662	2010
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7972	-20.6331	1999
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.5013	-20.4987	1981
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.918	-20.4153	1980
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.7513	-20.582	1977
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.5013	-20.4987	1978
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.5013	-20.4987	1978
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.5013	-20.4987	1977
Limosa lapponica	Scolopacidae	Limosa	lapponica	bar-tailed godwit	BIRD	IA (& VU	116.5013	-20.4987	1980
Limosa limosa	Scolopacidae	Limosa	limosa	black-tailed godwit	BIRD	IA	116.5013	-20.4987	1981
Macroderma gigas	Megadermatidae	Macroderma	gigas	ghost bat	MAMMAL	VU	116.8022	-20.5909	2006
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.8013	-20.5653	1999
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.9267	-20.3733	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.9267	-20.3733	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.9267	-20.3733	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.9267	-20.3733	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.9133	-20.3725	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.865	-20.3433	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.865	-20.3433	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.865	-20.3433	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.75	-20.35	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.75	-20.35	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.7367	-20.4533	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.7333	-20.3667	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.6467	-20.3967	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.69	-20.37	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.69	-20.37	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.69	-20.37	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.69	-20.37	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.61	-20.41	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.61	-20.41	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.61	-20.41	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.61	-20.41	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.52	-20.47	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.52	-20.47	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.52	-20.47	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.5	-20.48	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.46	-20.52	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.46	-20.52	2014
Megaptera novaeangliae	Balaenopteridae	Megaptera	novaeangliae	humpback whale	MAMMAL	CD	116.46	-20.52	2014
Mormopterus (Ozimops) cot	Molossidae	Mormopterus	(Ozimops) cobourgianu	north-western free-tailed bat	MAMMAL	P1	116.8022	-20.5909	2006
Mormopterus (Ozimops) cot	Molossidae	Mormopterus	(Ozimops) cobourgianu	north-western free-tailed bat	MAMMAL	P1	116.8057	-20.6068	2001
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8333	-20.6167	0

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5194	-20.6069	1978
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5936	-20.4817	2012
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5194	-20.6069	1990
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8317	-20.3889	1990
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8806	-20.3881	1990
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
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Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.9336	-20.4109	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5	-20.5	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5	-20.5	2006
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5	-20.5	2007
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5	-20.5	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8	-20.4	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8	-20.4	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8	-20.4	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8806	-20.3881	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8064	-20.4931	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8119	-20.5735	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.7768	-20.5405	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8494	-20.4843	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.4444	-20.6572	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5479	-20.5379	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6831	-20.6547	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6225	-20.4697	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5194	-20.6069	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8211	-20.4486	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5389	-20.5356	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6461	-20.6533	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8317	-20.3889	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6283	-20.4564	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8806	-20.3881	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8222	-20.4231	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8181	-20.4136	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5936	-20.4817	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5479	-20.5379	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6225	-20.4697	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5389	-20.5356	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6461	-20.6533	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6283	-20.4564	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8119	-20.5735	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8317	-20.3889	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8222	-20.4231	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8181	-20.4136	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.7768	-20.5405	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8064	-20.4931	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8211	-20.4486	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.4444	-20.6572	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8806	-20.3881	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5194	-20.6069	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5936	-20.4817	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6831	-20.6547	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8494	-20.4843	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5479	-20.5379	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6225	-20.4697	0

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5389	-20.5356	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6461	-20.6533	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.6283	-20.4564	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8119	-20.5735	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8317	-20.3889	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8222	-20.4231	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8181	-20.4136	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.7768	-20.5405	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8064	-20.4931	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8211	-20.4486	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.4444	-20.6572	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.8806	-20.3881	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5194	-20.6069	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.5936	-20.4817	0
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2008
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.917	-20.3999	2009
Natator depressus	Cheloniidae	Natator	depressus	flatback turtle	REPTILE	VU	116.9336	-20.4109	2009
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU	116.868	-20.6487	1966
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU	116.868	-20.6487	1966
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	IA	116.868	-20.6487	1966
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	IA	116.868	-20.6487	1966
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.6283	-20.4564	1983
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.8494	-20.4843	1984
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.8494	-20.4843	1990
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.85	-20.45	2005
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.8494	-20.4843	1978
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.8513	-20.4487	2005
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.7513	-20.582	1981
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.5013	-20.4987	1978
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.5013	-20.4987	1977
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.5013	-20.4987	1978
Numenius madagascariensis	Scolopacidae	Numenius	madagascariensis	eastern curlew	BIRD	VU & IA	116.5013	-20.4987	1977
Numenius minutus	Scolopacidae	Numenius	minutus	little curlew, little whimbrel	BIRD	IA	116.7105	-20.6551	2010
Numenius minutus	Scolopacidae	Numenius	minutus	little curlew, little whimbrel	BIRD	IA	116.7513	-20.582	1981
Numenius minutus	Scolopacidae	Numenius	minutus	little curlew, little whimbrel	BIRD	IA	116.7513	-20.582	1981
Numenius minutus	Scolopacidae	Numenius	minutus	little curlew, little whimbrel	BIRD	IA	116.7513	-20.582	1977
Numenius minutus	Scolopacidae	Numenius	minutus	little curlew, little whimbrel	BIRD	IA	116.5013	-20.4987	1977
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.85	-20.45	2005
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6169	-20.4441	0
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5194	-20.6069	0
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6737	-20.4485	0
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6732	-20.4512	0
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8211	-20.4486	1982
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6283	-20.4564	1983
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5194	-20.6069	1983
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5194	-20.6069	1984
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6737	-20.4485	1984
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6169	-20.4441	1984
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8064	-20.4931	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6169	-20.4441	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5194	-20.6069	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8211	-20.4486	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6283	-20.4564	1990

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8806	-20.3881	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6737	-20.4485	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.6343	-20.5843	1990
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8513	-20.4487	2005
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8494	-20.4843	1978
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8806	-20.3881	1998
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8265	-20.4836	2015
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8215	-20.5195	2015
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8014	-20.5711	2001
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8105	-20.6059	1999
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7822	-20.6595	2004
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7597	-20.6403	1999
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7819	-20.5903	1999
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.8513	-20.4487	2005
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7988	-20.6323	2010
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7972	-20.6331	1999
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1981
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7513	-20.582	1980
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7513	-20.582	1981
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7513	-20.582	1981
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1978
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1977
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.7513	-20.582	1978
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1977
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1979
Numenius phaeopus	Scolopacidae	Numenius	phaeopus	whimbrel	BIRD	IA	116.5013	-20.4987	1980
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.5	-20.5	1974
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.91	-20.41	0
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.8494	-20.4843	0
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.4444	-20.6572	0
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.6343	-20.5843	1983
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.6404	-20.4913	1983
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.4444	-20.6572	1984
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.8064	-20.4931	1984
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.7408	-20.4168	1984
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.5528	-20.4818	1984
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.8494	-20.4843	0
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.7322	-20.5958	2008
Oceanites oceanicus	Hydrobatidae	Oceanites	oceanicus	Wilson's storm-petrel	BIRD	IA	116.918	-20.4153	1979
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1981
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1974
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1981
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.5	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5747	-20.5931	2008
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.58	-20.58	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.58	-20.58	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.58	-20.58	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5808	-20.4758	1999
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5825	-20.585	2008
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5872	-20.4689	1998
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.61	-20.58	1901
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.63	-20.58	1901
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.63	-20.58	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6583	-20.525	1999
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6667	-20.5194	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6675	-20.5203	2002
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.85	-20.45	2005
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8519	-20.4492	2002
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8875	-20.3917	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.91	-20.41	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.45	-20.666	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5	-20.6	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.616	-20.583	1901
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.866	-20.383	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.866	-20.383	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1987
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5479	-20.5379	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1987
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5946	-20.4797	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1976
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6169	-20.4441	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6592	-20.6094	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4313	-20.6537	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6225	-20.4697	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8211	-20.4486	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6796	-20.5419	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5381	-20.4778	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6396	-20.4392	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6737	-20.4485	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6732	-20.4512	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5079	-20.4995	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6149	-20.5694	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8211	-20.4486	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6787	-20.5216	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5327	-20.5428	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6225	-20.4697	1983

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.653	-20.5039	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6796	-20.5419	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8321	-20.3883	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8024	-20.385	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6269	-20.4543	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5793	-20.5805	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6538	-20.5043	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8321	-20.3883	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4498	-20.6647	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5816	-20.579	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8024	-20.385	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4313	-20.6537	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5079	-20.4995	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5816	-20.579	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6786	-20.5218	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6149	-20.5694	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8056	-20.3858	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6737	-20.4485	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6169	-20.4441	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5381	-20.4778	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6149	-20.5694	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8505	-20.4796	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5204	-20.6007	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6742	-20.5151	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8049	-20.4927	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6342	-20.5841	1976
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4449	-20.6588	1987
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.777	-20.5399	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6253	-20.4526	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6292	-20.4571	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8314	-20.3889	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.654	-20.5059	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8056	-20.3858	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6796	-20.5419	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.88	-20.3861	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6943	-20.5202	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5473	-20.5379	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6737	-20.4485	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6225	-20.4697	1981
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1970
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	1980
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1987
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5479	-20.5379	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1982
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1976
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1983
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1976
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1977
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6169	-20.4441	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8597	-20.4044	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6831	-20.6547	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6225	-20.4697	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4313	-20.6537	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8211	-20.4486	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6796	-20.5419	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5381	-20.4778	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6943	-20.5202	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6393	-20.4388	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6393	-20.4388	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6149	-20.5694	1990

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	1990
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.654	-20.5059	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6796	-20.5419	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	1978
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5389	-20.5356	1984
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	2000
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	2004
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8169	-20.5092	2015
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8273	-20.5152	2015
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8347	-20.4846	2015
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8222	-20.4231	2015
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8181	-20.4136	2015
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	1918
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8064	-20.4931	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.7768	-20.5405	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8494	-20.4843	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.4444	-20.6572	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5479	-20.5379	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5194	-20.6069	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8317	-20.3889	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6254	-20.4528	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6283	-20.4564	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.8806	-20.3881	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.675	-20.5178	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.5936	-20.4817	0
Pandion cristatus	Accipitridae	Pandion	cristatus	osprey, eastern osprey	BIRD	IA	116.6343	-20.5843	0
Pluvialis fulva	Charadriidae	Pluvialis	fulva	Pacific golden plover	BIRD	IA	116.5	-20.5	1980
Pluvialis fulva	Charadriidae	Pluvialis	fulva	Pacific golden plover	BIRD	IA	116.6283	-20.4564	1983
Pluvialis fulva	Charadriidae	Pluvialis	fulva	Pacific golden plover	BIRD	IA	116.7047	-20.6662	2010
Pluvialis fulva	Charadriidae	Pluvialis	fulva	Pacific golden plover	BIRD	IA	116.5013	-20.4987	1980
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.5	-20.5	1983
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.8494	-20.4843	1990
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.4444	-20.6572	1990
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.4485	-20.6657	1983
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.7988	-20.6323	2010
Pluvialis squatarola	Charadriidae	Pluvialis	squatarola	grey plover	BIRD	IA	116.5013	-20.4987	1981
Pseudomys chapmani	Muridae	Pseudomys	chapmani	western pebble-mound mous	MAMMAL	P4	116.8313	-20.5787	1983
Pseudomys chapmani	Muridae	Pseudomys	chapmani	western pebble-mound mous	MAMMAL	P4	116.7713	-20.6087	1994
Stenella longirostris	Delphinidae	Stenella	longirostris	spinner dolphin	MAMMAL	P4	116.6633	-20.5342	2014
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.538	-20.5352	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6737	-20.4482	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5	-20.5	1974
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5	-20.5	1983
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.58	-20.58	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.91	-20.41	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6732	-20.4512	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5389	-20.5356	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8597	-20.4044	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8494	-20.4843	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6943	-20.5202	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6396	-20.4392	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6737	-20.4485	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6732	-20.4512	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5079	-20.4995	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5936	-20.4817	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6343	-20.5843	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8056	-20.3858	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5381	-20.4778	1983
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5079	-20.4995	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5079	-20.4995	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8056	-20.3858	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6737	-20.4485	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6393	-20.4388	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5936	-20.4817	1984
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8317	-20.3889	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5381	-20.4778	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6393	-20.4388	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6737	-20.4485	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5079	-20.4995	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5936	-20.4817	1990
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6943	-20.5202	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6343	-20.5843	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5936	-20.4817	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8494	-20.4843	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8388	-20.416	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.538	-20.5352	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6737	-20.4482	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5389	-20.5356	1994
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6732	-20.4512	1994
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.8806	-20.3881	1998
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5389	-20.5356	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.6732	-20.4512	0
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5013	-20.4987	1981
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5847	-20.582	1981
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.7513	-20.582	1981
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.7513	-20.4153	1981
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.7513	-20.582	1979
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5847	-20.4153	1979
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.5847	-20.582	1979
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.7513	-20.582	1979
Sterna dougallii	Laridae	Sterna	dougallii	roseate tern	BIRD	IA	116.918	-20.4153	1979
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.4444	-20.6572	1990
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.5194	-20.6069	1990
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.5389	-20.5356	1990
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.8317	-20.3889	1990
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.6343	-20.5843	1990
Sterna hirundo	Laridae	Sterna	hirundo	Common Tern	BIRD	IA	116.4456	-20.6489	2000
Sterna hirundo	Laridae	Sterna	hirundo	common tern	BIRD	IA	116.5758	-20.6397	2000
Sterna hirundo	Laridae	Sterna	hirundo	common tern	BIRD	IA	116.4814	-20.6461	2000
Sterna hirundo	Laridae	Sterna	hirundo	common tern	BIRD	IA	116.4456	-20.6489	2000
Sternula albifrons	Laridae	Sternula	albifrons	little tern	BIRD	IA	116.58	-20.58	2010
Sternula albifrons	Laridae	Sternula	albifrons	little tern	BIRD	IA	116.8064	-20.4931	2014
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.432	-20.6537	1991
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8044	-20.3856	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8044	-20.3856	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.866	-20.383	1918
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5	-20.5	1974
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4313	-20.6537	1991
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8317	-20.3889	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5381	-20.4778	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.675	-20.5178	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6737	-20.4485	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6732	-20.4512	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5079	-20.4995	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6149	-20.5694	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6283	-20.4564	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.654	-20.5059	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	1983

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4444	-20.6572	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5381	-20.4778	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5929	-20.5894	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5389	-20.5356	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5079	-20.4995	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5671	-20.4849	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5671	-20.4849	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6149	-20.5694	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6737	-20.4485	1979
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6149	-20.5694	1984
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8064	-20.4931	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8597	-20.4044	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8494	-20.4843	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4444	-20.6572	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5194	-20.6069	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5389	-20.5356	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5381	-20.4778	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6283	-20.4564	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.675	-20.5178	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5079	-20.4995	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6343	-20.5843	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.432	-20.6537	1991
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.654	-20.5059	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8317	-20.3889	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	1983
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6737	-20.4485	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8597	-20.4044	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4313	-20.6537	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.6149	-20.5694	1990
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.654	-20.5059	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8317	-20.3889	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.5936	-20.4817	2004
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4444	-20.6572	1918
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.8056	-20.3858	0
Sternula nereis nereis	Laridae	Sternula	nereis	fairy tern	BIRD	VU	116.4313	-20.6537	0
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.8056	-20.3858	0
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6737	-20.4485	1979
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6732	-20.4512	1979
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7273	-20.533	1983
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6861	-20.5284	1983
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6641	-20.5354	1983
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6799	-20.617	1983
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6737	-20.4485	1979
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6737	-20.4485	1979
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6737	-20.4485	1980
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.8075	-20.3877	1984
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7454	-20.4188	1984
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.6737	-20.4485	0
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7513	-20.4153	1980
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7513	-20.582	1980
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7513	-20.582	1980
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.7513	-20.4153	1981
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.5847	-20.4153	1978
Sula leucogaster	Sulidae	Sula	leucogaster	brown booby	BIRD	IA	116.5847	-20.4153	1979
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5758	-20.6397	2000
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8202	-20.5862	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8124	-20.5903	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5822	-20.4745	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.6675	-20.5203	2002
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.6675	-20.5203	2002
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8347	-20.6653	2002
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7922	-20.5826	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8105	-20.6059	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8105	-20.6059	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8513	-20.4487	2005
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.5833	2010
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7047	-20.6662	2010
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.6283	-20.4603	2011
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7983	-20.6339	2011
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7972	-20.6331	1999
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5013	-20.4987	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.918	-20.4153	1980
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.8347	-20.4153	1980
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7513	-20.582	1980
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.582	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7513	-20.582	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7513	-20.4153	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.4153	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7513	-20.582	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.7513	-20.582	1981
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.4153	1979
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.582	1979
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.4153	1979
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5847	-20.582	1979
Thalasseus bergii	Laridae	Thalasseus	bergii	crested tern	BIRD	IA	116.5013	-20.4987	1980
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5	-20.5	1977
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5	-20.5	1966
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5	-20.5	1974
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5	-20.5	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.58	-20.58	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6583	-20.525	1999
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6667	-20.5194	2000
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8056	-20.3858	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6592	-20.6094	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6283	-20.4564	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.675	-20.5178	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6343	-20.5843	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.7768	-20.5405	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5194	-20.6069	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5417	-20.5368	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.654	-20.5059	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8494	-20.4843	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5194	-20.6069	1983
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5194	-20.6069	1984
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5194	-20.6069	1984
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8056	-20.3858	1984
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8056	-20.3858	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.7768	-20.5405	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8494	-20.4843	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5194	-20.6069	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.5389	-20.5356	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8806	-20.3881	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.675	-20.5178	1990
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6583	-20.525	1999
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6667	-20.5194	2000
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8494	-20.4843	1978
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8064	-20.4931	2014
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.654	-20.5059	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.6283	-20.4564	0
Tringa brevipes	Scolopacidae	Tringa	brevipes	grey-tailed tattler	BIRD	IA & P4	116.8806	-20.3881	1998
Tringa glareola	Scolopacidae	Tringa	glareola	wood sandpiper	BIRD	IA	116.5	-20.5	1977
Tringa glareola	Scolopacidae	Tringa	glareola	wood sandpiper	BIRD	IA	116.5	-20.5	1977
Tringa glareola	Scolopacidae	Tringa	glareola	wood sandpiper	BIRD	IA	116.5013	-20.4987	1977
Tringa glareola	Scolopacidae	Tringa	glareola	wood sandpiper	BIRD	IA	116.5013	-20.4987	1977
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1966
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1978
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1977

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_CO	GDA_LONG	GDA_LAT	YEAR
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1983
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5	-20.5	1977
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.58	-20.58	0
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.85	-20.45	2005
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.6225	-20.4697	0
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5194	-20.6069	1983
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5194	-20.6069	1990
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5936	-20.4817	1990
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.6343	-20.5843	1990
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.8494	-20.4843	1978
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.6225	-20.4697	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.8806	-20.3881	1998
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.8347	-20.6653	2002
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7597	-20.6403	1999
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7819	-20.5903	1999
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.8513	-20.4487	2005
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7047	-20.6662	2010
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5847	-20.582	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5847	-20.4153	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.582	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.4153	1980
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5847	-20.4153	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.582	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.582	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5847	-20.582	1981
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1978
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1977
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1978
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.582	1979
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1977
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1979
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.7513	-20.582	1979
Tringa nebularia	Scolopacidae	Tringa	nebularia	common greenshank, greensh	BIRD	IA	116.5013	-20.4987	1980
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5	-20.5	1980
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5	-20.5	1977
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5	-20.5	1980
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5	-20.5	1966
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5013	-20.4987	1980
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5013	-20.4987	1977
Tringa stagnatilis	Scolopacidae	Tringa	stagnatilis	marsh sandpiper, little greens	BIRD	IA	116.5013	-20.4987	1979
Xenus cinereus	Scolopacidae	Xenus	cinereus	Terek sandpiper	BIRD	IA	116.5	-20.5	1977
Xenus cinereus	Scolopacidae	Xenus	cinereus	Terek sandpiper	BIRD	IA	116.5	-20.5	1981
Xenus cinereus	Scolopacidae	Xenus	cinereus	Terek sandpiper	BIRD	IA	116.8268	-20.4836	2015
Xenus cinereus	Scolopacidae	Xenus	cinereus	Terek sandpiper	BIRD	IA	116.8215	-20.5195	2015
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.5381	-20.4778	1983
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.4593	-20.631	1983
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.4814	-20.6461	2000
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.5013	-20.4987	1978
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.5013	-20.4987	1977
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.7513	-20.582	1978
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.7513	-20.582	1979
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.5013	-20.4987	1977
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.7513	-20.582	1979
Chlidonias leucopterus	Laridae	Chlidonias	leucopterus	white-winged black tern, whit	BIRD	IA	116.5013	-20.4987	1980
Gelochelidon nilotica	Laridae	Gelochelidon	nilotica	gull-billed tern	BIRD	IA	116.8494	-20.4843	1990
Gelochelidon nilotica	Laridae	Gelochelidon	nilotica	gull-billed tern	BIRD	IA	116.5194	-20.6069	1990
Gelochelidon nilotica	Laridae	Gelochelidon	nilotica	gull-billed tern	BIRD	IA	116.5	-20.5	1980
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	1988
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5936	-20.4817	1981
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6169	-20.4441	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1982
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1992
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1981
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6396	-20.4392	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6737	-20.4485	1980
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	1980
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5079	-20.4995	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1982
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.8056	-20.3858	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5079	-20.4995	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6737	-20.4485	1980
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6743	-20.4475	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6393	-20.4388	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.8056	-20.3858	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.8597	-20.4044	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.8317	-20.3889	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6393	-20.4388	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6737	-20.4485	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5079	-20.4995	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6737	-20.4485	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1981
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1994
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1994
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	1994
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	1988
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	1983
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5936	-20.4817	1977
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	1991
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1988
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	1990
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	1984
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.8806	-20.3881	1998
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6169	-20.4441	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6225	-20.4697	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5389	-20.5356	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6247	-20.6665	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5381	-20.4778	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6283	-20.4564	0
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.6732	-20.4512	0

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Onychoprion anaethetus	Laridae	Onychoprion	anaethetus	bridled tern	BIRD	IA	116.5936	-20.4817	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6251	-20.4707	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6251	-20.4707	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5379	-20.4785	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5379	-20.4785	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6292	-20.4571	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6292	-20.4571	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8044	-20.3856	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6168	-20.4438	1991
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5327	-20.5428	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5473	-20.5379	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.538	-20.5352	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6251	-20.4707	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6251	-20.4707	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5379	-20.4785	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.538	-20.5352	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4449	-20.6588	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.538	-20.5352	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.538	-20.5352	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.777	-20.5399	0

NAME_SCI	FAMILY	GENUS	SPECIES	NAME_COM	CLASS	CONS_C(	GDA_LONG	GDA_LAT	YEAR
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.777	-20.5399	1982
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.506	-20.5002	1974
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6667	-20.5194	2000
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.86	-20.38	1962
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6169	-20.4441	1991
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4444	-20.6572	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5479	-20.5379	1978
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1988
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8056	-20.3858	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	1982
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1991
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5327	-20.5428	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4444	-20.6572	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6796	-20.5419	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5079	-20.4995	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5327	-20.5428	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.654	-20.5059	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5079	-20.4995	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8056	-20.3858	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4449	-20.6588	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.538	-20.5352	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6742	-20.5151	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.777	-20.5399	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6251	-20.4707	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5379	-20.4785	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6292	-20.4571	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6168	-20.4438	1991
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5327	-20.5428	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6169	-20.4441	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.654	-20.5059	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5473	-20.5379	1977
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6169	-20.4441	1991
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4444	-20.6572	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5479	-20.5379	1978
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1994
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1994
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1982
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1983
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1992
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1978
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8056	-20.3858	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8806	-20.3881	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5079	-20.4995	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.654	-20.5059	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6796	-20.5419	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4444	-20.6572	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	1984
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8806	-20.3881	1990
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6169	-20.4441	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.8056	-20.3858	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.7768	-20.5405	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.4444	-20.6572	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5479	-20.5379	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6225	-20.4697	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5327	-20.5428	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5389	-20.5356	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.5381	-20.4778	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.6283	-20.4564	0
Puffinus pacificus	Procellariidae	Puffinus	pacificus	wedge-tailed shearwater	BIRD	IA	116.675	-20.5178	0

APPENDIX E: ATLAS OF LIVING AUSTRALIA 10 KM BUFFER DATABASE SEARCH RESULTS

- Appendix_X_Atlas of Living Australia Database Search (10km Search)

Species	Naturalised	Conservation Code	Endemic To Query Area
Amphibian			
Cyclorana maini			
Litoria rubella			
Bird			
Acrocephalus australis			
Acrocephalus australis			
Actitis hypoleucos			
Aegotheles cristatus			
Anhinga novaehollandiae			
Anous stolidus			
Anthus novaeseelandiae			
Apus pacificus			
Aquila audax			
Ardea modesta			
Ardenna pacifica			
Ardeotis australis			
Arenaria interpres			
Artamus minor			
Artamus cinereus			
Artamus leucorynchus			
Burhinus grallarius			
Butorides striatus			
Cacatua sanguinea			

Cacomantis pallidus			
Calidris acuminata			
Centropus phasianinus			
Charadrius ruficapillus			
Chroicocephalus novaehollandiae			
Chrysococcyx basalis			
Cincloramphus cruralis			
Circus assimilis			
Columba livia	Y		
Coracina novaehollandiae			
Corvus bennetti			
Corvus orru			
Cracticus nigrogularis			
Egretta garzetta			
Egretta novaehollandiae			
Egretta sacra			
Elanus axillaris			
Elseyornis melanops			
Emblema pictum			
Eolophus roseicapillus			
Ephippiorhynchus asiaticus			
Epthianura tricolor			
Erythrogonys cinctus			
Esacus magnirostris			
Falco berigora			
Falco cenchroides			

Falco longipennis			
Falco peregrinus			
Fregata ariel			
Gallirallus philippensis			
Gavicalis virescens			
Gelochelidon nilotica			
Geopelia cuneata			
Geopelia humeralis			
Geopelia striata			
Geophaps plumifera			
Gerygone tenebrosa			
Glareola maldivarum			
Grallina cyanoleuca			
Haematopus fuliginosus			
Haematopus longirostris			
Haematopus ostralegus			
Haliaeetus leucogaster			
Haliastur indus			
Haliastur sphenurus			
Hieraaetus morphnoides			
Himantopus himantopus			
Hirundo neoxena			
Hydroprogne caspia			
Lalage sueurii			
Lichmera indistincta			
Limosa lapponica			

Malurus leucopterus			
Manorina flavigula			
Melopsittacus undulatus			
Merops ornatus			
Milvus migrans			
Mirafra javanica			
Neochmia ruficauda			
Neopsephotus bourkii			
Numenius madagascariensis			
Numenius minutus			
Numenius phaeopus			
Nymphicus hollandicus			
Oceanites oceanicus			
Ocyphaps lophotes			
Pachycephala lanioides			
Pachycephala melanura			
Pachycephala rufiventris			
Pandion cristatus			
Pardalotus rubricatus			
Pardalotus striatus			
Passer domesticus	Y		
Passer montanus	Y		
Pelecanus conspicillatus			
Petrochelidon ariel			
Petrochelidon nigricans			
Phalacrocorax sulcirostris			

Phalacrocorax varius			
Phaps chalcoptera			
Podargus strigoides			
Ptilonorhynchus guttatus			
Ptilotula keartlandi			
Ptilotula penicillata			
Rhipidura leucophrys			
Rhipidura phasiana			
Smicrornis brevirostris			
Sterna dougallii			
Sterna hirundo			
Sula leucogaster			
Taeniopygia guttata			
Thalasseus bengalensis			
Thalasseus bergii			
Threskiornis spinicollis			
Todiramphus chloris			
Todiramphus pyrrhopygius			
Todiramphus sanctus			
Tringa brevipes			
Tringa totanus			
Tringanebularia			
Turnix velox			
Tyto javanica			
Xenus cinereus			
Zosterops luteus			
Mammal			

Felis catus	Y		
Nyctophilus geoffroyi			
Osphranter robustus			
Pseudantechinus roryi			
Pseudantechinus woolleyae			
Pseudomys delicatulus			
Pseudomys hermannsburgensis			
Rattus rattus	Y		
Taphozous georgianus			
Vespadelus finlaysoni			
Vulpes vulpes	Y		
Zyzomys argurus			
Reptile			
Acanthophis wellsei			
Anilios ammodytes			
Anilios grypus			
Antaresia perthensis			
Antaresia stimsoni			
Aspidites melanocephalus			
Carlia triacantha			
Crenadactylus horni			
Cryptoblepharus buchananii			
Cryptoblepharus ustulatus			
Ctenophorus caudicinctus			
Ctenophorus isolepis			
Ctenotus inornatus			
Ctenotus pantherinus			

Ctenotus rubicundus			
Ctenotus serventyi			
Cyclodomorphus melanops			
Delma pax			
Delma tincta			
Demansia rufescens			
Diplodactylus conspicillatus			
Diplodactylus galaxias			
Egernia pilbarensis			
Ephalophis greyi			
Eremiascincus isolepis			
Fordonia leucobalia			
Furina ornata			
Gehyra punctata			
Gehyra variegata			
Gowidon longirostris			
Hemidactylus frenatus	Y		
Heteronotia binoei			
Lerista bipes			
Lerista clara			
Lerista jacksoni			
Lerista muelleri			
Lialis burtonis			
Menetia greyii			
Menetia surda			
Morethia ruficauda			

Notoscincus ornatus			
Oedura fimbria			
Oedura marmorata			
Pseudechis australis			
Pseudonaja mengdeni			
Strophurus ciliaris			
Strophurus elderi			
Suta punctata			
Varanus eremius			
Varanus gouldii			

APPENDIX F: NATUREMAP DATABASE SEARCH (10 KM BUFFER)

Species	Naturalised	Conservation Code	Endemic To Query Area
Amphibian			
Cyclorana australis			
Cyclorana maini			
Litoria rubella			
Notaden nichollsi			
Bird			
Actitis hypoleucos		IA	
Aegotheles cristatus			
Anous stolidus subsp. Pileatus		IA	
Arenaria interpres		IA	
Artamus cinereus			
Artamus leucorynchus			
Artamus leucorynchus subsp. leucopygialis			
Artamus minor			
Burhinus grallarius			
Butorides striata			
Cacatua sanguinea			
Cacomantis pallidus			
Centropus phasianinus			
Charadrius leschenaultii		IA	
Charadrius ruficapillus			
Chroicocephalus novaehollandiae			
Coracina novaehollandiae			

Cracticus nigrogularis			
Dromaius novaehollandiae			
Elseyornis melanops			
Emblema pictum			
Eolophus roseicapillus			
Esacus magnirostris			
Falco berigora			
Falco cenchroides			
Falco peregrinus		S	
Gelochelidon nilotica		IA	
Geopelia cuneata			
Geopelia humeralis			
Geopelia striata			
Geophaps plumifera			
Gerygone tenebrosa			
Grallina cyanoleuca			
Haematopus fuliginosus			
Haematopus longirostris			
Haliaeetus leucogaster			
Haliastur indus			
Haliastur sphenurus			
Hirundo neoxena			
Larus novaehollandiae			
Lichmera indistincta			
Limosa lapponica		IA	
Manorina flavigula			

Melopsittacus undulatus			
Merops ornatus			
Milvus migrans			
Numenius madagascariensis		T	
Numenius phaeopus		IA	
Ocyphaps lophotes			
Pandion cristatus		IA	
Pardalotus rubricatus subsp. Rubricatus			
Pardalotus striatus			
Petrochelidon ariel			
Petrochelidon nigricans			
Phalacrocorax varius			
Pitta moluccensis			
Podargus strigoides			
Podargus strigoides subsp. brachypterus			
Ptilonorhynchus guttatus			
Rhipidura leucophrys			
Taeniopygia guttata			
Thalasseus bengalensis			
Thalasseus bergii		IA	
Todiramphus pyrrhopygius			
Todiramphus sanctus			
Tringa brevipes		P4	
Tringa nebularia			
Zosterops luteus			
Mammal			

Canis familiaris	Y		
Dasyurus hallucatus		T	
Felis catus	Y		
Macroderma gigas			
Macropus robustus			
Macropus robustus subsp. erubescens			
Macropus rufus			
Megaptera novaeangliae		S	
Mormopterus (Ozimops) cobourgianus			
Ningaui timealeyi			
Petrogale rothschildi			
Planigale sp. nov.			
Pseudantechinus roryi			
Pseudomys chapmani			
Pseudomys delicatulus			
Pseudomys hermannsburgensis			
Pteropus alecto			
Tachyglossus aculeatus			
Vulpes vulpes			
Reptile			
Acanthophis wellsei			
Acanthophis wellsi			
Antaresia perthensis			
Antaresia stimsoni			
Antaresia stimsoni subsp. stimsoni			
Aspidites melanocephalus			

Carlia munda			
Carlia triacantha			
Chelonia mydas		T	
Crenadactylus ocellatus subsp. horni			
Cryptoblepharus buchananii			
Cryptoblepharus plagiocephalus			
Cryptoblepharus ustulatus			
Ctenophorus caudicinctus subsp. caudicinctus			
Ctenotus leonhardii			
Ctenotus pantherinus subsp. ocellifer			
Ctenotus rubicundus			
Ctenotus saxatilis			
Ctenotus serventyi			
Cyclodomorphus melanops			
Cyclodomorphus melanops subsp. melanops			
Delma pax			
Demansia psammophis			
Demansia rufescens			
Diplodactylus conspicillatus			
Diplodactylus galaxias			
Diplodactylus savagei			
Ephalophis greyae			
Eremiascincus isolepis			
Eretmochelys imbricata subsp. bissa		T	
Fordonia leucobalia			

Furina ornata			
Gehyra punctata			
Gehyra variegata			
Hemidactylus frenatus	Y		
Heteronotia binoei			
Lerista bipes			
Lerista jacksoni			
Lerista muelleri			
Lialis burtonis			
Liasis olivaceus subsp. barroni		T	
Lucasium stenodactylum			
Menetia greyii			
Menetia surda subsp. surda			
Morethia ruficauda subsp. exquisita			
Natator depressus		T	
Notoscincus ornatus subsp. ornatus			
Oedura marmorata			
Pogona minor subsp. Minor			
Pseudechis australis			
Pseudonaja mengdeni			
Pseudonaja nuchalis			
Strophurus elderi			
Suta punctata			
Varanus acanthurus			
Varanus eremius			
Varanus giganteus			

Varanus gouldii			
Varanus panoptes subsp. rubidus			
Varanus pilbarensis			
Varanus tristis subsp. tristis			

AIZOACEAE	Trianthema portulacastrum
	Trianthema turgidifolium
AMARANTHACEAE	Aerva javanica
	Amaranthus undulatus
	Gomphrena cunninghamii
	Ptilotus nobilis
	Ptilotus obovatus
APOCYNACEAE	Cynanchum floribundum
ARALIACEAE	Trachymene oleracea
	Trachymene oleracea subsp. oleracea
ASTERACEAE	Angianthus milnei
	Bidens bipinnata
	Conyza bonariensis
	Pluchea rubelliflora
	Pterocaulon sphaeranthoides
	Sonchus oleraceus
	Tridax procumbens
BORAGINACEAE	Ehretia saligna var. saligna
BRASSICACEAE	Lepidium pedicellosum
CAPPARACEAE	Capparis spinosa subsp. nummularia
CELASTRACEAE	Stackhousia clementii
CHENOPODIACEAE	Neobassia astrocarpa
	Rhagodia preissii subsp. obovata
	Tecticornia halocnemoides
	Tecticornia indica subsp. indica
CLEOMACEAE	Cleome viscosa
COMBRETACEAE	Terminalia supranitifolia

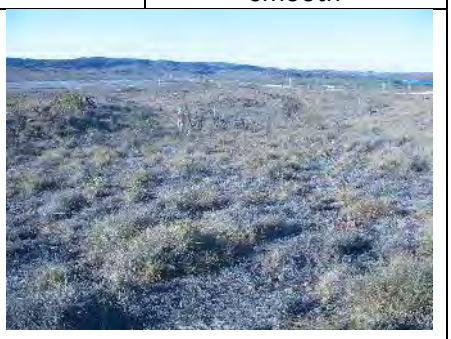
COMMELINACEAE	Commelina ensifolia
CONVOLVULACEAE	Bonamia pilbarensis
	Evolvulus alsinoides var. villosicalyx
	Ipomoea costata
CUCURBITACEAE	Cucumis variabilis
CYPERACEAE	Cyperus bifax
	Cyperus blakeanus
	Cyperus bulbosus
	Cyperus vaginatus
	Eleocharis geniculata
	Fimbristylis dichotoma
	Schoenoplectus subulatus
EUPHORBIACEAE	Euphorbia australis
	Euphorbia australis var. subtomentosa
	Euphorbia biconvexa
	Euphorbia careyi
	Euphorbia tannensis subsp. Eremophila
	Euphorbia trigonosperma
	Euphorbia vaccaria
FABACEAE	Acacia arida
	Acacia colei var. colei
	Acacia coriacea
	Acacia coriacea subsp. coriacea
	Acacia pyrifolia var. pyrifolia
	Clitoria ternatea
	Dichrostachys spicata
	Indigofera monophylla

	Leucaena leucocephala
	Rhynchosia australis
	Rhynchosia bungarensis
	Rhynchosia minima
	Stylosanthes hamata
	Swainsona pterostylis
	Tephrosia clementii
	Tephrosia sp.
	Tephrosia supina
	Vigna triodiophila
GENTIANACEAE	Centaurium erythraea
GOODENIACEAE	Goodenia lamprosperma
	Scaevola spinescens
LAMIACEAE	Clerodendrum tomentosum
	Clerodendrum tomentosum var. lanceolatum
LAURACEAE	Cassytha capillaris
LYTHRACEAE	Lawsonia inermis
MALVACEAE	Abutilon fraseri
	Brachychiton acuminatus
	Corchorus elachocarpus
	Corchorus trilocularis
	Corchorus walcottii
	Hibiscus sturtii
	Malvastrum americanum
	Sida fibulifera
	Triumfetta appendiculata
MOLLUGINACEAE	Trigastrotheca molluginea

MORACEAE	Ficus aculeata var. indecora
MYRTACEAE	Corymbia opaca
	Eucalyptus victrix
NYCTAGINACEAE	Boerhavia coccinea
	Boerhavia gardneri
OLEACEAE	Jasminum didymum subsp. Lineare
PASSIFLORACEAE	Passiflora foetida
PHYLLANTHACEAE	Flueggea virosa subsp. melanthesoides
PITTOSPORACEAE	Pittosporum phillyreoides
PLANTAGINACEAE	Stemodia grossa
POACEAE	Aristida contorta
	Cenchrus ciliaris
	Cenchrus setaceus
	Cenchrus setiger
	Chrysopogon fallax
	Cymbopogon ambiguus
	Dactyloctenium radulans
	Digitaria ctenantha
	Enneapogon caerulescens
	Enneapogon lindleyanus
	Eriachne tenuiculmis
	Paspalidium tabulatum
	Sporobolus australasicus
	Themeda sp.
	Themeda triandra
	Triodia angusta
	Triodia epactia

	Triodia wiseana
	Whiteochloa airoides
PROTEACEAE	Grevillea pyramidalis subsp. pyramidalis
	Hakea lorea subsp. lorea
RHIZOPHORACEAE	Ceriops australis
	Rhizophora stylosa
SOLANACEAE	Physalis angulata
	Solanum horridum
	Solanum lasiophyllum
	Solanum nigrum
VIOLACEAE	Hybanthus aurantiacus
ZYGOPHYLLACEAE	Tribulus terrestris

APPENDIX G: SURVEY SITE DETAILS

Site	1	**Soil Type**	Sandy clay loam
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	WSW	**Landform**	Shallow gully
Seasonal Condition	Dry and Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	AbHITe	**Surface Rock Size and Shape**	0.2 – 0.5L blocky angular to weathered smooth
Vegetation Association	Tall shrubland of *Acacia bivenosa* over open shrubland of *Hakea lorea*, *Acacia colei* over hummock grassland of *Triodia epactia* over herbland.		
Condition	No Disturbances		
Site	2	**Soil Type**	Sandy clay loam
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Undulating mid slope
Seasonal Condition	Dry and Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	TeAb	**Surface Rock Size and Shape**	0.2 – 0.5L blocky angular to weathered smooth
Vegetation Association	*Triodia epactia* (Burrup Form) hummock grassland with scattered *Acacia bivenosa* shrubs		
Condition	Spinifex and shrubs. Culvert leakage caused some vegetation death		
Site	3	**Soil Type**	Sandy clay loam
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	Flat	**Landform**	Rocky outcrop
Seasonal Condition	Dry and wet season	**Rock Type**	90
Fire Age	No evidence	**Rock Cover**	N/A
Vegetation Code	BaAclc	**Surface Rock Size and Shape**	Blocky 0.5 m - 1 m^3

Vegetation Association	Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea, Scaevola spinescens, Ipomoea costata* over herbs and very open grassland of *Triodia epactia* with *Cymbopogon ambiguus* and *Paspalidium clementii*		
Condition	No disturbances		
Site	4	**Soil Type**	Sandy clay loam
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Shallow gully to incised channel
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	65
Vegetation Code	ChAbSg	**Surface Rock Size and Shape**	Large - medium
Vegetation Association	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup Form) hummock grassland		
Condition	Spinifex and shrubs. Culvert leakage caused some vegetation death		
Site	5	**Soil Type**	Sandy clay loam
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Lowers slopes / flats
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	50
Vegetation Code	AbImTe	**Surface Rock Size and Shape**	0.2 – 0.5L blocky angular to weathered smooth
Vegetation Association	*Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* scattered low shrubs to low open shrubland over *Triodia epactia* hummock grassland to closed hummock grassland		

Condition	Large dead area in the middle, likely culvert leakage caused vegetation death		
Site	6	**Soil Type**	Sandy clay
Date	19/11/18 & 11/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Lowers slopes / flats with low boulder outcrops
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	80
Vegetation Code	AbTa	**Surface Rock Size and Shape**	small rocks and boulders
Vegetation Association	*Acacia bivenosa* high open shrubs over *Triodia angusta* (Burrup Form) hummock grassland		
Condition	No disturbances		
Site	7	**Soil Type**	Sand
Date	19/11/18 & 11/05/19	**Soil Colour**	Light brown
Aspect	S	**Landform**	Riparian salty mudflat margin
Seasonal Condition	Dry and wet season	**Rock Type**	Bluestone gravel
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	ThtTil	**Surface Rock Size and Shape**	Bluestone gravel
Vegetation Association	Dwarf open shrubland to heath (varies 2-10% to 20-40%) of *Tecticornia halocnemoides* with *Tecticornia indica*		
Condition	15% weed coverage. Vehicle tracks have dissected the vegetation and road building gravel has spilled onto it		
Site	8	**Soil Type**	Sand
Date	19/11/18 and 11/05/19	**Soil Colour**	Light brown
Aspect	Flat	**Landform**	Riparian sand bank
Seasonal Condition	Dry and wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	(Te)Sv	**Surface Rock Size and Shape**	N/A

Vegetation Association	*Grassland of Sporobolous virginicus, Eriachne mucronata and Paspalidium tabulatum (30-70%) with scattered Triodia epactia. *Cenchrus ciliaris and *Aerva javanica are common in wet season.*		
Condition	No disturbances		
Site	9	**Soil Type**	Sandy clay loam
Date	19/11/18 & 13/05/19	**Soil Colour**	Light brown
Aspect	N	**Landform**	Lower slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Laterite and granite
Fire Age	No evidence	**Rock Cover**	40% gravel, 40% rock
Vegetation Code	AbTe*Cc	**Surface Rock Size and Shape**	2-20 cm
Vegetation Association	Previously disturbed and rehabilitated. *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris*		
Condition	Previously disturbed and rehabilitated.		
Site	10	**Soil Type**	Loam
Date	19/11/18 & 13/05/19	**Soil Colour**	Brown
Aspect	Flat	**Landform**	Rocky outcrop running north - south
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	FbBaTsSc	**Surface Rock Size and Shape**	Blocky 0.5 m - 1m³
Vegetation Association	Open low woodland of *Ficus brachypoda*, *Brachychiton acuminatus*, *Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens*, *Rhagodia preissii* subsp *obovate* over open *Cymbopogon ambiguus* with *Triodia epactia*		
Condition	No disturbances		
Site	11	**Soil Type**	N/A
Date	20/11/18 & 12/11/19	**Soil Colour**	N/A

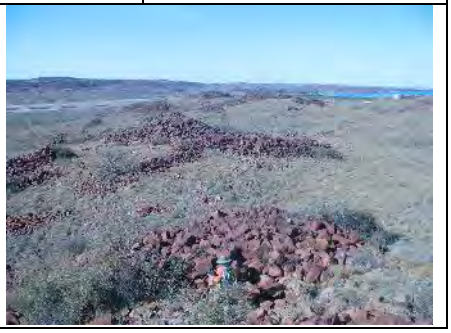
Aspect	Flat	**Landform**	Rocky outcrop running south-west
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	FbBaTsSc	**Surface Rock Size and Shape**	Large boulders
Vegetation Association	Open low woodland of *Ficus brachypoda*, *Brachychiton acuminatus*, *Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens*, *Rhagodia preissii* subsp *obovate* over open *Cymbopogon ambiguus* with *Triodia epactia*		
Condition	No disturbances		
Site	12	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	TeTh	**Surface Rock Size and Shape**	Blocky – rounded, 0.2 m -0.5 m³
Vegetation Association	*Triodia epactia*, *Themeda triandra* hummock/tussock grassland		
Condition	Garden waste pile in track edge		
Site	13	**Soil Type**	N/A
Date	20/11/18 & 12/05/19	**Soil Colour**	N/A
Aspect	Flat	**Landform**	Rocky outcrop in south-west
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	FbBaTsSc	**Surface Rock Size and Shape**	Blocky – rounded, 0.2 m -0.5 m³
Vegetation Association	Open low woodland of *Ficus brachypoda*, *Brachychiton acuminatus*, *Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens*, *Rhagodia preissii* subsp *obovate* over open *Cymbopogon ambiguus* with *Triodia epactia*		
Condition	No disturbances		
Site	14	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Mid slopes/flats near drainage
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	< 2 years	**Rock Cover**	70

Vegetation Code	AbCgTe	**Surface Rock Size and Shape**	Small rocks
Vegetation Association	*Acacia bivenosa*, *Cassia glutinosa* open shrubland to shrubland over *Triodia epactia* (Burrup Form), **Cenchrus ciliaris* grassland		
Condition	Acacia regrowth post fire		
Site	15	**Soil Type**	Sandy loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes/plains at bottom of rocky hills
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	GpCwTe	**Surface Rock Size and Shape**	0.2 - 0.5L blocky angular to weathered smooth
Vegetation Association	*Grevillea pyramidalis subsp. pyramidalis* open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (Burrup Form) hummock grassland		
Condition	No disturbance. Adjacent to camp area		
Site	16	**Soil Type**	Sandy loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes/plains at bottom of rocky hills
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	EvDsTa	**Surface Rock Size and Shape**	0.2 - 0.5L blocky angular to weathered smooth

Vegetation Association	*Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata*, (*Acacia coriaceae subsp. coriaceae*) tall scattered shrubs to low open shrubland over *Triodia angusta* hummock grassland		
Condition	Small amount of *Cc		
Site	17	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	60
Vegetation Code	TaTsRm	**Surface Rock Size and Shape**	Mostly rounded. 0.2 - 2L
Vegetation Association	*Triodia angusta*, *Triodia epactia* grassland with *Tephrosia supina* herbland and *Rhyncosia minima lianes*		
Condition	Immediately adjacent to disturbed ripped rehab area		
Site	18	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	40
Vegetation Code	TcEtSe	**Surface Rock Size and Shape**	Mostly rounded. 0.2 - 2L
Vegetation Association	*Terminalia canescens* low woodland over *Eriachne tenuiculmis*, *Triodia epactia* grassland/hummock grassland with *Sesbania cannabina* herbland		
Condition	Shrubs and trees coated in thick dust		
Site	19	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown

Aspect	N	**Landform**	Lower slopes/transition to flats
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	Ev*CcTe	**Surface Rock Size and Shape**	N/A
Vegetation Association	*Eucalyptus victrix* over *Pittosporum phylliraeoides var. phylliraeoides / Rhagodia eremaea* over **Cenchrus ciliaris / Triodia epactia*		
Condition	Some clearing of understory and ground cover.		
Site	20	**Soil Type**	Sandy clay loam
Date	20/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slopes - plain
Seasonal Condition	Dry and wet Season	**Rock Type**	Granite
Fire Age	< 2 years	**Rock Cover**	60
Vegetation Code	ChImTe	**Surface Rock Size and Shape**	Rounded 0.2 - 0.5L
Vegetation Association	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa, Acacia coriaceae subsp. coriaceae*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla*		
Condition	One large Ch. Mostly small coppiced. Limited Te regrowth		
Site	21	**Soil Type**	Clay loam
Date	20/11/18 & 13/05/19	**Soil Colour**	Brown
Aspect	W	**Landform**	Rocky outcrop, slope
Seasonal Condition	Dry and wet Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	BaAcIc	**Surface Rock Size and Shape**	Blocky rectangular 0.2 - 2 m^3

Vegetation Association	Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea, Scaevola spinescens, Ipomoea costata* over herbs and very open grassland of *Triodia epactia* with *Cymbopogon ambiguus* and *Paspalidium clementii*		
Condition	N/A		
Site	22	**Soil Type**	Loam
Date	20/11/18 & 13/05/19	**Soil Colour**	Brown
Aspect	Flat	**Landform**	Island inside creek bend. Accumulated silt
Seasonal Condition	Dry and wet Season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	EvAa	**Surface Rock Size and Shape**	N/A
Vegetation Association	*Eucalyptus victrix* low woodland over *Acacia ampliceps* open heath over *Cyperus vaginatus, Eriachne tenuiculmis, Triodia angusta* (Burrup form) sedgeland and tussock/hummock grassland		
Condition	Extensive passion vine weed cover. Heavy animal traffic flow		
Site	23	**Soil Type**	Sandy clay loam
Date	20/11/18 & 13/05/19	**Soil Colour**	Light brown
Aspect	W / NW	**Landform**	Incised creek channel
Seasonal Condition	Dry and wet Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	15
Vegetation Code	EvAbTa	**Surface Rock Size and Shape**	Small rocks
Vegetation Association	*Eucalyptus victrix* over *Acacia bivenosa* over *Triodia angusta* (Burrup Form)		
Condition	passion vine weed cover. Heavy animal traffic flow		
Site	24	**Soil Type**	Loam
Date	20/11/2018	**Soil Colour**	Brown
Aspect	NE	**Landform**	Rocky outcrop

Seasonal Condition	Dry Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	BaAcIc	**Surface Rock Size and Shape**	Large blocky rock, infill areas with soil, 0.25 - 2 m^3, infill 0.5 - 2L
Vegetation Association	*Brachychiton acuminatus* over *Acacia coriacea* / *Scaevola spinescens* / *Ipomoea costata* over herbs / *Triodia epactia* / *Cymbopogon ambiguus* / *Paspalidium clementii*		
Condition	No disturbances		
Site	25	**Soil Type**	Clay loam
Date	21/11/2018	**Soil Colour**	Brown
Aspect	S / W	**Landform**	Upper slopes over a crest
Seasonal Condition	Dry Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	95
Vegetation Code	TeRm	**Surface Rock Size and Shape**	Block 2-250L
Vegetation Association	*Triodia epactia* hummock grassland with *Rhynchosia minima* lianes		
Condition	Noise and light from processing plant		
Site	26	**Soil Type**	N/A
Date	21/11/2018	**Soil Colour**	N/A
Aspect	W	**Landform**	Rocky outcrop
Seasonal Condition	Dry season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	BaAcIc	**Surface Rock Size and Shape**	Blocky 2L - 1.5m^3
Vegetation Association	Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea, Scaevola spinescens, Ipomoea costata* over herbs and very open grassland of *Triodia epactia* with *Cymbopogon ambiguus* and *Paspalidium clementii*		

Condition	No disturbances		
Site	27	**Soil Type**	Clay loam
Date	21/11/2018	**Soil Colour**	Brown
Aspect	E	**Landform**	Eastern lower slope below small rocky outcrop
Seasonal Condition	Dry season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	TeCa	**Surface Rock Size and Shape**	Blocky 2L - 50L
Vegetation Association	*Triodia epactia*, *Cymbopogon ambiguus* hummock/tussock grassland		
Condition	No disturbances		
Site	28	**Soil Type**	Clay loam
Date	21/11/18 & 13/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Lower slopes/plains
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	85
Vegetation Code	Tw	**Surface Rock Size and Shape**	Blocky 0.1 - 0.25L
Vegetation Association	*Triodia wiseana* hummock grasslands		
Condition	N/A		
Site	29	**Soil Type**	Sand - loamy sand
Date	21/11/18 & 13/05/19	**Soil Colour**	Pale Brown
Aspect	Flat	**Landform**	Sandbank 1m deep above mudflats
Seasonal Condition	Dry and wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	(Te)Sv	**Surface Rock Size and Shape**	N/A

Vegetation Association	Grassland of *Sporobolous virginicus*, *Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia*. Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.		
Condition	Kapok cover high in wet season		
Site	30	**Soil Type**	Clay loam
Date	21/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	lower plains drop into samphire. Lateritic cliffs infront of mudflats
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	AbTa	**Surface Rock Size and Shape**	Blocky 50 - 100 mL
Vegetation Association	*Acacia bivenosa* high open shrubs over *Triodia angusta* hummock grassland		
Condition	Clearing and rehab to south adjacent to vegetation. Vegetation in poor condition, coated in dust		
Site	31	**Soil Type**	Sandy, shell rich
Date	21/11/18 & 12/05/19	**Soil Colour**	Pale brown/grey
Aspect	Flat	**Landform**	Lower slopes/ plain rehab
Seasonal Condition	Dry and wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	AbTe*Cc	**Surface Rock Size and Shape**	Many shells and old coral
Vegetation Association	Previously disturbed and rehabilitated. *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris*		
Condition	Rehabilitated area. Dense weed cover. Dust coating on shrubs.		

Site	32	**Soil Type**	Clay loam
Date	21/11/18 &12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Mid slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	ChImTe	**Surface Rock Size and Shape**	Mostly rounded 0.25 - 0.5L
Vegetation Association	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa, Acacia coriaceae subsp. coriaceae*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla*		
Condition	Weeds present		
Site	33	**Soil Type**	Sandy clay loam
Date	21/11/18 & 15/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Mid slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	85
Vegetation Code	TeTh	**Surface Rock Size and Shape**	00.25 - 25L
Vegetation Association	*Triodia epactia*, *Themeda triandra* hummock/tussock grassland		
Condition	Rehabilitated		
Site	34	**Soil Type**	Clay loam / sand
Date	21/11/18 & 13/05/19	**Soil Colour**	Brown / white
Aspect	N	**Landform**	Flats between lower slopes and mudflats
Seasonal Condition	Dry and wet season	**Rock Type**	Granite and calcareous
Fire Age	No evidence	**Rock Cover**	20
Vegetation Code	AbTe*Cc	**Surface Rock Size and Shape**	0.25 - 25L

Vegetation Association	Previously disturbed and rehabilitated. *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris*		
Condition	Rehabilitated. *Cc. Some shrubs covered in dust		
Site	35	**Soil Type**	Clay loam - cracking clays
Date	22/11/18 & 13/05/19	**Soil Colour**	Pinkish
Aspect	Mounds and Channels	**Landform**	Road building bunds and drainage channels
Seasonal Condition	Dry and wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	(Te)Sv	**Surface Rock Size and Shape**	N/A
Vegetation Association	Grassland of *Sporobolous virginicus, Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia.* Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.		
Condition	Disturbed. Spontaneous regeneration		
Site	36	**Soil Type**	Loam
Date	22/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Gully, approximately 25 m in the mid-slopes
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	85
Vegetation Code	ChAbTe	**Surface Rock Size and Shape**	Mostly rounded 0.025 - 0.5L
Vegetation Association	*Corymbia hamersleyana* scattered trees to low open woodland over *Acacia bivenosa* open shrubland over *Triodia epactia* open to closed hummock grassland		
Condition	Vehicle tracks through centre		
Site	37	**Soil Type**	Clay loam

Date	22/11/18 & 12/05/19	**Soil Colour**	Brown
Aspect	N	**Landform**	Lower slope
Seasonal Condition	Dry and wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	40
Vegetation Code	*CcTs	**Surface Rock Size and Shape**	0.2 - 2L
Vegetation Association	**Cenchrus ciliaris*, (*Triodia epactia*), (*Triodia angusta*) grassland/hummock grassland with *Tephrosia supina*, *Rhyncosia minima* herbland		
Condition	Previously disturbed. Weeds present		
Site	38	**Soil Type**	Loamy sand - sandy loam
Date	22/11/18 & 12/05/19	**Soil Colour**	Brown - pale grey
Aspect	N	**Landform**	Mid slope
Seasonal Condition	Dry and wet Season	**Rock Type**	Granite and calcareous
Fire Age	No evidence	**Rock Cover**	20
Vegetation Code	ChTh	**Surface Rock Size and Shape**	0.02 - 0.05L
Vegetation Association	*Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa*, *Acacia colei*, scattered tall shrubs to low open shrubland over *Indigofera monophylla* over *Triodia epactia*, *Themeda triandra* hummock/tussock grassland		
Condition	dead Acacia shrubs likely caused from thick dust coating		
Site	39	**Soil Type**	Clay loam
Date	22/11/18 & 13/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Lower slope, undulating large rocks
Seasonal Condition	Dry and wet Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	100
Vegetation Code	AbHlCwTe	**Surface Rock Size and Shape**	0.25 - 1m³

Vegetation Association	High shrubland of *Acacia bivenosa* with scattered *Hakea lorea*, *Dolichandrone heterophylla*, *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* with occasional *Triodia angusta*		
Condition	N/A		
Site	40	**Soil Type**	Clay loam
Date	22/11/18 & 15/05/19	**Soil Colour**	Brown
Aspect	S	**Landform**	Lower slope, shallow drainage line
Seasonal Condition	Dry and Wet Season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	80
Vegetation Code	AiGpTe	**Surface Rock Size and Shape**	0.2 - 1L
Vegetation Association	Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup Form) over herbland of *Gomphrena cunninghamii*, *Abutilon lepidum, Trichodesma zeylanicum, Trachymene oleracea*		
Condition	No disturbances		

Site	41	**Soil Type**	Clay loam
Date	14/05/2019	**Soil Colour**	Brown
Aspect	south	**Landform**	Low rocky rise
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	TeRm	**Surface Rock Size and Shape**	blocky 2L to 50L
Vegetation Association	*Triodia epactia* hummock grassland with *Rhynchosia minima* lianes		
Condition	No Disturbances		

Site	42	**Soil Type**	Sand/shells
Date	15/05/2019	**Soil Colour**	White
Aspect	north	**Landform**	Sandbank
Seasonal Condition	Wet season	**Rock Type**	No rocks
Fire Age	No signs of fire	**Rock Cover**	-
Vegetation Code	ThtTil	**Surface Rock Size and Shape**	-
Vegetation Association	Dwarf open shrubland to heath (varies 2-10% to 20-40%) of *Tecticornia halocnemoides* with *Tecticornia indica*		
Condition	Buffel grass on the margins, evidence of land clearing for road building and some evidence of ripping		
Site	43	**Soil Type**	Sand
Date	15/05/2019	**Soil Colour**	White
Aspect	north	**Landform**	Mudflat margins
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	Tht	**Surface Rock Size and Shape**	Blocky 0.1 – 0.25 L
Vegetation Association	Dwarf scattered (<2%) to open (2-10% <0.5m) shrubland of *Tecticornia halocnemoides*		
Condition	No disturbances		
Site	54	**Soil Type**	Sand
Date	15/05/2019	**Soil Colour**	White
Aspect	north	**Landform**	Mudflat margins
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	Tht	**Surface Rock Size and Shape**	Blocky 0.1 – 0.25 L

Vegetation Association	Dwarf scattered (<2%) to open (2-10% <0.5m) shrubland of *Tecticornia halocnemoides*		
Condition	No disturbances		
Site	45	**Soil Type**	Sand
Date	15/05/2019	**Soil Colour**	White
Aspect	north	**Landform**	Mudflat margins
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	75
Vegetation Code	Tht	**Surface Rock Size and Shape**	Blocky 0.1 – 0.25 L
Vegetation Association	Dwarf scattered (<2%) to open (2-10% <0.5m) shrubland of *Tecticornia halocnemoides*		
Condition	No disturbances		
Site	46	**Soil Type**	Sand/shell
Date	15/05/2019	**Soil Colour**	White
Aspect	-	**Landform**	sandbank
Seasonal Condition	Wet season	**Rock Type**	No rock
Fire Age	No evidence	**Rock Cover**	-
Vegetation Code	(Te)Sv	**Surface Rock Size and Shape**	-
Vegetation Association	Grassland of *Sporobolous virginicus, Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia.* Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.		
Condition	Weeds Buffel grass and Kapok. Infrastructure pipelines cut through this		
Site	47	**Soil Type**	Loam
Date	15/05/2019	**Soil Colour**	brown

Aspect	S	**Landform**	Lower slopes/flats
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	60
Vegetation Code	AbTa	**Surface Rock Size and Shape**	Rounded 0.2 to 5 L
Vegetation Association	*Acacia bivenosa* high open shrubs over *Triodia angusta* hummock grassland		
Condition	A few scattered Kapok		
Site	48	**Soil Type**	Sand
Date	15/05/2019	**Soil Colour**	White
Aspect	Flat	**Landform**	sand bank
Seasonal Condition	Wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	0
Vegetation Code	(Te)Sv	**Surface Rock Size and Shape**	N/A
Vegetation Association	Grassland of *Sporobolous virginicus, Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia.* Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.		
Condition	Kapok and Buffel grass common		
Site	49	**Soil Type**	clay loam
Date	15/05/2019	**Soil Colour**	brown
Aspect	S	**Landform**	Lower slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	50
Vegetation Code	AbHlCwTe	**Surface Rock Size and Shape**	Blocky 2 L to 50 L
Vegetation Association	High shrubland of *Acacia bivenosa* with scattered *Hakea lorea*, *Scaevola spinescens*, *Grevillea pyramidalis* over open dwarf shrubland of *Corchorus walcottii* over hummock grassland of *Triodia epactia* with occasional *Triodia angusta*. There are small groves of		

	Dolichandrone heterophylla within this association.		
Condition	A few scattered Kapok		
Site	50	**Soil Type**	Loam
Date	15/05/2019	**Soil Colour**	Brown
Aspect	s	**Landform**	Upper slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	60
Vegetation Code	AiGpTe	**Surface Rock Size and Shape**	Blocky 0.2 to 10 L
Vegetation Association	Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* over herbland of *Gomphrena cunninghamii*, *Abutilon lepidum*, *Trichodesma zeylanicum*, *Trachymene oleracea*		
Condition	No disturbances		
Site	51	**Soil Type**	Loam
Date	15/05/2019	**Soil Colour**	Brown
Aspect	E	**Landform**	Below low outcrop
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	TeCa	**Surface Rock Size and Shape**	0.2 to 2 L
Vegetation Association	*Triodia epactia*, *Cymbopogon ambiguus* hummock/Tussock grassland		
Condition	No disturbances		
Site	52	**Soil Type**	Loam
Date	15/05/2019	**Soil Colour**	Brown
Aspect	E	**Landform**	Below low outcrop
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	90
Vegetation Code	TeCa	**Surface Rock Size and Shape**	0.2 to 2 L
Vegetation Association	*Triodia epactia*, *Cymbopogon ambiguus* hummock/Tussock grassland		
Condition	No disturbances		
Site	53	**Soil Type**	Sand/shells
Date	15/05/2019	**Soil Colour**	white
Aspect	Flat	**Landform**	Sandbank
Seasonal Condition	Wet season	**Rock Type**	No rocks
Fire Age	No evidence	**Rock Cover**	-

Vegetation Code	ThtTil	**Surface Rock Size and Shape**	-
Vegetation Association	Dwarf open shrubland to heath (varies 2-10% to 20-40%) of *Tecticornia halocnemoides* with *Tecticornia indica*		
Condition	Some Kapok and Buffel grass on the landward margin		
Site	54	**Soil Type**	loam
Date	15/05/2019	**Soil Colour**	Brown
Aspect	S	**Landform**	lower slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	TeRm	**Surface Rock Size and Shape**	0.2 to 2 L
Vegetation Association	*Triodia epactia hummock grassland with Rhynchosia minima lianes*		
Condition	No disturbances		
Site	55	**Soil Type**	Sandy
Date	15/05/2019	**Soil Colour**	Light Brown
Aspect	west	**Landform**	Drainage
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	80
Vegetation Code	1999 4a	**Surface Rock Size and Shape**	0.2 - 0.2L weathered smooth
Vegetation Association	Low Woodland-Forest B (20-50%) of *Terminalia circumulata* and *Eucalyptus victrix* with Low Scrub B (10-30%, 1-1.5m*)* and Open Grassland (10-30%)		
Condition	No disturbance but drainage feature impeded by infrastructure to the east and west.		
Site	56	**Soil Type**	Sand
Date	15/05/2019	**Soil Colour**	white
Aspect	S	**Landform**	Sandbank
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	20
Vegetation Code	*Cc*AjTt	**Surface Rock Size and Shape**	gravel

Vegetation Association	Disturbed not rehabilitated area of **Cenchrus ciliaris *Aerva javanica* and *Trianthema turgidifolia*		
Condition	Completely degraded, spontaneous growth of Kapok, Buffel grass and *T. turgidifolia* following disturbance for infrastructure.		
Site	57	**Soil Type**	clay loam
Date	15/05/2019	**Soil Colour**	Brown
Aspect	S	**Landform**	Lower slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	AiGpTe	**Surface Rock Size and Shape**	2 – 50 L
Vegetation Association	Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* over herbland of *Gomphrena cunninghamii, Abutilon lepidum, Trichodesma zeylanicum, Trachymene oleracea*		
Condition	Between gas pipeline and road and cleared area, otherwise no disturb.		
Site	58	**Soil Type**	loam
Date	15/05/2019	**Soil Colour**	Red/brown
Aspect	S	**Landform**	Lower slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	70
Vegetation Code	Te	**Surface Rock Size and Shape**	2-50 L
Vegetation Association	*Triodia epactia* hummock grassland. Associated species include *Grevillea pyramidalis* subsp. *pyramidalis* and *Indigofera monophyla.*		
Condition	Between gas pipeline and road, otherwise no disturb.		
Site	59	**Soil Type**	Clay loam
Date	15/05/2019	**Soil Colour**	Brown

Aspect	west	**Landform**	Mid slopes
Seasonal Condition	Wet season	**Rock Type**	Granite
Fire Age	No evidence	**Rock Cover**	65
Vegetation Code	TeAb	**Surface Rock Size and Shape**	0.2 – 10L
Vegetation Association	*Triodia epactia* hummock grassland with scattered *Acacia bivenosa* shrubs		
Condition	Between gas pipeline and road, otherwise no disturb.		

APPENDIX H: CONSERVATION SIGNIFICANT FAUNA (TERRESTRIAL) RECORDED WITHIN DATABASE SEARCHES AND DURING FIELD SURVEY(S)

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Birds							
Accipiter fasciatus	Brown Goshawk	M[1]	-	Hunts over forest and woodland, dry scrub and farmland. Feeds on small birds and ground-dwelling rodents and mammals, catching them in flight or on the ground. This species is common and sedentary.	Recorded	Yes	This species has been recorded historically recorded within the Burrup Peninsula (Worley Astron, 2006). Suitable foraging and nesting habitat exists in the Project Area for this species, though was not recorded during the pre-wet season survey. Recorded in Worley Astron (2006).
Acrocephalus australis	Australian Reed-Warbler	M	-	A common migrant. This species inhabits dense reedbeds alongside water but can utilise tall crops and bamboo thickets as well.	Low	No	No suitable habitat exists in the Project Area. The species has been recorded in near-coastal wetland areas in scattered locations within Dampier and the Burrup Peninsula.
Actitis hypoleucos	Common Sandpiper	M, IA[2]	IA	Though typically associated with estuaries, mangroves and creeks, this species is known to occupy small river pools, areas of inundation and flooding, particularly as water recedes. It is also commonly observed on artificial water bodies, such as sewage ponds. Across its distribution it is widespread in small numbers.	Low	Yes	This species has been recorded in the Dampier region on the Roly Rock islet and other islets in the archipelago (DBCA, 2018). Records indicate the species prefers the mangroves and intertidal pools present on many of the islands in the archipelago. Recorded in Worley Astron, 2006.

[1] Listed as a Marine species under the *EPBC Act* (1999).

[2] Listed as a Migratory species under International Agreement under the *EPBC Act* (1999).

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Anous stolidus	Common Noddy	M, IA	IA	Resides and breeds within coastal waters near island colonies during migration.	Low	No	This species has been recorded at Withnell Bay, west of Project Area (DBCA, 2018). Only one bird was recorded. The species can form large colonies on some islands utilising seaweed and other plant material to build a nest on the ground or dense coastal shrubbery. This species is a short-term visitor between May and October, and potential breeding habitat is not expected to be impacted by the Project.
Anthus novaeseelandiae	Australasian Pipit	M	-	Inhabits grasslands, forest clearings, grassy woodlands, semi-open scrub, beaches and hind-dunes and grassy roadsides. Nests in depressions sheltered by rock or clumps of vegetation.	Recorded	Yes	This species was recorded during the pre-wet season survey. This species can be considered locally nomadic and common, and breeds between August and December. Given its widespread distribution, and broad availability of suitable and undisturbed habitat in the greater Pilbara, the Project is not expected to impact populations of this species.
Apus pacificus	Fork-tailed Swift	M, IA	IA	This species flies over inland plains but also occasionally foothills or coastal areas, such as beaches and islands and well out to sea. They occur over dry or open habitats comprising of riparian woodland, low scrub, heathland or saltmarsh, also grasslands and sandplains with spinifex (Morcombe, 2011).	Low	Yes	This species has been historically recorded in the Dampier region on Enderby Island (DBCA, 2018). There are scattered records along the coast from south-west Pilbara to the north and east Kimberley. This species is almost exclusively aerial and has a wide range of suitable habitats for foraging. The species nests on island cliff faces and would not be reliant on any habitat within the Project Area. Recorded in Worley Astron 2006.
Ardea alba	Great Egret	M	-	Inhabits floodwaters, rivers, shallows of wetlands and intertidal mudflats.	Low	Yes	Common and widespread in any suitable permanent or temporary habitat. Recorded in Worley Astron 2006.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Ardea ibis	Cattle Egret	M		Often congregates in flocks amongst cattle. It frequents moist pastures with tall grass, open and shallow wetlands and mudflats. Species is common across northern Australia.	Moderate	Yes	This species was identified in the EPBC PMST. The species may use the temporarily flooded mudflats present in the Project Area during the wet season. The species has not been recorded during any surveys in the area before.
Ardenna pacifica	Wedge-tailed Shearwater	M, IA	IA	Frequents pelagic oceans, feeding across the surface, especially where deep water meets inshore water.	Low	No	This species has been recorded on Quartermaine Island off Rosemary in the Dampier Archipelago (DBCA, 2018) and historically on the Burrup (Worley Astron, 2006). This species would not be likely to use any habitat in the Project Area, especially as breeding and foraging is undertaken on offshore islands.
Arenaria interpres	Ruddy Turnstone	M, IA	IA	Resides on ocean coasts with exposed rock, stony or shell beaches, but also mudflats and sometimes inland on shallow pools.	Moderate	Yes	This species has been recorded on Roly Rock, a small, distant island off the coast of Dampier, King Bay and Cowrie Cove on the Burrup Peninsula (DBCA, 2018). This species is common. Given their preference for foraging on exposed reefs and under beach stones and seaweed, this species is more likely to be reliant on coastal areas, which will not be directly impacted by the Project.
Cacomantis pallidus	Pallid Cuckoo	M	-	Forages on ground and foliage, feeding on large insects, even hairy caterpillars. Inhabits open areas, avoiding dense closed vegetation. Lays egg in other bird open cup nests, pushing out other bird's eggs/chicks.	Recorded	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006) and more recently by APM during the post-wet season survey. Suitable foraging and breeding habitat is present within the Project Area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Calidris acuminata	Sharp-tailed Sandpiper	M, IA	IA	Scarce to moderately common. Widespread in coastal and interior wetlands. Mudflats in tidal zones, salt marshes or in fresh/saline/brackish inland water bodies.	Low	Yes	This species has been recorded in the Dampier region (DBCA, 2018) and historically on the Burrup (Worley Astron, 2006). The Project Area may provide some foraging habitat however, the species is widespread and has broad habitat requirements – it would not rely on the habitats present in the Project Area for the short time it is available during the wet season.
Calidris alba	Sanderling	M, IA	IA	Open, sandy beaches washed by ocean swells.	Low	No	This species has been recorded on Roly Rock, a small, distant island off the coast of Dampier (DBCA, 2018) and historically on the Burrup (Worley Astron, 2006). It is a regular migrant, and often seen in large flocks on favoured beaches, however it is rarely recorded using inland wetlands, saltponds and samphire flats. This species is unlikely to occur.
Calidris canutus	Red Knot	EN, M, IA	EN, IA	In close proximity to coastal waters such as mudflats and sandflats in estuaries. Also known to occur in salt ponds and salt lakes near the coast.	Moderate	Yes	This species has been recorded in the Dampier region (DBCA, 2018) and less recently on the Burrup Peninsula (Worley Astron, 2006). The species is known to follow tide edges when foraging, and can be seen with many other shore birds, such as the Red-necked Stint, which was recorded on site, within the samphire habitat. Given the proximity to Hearson's Cove, and the presence of open flats within the Project Area, this species may use the area for both foraging and roosting. This species was not recorded on either of APM's surveys.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Calidris ferruginea	Curlew Sandpiper	CR, M, IA	CR, IA	Known to occupy drying near-coastal freshwater lakes and swamps. Predominantly occurring in the shallows of estuaries and attracted to near-coastal water bodies, such as salt ponds, salt lakes, sewage ponds, beaches and freshwater swamps and lakes.	Moderate	Yes	This species has been recorded in the Dampier region (DBCA, 2018) and historically on the Burrup (Worley Astron, 2006). This species may use the Project Area during the wet season, though records suggest that the species prefers undisturbed islands and islets.
Calidris melanotos	Pectoral Sandpiper	M, IA	IA	Utilises fresh and saline coastal wetlands, and also inland permanent or temporary wetlands. Prefers mudflats with fringing vegetation or swamps with heavy overgrowth of vegetation.	Low	Yes	Regular but uncommon in Australia, and generally occurs in the southeast. Though the habitat for this species is suitable in the Project Area, the mudflats are very open and there are no true dense swampy areas. This species preferred habitat is not present.
Calidris ruficollis	Red-necked Stint	M, IA	IA	Inhabits a diverse range of habitats, both tidal and inland, mudflats, salt marshes, beaches, salt fields, temporary floodwaters. Is a very common migrant in areas that are most favoured and scattered elsewhere.	Recorded	Yes	This species was recorded during the pre-wet season survey. This species is not likely to use the Project Area exclusively, especially given the nearest major and favoured feeding area is Roebuck Bay, 600 km north of the Burrup Peninsula.
Calidris subminuta	Long-toed Stint	M, IA	IA	Appears in pairs, singularly or in flocks within favoured sites. Uses shallow fresh water, brackish swamps, lakes with muddy edges. Prefers low vegetation rather than open mudflats. Scarcely seen.	Low	No	This species has been historically recorded on the Burrup (Worley Astron, 2006). It is unlikely that this species would use the open mudflats present in the Project Area.
Calidris tenuirostris	Great Knot	CR, M, IA	CR, IA	Often seen in large flocks of hundreds to thousands of birds. Forages over inter-tidal flats. Will reside in sheltered coastal mudflats of estuaries, lagoons and mangrove swamps. Sometimes uses salt lakes but rarely inland waters.	Low	No	This species has been historically recorded on the Burrup Peninsula (Worley Astron, 2006). It was not recorded during either of APM's surveys. The samphire/mudflat habitat is likely too open for this species, and it does not that contain the mangrove swamps it prefers.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Calonectris leucomelas	Streaked Shearwater	M, IA	IA	Frequents pelagic oceans, shelf waters and edges and follows fishing boats. Very rarely inhabits inshore areas.	Low	No	This species was identified as a migrant within the area according to the EPBC PMST. It is not likely to utilise any habitats present in the Project Area.
Chalcites osculans	Black-eared Cuckoo	M	-	Inhabit dry habitats such as open woodland, mulga and mallee, sparse and open arid areas with spinifex, grassland or salt marsh and lines of vegetation along watercourses. Present across most of northern Australia.	Recorded	Yes	A solitary and inconspicuous species. This species breeds in the south east after rain in rain semi-arid regions. This species is a transitory visitor to site. Recorded in Worley Astron 2006 and APM
Charadrius leschenaultii	Greater Sand Plover	VU, M, IA	VU, IA	Resides in large mixed-species flocks on coastal, intertidal mudflats and sandbanks of sheltered bays. Less common on coastal salt marshes and brackish or freshwater wetlands.	Moderate	Yes	This species has been recorded northeast of Rosemary Island on an islet called Lady Nora within the Dampier archipelago and Hearson's Cove. This species is a regular migrant between August and May and is most common in northern Australia. The species is not expected to be reliant on the Project Area habitats given it prefers sheltered bays and intertidal mudflats.
Charadrius mongolus	Lesser Sand Plover	EN, M, IA	EN, IA	Inhabits intertidal sandflats and mudflats, beaches and sandbars and reef flats.	Low	Yes	This species has been historically recorded on Dolphin Island in the Dampier region. This species sometimes overwinters in northern Australia. It is abundant in Queensland, and uncommon elsewhere in Australia. This species is not expected to rely on habitats present in the Project Area, especially as this species does not breed in Australia.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Charadrius ruficapillus	Red-capped Plover	M	-	Inhabits coastal, sheltered estuaries, salt marsh lagoons, and inland areas consisting of salty edges of waterways, brackish pools and claypans. Highest numbers can occur on inland salt lakes.	Recorded	Yes	This species was recorded during the pre-wet and post-wet season surveys. It is one of the most common shorebirds, and it breeds within northern Australia between September and December, where they create nests on beach or beside claypans or salt lakes. This species is not dependent on specific habitat types and is not expected to be impacted locally or regionally by the Project development. No nests were recorded.
Charadrius veredus	Oriental Plover	M, IA	IA	This species prefers samphire vegetation and other sparse grassy flats.	Low	Yes	This species has been recorded in the Dampier region on Enderby Island (DBCA, 2018). Suitable habitat is present in the Project Area, however, it was not recorded on either of the APM surveys.
Chlidonias hybrida	Whiskered Tern	M	-	An inland species that uses inland freshwater or permanent/temporary floodwater, claypans, sometimes estuaries or marine habitat. Occurs in flocks usually when foraging.	Recorded	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006) and more recently by APM during the post-wet season survey. The presence of this species is dependent on rainfall and flooding of wetlands. The species could utilise the samphire vegetation present in the Project Area for breeding. No evidence of breeding (presence of nests) was identified by APM.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Chlidonias leucopterus	White-winged Black Tern	M, IA	IA	Inhabits marine and freshwater coastal wetlands, including inundated floodplains and estuaries. A regular migrant to Australia, common in the Top End. They congregate in large flocks in preferred sites and at staging sites before northern migration (Alva Beach Queensland and Perron Island Northern Territory). Elsewhere they roost and forage in small flocks or can be seen in twos, threes or singularly (DoEE, 2018).	Moderate	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during the pre-wet season survey. This species could utilise the marshy habitat present within the samphire vegetation and claypans. If present, the species would only likely be in small numbers as the area is not a “staging site”.
Chroicocephalus novaehollandiae	Silver Gull	M	-	Very common and widespread bird. Inhabits diverse habitat-types including beaches, temporary floodwaters, inland rivers etc.	Recorded	Yes	This species was recorded by APM during both surveys. The species is not limited to one habitat type and will not be impacted by the Project development.
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	M	-	A common bird across all of Australia. Its most commonly frequented habitat types include open forest, woodland and roadside trees.	Low	Yes	This species has been historically recorded on the Burrup (Worley Astron, 2006). Some suitable habitat exists in the Project Area, where the creek lines contain mature Eucalyptus victrix.
Circus approximans	Swamp Harrier	M		Forages over reed beds, open water of swamps and lakes, mangroves, salt marshes and temporary floodwaters. Builds nest within swamp or lake within dense reeds or other wetland plant material.	Low	Yes	This species has been recorded historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded in the Project Area surveys.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Coracina novaehollandiae	Black-faced Cuckoo-shrike	M	-	Inhabits exceptionally diverse habitats from semi-desert scrub to tall, wet forests of the southeast and Tasmania. It is found almost throughout the entirety of Australia.	Recorded	Yes	This species was recorded during both APM surveys. Given the lack of many overstorey trees in the Project Area, aside from scattered Eucalypts, this species is not likely to rely on the area for breeding, though it is possible. The wide diversity of its habitats mean that the species is not limited to select few habitats, especially habitat present in the Project Area, which is widespread elsewhere.
Egretta garzetta	Little Egret	M	-	Inhabits fresh and marine wetlands. Forages in the shallows of swamps, floodplain pools, mudflats and mangrove channels.	Recorded	Yes	This species was recorded by APM during both surveys. It is a common species in northern Australia.
Egretta sacra	Eastern Reef Egret	M	-	Inhabits estuarine mudflats and inshore reefs. Nests in colonies on islands within mangroves or on ground or ledges among shrubs and rocks.	Low	No	This bird has been recorded in the area before according to Worley Astron, in 1994 (Butler) and by CALM in an unpublished report. This species may use the habitat present adjacent the Project Area for feeding (mangrove and King Bay estuary), though if present would be more likely to utilise shorelines containing mangroves.
Esacus magnirostris	Beach Stone-curlew	M	-	Confined to marine tidal zone containing mudflats, mangroves, sandy stony and rocky shores.	Low	No	This species was recorded in 1994 (Worley Astron, 2006). This species is known to be shy and wary and avoids disturbed areas. If it were to occur, it would likely be in the islands that are largely undisturbed and contain mangrove swamps, north of Burrup and far off the coast of Dampier.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Eurostopodus argus	Spotted Nightjar	M	-	Inhabits open, dry country with stony ground and litter of yellow/ochre coloured leaves. Open habitats such as spinifex, mallee, eucalypt, acacia and mulga. Species favours stony ridges.	Moderate	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during either of APM's surveys. The presence of rocky outcrops and open spinifex grasslands and scattered eucalypts make the Project Area quite suitable for this species.
Falco cenchroides	Nankeen Kestrel	M	-	Inhabits open habitats, woodlands, grasslands, sparse scrub, heath, farms, roadsides and coastal dunes. Common on the mainland.	Recorded	Yes	This species was recorded by APM during both surveys. The species breeds in the north between August and January. This species could use the area given the combination of large open areas for foraging, and tall Eucalyptus trees for nesting.
Falco peregrinus	Peregrine Falcon	-	OS	Very diverse habitat ranging from arid scrub, coastal heath and rainforest. Often hunts over offshore islands and estuaries.	Moderate	Yes	This species has been recorded at Burrup in 2006 and Hearson's Cove (DBCA, 2018). The Project Area could provide foraging habitat, though it would not provide adequate nesting habitat given the lack of undisturbed, tall cliff faces with sheltered ledges.
Fregata ariel	Lesser Frigatebird	M, IA	IA	Flies over shelf waters, open sea, close inshore and inland over continental coasts and perches on trees.	Low	Yes	This species has been recorded in the Dampier region on Cohen island (DBCA, 2018). This species is predominantly aerial and marine. It breeds between May and December and colonies are often found on islands. If it were present in the Project Area, it would be transitory, flying over the area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Gelochelidon nilotica	Gull-Billed Tern	M, IA	IA	Occurs over inland and rarely over ocean. Nests on inland waters both fresh and saline. Uses water on mudflats, claypans, saltpans, salt marsh and areas of shallow flooding. Prefers lagoons and salt marshes near the coast when not breeding, and when breeding uses small islands.	low	Yes	This species has been recorded on Dolphin Island on the Dampier Archipelago (DBCA, 2018). This species may use the Project Area for foraging, though it is unlikely given its preferred habitat is coastal and intertidal areas.
Glareola maldivarum	Oriental Pratincole	M, IA	IA	Inhabits mudflats, beaches and shallow water areas such as margins of wetlands and lakes where large clouds of insects group.	Low	Yes	Dispersive and nomadic, the species ranges widely to locate the most productive sites. Is a temporary visitor to northern Australia. The species is known to rest on flat areas of ground which can be roads, airfields, paddocks and mudflats. Suitable habitat is widespread for this species.
Grallina cyanoleuca	Magpie-lark	M	-	Has diverse range of suitable habitats from coastal to semi-dessert where water and trees occur. This species is well adapted to live in man-made environments, particularly where there is permanent water.	Recorded	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006) and more recently by APM in 2019. The species is a very common vagrant.
Haliaeetus leucogaster	White-bellied Sea-eagle	OM	-	Perches on high cliffs overlooking coastal and inland waters. Inhabits islands, reefs, bays, estuaries, mangroves, lagoons and floodplains along major rivers.	Recorded	Yes	This species may hunt over the Project Area and surrounds, especially given the proximity of coastline surrounding the area, but would likely focus more on the offshore islands that contain extensive mangroves and pools. APM did record this species on the western side of the Project Area, flying over Burrup Road and the adjacent rocky outcrops.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Haliastur indus	Brahminy Kite	M	-	Along shorelines, shallows, mangroves and mudflats. Prefers coasts with islands, mangroves, estuaries, mud-flats, harbours and coastal towns.	Recorded	Yes	This species was recorded during the pre-wet and post-wet season surveys. This species is known to scavenge for carrion along the shoreline and shallows and is also an opportunist hunting for fish, and reptiles and insects on land. The species likes to build its nests where mangroves meet the sea. The Project Area is not expected to provide ideal breeding habitat, though the species would use the area to forage. Extensive opportunities for feeding are present outside the Project Area.
Haliastur sphenurus	Whistling Kite	M	-	Often flies over wetlands, but also arid regions, open woodland and scrub.	Recorded	Yes	Is primarily an scavenger, locating carrion and roadkill. This species breeds in tall trees within a woodland, near or standing in water, creek or dam. The Project Area is likely to provide some suitable breeding and foraging habitat, given the presence of some tall Eucalypt woodlands in gullies, and the addition of roads and paths within and nearby the site, that the species could feed within. No nests were located.
Himantopus himantopus	Australian Pied Stilt	M	-	Inhabits shallow wetlands, interior claypans and salt lakes. Widespread and common. Breeds after substantial rain. The species builds a small platform nest of plant material within shallows of islet or beach.	Recorded	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006) and more recently by APM during the post-wet season survey. No nests were located in the Project Area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Hirundo neoxena	Welcome Swallow	M	-	Typically occupy open habitats of woodland, grassland, wetland and farmland. Has adapted well to developed areas, and often utilises artificial habitats such as buildings and bridges that can offer sheltered sites for building mud nest. Nests can be made in mine shafts and under culverts as well. When not available, they use underside of cliffs and inside of large tree hollows.	Recorded	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006) and more recently by APM in 2019. This species could utilise the Project Area given the availability of nesting spots and foraging areas. It is a common vagrant species.
Hirundo nigricans	Tree Martin	M	-	Occupies open woodland and farmland containing trees not far from water. Uses small hollows in upper limbs of tall trees. Nomadic or migratory over most of its range and is common.	Recorded	Yes	This species has been recorded in 1994, 1995 and 2001 (Worley Astron, 2006), and more recently by APM during the post-wet season survey. The species would only use the area during the wet season when the gullies and channels within the Eucalyptus woodland are full of water.
Hirundo rustica	Barn Swallow	M, IA	IA	Visits northern Australia from September to March, in close proximity to towns and wetlands including salt ponds and swamps.	Moderate	Yes	This species may utilise artificial water bodies at the Project Area and natural areas containing the mudflats and clay pans.
Hydroprogne caspia	Caspian Tern	M, IA	IA	The species flies over the surf line and inshore waters. The species prefers sheltered estuaries, inlets, bays, harbours, lagoons with muddy or sandy shores. Will also utilise fresh and saltwater lakes and large rivers.	Recorded	Yes	This species has been recorded on Keast Island in the Dampier Archipelago (DBCA, 2018) and more recently by APM during the post-wet season survey. The species would be more inclined to use the undisturbed islets and islands off the archipelago and the individual recorded by APM was likely only an opportunistic visitor.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Hypotaenidia philippensis	Buff-banded Rail	M	-	Feeds at dawn before full sunlight and at dusk, on exposed mudflats and open marshy ground. Resides within damp and dense vegetation around swamps, lakes and tidal mudflats. Dense vegetation is required for nesting, though can be far away from water, but usually not.	Low	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during either of the APM surveys. This species could use the samphire vegetation and possibly the more-swampy areas after rain throughout the Project Area, however the vegetation is likely too sparse to provide adequate nesting habitat.
Limicola falcinellus	Broad-billed Sandpiper	M, IA	IA	Prefers sheltered coastal estuaries and soft inter-tidal mudflats, coastal creeks, swamps and sewage ponds and only occasionally reefs. Often seen with Red-necked Stints or Curlew Sandpipers. A migrant to Australia, during non-breeding season. They mostly occur on the Pilbara and Kimberley coasts between Onslow and Broome (DoEE, 2018).	Moderate	Yes	The largest population of these birds is seen at the Port Hedland Saltworks (around 6000 birds). Suitable habitat for this species does occur adjacent the Project Area, though is not expected to be impacted.
Limosa lapponica baueri	Bar-tailed Godwit	VU, M, IA	VU	This species forages over coastal dunes. Has been observed amongst sand and mud flats in estuarine and beach areas, as well as near-coastal salt ponds and salt lakes.	Moderate	Yes	This species has been recorded in the Dampier region on Dolphin Island and Hearson's Cove (DBCA, 2018). This species may forage over the salt ponds and mud flats present in the Project Area.
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit	CR, M, IA	CR	This species forages over coastal dunes. Has been observed amongst sand and mud flats in estuarine and beach areas, as well as near-coastal salt ponds and salt lakes.	Low	Yes	This species is present in the north and south of Western Australia. This species may forage over the salt ponds and mud flats present in the Project Area.
Limosa limosa	Black-tailed Godwit	M, IA	IA	Inhabits coastal areas such as sheltered bays, islets containing large inland lakes, tidal mudflats and sandbars.	Low	Yes	This species has been recorded in the Dampier region (DBCA, 2018), however it is most abundant on the east coast of Darwin.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Macronectes giganteus	Southern Giant-Petrel	EN, MM[3]	MM	Occupies marine habitats, over open seas and inshore waters. It favours the edges of the continental shelf. Gathers in areas of carrion and sewage for foraging.	Low	No	This species is far more common in the southern parts of Australia. This species would be a transitory visitor flying over site, if present at all.
Merops ornatus	Rainbow Bee-eater	M	-	Common and widespread, this species likes open woodland, open forest, semi-arid scrub, grassland, clearings in heavier forest and farmland. The emphasis is on open areas, as the species pursues insects in the air.	Recorded	Yes	This species was recorded during the pre-wet season survey. The species breeds before and after the Wet season. It digs long and narrow tunnels in soft, loamy soil of flat ground or banks that extends to a wide chamber where it nests. The species is likely to use the area for foraging and breeding within the mangrove, clay pans/salt lakes and creeklines. However, beach and dune systems adjacent and outside the Project Area could also provide suitable foraging and breeding habitat and the mangrove habitat is outside the development area.
Motacilla cinerea	Grey Wagtail	M, IA	IA	If seen in Australia, will inhabit fresh streams, mown grass, ploughed land or sewage ponds.	Low	No	This species rarely reaches Australia during its winter migration south of the equator.
Motacilla flava	Yellow Wagtail	M, IA	IA	Visitor between May and September in Australia, but uncommon in the northern Pilbara. Inhabits fresh streams, mown grass, ploughed land or sewage ponds.	Low	No	Uncommon and vagrant visitor to northwest Australia.
Ninox novaeseelandiae	Southern Boobook	M	-	Inhabits anywhere containing open eucalypt forest and woodland. Preys on insects and arthropods, small birds and rodents (and similar sized mammals). Roosts in dense foliage during the day. Requires either tree hollows or old babbler nests or hollowed out cliff for nesting.	Low	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during the pre-wet season survey. The vegetation is likely too sparse for this species to roost, though areas suitable for foraging are present.

[3] Listed as a Marine Migratory (of Australia only and not under International Agreement) under the *EPBC Act* 1999.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Numenius madagascariensis	Eastern Curlew	CR, M, IA	CR, IA	Predominately found in estuarine systems, saltmarshes, tidal mudflats and mangroves. Can be found in brackish or freshwater lakes.	Moderate	Yes	This species has been recorded at Nickol Bay (east coast of Burrup) (DBCA, 2018). This species is a common migrant to the north, northeast and southeast of Australia.
Numenius minutus	Little Curlew	M, IA	IA	This bird flocks in large numbers across extensive swamps and billabongs of the coastal black-soil plains of northern Australia. Inhabits dry grassland of clay and black soil plains, river floodplains, woodlands with a grassy understorey. Forages on recently burnt grassland or open woodland. These birds also like artificial habitat such as grassed fields and lawns, airfields/ aerodromes and pasture.	Low	Yes	This species has been recorded at the Hampton Oval sports complex in Dampier (DBCA, 2018). This species is abundant along the northern coastlines of Australia. As it is commonly recorded on open cleared fields in developed areas, it is unlikely this species would rely on the Project Area habitats.
Numenius phaeopus	Whimbrel	M, IA	IA	Inhabits mudflats of estuaries, lagoons containing mangroves. Less often in sandy beaches, reefs and salt lakes.	Recorded	Yes	This species has been recorded on Dolphin Island in Dampier, King Bay and Cowrie Cove within the Burrup Peninsula (DBCA, 2018) and more recently by APM during the post-wet season survey. This species would be an opportunist during the wet season and not likely to rely on suitable habitat in the Project Area.
Nycticorax caledonicus	Nankeen Night Heron	M	-	Secluded wetlands; flooded grassland, damp fields, mangroves, tidal channels. Prefers sites that contain some dense tree cover for protection when roosting.	Low	Yes	This species has been recorded historically recorded within the Burrup Peninsula (Worley Astron, 2006). The species breeds in the late Wet season (Feb- Apr). The Project Area does not contain the mangroves, and much dense vegetation that the species likes for protection.
Oceanites oceanicus	Wilson's Storm Petrel	M, IA	IA	Inhabits deep pelagic seas, shelf slopes and shallower shelf and inshore waters. Records are usually from edge of continental shelf.	Low	No	This species is widespread and abundant. It has been historically recorded on the Burrup (Worley Astron, 2006). It is not expected to use habitats present in the Project Area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Onychoprion aneathetus	Bridled Tern	M, IA	IA	Inhabits areas often far from land, forages on open seas and frequents islands and reefs to breed, sometimes inshore waters.	Low	No	This species has been recorded on Quartermaine Island in the Dampier Archipelago (DBCA, 2018). This species would be unlikely to use any waters present in the Project Area.
Pandion cristatus	Eastern Osprey	M, IA	IA	Inhabits coastal waters and estuaries, islets and exposed reefs. The species follows major rivers inland and even to large pools and gorges in arid regions. More common across northern coasts along rocky shorelines, islands and reefs.	Recorded	Yes	This species has been recorded on Roly Rock islet in Dampier (DBCA, 2018) and more recently by APM during the post-wet season survey. The species would be a transitory visitor, foraging or flying over site and would be more inclined to forage over the vast undisturbed rocky islets and islands across the Dampier archipelago, north and northwest of the Burrup.
Pelecanus conspicillatus	Australian Pelican	M	-	Wide distribution and much available habitat; any large or small area of water from sheltered coastal bays and estuaries to temporary pools in the desert.	Moderate	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during either of the APM surveys.
Pezoporus occidentalis	Night Parrot	EN	CR	Thought to be associated with spinifex or samphire bushes on the margins of salt lakes. It nests in the dense clumps of spinifex.	Low	Yes	This species is exceptionally rare and in low numbers. This species is known to inhabit inland very arid areas.
Phalaropus lobatus	Red-necked Phalarope	M, IA	IA	Frequents seas that are rich in plankton but does occasionally blow inshore to shelter from gales on coastal wetlands. It infrequently comes to land. Feeds on sea surface. The species has been observed on brackish, saline or fresh water pools and muddy margins. The species is considered a rare vagrant and is present at sea during the nonbreeding season.	Low	Yes	The species is a seasonal or occasional visitor of the Burrup Peninsula (Worley Astron, 2006). It was not recorded on either of the APM surveys.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Pluvialis fulva	Pacific Golden Plover	M, IA	IA	Occupies coastal habitats in small flocks or large flocks within estuaries, intertidal mudflats, salt marshes. reefs and offshore islands. The species disperses around suitable habitat areas on the coast.	Recorded	Yes	This species has been recorded on Roly Rock islet within Dampier (DBCA, 2018) and more recently by APM during the post-wet season survey. The species would be more inclined to inhabit the islands on the west side of Dampier and Burrup, where suitable habitat is vastly available, and especially where it is quieter, as the species is quite shy and wary. Only one individual was recorded by APM.
Pluvialis squatarola	Grey Plover	M, IA	IA	Inhabits coastal areas, marine shores of estuaries or lagoons, on broad open mudflats, sandbars, beaches, rock platforms, reef flats of rocky coasts. Also forages slightly inland near coast and on the margins of salt lakes or swamps.	Low	Yes	This species has been recorded on Roly Rock islet within Dampier (DBCA, 2018). Sometimes seen with Golden Plovers. This species is shy and tends to stay out far on shallows or flats. This species would likely inhabit the offshore islands and islets away from human development and where suitable habitat is abundant.
Recurvirostra novaehollandiae	Red-necked Avocet	M		Uses salt and freshwater wetlands. Large numbers reside on shallow salt lakes, especially as salinity rises during evaporation. They inhabit claypans and temporary flood waters. Breed after good rain.	Moderate	Yes	This species has been historically recorded within Burrup (Worley Astron, 2006). It was not recorded during either of APM's surveys.
Rostratula australis	Australian Painted-snipe	EN	EN	Resides within the dense vegetation of swamps, emerging during light of dawn and dusk. It prefers the surrounds of shallow wetlands that are well vegetated with dense low cover, typically swamps and flooded areas containing sedges and grasses. Breeds in inland southeast Australia amongst low samphire bushes.	Low	Yes	This species is very secretive and often not seen and therefore it is not well known. It is uncommon generally. Though the Project Area does contain large mudflat and clay pans with samphire, the majority of breeding records are from freshwater wetlands. It is not likely the area would provide preferred habitat, or that the species occurs in the area at all.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Sterna dougallii	Roseate Tern	M, IA	IA	Inhabits marine, coastal and often coral reefs, foraging over reefs, lagoons and surrounds. Usually avoids mainland shoreline but may use shallow water just offshore (100 m).	Low	No	This species has been recorded on Goodwyn island in the Dampier archipelago (DBCA, 201). This species would be unlikely to use the habitats within the Project Area, possibly only the shoreline within Hearsons cove.
Sterna hirundo	Common Tern	M, IA	IA	Inhabits marine environments, well offshore, sometimes coastal waters, bays, estuaries and ocean beaches. A moderately common species (*longipennis* race) in the north.	Low	No	This species has been recorded on Eaglehawk Island on the Dampier archipelago (DBCA, 2018). This species would be more inclined to use offshore islets and islands of the archipelago.
Sternula albifrons	Little Tern	M, IA	IA	Resides within shallow coastal waters such as estuaries, lagoons and channels around rivers and harbours. Often congregates within favoured islets.	Low	Yes	This species has been recorded on Enderby island on the Dampier archipelago (DBCA, 2018). May use harbours adjacent of Burrup, on the west side and river channels during the Wet season present in the Project Area.
Sternula nereis nereis	Australian Fairy Tern	VU	VU	Habitat includes sheltered coasts, bays, inlets, estuaries, coastal lagoons, ocean beaches and also inland salt ponds and lakes and wetlands near the coast. However, it favours sand spits of islets in river-mouth channels, where they can forage on the seaward side of reefs and islands.	Low	Yes	This species has been recorded on Egret Island on the Dampier archipelago (DBCA, 2018). This species would be more inclined to use the sheltered and undisturbed bays within the islands and islets of the archipelago.
Stiltia isabella	Australian Pratincole	M	-	Forages for insects and small prey within sparse wooded plains and grasslands, claypans and stony ground. Does not venture far from water. Breeds after rain and within stony ground.	Low	Yes	This species has been historically recorded within the Burrup Peninsula (Worley Astron, 2006). It was not recorded during either of APM's surveys. Suitable foraging and breeding habitat exist for this species, though its occurrence is unpredictable.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Sula leucogaster	Brown Booby	M, IA	-	Inhabits marine environs where it travels low over waves to forage in deep waters but also inshore shallows.	Low	No	This species has been recorded on Cohen Island on the Dampier Archipelago (DBCA, 2018). This species would use the offshore islands of the archipelago where foraging opportunity is high.
Thalasseus bengalensis	Lesser Crested Tern	M	-	Inhabits sandy beaches, coral cays, exposed reefs, islands and mudflats, estuaries and creek channels. Breeds in the northeast and northwest on offshore islands. Known to breed on Adele and Bedout islands.	Recorded	Yes	This species was recorded by APM during pre-wet season survey. The species is utilising mudflats and creeks present in the Project Area for foraging, though given the known breeding habitat is islands and rocky shorelines, the species may be more inclined to use undisturbed rocky islets present across the archipelago. APM recorded just one individual during dry conditions.
Thalasseus bergii	Crested Tern	M, IA	IA	This species is a common tern, especially of bays, harbours, boats and jetties. Inhabits beaches, offshore islands, deeper pelagic seas, inshore estuaries and only occasionally on salt ponds and saline lakes near the coast.	Moderate	Yes	This species has been recorded on the Dampier Archipelago and Hearson's Cove (DBCA, 2018). This species may utilise the Project Area for foraging over the salt clay pans during the wet season.
Todiramphus sanctus	Sacred Kingfisher	M	-	Occupies semi-arid scrubland, open forest, woodland and mangroves. Hunts on dry land for small reptiles and large insects. Sometimes uses wetlands.	Moderate	Yes	This species has been recorded in 1994, 1998 and 2004 (Worley Astron, 2006). Suitable habitat exists for this species though it has a wide known range.
Tringa brevipes	Grey-tailed Tattler	M, IA	IA	Coastal habitats including inter-tidal pools, shallows, soft surfaces of mudflats and sand beaches, but also rocky ledges and reefs.	Recorded	Yes	This species has been recorded on Roly Rock islet in the Dampier archipelago (DBCA, 2018) and more recently by APM during the post-wet season survey. This species utilises the mudflats present in the Project Area for foraging. Suitable habitat is vast outside of the Project Area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Tringa glareola	Wood Sandpiper	M, IA	IA	Resides within shallows of wooded lakes or swamps with trees where it forages among fallen trees and vegetation, only occasionally frequents mangroves and brackish waters.	Low	Yes	This species has been recorded on Roly Rock islet in the Dampier archipelago (DBCA, 2018). This species is an uncommon migrant. May possibly utilise the Eucalypt woodlands during the wet season when the channels have filled with water.
Tringa nebularia	Common Greenshank	M, IA	IA	This species requires open swamps, and therefore may only use smaller water bodies opportunistically. However, records have been made in dams and sewage ponds. Typically associated with saltmarshes, estuaries and shallow waters such as clay pans and mudflats, it prefers wet and flooded mud and clay, rather than sandy ground.	Recorded	Yes	This species has been recorded on Roly Rock islet within Dampier and King Bay (DBCA, 2018) and more recently by APM during the post-wet season survey. This species diverse habitat usage means that it is likely to not be reliant on habitats present in the Project Area.
Tringa stagnatilis	Marsh Sandpiper	M, IA	IA	Inhabits coastal and inland wetlands, beaches, mangrove mudflats, shallows of swamps, temporary flood waters and salt ponds.	Low	Yes	This species has been recorded on Roly Rock islet within Dampier (DBCA, 2018). While this species is more common in the far northern parts of Australia, suitable marshy habitat is present in the Dampier region and the Project Area.
Tringa totanus	Common Redshank	M, IA	IA	Frequents coastal wetlands inclusive of estuaries and lagoons that contain sandbars, mudflats and saltlakes. Uncommon visitor but is known to be a regular summer visitor in some sites around the coast.	Low	Yes	One occurrence of this species has been recorded within AoLA records, from 1994, on the expansive intertidal flats of Nickol Bay.
Xenus cinereus	Terek Sandpiper	M, IA	IA	Resides in coastal mudflats, sheltered estuaries, lagoons and sandbars, reefs, coastal swamps and salt fields.	Low	Yes	This species has been recorded on Roly Rock islet within Dampier (DBCA, 2018). Common in the northern coasts of Australia and is concentrated (among other areas) in the area between Eighty Mile Beach and Broome.
Mammals							

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Dasyurus hallucatus	Northern Quoll	EN	EN	Inhabits rocky outcrops and mezzo-formations in areas with Eucalyptus woodlands.	Moderate	Yes	This species has been previously recorded on Dolphin Island in the Dampier region and on the Burrup Peninsula in various locations, including a sighting at the port area of King Bay warehouse.
Hydromys chrysogaster	Water-rat, Rakali	-	P4	Occurs in habitats with fresh, brackish or marine water. They require a permanent water source all year round. In the Pilbara, the species occurs along the coastline and offshore islands where they forage for a diverse range of aquatic and terrestrial creatures.	Low	No	This species has been recorded on the Burrup Peninsula (DBCA, 2018). If the species were present in the area, it would be most inclined to use the coastline of bays, most likely further north into Dolphin and Legendre Islands, and other islands further offshore in the archipelago where it is undisturbed and more vegetated than rocky.
Macroderma gigas	Ghost Bat	VU	VU	Inhabits arid spinifex hillsides, open savannah woodland, tall open forest etc. They roost in sandstone or limestone caves or under boulder piles and abandoned mines. They prefer to roost deep in the cave system and in a relatively open space in the cavity. This has to do with humidity and temperature in the microclimate that caves produce. Females roost with young preferentially in the large open cavity far from the cave entrance.	Recorded	Yes	This species has been recorded on the Burrup Peninsula about 4 km northeast of the Project Area (DBCA, 2018) and more recently by APM during the post-wet season survey. This species was once distributed over the entire north of Australia but is now restricted to pockets within tropical areas. This is partly due to the introduction of the Cane Toad, but also loss and disturbance of roost sites and loss of foraging habitat through inappropriate management and dramatic land-use change (DENR, 2016).
Macrotis lagotis	Greater Bilby	VU	VU	The former range of the Greater Bilby has declined dramatically, and the remaining populations of the Bilby reside within three main habitats; the open tussock grassland on uplands and hills, mulga woodland on ridges and rises and hummock grassland in plains and alluvial areas (DoE, 2016).	Low	Yes	The species is highly unlikely to occur in the Project Area due to the lack of appropriate burrowing substrate, and the presence of foxes.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Ozimops cobourgianus	Northern Coastal Free-tailed Bat	-	P1	Uses mangroves to roost, particularly crevices in dead upper branches of *Avicennia marina*. They are restricted to mangrove forests adjacent monsoon forest along large waterways and vine thickets. They like unobstructed corridors in the form of roads or creeklines when foraging for flying insects.	Recorded	Yes	This species has been recorded in the Burrup Peninsula and the Cowrie Cove (a bay just north of Hearson's Cove) in the mangrove habitat. Suitable habitat exists adjacent the Project Area but also is extensive elsewhere (mangroves) along the Burrup and its islands. This bat was recorded during both APM seasonal surveys, across multiple sites, indicating the Project Area is of suitable foraging habitat.
Petrogale lateralis lateralis	Black-footed Rock-Wallaby	EN	EN	This species was historically widespread, though is now only patchily distributed in protected parts of WA including Barrow Island and Cape Range National Park in the Pilbara (DPaW, 2013). The species no longer occurs within the Burrup and Dampier Peninsulas. This rock-wallaby shelters in deep rocky caves, cliffs, screes and rockpiles. They emerge at dusk to feed on grasses and shrubs not far from their shelter site, if food is available.	Low	Yes	The Black-footed Rock-wallaby (Petrogale lateralis lateralis) was recorded on the Burrup Peninsula in 1994 (Worley Astron, 2006; see Appendix B for a list of fauna), however it is not expected to currently occur on the Burrup Peninsula.
Pseudomys chapmani	Western Pebble-mound Mouse	-	P4	This species builds relatively high (up to 10 cm and more) mounds out of tiny pebbles found on the ground. They create intricate chambers underground at least 60 cm deep where they escape the heat of the day. They do continue to use their durable mound systems throughout generations (Anstee *et al.* 1997). The mouse forages in dry creek beds and mounds are usually created amongst hummock grassland of sandy and pebbly soils.	Low	Yes	This species has been historically recorded in the Burrup Peninsula within the Murajuga National Park (DBCA, 2018). The species has declined in its range, particularly along the Pilbara coasts, likely due to predation by foxes, though populations are still present in the Pilbara and Sandy Desert. The Project Area lies within the former extent of occurrence for the species, though suitable habitat is present within the Project Area.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Rhinonicteris aurantia	Pilbara Leaf-Nosed Bat	VU	VU	Inhabits tall open forest, open savannah woodland and spinifex-covered hills etc. Their roost cave requirements are very specific, requiring about 100% humidity and a very high temperature.	Low	Yes	This species may use the rocky outcrops that contain woodland creek lines running through, that may support cave systems deep enough to offer suitable microclimate conditions in both the dry and wet-seasons, though these caves are quite uncommon. The bat would be more likely to use the area for foraging, and potentially use shallower caves provided by the outcrops as a temporary refuge in the wet-season as they can forage several kilometres from their day-time roost sites. The species is predated quite heavily by Ghost Bats.
Ctenotus angusticeps	Northwestern Coastal Ctenotus	VU	P3	Inhabits salt marsh communities in samphire shrubland. Records exist in samphire sites close to tidal creeks. Strongly associated with *Tectornia halocnemoides* subsp. tenuis *and Suaeda arbusculoides* occurring on clayey soils and mixed herb and grass cover of *Sporobolus virginicus* and *Muellerolimon salicorniaceum*. The species appears to utilise crabholes for shelter and protection.	Low	Yes	Suitable habitat does exist for this species within the Project Area, though it is not known from the Burrup region. Biologic (2013) recorded the species 7 km East of Karratha at Lulu Creek in 2012. The species is threatened by Buffel Grass (*Cenchrus ciliaris*) which is present within the Project Area.
Reptiles							
Liasis olivaceus barroni	Olive Python	VU	VU	Occurs in a range of habitats from savannah woodlands to monsoonal forests. Typically, in areas of rocky hills, outcrops and ranges.	High	Yes	This species has been historically recorded on Dolphin Island in the Dampier region and in King Bay, Hearson's Cove and in many locations around the Karratha Gas Plant and Pluto LNG facility, particularly where artificial water sources occur(open water pit) It is often recorded around the built environment and highly disturbed areas. APM did not record the species on either of the surveys.

Species	Common Name	Cons. Code		Habitat	Likelihood of Occurrence	Habitat Requirements	Comments
		Cth	WA				
Notoscincus butleri	Lined-soil Crevice Skink (Dampier)	-	P4	Inhabits stony areas dominated by spinifex ground cover. Was originally only known from the Dampier Archipelago region of WA, but records from early 2000 have since increased the known range of the species.	Moderate	Yes	Historical record of the species within the Burrup Peninsula made by Biota in 2001 (Worley Astron, 2006) and other records exist on West Intercourse Island and several on the mainland extending into Millstream Chichester National Park, Pannawonica and west of Mount Sheila. It is possible this species may occur in the Project Area, given its preferred habitat however, targeted trapping and search effort would be required to eliminate uncertainty of the presence of this species.

APPENDIX I: SPECIES BY SITE MATRIX

Family	species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
AIZOACEAE	*Trianthema turgidifolia*					0.1	0.1	20	1.0	0.1																					0.1				2					
	Trianthema triquetrum		0.1																																					
AMARANTHACEAE	**Aerva javanica*						0.1	0.1	50							0.1					0.1								20		0.1						0.1	
	Amaranthus undulatus																																							
	Gomphrena leptoclada subsp. leptoclada		0.1			0.1						1		2									5										0.1	0.1			0.1			
	Ptilotus exaltatus														1						0.1				1					0.1	0.1								
	Ptilotus fusiformis											0.1	0.1																											
APOCYNACEAE	*Cynanchum floribundum*	0.1	0.1																																					
ARALIACEAE	*Trachymene oleracea* subsp. *oleracea*	0.1	0.1		0.1	1	0.1						0.1	1.0				0.1	0.1		0.1					0.1								1			0.2		0.1	0.1
ASTERACEAE	*Pentalepis trichodesmoides*																																							
	Pterocaulon sphaeranthoides	0.1			0.1	1	0.1						0.1																0.1											
	Streptoglossa decurrens		0.1																																					
BIGNONIACEAE	*Dolichandrone occidentalis*																																							1
	Ehretia saligna var. *saligna*				0.1							1																												
BORAGINACEAE	*Heliotropium cunninghamii*					0.1																																		
	Heliotropium tenuifolium																																							
	Trichodesma zeylanicum var. zeylanicum	0.1	0.1	0.1		0.1				0.1		0.1	0.1	0.1												0.1			0.1		0.1		0.1	0.1	0.1			0.1	0.1
CHENOPODIACEAE	*Atriplex codonocarpa*							0.1																																
	Dysphania sp.		0.1																																					
	Enchylaena tomentosa var. *tomentosa*			0.1	0.1																	1		0.1			0.1						0.1		0.1					
	Neobassia astrocarpa							0.1	1																											1					
	Rhagodia eremaea	0.1		2	0.1								0.1	0.1		1	0.1		0.1	3	0.1												0.1				0.1			
	Salsola australis														0.1														0.1											
	Tecticornia auriculata																																							
	Tecticornia halocnemoides							20	1																															
	Tecticornia indica subsp. *indica*							1.0									0.1																			1.0					
	Threlkeldia diffusa																				0.2									0.1										
CLEOMACEAE	*Cleome viscosa*	0.1	0.1			0.1					1.0	1.0	0.1	0.1								0.1				0.1				0.1		0.1			0.1				0.1
COMBRETACEAE	*Terminalia circumalata*																0.1		40																					
	Terminalia supranitifolia (P3)										20	1.0		10																										
COMMELINACEAE	*Commelina ensifolia*																																							
CONVOLVULACEAE	*?Bonamia erecta*																	0.1			0.1																			
	Bonamia pilbarensis																																					0.1		
	Evolvulus alsinoides var. *villosicalyx*														0.1	0.1			0.1		0.1																			

Family	species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
	Ipomoea costata			0.1							1	1.0		1.0								1.0				0.1	0.1							0.1							
CUCURBITACEAE	*Cucumis variabilis*	0.1		10	0.1	0.1					1			0.1	0.1				0.1		0.1					0.1			0.1						0.1					0.1
CYPERACEAE	*Cyperus vaginatus*																0.1		0.1				0.1	0.1																
	Cyperus blakeanus																																							
EUPHORBIACEAE	*Adriana tomentosa* var. *tomentosa*																							0.1																
	Euphorbia coghlanii									0.1											0.1									0.1	0.1									
	Euphorbia tannensis subsp. *eremophila*														0.1				0.1		0.1																		0.1	
FABACEAE	*Acacia ampliceps*										1.0												10	0.1										2	40					
	Acacia ancistrocarpa																																							
	Acacia bivenosa	1	1		1.0	25	20			50			0.1		15	0.1	1	1		0.1	0.1	1		0.1		1			1		1	40	0.1		40		0.1	1	1	1
	Acacia colei var. *colei*	0.1											0.1							0.1						0.1						0.1						1	
	Acacia coriacea subsp. pendens	1		1	0.1	0.1		0.1		0.1	0.1	5		1			1		1	1		1	0.1	0.1		0.1					0.1	0.1	0.1		0.1		0.1		0.1	
	Acacia inaequilatera				0.1																								1											
	Acacia pyrifolia												1			1	0.1	0.1			0.1											0.1	0.1	1						
	Acacia synchronicia																																							
	Acacia trachycarpa																																							
	Crotalaria medicaginea var. *neglecta*																														0.1									
	Crotalaria novae hollandiae subsp. novae hollandiae	0.1																																						0.1
	Cullen badocanum																									0.1														
	Dichrostachys spicata		0.1		0.1	0.1					1		0.1	5			1.0	0.1	0.1	0.1	0.1	0.1									0.1	0.1	0.1	0.1	0.1			0.1	
	Erythrina vespertilio																									0.1														
	Indigofera monophylla	0.1	0.1		0.1	2	1						0.1		0.1	0.1		0.1			1								0.1		0.1	0.1		0.1			0.1	0.1	1	0.1
	Indigofera colutea											0.1																												
	Indigofera trita																																							
	Rhynchosia bungarensis (P4)																																							
	Rhynchosia minima	0.1	0.1	0.1	0.1	0.5	0.1				1.0			0.1													2			0.2						0.1			0.1	0.1	0.1
	Senna artemisioides subsp. oligophylla																																							
	Senna glutinosa subsp. *glutinosa*				0.1	0.1									1		0.1			0.1	0.1																0.1			
	Sesbania cannabina															0.1																			0.1	1				
	Swainsona formosa															0.1					0.1																			
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				1																								0.1										
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)						0.1																																0.1

Family	species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
	Tephrosia supina											0.1																										0.1		
GOODENIACEAE	*Goodenia microptera*														0.1																0.1									
	Goodenia lamprosperma																																							
	Scaevola cunninghamii																													0.1										
	Scaevola spinescens				1									0.1	0.1						0.1				1		0.1				0.1		0.1							
LAMIACEAE	*lanceolatum*	0.1			0.1	0.1				0.1		1	0.1	15		0.1	0.1			0.1													1.0	0.1						
LAURACEAE	*Cassytha filiformis*	0.1				0.1	0.1										1						1						0.1	0.1	0.1								
MALVACEAE	**Malvastrum americanum*																				0.1																		
	Abutilon fraseri																																							
	Abutilon lepidum	0.1	0.1		0.1		0.1					0.1		0.1																										
	Brachychiton acuminatus			5							20	20		1.0		0.1				0.1		1			1													0.1	
	Corchorus incanus subsp. incanus	0.1																																						
	Corchorus incanus subsp. incanus									0.1			0.1		1.0	2		0.1	0.1		1								0.1		0.1	0.1	0.1	0.1	0.1		1	0.1	0.1	
	Corchorus walcottii																																							
	Gossypium australe														0.1						0.1																		0.1	
	Hibiscus sturtii var. campochlamys					0.1	0.1					0.1	0.1		0.1																							0.1		0.1
	Lawrencia viridigrisea																																							
	Melhania oblongifolia																			0.3																				
	Sida fibulifera																												0.1									0.1		
	Triumfetta appendiculata											0.1		0.1	0.1	1		0.1	0.1		0.1					0.1			0.1		0.1	0.1	0.1				10		0.1	
	Waltheria indica												0.1		0.1		0.1																							
MENISPERMACEAE	*Tinospora smilacina*			1	0.1							0.1													0.1		0.1												
	Tinospora smilacina			1							1.0																												0.1	
MOLUGINACEAE	*Trigastrotheca molluginea*																																	0.1						
MORACEAE	*Ficus brachypoda*																					1.0					1													
MYRTACEAE	*Corymbia hamersleyana*				25								5		0.1	1.0					25										0.1	50				25		25	
	Eucalyptus victrix																10		1.0	60			80	50															
NYCTAGINACEAE	*Boerhavia gardneri*	0.1		0.1	0.1							0.1			0.1																								0.1
OLEACEAE	*Jasminum didymum* subsp. *lineare*	0.1												1						1.0	1.0						0.1					0.1				0.1			
PASSIFLORACEAE	**Passiflora foetida* var. *foetida*																						80	1.0															
PHYLLANTHACEAE	*Flueggea virosa* subsp. *melanthesoides*													2					0.1															0.1		0.1			
	Notoleptopus decaisnei									0.1																					0.1						0.1		
	Phyllanthus maderaspatensis																																							
PITTOSPORACEAE	*Pittosporum phillyreoides*														0.1		0.1			5	0.1												1				0.1			

Family	species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
PLANTAGINACEAE	*Stemodia grossa*				1	0.1									0.1	0.1					1.0		0.1	0.1										0.1	0.1	0.1	0.1			
POACEAE	**Cenchrus ciliaris*		0.1		0.1	1	0.1	15		10	2	60	0.1	30	0.1	1	0.1	1	0.1	1			10	1						1	0.1	30	20		30	1.0	20	40	1	
	Chrysopogon fallax														0.1						0.1																			
	Cymbopogon ambiguus	0.1			0.1	0.1						0.1		0.1			1.0		0.1			2			1	0.1		10					20				0.1			
	Dactyloctenium radulans																																							
	Eragrostis falcata																																							
	Eriachne helmsii						0.1																																	
	Eriachne mucronata																													15				0.1		80				
	Eriachne obtusa					0.1	0.1																																	
	Eriachne tenuiculmis																1		30														5							
	Paspalidium tabulatum																																							
	Paspalidium clementii														0.1						0.1																			
	Sporobolus virginicus								40																															
	Themeda triandra											0.1	0.1	0.1																	0.1		0.1							
	Triodia ? basedowii (sterile)																																	10						
	Triodia angusta						60								0.1		30	40					50	80							85									1
	Triodia epactia	40	60	40	50	30	20		1	40		20	30	30	10	40	30	20	40	40	15	40			25	90	70			15	1	15	15	75				30	85
	Triodia wiseana																												85										
PROTEACEAE	*Grevillea pyramidalis subsp. pyramidalis*	0.1	1		1					0.1					5	10					1					0.1	0.1		1				0.1	0.1			1			1
	Hakea lorea subsp. *lorea*	1				0.1									0.1			0.1			1					1														
SAPINDACEAE	*Alectryon oleifolius* subsp. *oleifolius*																0.1			3							0.1													
SOLANACEAE	*Solanum diversiflorum*															0.1					0.1																			
	Solanum horridum	0.1			0.1	0.1	0.1			0.1			0.1		0.1	0.1					0.1				0.1	0.1			0.1		0.1		0.1				0.1		0.1	
	Solanum lasiophyllum		0.1							0.1										0.1																			0.1
	Solanum phlomoides																																							
VIOLACEAE	*Hybanthus aurantiacus*	0.1				0.1							0.1																				0.1							
ZYGOPHYLLACEAE	*Tribulus hirsutus*						0.1							0.1	0.1																					0.1				

Family	species	40	41	54	42	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	OC
AIZOACEAE	*Trianthema turgidifolia*				10		0.1		0.1	1	1					5		20				
	Trianthema triquetrum																					
AMARANTHACEAE	**Aerva javanica*								20	3	30							20				Y
	Amaranthus undulatus		0.1																			
	Gomphrena leptoclada subsp. leptoclada		0.1																	0.1		
	Ptilotus exaltatus	0.1																				
	Ptilotus fusiformis											0.1								0.1		
APOCYNACEAE	*Cynanchum floribundum*																					
ARALIACEAE	*Trachymene oleracea* subsp. *oleracea*		0.1	0.1									0.1						0.1	0.1		
ASTERACEAE	*Pentalepis trichodesmoides*																					Y
	Pterocaulon sphaeranthoides									0.1												
	Streptoglossa decurrens	0.1								0.1												Y
BIGNONIACEAE	*Dolichandrone occidentalis*											10										
	Ehretia saligna var. *saligna*																					
BORAGINACEAE	*Heliotropium cunninghamii*																					
	Heliotropium tenuifolium	0.1																				
	Trichodesma zeylanicum var. zeylanicum	0.1										0.1	1						0.1			
CHENOPODIACEAE	*Atriplex codonocarpa*																					
	Dysphania sp.																					
	Enchylaena tomentosa var. *tomentosa*												0.1									
	Neobassia astrocarpa				1				0.1							0.1						
	Rhagodia eremaea												0.1									
	Salsola australis								20		1.0											
	Tecticornia auriculata				25		0.1									20						
	Tecticornia halocnemoides				20	20	15	10								30						
	Tecticornia indica subsp. *indica*																					
	Threlkeldia diffusa								0.1													
CLEOMACEAE	*Cleome viscosa*		0.1	0.1					0.1		0.1		0.1							0.1		
COMBRETACEAE	*Terminalia circumalata*																40					
	Terminalia supranitifolia (P3)																					Y
COMMELINACEAE	*Commelina ensifolia*																					
CONVOLVULACEAE	*?Bonamia erecta*																					
	Bonamia pilbarensis																					
	Evolvulus alsinoides var. *villosicalyx*									0.1												

Family	species	40	41	54	42	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	OC
	Ipomoea costata		0.1																			
CUCURBITACEAE	*Cucumis variabilis*	0.1	0.1	0.1									0.1									
CYPERACEAE	*Cyperus vaginatus*																1					
	Cyperus blakeanus											0.1										
EUPHORBIACEAE	*Adriana tomentosa* var. *tomentosa*																					
	Euphorbia coghlanii		0.1																			
	Euphorbia tannensis subsp. *eremophila*								0.1		0.1											
FABACEAE	*Acacia ampliceps*																					
	Acacia ancistrocarpa																					Y
	Acacia bivenosa	0.1		0.1						10									0.1		5	
	Acacia colei var. *colei*	0.1										0.1										
	Acacia coriacea subsp. pendens			0.1									0.1				1					
	Acacia inaequilatera	30											15						5			
	Acacia pyrifolia																					
	Acacia synchronicia																					Y
	Acacia trachycarpa																1					Y
	Crotalaria medicaginea var. *neglecta*																					
	Crotalaria novae hollandiae subsp. novae hollandiae		0.1																			
	Cullen badocanum																					
	Dichrostachys spicata		0.1	0.1								0.1									0.1	
	Erythrina vespertilio																					
	Indigofera monophylla	0.1								0.1		0.1	0.1							0.1		
	Indigofera colutea																					
	Indigofera trita		0.1																			
	Rhynchosia bungarensis (P4)	0.1																				Y
	Rhynchosia minima	0.1	2	2								0.1	0.1						0.1			Y
	Senna artemisioides subsp. oligophylla																					Y
	Senna glutinosa subsp. *glutinosa*	0.1																				
	Sesbania cannabina																					
	Swainsona formosa																					Y
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																					
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)		0.1										0.1									Y

Family	species	40	41	54	42	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	OC
	Tephrosia supina	0.1																				
GOODENIACEAE	*Goodenia microptera*											0.1										
	Goodenia lamprosperma																					
	Scaevola cunninghamii								5		0.1											Y
	Scaevola spinescens																					Y
LAMIACEAE	*lanceolatum*	0.1											0.1									
LAURACEAE	*Cassytha filiformis*									0.1												
MALVACEAE	**Malvastrum americanum*																					
	Abutilon fraseri																					Y
	Abutilon lepidum																		0.1	0.1		
	Brachychiton acuminatus																					
	Corchorus incanus subsp. incanus																					
	Corchorus incanus subsp. incanus	0.1										0.1										
	Corchorus walcottii											3	0.1								2	
	Gossypium australe																					Y
	Hibiscus sturtii var. campochlamys	0.1																				Y
	Lawrencia viridigrisea																					Y
	Melhania oblongifolia																					
	Sida fibulifera																					
	Triumfetta appendiculata	1										0.1	0.1						0.1	0.1	0.1	
	Waltheria indica																				0.1	
MENISPERMACEAE	*Tinospora smilacina*																					
	Tinospora smilacina																					
MOLUGINACEAE	*Trigastrotheca molluginea*											0.1										Y
MORACEAE	*Ficus brachypoda*																					
MYRTACEAE	*Corymbia hamersleyana*																					
	Eucalyptus victrix																40					
NYCTAGINACEAE	*Boerhavia gardneri*											1	0.1						0.1			
OLEACEAE	*Jasminum didymum* subsp. *lineare*																					Y
PASSIFLORACEAE	**Passiflora foetida* var. *foetida*																5					
PHYLLANTHACEAE	*Flueggea virosa* subsp. *melanthesoides*																					
	Notoleptopus decaisnei																					Y
	Phyllanthus maderaspatensis												0.1									
PITTOSPORACEAE	*Pittosporum phillyreoides*																					Y

Family	species	40	41	54	42	43	44	45	46	47	48	49	50	51	52	53	55	56	57	58	59	OC
PLANTAGINACEAE	*Stemodia grossa*																					
POACEAE	**Cenchrus ciliaris*		0.1	0.1	10				1		0.1						15	20				Y
	Chrysopogon fallax																					
	Cymbopogon ambiguus	0.1	0.1									0.1	0.1	15	10				0.1			
	Dactyloctenium radulans				0.1																	
	Eragrostis falcata				1																	
	Eriachne helmsii																					
	Eriachne mucronata																					Y
	Eriachne obtusa											0.1										Y
	Eriachne tenuiculmis									0.1												
	Paspalidium tabulatum								0.1		15											Y
	Paspalidium clementii																					
	Sporobolus virginicus								5		1.0											
	Themeda triandra																					
	Triodia ? basedowii (sterile)																					
	Triodia angusta									40												
	Triodia epactia	70	75	75					1	30	1	65	70	70	70				80	80	75	
	Triodia wiseana																					
PROTEACEAE	*Grevillea pyramidalis subsp. pyramidalis*	10		0.1								2	3						10	0.1	0.1	
	Hakea lorea subsp. *lorea*																					
SAPINDACEAE	*Alectryon oleifolius* subsp. *oleifolius*																					
SOLANACEAE	*Solanum diversiflorum*																					
	Solanum horridum	0.1								0.1		0.1	0.1									
	Solanum lasiophyllum																					
	Solanum phlomoides	0.1								0.1			0.1									
VIOLACEAE	*Hybanthus aurantiacus*																					
ZYGOPHYLLACEAE	*Tribulus hirsutus*																					

Appendix I: APM Multi-season flora survey Species Accumulation Curve

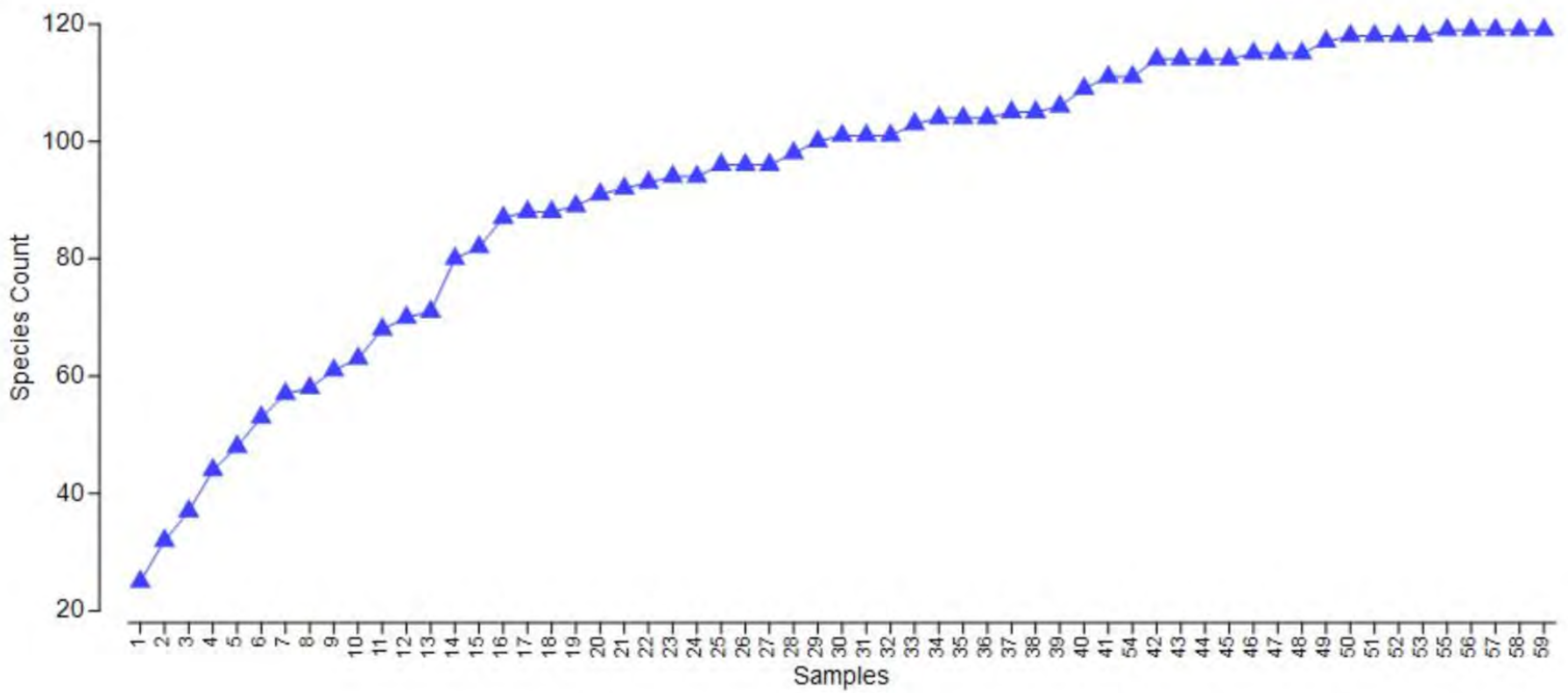


Figure I-1: Species Accumulation Curve for the multi-season flora survey. Species Count is the number of species recorded at each Detailed Survey Site (X axis: Samples) that had not been previously recorded in the APM Detailed Surveys. The species by site matrix used to derive the Species Accumulation Curve contained the full list of species recorded at each Detailed Survey Site over the multiple survey seasons.

APPENDIX J: BAT CALL IDENTIFICATION FROM THE BURRUP PENINSULA (SPECIALISED ZOOLOGICAL) (2018-2019)

Bat call identification from the Burrup Peninsula, WA

Type:	Acoustic analysis
Prepared for:	Animal Plant Mineral Pty Ltd
Date:	6 May 2019
Job No.:	SZ474-489

Prepared by:

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This report should be included as an appendix in any larger submission to Government, and cited as:

Specialised Zoological (2019). Bat call identification from the Burrup Peninsula, WA. Acoustic analysis. Unpublished report by Specialised Zoological for Animal Plant Mineral Pty Ltd, 6 May 2019, Job number SZ474-489.

Summary

Bat identifications from acoustic recordings are provided from the Burrup Peninsula, near Dampier in the Pilbara region of Western Australia. The identification of bat species from full spectrum WAV-format recordings of their echolocation calls was based on measurements of characteristic frequency, observation of pulse shape, and the pattern of harmonics. Eight species of bat were identified unambiguously as being present (**Tables 1–3**). Attribution of call types to species was straightforward for this dataset. The presence of the Ghost Bat *Macroderma gigas* (Megadermatidae) was detected based on one echolocation call sequence (at 19:29 on 2019-03-30; unit 536887) and one social call (at 05:20 on 2019-04-02; unit 498038). Representative echolocation calls for each identified species are illustrated (**Figure 1**), as recommended by the Australasian Bat Society (ABS 2006). Further details are available should verification be required.

Methods

Data were recorded in full spectrum WAV format with Titley Scientific AnaBat Swift and Pettersson Elektronik D500X bat detectors (sampling rate 500 kHz, set to turn on automatically at sunset and off at sunrise).

A multi-step acoustic analysis procedure developed to process large full spectrum echolocation recording datasets from insectivorous bats (Armstrong and Aplin 2014; Armstrong et al. 2016) was applied to the recordings made on the survey. Firstly, the WAV files were scanned for bat echolocation calls using several parameter sets in the software SCAN'R version 1.8.3 (Binary Acoustic Technology), which also provides measurements (in "SCAN'R output") from each putative bat pulse. The output was then used to determine if putative bat pulses measured in SCAN'R could be identified to species. This was done using a custom [R] language script that performed three tasks: 1. undertook a Discriminant Function Analysis on training data from representative calls from the Pilbara region; 2. from the measurements of each putative bat pulse from SCAN'R, calculated values for the first two Discriminant Functions that could separate the echolocation call types derived from the analysis of training data, and plotted these resulting coordinates over confidence regions for the defined call types; and 3. facilitated an inspection in a spectrogram of multiple examples of each call type for each recording night by opening the original WAV files containing pulses of interest in Adobe Audition CS6 version 5.0.2. The [R] language script also included a separate process that repeated the above steps using training data that included signals from Pilbara cave roosting bat species to assist with the detection of echolocation calls of the Ghost Bat *Macroderma gigas*. Species were identified based on information in McKenzie

and Bullen (2009) and the author's own reference calls; and nomenclature follows Jackson and Groves (2015).

Limitations

The identifications presented in this report have been made within the following context:

1. The identifications made herein were based on the ultrasonic acoustic data recorded and provided by a 'third party' (the client named on the front of this report).
2. The scope of this report extended to providing information on the identification of bat species in bulk ultrasonic recordings. Further comment on these species and the possible impacts of a planned project on bat species were not part of the scope.
3. In the case of the present report, the recording equipment was set up and supplied by Specialised Zoological. The equipment was operated by the third party during the survey.
4. Other than the general locality of the study area, Specialised Zoological has not been provided with detailed information of the survey area, has not made a site visit to observe the habitats available for bats, nor have we visited the specific project areas on a previous occasion.
5. Specialised Zoological has had no input into the overall design of this bat survey, including its timing, recording site placement, nor degree of recording site replication.
6. While Specialised Zoological has made identifications to the best of our ability given the available materials, and reserves the right to re-examine the data and revise any identification following a query, it is the client's and / or proponent's responsibility to provide supporting evidence for any identification, which might require follow-up trapping effort or non-invasive methods such as video recordings. Specialised Zoological bears no liability for any follow-up work that may be required to support an identification based initially on the analysis of acoustic recordings undertaken and reported on here.
7. There are a variety of factors that affect the 'detectability' of each bat species, given the frequency, power and shape characteristics of their calls. Further information on the analysis and the various factors that can impinge on the reliability of identifications can be provided upon request.
8. The analysis of ultrasonic recordings is one of several methods that can be used to survey for bats, and comprehensive surveys typically employ more than one method. If an identification in the present report is ambiguous or in question, a trapping programme would help to resolve the presence of the possibilities in the project area.

References

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Armstrong, K.N., Aplin, K.P. and Crotty, S. (2016). A pipeline and app for massive filtering, and assisted inspection of enormous acoustic datasets. Poster presentation at the 17th Australasian Bat Society Conference, 29 March-1 April 2016, Hobart, Tasmania, Australia. *The Australasian Bat Society Newsletter* 46: 51.

Jackson, S.M. and Groves, C.P. (2015). *Taxonomy of Australian mammals*. CSIRO Publishing, Victoria.

McKenzie, N.L. and Bullen, R.D. (2009). The echolocation calls, habitat relationships, foraging niches and communities of Pilbara microbats. *Records of the Western Australian Museum* Supplement 78: 123–155.

Table 1. Species identified in the present survey from all sites combined.

MEGADERMATIDAE	
Ghost Bat	*Macroderma gigas*
EMBALLONURIDAE	
Common Sheath-tailed Bat	*Taphozous georgianus*
VESPERTILIONIDAE	
Gould's Wattled Bat Little Broad-nosed Bat Finlayson's Cave Bat	*Chalinolobus gouldii* *Scotorepens greyii* *Vespadelus finlaysoni*
MOLOSSIDAE	
White-striped Free-tailed Bat Greater Northern Free-tailed Bat Northern Coastal Free-tailed Bat	*Austronomus* (=*Tadarida*) *australis* *Chaerephon jobensis* *Ozimops* (=*Mormopterus*) *cobourgianus*

Table 2. Species identifications, with the degree of confidence indicated by a code—survey in November 2018. Date and serial/unit number correlates with site; see **Table 1** for full species names.

	C. jobensis	*O. cobourgianus*	*S. greyii*	*T. georgianus*	*V. finlaysoni*
D500X 1009					
19/11/2018	—	—	—	◆	—
D500X 1011					
19/11/2018	—	—	—	◆	—
20/11/2018	—	◆	—	◆	—
21/11/2018	—	—	—	◆	—
22/11/2018	—	—	—	◆	—
AnaBat Swift 450057					
19/11/2018	—	◆	◆	◆	◆
20/11/2018	◆	◆	—	◆	—
21/11/2018	—	—	—	◆	—
22/11/2018	—	—	—	◆	—
AnaBat Swift 450083					
19/11/2018	—	◆	◆	◆	◆
20/11/2018	—	◆	◆	◆	—
21/11/2018	—	◆	◆	◆	—
22/11/2018	—	—	◆	◆	—

Definition of confidence level codes:

— Not detected.

◆ Unambiguous identification of the species at the site based on measured call characteristics and comparison with available reference material. Greater confidence in this ID would come only after capture and supported by morphological measurements or a DNA sequence.

NC Needs Confirmation. Either call quality was poor, or the species cannot be distinguished reliably from another that makes similar calls. Alternative identifications are indicated in the *Comments on identifications* section of this report. If this is a species of conservation significance, further survey work might be required to confirm the record.

Table 3. Species identifications, with the degree of confidence indicated by a code—survey in April 2019. Date and serial/unit number correlates with site; see Table 1 for full species names and Table 2 for an explanation of confidence level codes.

	A. australis	*C. gouldii*	*C. jobensis*	*M. gigas*	*O. cobourgianus*	*S. greyii*	*T. georgianus*	*V. finlaysoni*
AnaBat Swift 497962								
30/03/2019	—	—	—	—	◆	◆	◆	◆
31/03/2019	—	◆	—	—	◆	◆	◆	◆
1/04/2019	—	—	◆	—	◆	◆	◆	◆
2/04/2019	◆	—	—	—	◆	◆	◆	◆
3/04/2019	—	—	—	—	—	◆	◆	◆
4/04/2019	—	—	—	—	◆	◆	◆	◆
5/04/2019	—	—	◆	—	◆	◆	◆	◆
6/04/2019	—	—	—	—	◆	◆	◆	◆
AnaBat Swift 498038								
30/03/2019	—	—	—	—	◆	◆	◆	◆
31/03/2019	—	—	—	—	—	◆	◆	◆
1/04/2019	—	—	—	◆	◆	◆	◆	◆
2/04/2019	—	—	—	—	—	◆	◆	◆
3/04/2019	—	—	—	—	◆	◆	◆	◆
4/04/2019	—	—	—	—	—	◆	◆	◆
5/04/2019	—	—	—	—	◆	◆	◆	◆
6/04/2019	—	—	—	—	◆	◆	◆	◆
AnaBat Swift 536846								
30/03/2019	—	—	—	—	◆	◆	◆	◆
31/03/2019	◆	—	—	—	—	◆	—	◆
1/04/2019	—	—	—	—	—	◆	◆	◆
2/04/2019	—	—	—	—	—	◆	◆	◆
3/04/2019	—	—	—	—	◆	◆	◆	◆
4/04/2019	—	—	—	—	—	◆	◆	◆
5/04/2019	—	—	—	—	◆	◆	◆	◆
6/04/2019	—	—	—	—	◆	◆	◆	◆
AnaBat Swift 536887								
30/03/2019	—	—	—	◆	◆	◆	◆	◆
31/03/2019	—	—	—	—	—	◆	◆	◆
1/04/2019	—	—	—	—	◆	◆	◆	◆
2/04/2019	—	—	—	—	◆	◆	◆	◆
3/04/2019	—	—	—	—	◆	◆	◆	◆
4/04/2019	—	—	—	—	—	◆	◆	◆
5/04/2019	—	—	—	—	◆	◆	◆	◆
6/04/2019	—	—	—	—	—	◆	◆	◆

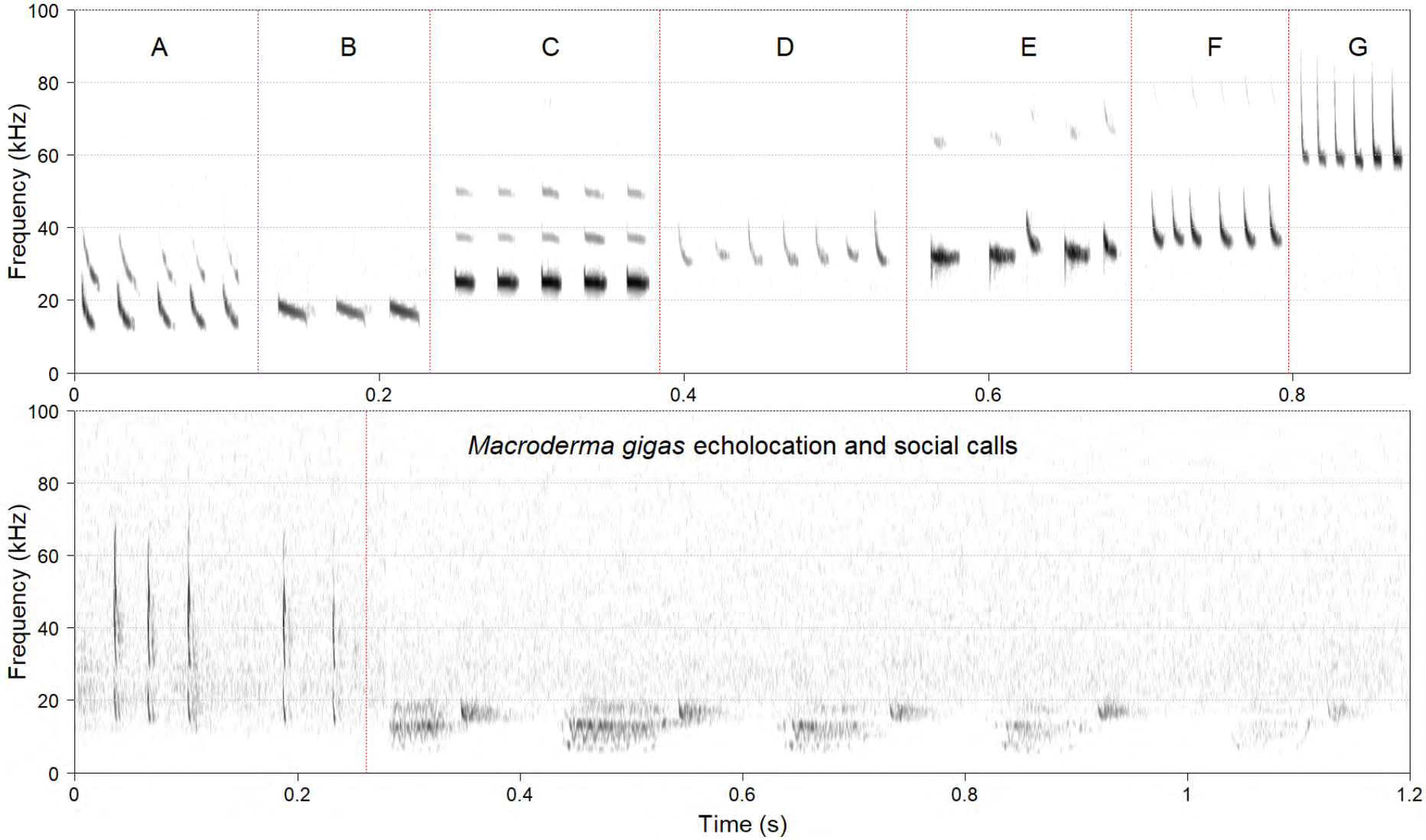

Figure 1. Representative call sequence portions of the species identified (**Top**: **A**: *Austronomus australis*; **B**: *Chaerephon jobensis*; **C**: *Taphozous georgianus*; **D**: *Chalinolobus gouldii*; **E**: *Ozimops cobourgianus* **F**: *Scotorepens greyii*; **G**: *Vespadelus finlaysoni*; time between pulses has been compressed).

APPENDIX K: BIRD CENSUS (APM, 2018-2019) RESULTS

Species	Pre Dry Season				Post Dry Season					Grand Total
	19/11/2018	20/11/2018	21/11/2018	22/11/2018	1/04/2019	2/04/2019	3/04/2019	4/04/2019	5/04/2019	
Australian Pipit				1	1	2	3	5	8	20
Black Kite							1			1
Black-eared Cuckoo							2	2	3	7
Black-faced Cuckoo-shrike	11		9	7	2	1	2	5	5	42
Black-faced Woodswallow	27	40	25	26	5	24	4	27	25	203
Black-shouldered Kite							1	1	4	6
Black-winged Stilt					1	3	9			13
Brahaminy Kite	3		1		1					5
Brown Falcon		3								3
Brown Goshawk							1			1
Brown Honeyeater			3		3		1	8	5	20
Brown Quail		2					2			4
Budgerigar					66					66
Caspian Tern									1	1
Common Greenshank					25	5	7			37
Crested Pigeon	12	3	17	4		2		4	8	50
Crimson Chat	1		2							3
Diamond Dove								2		2
Eastern Osprey	2									2
Fairy Martin			2		1			2		5
Galah		3	17	7		3		6		36
Grey Teal						1		2		3
Grey-tailed Tattler					36	15	6			57
Horsefield's Bushlark		2		1		1				4
Lesser Crested Tern	1									1
Little Corella	6	87	220	163						476
Little Egret	1			1	6	6	1	4	1	20
Magpie-lark							3		1	4
Nankeen Kestrel	2	5	2	2	5	2	2	3	5	28
Pacific Golden Plover					1					1
Painted Finch	46	22	36	14			6		6	130
Pallid Cuckoo					1			1	5	7
Peaceful Dove		3			3					6
Pied Butcherbird	1		5	2	8	11	12	6	15	60
Pied Cormorant							10			10
Rainbow Bee-eater		8								8
Red-backed Kingfisher		2	2	1	3			1	2	11
Red-browed Pardalote		2								2
Red-capped Plover		14		4	30	19	9	16	15	107
Red-necked Stint		1								1

Rufous Songlark		11	13	4	2	1	3	15	14	63
Silver Gull		2				1				3
Singing Honeyeater	43	57	40	30	27	17	13	29	28	284
Spinifex Pigeon	12	24	12	11	6	6		1	22	94
Spotted Harrier	1		1							2
Star Finch	8									8
Striated Pardalote					1	2	1	1		5
Torresian Crow	11	12	6	4		1	11	1		46
Tree Martin					8					8
Wedge-tailed Eagle				1						1
Weebill		6								6
Welcome Swallow					3		2		3	8
Whimbrel					2	1			2	5
Whiskered Tern					10	5	5	1		21
Whistling Kite	5	8	1	2		1	2	1	1	21
White-bellied Sea-eagle									1	1
White-faced Heron								1		1
White-plumed Honeyeater		15	27	9		19	10	12	9	101
White-winged Fairywren					4					4
White-winged Triller	4	10	7	1	5	3	3	9		42
Willie Wagtail	5	2	1	7	3	4	5	5	7	39
Yellow Throated Miner	26	35	20	8	26	10	10	20	35	190
Zebra Finch	15	164	71	58	82	14	13	21	29	467
Grand Total	**243**	**543**	**540**	**368**	**377**	**180**	**160**	**212**	**260**	**2883**

APPENDIX L: Species Accumulation Curve Memorandum

TO: CARDNO

Att:

Manager Environmental Approvals

Project: Perdaman Project, Burrup Peninsula, Western Australia.

Email: **Ph:** 08

DATE:

12 March 2020

FROM:

Biological Sciences Manager

Animal Plant Mineral Pty Ltd

Phone (08):

Email:

RE: Species Accumulation Curve Memo for the Perdaman Project, Burrup Peninsula

Dear Daniel

A species accumulation curve (SAC) can be used to assess the effectiveness of sampling methods. This method of estimating species richness illustrates the accumulation of new species and plateaus when no new species are added to the assemblage. In other words, as the curve reaches an asymptote, it suggests that the majority of trappable species in the local assemblage have been sampled. More sampling effort is required to capture rare/cryptic species, and an accumulation curve can be used to interpret whether this is required (EPA, 2016).

1 METHODS

Data

The Perdaman Urea Plant Project (the **Project**) is located within the Burrup Strategic Industrial Area, on the Burrup Peninsula, approximately 13 km northwest of Karratha and 1,300 km north of Perth. To inform an Environmental Review, Animal Plant Mineral Pty Ltd (**APM**) was engaged to undertake: i) a Level 1 Biological Survey in the pre-wet season (19 – 22 November 2018); and ii) a Level 2 Biological Survey in the post-wet season (27 March – 5 April 2019).

Overall sampling effort was assessed using SACs. These analyses assume a standard sampling effort; therefore, avifauna consensus data from both surveys, and herpetofauna (reptiles and amphibians) and mammal fauna trapping data from the post-wet season survey were analysed. Given the restriction of the data, a subset of the fauna sampled were not represented in the estimates/curves (e.g. larger species captured on camera traps, or opportunistic recordings). Furthermore, as only four species of mammals were trapped, an SAC could not be estimated for the mammal fauna.

Analysis

A range of mean species richness estimates were generated using the software *EstimateS* (version 9; Colwell, 2013a). These include the Abundance Coverage-based Estimator of species richness (**ACE**); Incidence Coverage-based Estimator of species richness (**ICE**); classic forms of '**Chao1**' and '**Chao2**' estimators of species richness; first- (**Jack 1**) and second- (**Jack 2**) order jackknife estimators of species richness (incidence-based); **Bootstrap** estimator of species richness; and Michaelis-Menten estimator of species richness computed once for analytica rarefaction curve (**MMMean**). The methods/equations for estimating these values are reported in the *EstimateS* User Guide (Colwell, 2013b). Estimates were generated as sample-based incidence data, randomised across 100 permutations without replacement. The values represent theoretical maxima for the number of species present

within the sampled area. The ACE, ICE, Chao1, Chao2, and Jack1 methods estimate total species richness, including species not present in any sample (Colwell, 2013b). The Chao1 and 2 estimates are considered lower bounds of species richness and are more accurate with increased reference sample size (as with all estimators of species richness). While the MMMean method has previously been the most common method to estimate asymptotic species richness (and is, therefore, included in Table 1), it is considered by the developers of *EstimateS* as outdated as the data points are non-independent and serially correlated (Colwell, 2013b).

The observed species richness curve (**Sobs,** also known as Mao Tau) was calculated using the number of species in *t* pooled samples, given the reference sample. This curve along with a selection of the species richness methods (ACE, Chao1, and Jack1) were then plotted to create the SACs for the two fauna groups.

2 RESULTS AND DISCUSSION

The results of the mean species richness estimates are reported in Table 1, while the SACs for the avifauna and herpetofauna are illustrated in Figure 1 and Figure 2, respectively.

Table 1. Mean species richness estimates for the avifauna and herpetofauna survey data.

Species Richness	Avifauna	Herpetofauna
ACE	70.83	37.76
ICE	78.97	35.75
Chao-1	69.19	42.57
Chao-2	84.92	36.93
Jack-1	78.88	34.75
Jack-2	88.9	39.67
Bootstrap	69.61	29.92
MMMean	71.35	34.53
Observed	**63**	**26**

For the avifauna, the theoretical maximum number of species ranged from 69 to 89 species, compared to the 63 species observed (Table 1). This suggests that between 71 % and 91 % of avifauna were sampled, with an average of 14 species still unsampled (Figure 1).

For the herpetofauna, the theoretical maximum number of species ranged from 30 to 43 species, compared to the 26 species observed (Table 1). This suggests that between 61 % and 87 % of herpetofauna were sampled (Figure 2).

Additional species of both avi- and herpeto-fauna were recorded opportunistically or through other (non-systematic) capture methods, e.g. camera traps or spotlighting. These will likely help to provide a fuller representation of the true species richness at the Project area.

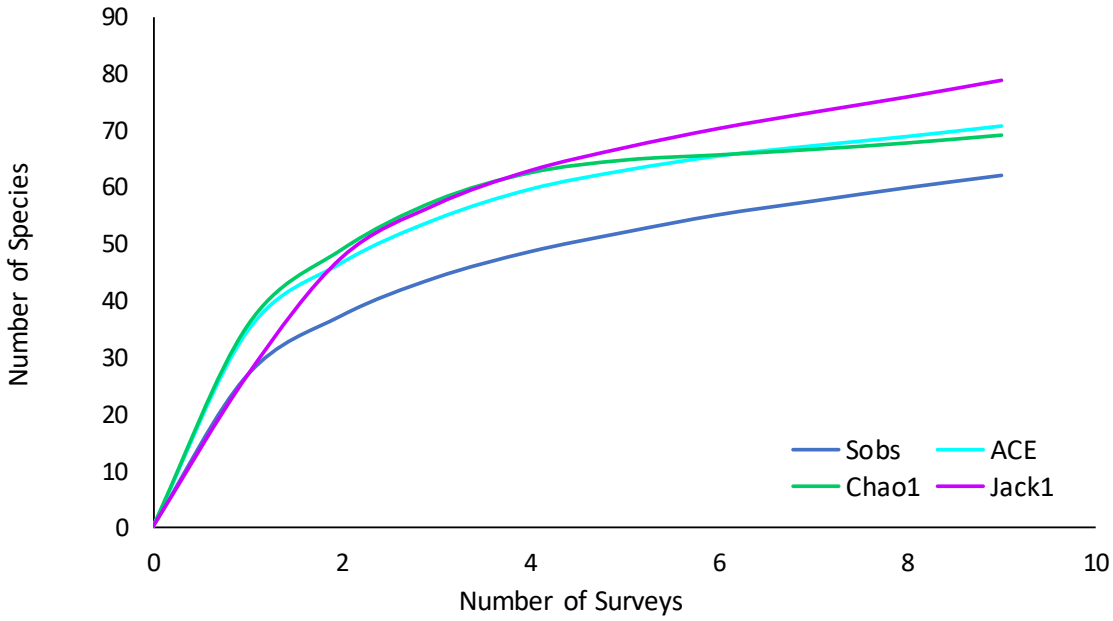

Figure 1. Species accumulation curve for avifauna.

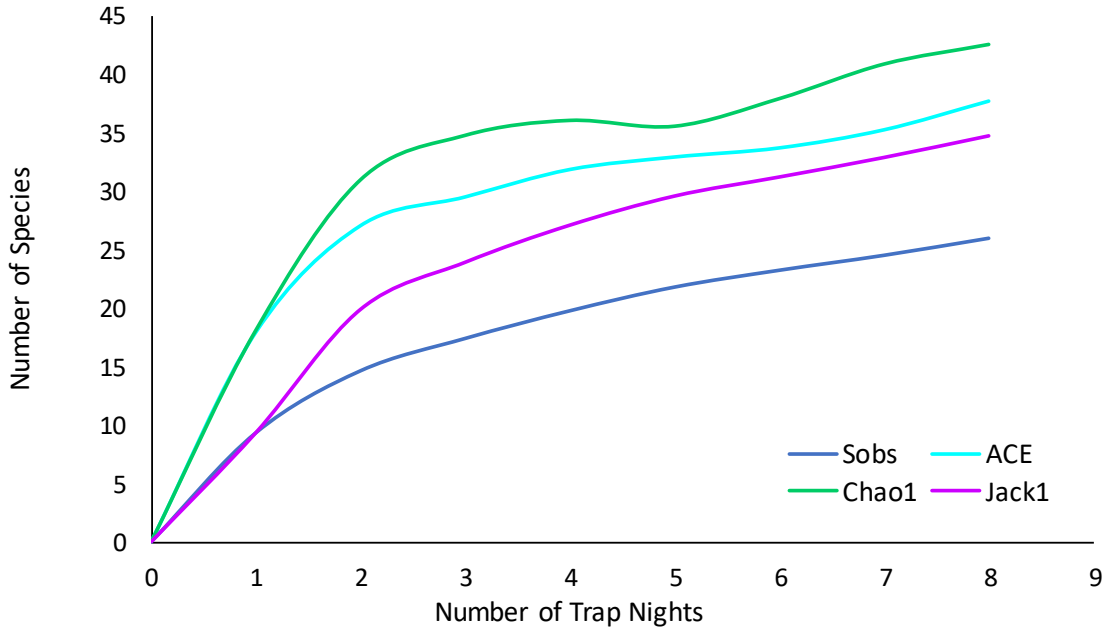

Figure 2. Species accumulation curve for herpetofauna.

3 REFERENCES

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Attachment C Trace 2023 Supplementary Flora and Vegetation Survey

Final Report

Supplementary Baseline Flora and Vegetation Survey

Trace Archaeology & Ecology

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Osborne Park WA, 6017

Project Details

This final report documents the Supplementary Baseline Flora and Vegetation Survey within Perdaman Urea Project.

Assessment area/s:	Perdaman Urea Project
Trace contract no.:	2023-022
Prepared for:	Saipem Clough Joint Venture
Prepared by:	
Reviewed by:	

Contact Details

Please contact our heritage or environmental teams for further assistance or queries via the details below.

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Document Control

Trace Ecology Pty Ltd has prepared this report for Saipem Clough Joint Venture.

Document control.				
Version	**Effective Date**	**Prepared by**	**Reviewed by**	**Date of Approval**
1.0	18/07/2023			18/07/2023

Document distribution.			
Version	**Date Issued**	**Media**	**Issued to**
1.0	18/07/2023	PDF	Saipem Clough Joint Venture

Acknowledgement of Country

We acknowledge the Traditional Owners of the country reported on in this Report, and recognise their continuing connection to the land, waters, and culture. We pay our respects to the Elders, past and present.

Copyright

Warning

Please be advised that the following content may contain images and names of people who have passed away.

Disclaimer

The research approach and methods utilised for this environmental study are outlined by the National Environmental Protection Measures and are inclusive of Environmental Protection Authorities standards. An assessment was conducted within the capabilities of Trace Ecology Pty Ltd. It is acknowledged that some aspects of the report are outside of Trace Ecology Pty Ltd facilities. While every effort has been made to ensure that all relevant data has been collated, the author(s) can take no responsibility for omissions and inconsistencies resulting from information becoming available after this report's completion.

Abbreviations

BC Act	Biodiversity Conservation Act
BOM	Bureau of Meteorology
DBCA	Department of Biodiversity, Conservation and Attractions
DPAW	Department of Parks and Wildlife
EPA	Environmental Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act
IBRA	Interim Biogeographic Regionalisation for Australia
PEC	Priority Ecological Communities
Perdaman	Perdaman Chemicals and Fertilisers Pty Ltd
SCJV	Saipem Clough Joint Venture
SoW	Scope of Work
TEC	Threatened Ecological Communities
Trace	Trace Ecology Pty Ltd

Certification

This final report accounts for the Supplementary Baseline Flora and Vegetation Survey conducted on behalf of Saipem Clough Joint Venture. The desktop survey was completed by environmental consultants from Trace Ecology Pty Ltd.

The results, conclusions, and recommendations in this report are based on the information available at the time of its preparation. Whilst every effort has been made to ensure that all relevant data has been collated, the author(s) can take no responsibility for omissions and/or inconsistencies resulting from information becoming available after this report's completion.

TO BE SIGNED POST CLIENT REVIEW

Principal Consultant and Environmental Manager
Trace Ecology Pty Ltd (ACN 650 018 143)
Date: **TO BE COMPLETED POST CLIENT REVIEW**

Executive Summary

Perdaman Chemicals and Fertilisers Pty Ltd (Perdaman) plans to construct and operate a state-of-the-art urea plant with a production capacity of approximately 2 million tonnes per annum on the Burrup Peninsula in the northwest of Australia.

Saipem Clough Joint Venture (SCJV) engaged Trace Ecology Pty Ltd (Trace) in March 2023 to conduct pre-clearance surveys to establish baseline data consistent with the requirements of their confirmed management plans.

This report concerns the weed assessment of the clearing development area (73.34 ha) and the retained monitoring sites previously assessed by Animal Plant Minerals (APM) in 2019.

SCJV are informed that:

- The retained monitoring sites from the previous survey completed by APM (2019) are complete.
- The Weed Assessment within the project development clearing area is complete.
- The Vegetation Condition Assessment within the project development clearing area is complete.
- Two (2) conservation-significant flora species were identified during the survey:
    - *Rhynchosia bungarensis* (Priority 4)
    - *Terminalia supranitifolia* (Priority 3)
- The conservation-significant Priority Ecological Community (PEC), Burrup Peninsula rock pile community (Priority 1), was identified during the survey.
- Seven (7) weed species were identified within the Urea project development clearing area:
    - **Aerva javanica;*
    - **Amaranthus viridis;*
    - **Cenchrus ciliaris;*

- **Cenchrus setiger;*
- **Malvastrum americanum;*
- **Portulaca oleracea; and*
- **Stylosanthes hamata.*

- The vegetation associations on site match those recorded in the APM (2019) survey.
- The appropriate stockpile areas for soil and vegetation management are located within the vegetation condition areas regarded as Poor or Completely Degraded.

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1.0 Introduction

Perdaman Chemicals and Fertilisers Pty Ltd (Perdaman) plans to construct and operate a state-of-the-art urea plant with a production capacity of approximately 2 million tonnes per annum (Mtpa) on the Burrup Peninsula in the Northwest of Australia.

Saipem Clough Joint Venture (SCJV) engaged Trace Ecology Pty Ltd (Trace) in March 2023 to conduct pre-clearance surveys to establish baseline data consistent with the requirements of their confirmed management plans. The results returned from the fieldwork from the Supplementary Baseline Flora and Vegetation Survey are compared against the findings of the APM (2019) survey.

1.1 Scope of Works

The Scope of Works (SoW) issued by Clough on the 15th of March 2023 required a Supplementary Baseline Flora and Vegetation Survey. The aims of the Supplementary Baseline Flora and Vegetation Survey are to confirm the findings of the APM (2019) survey, including:

- Determine vegetation associations on the site;
- Identify species present on site including Declared Rare and Priority Flora (under the provisions of the BC Act and EPBC Act);
- Identify species present on site that are regarded as being "significant" at both local and regional scales;
- Identify vegetation types present on site that are regarded as being "significant" at both local and regional scales;
- Note weed species, in particular any Declared Weeds, and provide mapping of any weed risk areas identified;
- Map the vegetation and sensitive species;
- Identify and describe areas within the Study Area that are designated as conservation areas based on flora and vegetation significance;
- Identify the location of appropriate stockpile areas for soil and vegetation

management; and

- Identify the total area of disturbance required for the Project work.

1.2 Legislative Context

Several State and Federal environment-related laws affect how environmental values are managed in Western Australia. Relevant legislation includes:

- Commonwealth Environment Protection and Biodiversity Conservation Act 1999;
- Biodiversity Conservation Act 2016; and
- Environmental Protection Act 1986.

1.2.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) protects the environment, particularly matters of National Environmental Significance. It streamlines the national environmental assessment and approval process, protects Australian biodiversity, and integrates the management of important natural and cultural places.

The EPBC Act is the Australian Government's key piece of environmental legislation and commenced on 16 July 2000.

The EPBC Act enables the Australian Government to join with the States and Territories in providing a truly national scheme of environment and heritage protection and biodiversity conservation. The EPBC Act focuses on the Australian Government's interests in protecting matters of national environmental significance, with the States and Territories having responsibility for matters of State and local significance.

1.2.2 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) aims to conserve and protect biodiversity and biodiversity components in the State, as well as promote the

ecologically sustainable use of biodiversity components in the State. The Act follows the principles of ecologically sustainable development, detailing that decision-making processes should effectively integrate long-term and short-term economic, environmental, social, and equity considerations. If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The present generation should ensure that the health, diversity, and productivity of the environment are maintained or enhanced for the benefit of future generations. At all times, the conservation of biodiversity and ecological integrity should be a fundamental consideration in decision-making. Improved valuation, pricing and incentive mechanisms should be promoted.

1.2.3 Environmental Protection Act 1986

The Environmental Protection Act 1986 (EP Act) provides for an Environmental Protection Authority to regulate the prevention, control and abatement of pollution and environmental harm, the conservation, preservation, protection, enhancement, and management of the environment, and for matters incidental to or connected with the foregoing.

1.3 Authorship

This report is based on the data collected by the field team; Zahra Stoney and Erik Tritt. This report was compiled and written by Zahra Stoney and Erik Tritt, then Ryan Oostryck reviewed this report to ensure quality assurance.

2.0 Methods

The objectives and methodology were determined following the current guidelines published by the WA Environmental Protection Act and Commonwealth biodiversity legislation:

- Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessments (EPA, 2016); and
- Environmental Factor Guideline: Flora and Vegetation (EPA, 2016).

The report completed by APM in 2019, 'Pre- and Post-wet season Biological Survey, Burrup Peninsula' aided in defining the objective and methodology for this survey.

2.1 Assessment Strategy

The proposed works outlined by SCJV, including the scale and nature of the proposed works, determine the level of assessment. The location and sensitivity of the surrounding environment influences the assessment required to be carried out. The aims of the Baseline Flora and Vegetation Survey are to confirm the findings of the APM (2019) survey, including:

- Determine vegetation associations on the site;
- Identify species present on site including Declared Rare and Priority Flora (under the provisions of the BC Act and EPBC Act);
- Identify species present on site that are regarded as being "significant" at both local and regional scales;
- Identify vegetation types present on site that are regarded as being "significant" at both local and regional scales;
- Note weed species, in particular any Declared Weeds, and provide mapping of any weed risk areas identified;
- Map the vegetation and sensitive species;
- Identify and describe areas within the Study Area that are designated as conservation areas based on flora and vegetation significance;

- Identify location of appropriate stockpile areas for soil and vegetation management; and
- Identify total area of disturbance required for the Project work.

2.2 Field survey

The Supplementary Baseline Flora and Vegetation survey methodology was developed around assessing the retained monitoring sites, the weeds, and the vegetation condition.

This survey revisited and assessed the 34 retained monitoring sites residing outside of the project clearing boundaries. The monitoring sites were sampled using 50 metre by 50 metre quadrats. Where there was an irregular distribution of vegetation types, the dimensions of the quadrat were altered, ensuring the search of 2,500m^2 area remained where possible. A few of the vegetation types were smaller than a 2,500m^2 search areas; the entirety of these vegetation types was sampled.

At each of the retained monitoring sites, information was recorded regarding:

- Site code;
- Location, with GPS coordinates (estimate of their accuracy) and datum;
- Size and shape of quadrat;
- Photograph/s from northwest corner;
- Landform and soil description;
- Dominant growth form, height, cover, and species for the three traditional strata (upper, mid, and ground) compatible with NVIS level V (Executive Steering Committee for Australian Vegetation Information (ESCAVI) 2003);
- Any other location information that might be useful in vegetation classification including slope, aspect, litter, fire history, vegetation/landform/soil correlations;
- Assessment of vegetation condition and description of disturbances; and
- A comprehensive species list.

The weed species across the project clearing area were assessed by surveying weeds

present 10 metres either side of the transect lines, where the transects line were approximately 100 metres apart. Where weed species were present, the density and size of the populations were recorded spatially. Where it was not possible to record individual weed points due to the population extent, the weed populations were recorded using polygons.

2.2.1 Survey Limitations

There are a number of limitations that may arise during surveying these are outlined by the EPA (2016) (see Table 1).

Table 1 Survey limitations

Limitation	Comment
Level of survey	**Not a constraint** The level of survey was adequate and in line with the outlined scope of works.
Availability of contextual information at a regional and local scale	**Not a constraint** There is appropriate information for the region and species present.
Competency / experience of the consultant(s) carrying out the survey	**Not a constraint** The botanists have adequate experience in carrying out a variety of flora surveys.
Proportion of flora recorded and/or collected, any identification issues	**Is a constraint** Due to the lack of rainfall events prior to the conducted survey, there is potential inadequate representation of species of annuals.
Was the appropriate area fully surveyed (effort and extent)	**Not a constraint** All aspects in the scope were achieved in the given time constraint.
Access restrictions within the	**Not a constraint**

Limitation	Comment
survey area	All areas of the survey were able to be accessed appropriately.
Survey timing, rainfall, season of survey	**Not a constraint** Survey was conducted in appropriate timing of season.
Disturbance that may have affected the results of survey such as fire, flood or clearing	**Not a constraint** There was no evidence of disturbances that would have impacted the survey.

3.0 Regional Context

The Perdaman Urea Project area is located in Hearson Cove Valley, which crosses the Burrup Peninsula east to west. It features drainage areas in the upper to mid slopes, hummock grasslands, saline mud flats with samphire and tussock grasslands. This section overviews the regional contexts. It is crucial to place the results, findings, and recommendations within the broader existing environmental landscape.

3.1 Cultural Background

Murujuga, meaning “hip bone sticking out” in the Ngarluma-Yaburara language, refers to an area comprising a narrow peninsula of land (the Burrup Peninsula) as well as 42 islands (the Dampier Archipelago). There are five (5) traditional Aboriginal language groups spread across Murujuga Country; the Ngarluma, Yaburara, Yindibarndi, Mardudhunera, and Wong-Goo-Tt-Oo Peoples.

Murujuga has the world's largest collection of ancient rock art, with images dating back more than 40,000 years. For thousands of years, many Aboriginal groups travelled to Murujuga for trade, marriage, kinship, ceremonies, hunting, fishing, and gathering of plants and other natural resources. It continues to be a significant site of cultural connection today.

Aboriginal people have a deep and spiritual connection to their ngurra (land). For Aboriginal people, the land and the people are connected, both physically and spiritually. One aspect of this connection are songlines. Songlines, or dreaming tracks, refer to metaphysical connections drawn across the country, that connect people, places and events with the events of “The “Dreaming”. They communicate and retain important knowledge for survival, and for culture. Many songlines span the continent, winding in rambling trails from the west to the east coasts. Murujuga is a starting place for many such songlines.

3.2 Climate Data

Karratha is part of the Pilbara region, the is characterised by hot summers, mild winters, and typically low and variable rainfall influenced by thunderstorms and tropical cyclone activity ("Climate in the Pilbara region of Western Australia," 2021). The climate is monsoonal and is controlled by high pressure cells passing from west to east. Tropical cyclones occur annually in the Pilbara region, varying in intensity, length, and influence, and can cause significant impacts on both natural and altered systems.

Climate data was obtained from the Karratha Aero (site number 004083). The maximum mean temperature of the area is 30 degrees or higher, peaking in September to May (BOM, 2023). The mean minimum temperature of the area is 13.9 degrees typically experienced in July (BOM, 2023). The rainfall in this region is bimodal, peaking in February, and May and June (Figure 1).

During the two (2) months prior to the survey taking place, Karratha experienced no rainfall events apart from between the 18th to the 21st of June. During these dates a collective 74.6 mm of rainfall fell. April only had one (1) rainfall event and recorded 16mm less than average, while May had zero (0) days of rainfall and was 31.6 mm drier than average. Due to the lack of rainfall events prior to the survey, there is potential for some inadequate representation of species of annuals.

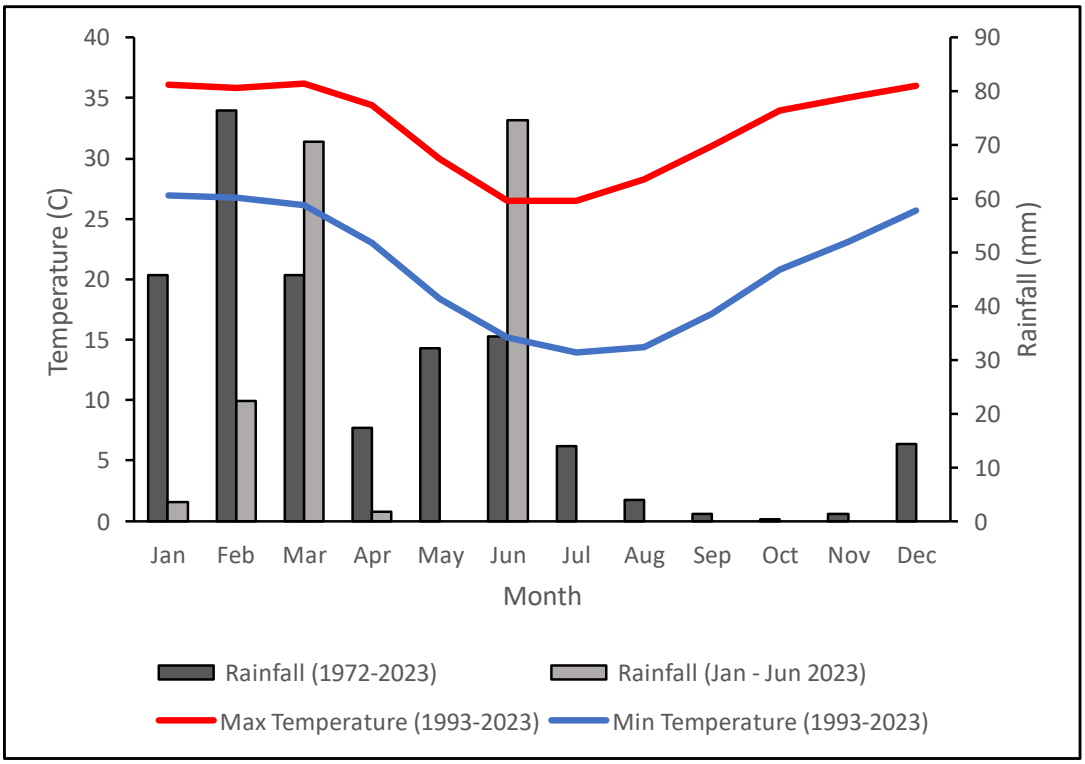

Figure 1 Karratha Aero weather station (site number 004083) temperature (1993-2023) and rainfall data (1972-2023) (BOM, 2023).

3.3 Land Systems

Land systems are described through the characteristics of geology, landforms, vegetation, and soil. The project area intersects with two (2) land systems (see Table 2).

Table 2 Land systems that intersect the project area.

Land System	Description
Granitic System	Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.
Littoral System	Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

3.4 Vegetation association

The project area lies in Eremaean Botanical Province. The vegetation associations across Western Australia are classified by Beard (2013), who mapped the original vegetation of Western Australia at a 1:250,000 scale. The project area intersects with one (1) vegetation association, classified as Grass-steppe with Hummock grassland *Triodia spp.* (117).

3.5 Bioregions

The Interim Biogeographic Regionalisation for Australia (IBRA) classifies the bioregions based on common climate, geology, landform, native vegetation, and species information. There are 89 bioregions across Australia which are refined into a further 419 subregions.

3.5.1 Roebourne IBRA (PIL04)

The geology of the Roebourne subregions (PIL04) is characterised as quaternary alluvial and older colluvial coastal and subcoastal plains with a vegetation of grass savannahs of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands in the region are dominated by Triodia hummock grasslands. Ephemeral drainage lines support woodlands of *Eucalyptus victrix* or *Corymbia hamersleyana*. Samphire, Sporobolus and mangal occur on marine alluvial flats and river deltas. Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite. Islands are either quaternary sand accumulations, or composed of basalt or limestone, or combinations of any of these three (Kendrick & Stanley 2001).

3.6 APM Vegetation Community Description

APM (2019) in their pre- and post-wet season survey found and mapped 35 vegetation associations across the study site (see Table 3). The largest vegetation communities found in the 2019 survey were the TeTh and AbTe*Cc communities. The TeTh

community is characterised by *Triodia epactia* (BF), *Themeda sp*. Burrup (B84) hummock / tussock grassland. The AbTe*Cc community is characterised by *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris.*

Table 3 Vegetation Associations Mapped by APM (2019).

Abbreviation	APM Vegetation Community Description
(Te)Sv	Grassland of *Sporobolus virginicus, Eriachne mucronata* and *Paspalidium tabulatum* (30-70%) with scattered *Triodia epactia*. Evidence that **Cenchrus ciliaris* and **Aerva javanica* are common in wet season.
*Cc*AjTt	**Cenchrus ciliaris, *Aerva javanica* with *Trianthema turgidifolia*.
*CcTs	**Cenchrus ciliaris*, (*Triodia epactia* (BF)), (*Triodia angusta* (BF)) grassland / hummock grassland with *Tephrosia supina*, *Rhynchosia. minim*a herb land.
AbCgTe	*Acacia bivenosa, Cassia glutinosa* open shrubland to shrubland over *Triodia epactia (BF), *Cenchrus ciliaris* grassland.
AbHlCwTe	High shrubland of *Acacia bivenosa* with scattered *Hakea lorea, Dolichandrone occidentalis, Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) with occasional *Triodia angusta.*
AbHlTe	Tall shrubland of *Acacia bivenosa* over open shrubland of *Hakea lorea, Acacia colei* over hummock grassland of *Triodia epactia* (Burrup form) over herbland.
AbImTe	*Acacia bivenosa* high open shrubland to high shrubland over *Indigofera monophylla* (BF) scattered low shrubs to low open shrubland over *Triodia epactia* (BF) hummock grassland to closed hummock grassland.
AbTa	*Acacia bivenosa* high open shrubs over *Triodia angusta* (BF) hummock grassland.
AbTe*Cc	Previously disturbed and rehabilitated. *Acacia bivenosa* tall shrubland (30-70%, 2.5m) over Hummock Grassland of *Triodia epactia* (30-70%) with **Cenchrus ciliaris.*

Abbreviation	APM Vegetation Community Description
AbTtPt	High scattered (<2%) to very open shrubland (2-5%; 2m) *A. bivenosa* over low shrubland (10-30%; <1m) *Trianthema turgidifolia* over tussock grassland (10-30%) of *Paspalidium tabulatum*.
AiGpTe	Tall shrubland of *Acacia inaequilatera* and *Grevillea pyramidalis* over hummock grassland of *Triodia epactia* (Burrup form) over herbland of *Gomphrena cunninghamii, Abutilon lepidum, Trichodesma zeylanicum, Trachymene oleracea.*
BaAcIc	Open low woodland of *Brachychiton acuminatus* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens, Ipomoea costata* over herbs and very open grassland of *Triodia epactia* (Burrup form) with *Cymbopogon ambiguus* and *Paspalidium clementii.*
ChAbSg	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa* high open shrubland over *Dichrostachys spicata* scattered shrubs over *Stemodia grossa* low shrubland to low open heath over *Triodia epactia* (Burrup form) hummock grassland.
ChImTe	*Corymbia hamersleyana* scattered low trees to low open woodland over (*Acacia bivenosa*, *Acacia coriacea subsp. coriacea*) scattered tall shrubs over (*Dichrostachys spicata*) scattered shrubs over *Indigofera monophylla* (BF).
ChTh	*Corymbia hamersleyana* scattered low trees to low woodland over *Acacia bivenosa*, *Acacia colei*, scattered tall shrubs to low open shrubland over *Indigofera monophylla* over *Triodia epactia*, *Themeda sp*. Burrup hummock / tussock grassland.
Ev*CcTe	*Eucalyptus victrix* low open woodland to low woodland over (*Pittosporum phillyreoides var. phillyreoides*, *Rhagodia eremaea* high shrubs to shrubs) over **Cenchrus ciliaris*, *Triodia epactia* (BF) tussock/hummock grassland.
EvAa	*Eucalyptus victrix* scattered low trees to low open woodland over *Acacia bivenosa* scattered tall shrubs to high open shrubland over *Triodia angusta* (Burrup form) hummock grassland.

Abbreviation	APM Vegetation Community Description
EvAbTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Acacia bivenosa* scattered tall shrubs to high open shrubland over *Triodia angusta* (Burrup form) hummock grassland.
EvDsTa	*Eucalyptus victrix* scattered low trees to low open woodland over *Dichrostachys spicata*, (*Acacia coriacea subsp. coriacea*) tall, scattered shrubs to low open shrubland over *Triodia angusta* (BF) hummock grassland.
EvTc	*Eucalyptus victrix* and *Terminalia circumalata* over *Acacia coriacea* with *Cyperus vaginatus*, *Cenchrus ciliaris* and *Passiflora foetida*.
FbBaTsAc	Open low woodland of *Ficus brachypoda*, *Brachychiton acuminatus*, *Terminalia supranitifolia* over mixed shrubland of *Acacia coriacea*, *Scaevola spinescens*, *Rhagodia preissii subsp. obovata* over open *Cymbopogon ambiguus* with *Triodia epactia* (Burrup form).
FvRpAc	Shrubland of *Flueggea virosa subsp. melanthesoides*, *Rhagodia preissii subsp. obovata*, *Alectryon oleifolius subsp. oleifolius*, *Scaevola spinescens*, *Acacia coriacea* over very open *Triodia epactia* (Burrup form).
GpCwTe	*Grevillea pyramidalis subsp. pyramidalis* open heath over *Corchorus walcottii* scattered low shrubs to low open heath over *Triodia epactia* (BF) hummock grassland.
Lv	Dwarf Shrubland over Low Open Grassland On slightly elevated sandy silts or fringes of inlet.
TaTsRm	*Triodia angusta* (BF) *Triodia epactia* grassland with *Tephrosia supina* (MET 12,375) herbland and *Rhynchosia cf. minima* lianes.
TcEtSe	*Terminalia canescens* low woodland over *Eriachne tenuiculmis, Triodia epactia* (BF) grassland / hummock grassland with *Sesbania cannabina* herbland.
Te	*Triodia epactia* (BF) hummock grassland.

Abbreviation	APM Vegetation Community Description
TeAb	*Triodia epactia* (BF) hummock grassland with scattered *Acacia bivenosa* shrubs.
TeAtSd	(Previously disturbed) Scattered *Acacia trachycarpa* over *Triodia epactia* hummock grassland with *Streptaglossa decurrens* herbfield.
TeCa	*Triodia epactia* (BF), *Cymbopogon ambiguus* hummock / tussock grassland.
TeRm	*Triodia epactia* (BF) hummock grassland with *Rhynchosia* cf*. minima* lianes.
TeTh	*Triodia epactia* (BF), *Themeda sp. Burrup* (B84) hummock / tussock grassland.
Tht	Open (2%) to dwarf shrubland (10-20%; <0.5m) of *Tecticornia halocnemoides subsp. tenuis* with occasional (2%) *Tecticornia pruinosa, Tecticornia indica subsp. leiostachya, Trianthema turgidifolia.*
ThtTil	Dwarf open shrubland to heath (varies from 2-10% to 20-40%; <0.5m) of *Tecticornia halocnemoides subsp. tenuis* with *Tecticornia indica subsp. leiostachya.*
Tw	*Triodia wiseana* hummock grasslands.

4.0 Results and Discussion

This section details the results and findings of the Supplementary Baseline Flora and Vegetation Survey.

4.1 Monitoring Sites

A total of 34 retained monitoring sites were assessed across the survey area (see Map 1, Appendix 5 Location of Monitoring Sites Assessed. and Appendix 6 Monitoring Site Description). Across the monitoring sites, 111 species were recorded across 35 different families (see Appendix 7 Comprehensive species). Across the 34 monitoring sites there was a median of 16 species per site, with the lowest number of species in a site being one (1) and the highest species diversity in a monitoring site was 25.

The main variations between the APM (2019) and the Trace (2023) survey in the composition of the monitoring sites was the presence and absence of annual species. The presence or absence of annual plant species is dependent on changes in weather patterns. This dependence makes annual plants sensitive to climate change, as alterations in rainfall patterns and temperature can disrupt their growth cycles and their distribution. The composition of communities focusing on annual plant species will vary annually.

Site 57 showed a distinct difference in biotic and abiotic factors compared to data recorded in 2019. Site 57 has been completely cleared from recent works completed by outside companies. The APM (2019) report regarded Site 56 as 'completely degraded', stating "spontaneous growth of Kapok, Buffel grass and *T. turgidifolia* following disturbance for infrastructure."

APM (2019) also recorded fire evidence across two (2) of the retained monitoring sites; these sites show little to no evidence of fire.

The vegetation associations recorded in the APM (2019) survey match the composition and vegetation associations present.

4.2 Weed Assessment

Across the project clearing area (73.34 ha), a total of seven (7) environmental weeds species were present (see Map 3 and Table 4). The survey completed by APM (2019) across the project area in 2019 found seven (7) environmental weeds. These species were *Aerva javanica, Cenchrus ciliaris, Cenchrus echinatus, Cenchrus setiger, Passiflora foetida, Pennisetum setaceum* and *Stylosanthes hamata.*

Cenchrus echinatus, *Passiflora foetida* and *Pennisetum setaceum* were not found in the project clearing area on the survey conducted in 2023. These species were originally recorded outside of the project clearing area.

The additional weed species recorded in this survey compared to the APM (2019) report were *Malvastrum americanum, Portulaca oleracea* and *Amaranthus viridis.*

Ecological Impact and Invasiveness Ratings from the Department of Parks and Wildlife Pilbara Region Species Prioritisation Process (2014) are determined by a variety of factors. This aids in identifying species that may pose threats to native ecosystems allowing informed decision making regarding their management, control, or potential induction.

4.2.1 Ecological Impact

The ecological impact of a species is categorised from low-impact to high-impact. A species is considered low impact where is causes minimal disruption to ecological processes, or loss of biodiversity. A species is considered a high impact where it causes acute disruption of ecological processes, dominates and/or significantly alters vegetation structure, composition, and function of ecosystems.

4.2.2 Invasiveness Rating

The invasiveness rating of species is categorised on the rate of spread of a weed in native vegetation. This encompasses factors of establishment, reproduction, and long-distance dispersal (>100m).

Examples of establishment factors include:

- Ability to outcompete (light, moisture, nutrients, rapid root growth);
- Sexual or asexual establishment; and
- Need for disturbance to establish.

Examples of reproduction factors include:

- Time to seeding;
- Seed production; and
- Vegetative reproduction.

Examples of long-distance dispersal mechanisms include:

- Wind;
- Water;
- Flying/ground animals;
- Deliberate/accidental human spread;
- Vehicles; and
- Produce contamination.

Table 4 Weed species, ecological impact, invasiveness rating and vectors within the project clearing area.

Species	Common Name	WOAL	Ecological	Invasiveness	Likely vectors
**Cenchrus ciliaris*	Buffel Grass	Permitted - s11	High	Rapid	Wind, vehicles, and personnel.
**Cenchrus setiger*	Birdwood Grass	Permitted - s11	High	Rapid	Wind, vehicles, and personnel.
**Malvastrum americanum*	Spiked Malvastrum	Permitted - s11	High	Rapid	One location, within previously cleared area (likely spread by vehicles to disturbed area).
**Aerva javanica*	Kapok Bush	Permitted - s11	High	Rapid	Wind, vehicles, and personnel.
**Portulaca oleracea*	Purslane	Permitted - s11	Unknown	Unknown	Fauna. Locations were generally concentrated around kangaroo beds.
**Stylosanthes hamata*	Verano Stylo	Permitted - s11	High	Moderate	Wind, vehicles, and personnel.
**Amaranthus viridis*	Green Amaranth	Permitted - s11	Low	Slow	Wind or water.

4.3 Conservation-Significant Flora and Ecological Communities

Conservation-significant flora and ecological communities were identified during the survey. The conservation-significant flora within 50 metres of the project clearing area (73.34 ha) was recorded spatially. The conservation-significant flora and ecological community locations were comparable to those mentioned in the APM (2019) report (see Map 3).

The Burrup Peninsula has two recorded PECs:

- Burrup Peninsula rock pool communities, Priority 1. Calcareous tufa deposits. Interesting aquatic snails. Threats: recreational impacts, and potential development; possibly NOx and SOx emissions, weed invasion including **Passiflora foetida* (stinking passionflower); and
- Burrup Peninsula rock pile communities, Priority 1. Pockets of vegetation in rock piles, rock pockets and outcrops. Comprise a mixture of Pilbara and Kimberley species, communities are different from those of the Hamersley and Chichester Ranges. Short-range endemic land snails. Threats: industrial development, dust emissions, weed invasion including **Cenchrus ciliaris* (Buffel Grass) and **Passiflora foetida* (stinking passionflower).

The Burrup Peninsula has no previous recorded Threatened flora under the EPBC Act. The Burrup Peninsula has 26 previous recorded Priority flora.

During the field study two (2) conservation-significant flora species were identified; *Rhynchosia bungarensis* (Priority 4) and *Terminalia supranitifolia* (Priority 3). There were zero (0) conservation-significant flora species present within the clearing development area.

The conservation-significant ecology community, Burrup Peninsula rock pile community PEC (Priority 1), was identified across multiple locations within the survey. These locations were in line with the areas recorded in the APM (2019) report.

4.4 Vegetation Condition

Vegetation condition ranges from Excellent to Completely Degraded; this classification is in line with the EPA Classification (see Map 4 and Appendix 4 Vegetation Condition Scale).

The vegetation condition across the survey area resembled the findings from APM (2019). Vegetation condition in a few areas have been regarded in a lower category in this survey due to increased impacts to the vegetation by pest flora and/or fauna, and/or clearing works.

Areas regarded as Completely Degraded are those areas which have little to no vegetation with evidence of clearing or infrastructure.

Areas regarded as Poor are those areas with high abundance of weed species **Cenchrus ciliaris, *Aerva javanica*. These areas have evidence of previous rehabilitation where the topsoil has been exposed, and buried shells have been uncovered and brought to the surface. This has caused poor soil quality due to the chemical composition of the shells; without intervention it is unlikely this area will be able to regain pre-disturbance structure. It is recommended that these areas regarded as Poor or Completely Degraded are used as stockpile areas for soil and vegetation management.

Areas regarded as Good are those that contained weed species but still have a high diversity and structure of native species. The surrounding vegetation along the tracks within the survey area to the north are regarded as Good with evidence of dust on the flora; the dust spans roughly one (1) metre into the vegetation at the highest point.

Areas regarded as Very Good condition have little to no presence of weed species and have a high species diversity and a little evidence of disturbance.

Areas regarded as Excellent are those area which have no impact of weed species and contain a high species diversity and structure. The mudflat areas are regarded as Excellent as the structure of the community has not been altered or disturbed.

5.0 Management

5.1 Weeds

The introduction of weed species can have adverse impacts on the existing environment. It is important that personnel follow the Perdaman Weed Management Plan (Perdaman Chemicals and Fertilisers Pty Ltd., 2022). The management plan covers on-site management of weeds, dispersal, germination, and limitation of potential growth sites.

The management plan covers weed control methods which will be assessed and utilised depending on the species present. These controls include manual removal, herbicide usage, containment of stockpiles and integrated management.

The introduction of weed species can be mitigated by managing vehicle and personnel access through:

- Restricting access to pristine condition vegetation areas;
- Vehicles and personnel remaining on the designated pathways;
- Applying hygiene practices to minimise the spread of weeds; and
- Conducting regular observations for outbreaks of diseases or weed species.

Areas of weed risk are to have additional controls including weed hygiene, wash down facilities, demarcating weed risk areas, working in weed risk areas and controls for the movement and storage of soils to prevent spread of weeds.

6.0 Findings

This section details the overall findings for the Supplementary Baseline Flora and Vegetation Survey conducted across the Perdaman Urea project development clearing area.

SCJV are informed that:

- The retained monitoring sites from the previous survey completed by APM (2019) are complete.
- The Weed Assessment within the project development clearing area is complete.
- The Vegetation Condition Assessment within the project development clearing area is complete.
- Two (2) conservation-significant flora species were identified during the survey:
    - *Rhynchosia bungarensis* (Priority 4)
    - *Terminalia supranitifolia* (Priority 3).
- The conservation-significant ecology community, Burrup Peninsula rock pile community PEC (Priority 1), was identified during the survey.
- Seven (7) weed species were identified within the Urea project development clearing area:
    - **Aerva javanica;*
    - **Amaranthus viridis;*
    - **Cenchrus ciliaris;*
    - **Cenchrus setiger;*
    - **Malvastrum americanum;*
    - **Portulaca oleracea; and*
    - **Stylosanthes hamata.*
- The vegetation associations on site match those recorded in the APM (2019) survey.
- The appropriate stockpile areas for soil and vegetation management are

located within the vegetation condition areas regarded as Poor or Completely Degraded.

7.0 References

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8.0 Maps

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Site 24
Site 23
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Site 46
Site 45
Site 43
Site 44
Site 30
Site 35
Site 10
Site 16
Site 14
Site 13
Site 19
Site 18
Site 36
Site 20
Site 11

TRACE
ARCHAEOLOGY & ECOLOGY

Legend

- Retained Monitoring Sites
- Clearing Boundary

2023 Perdaman Urea Project

Map 1: Retained monitoring sites.

Data Sources: SCJV 2023; Trace 2023
Coordinate System: GDA 2020 MGA Zone 50
Date Published: 1 July 2023
Cartographer: Zahra Stoney
Scale: 1 : 9,000
Size: A3

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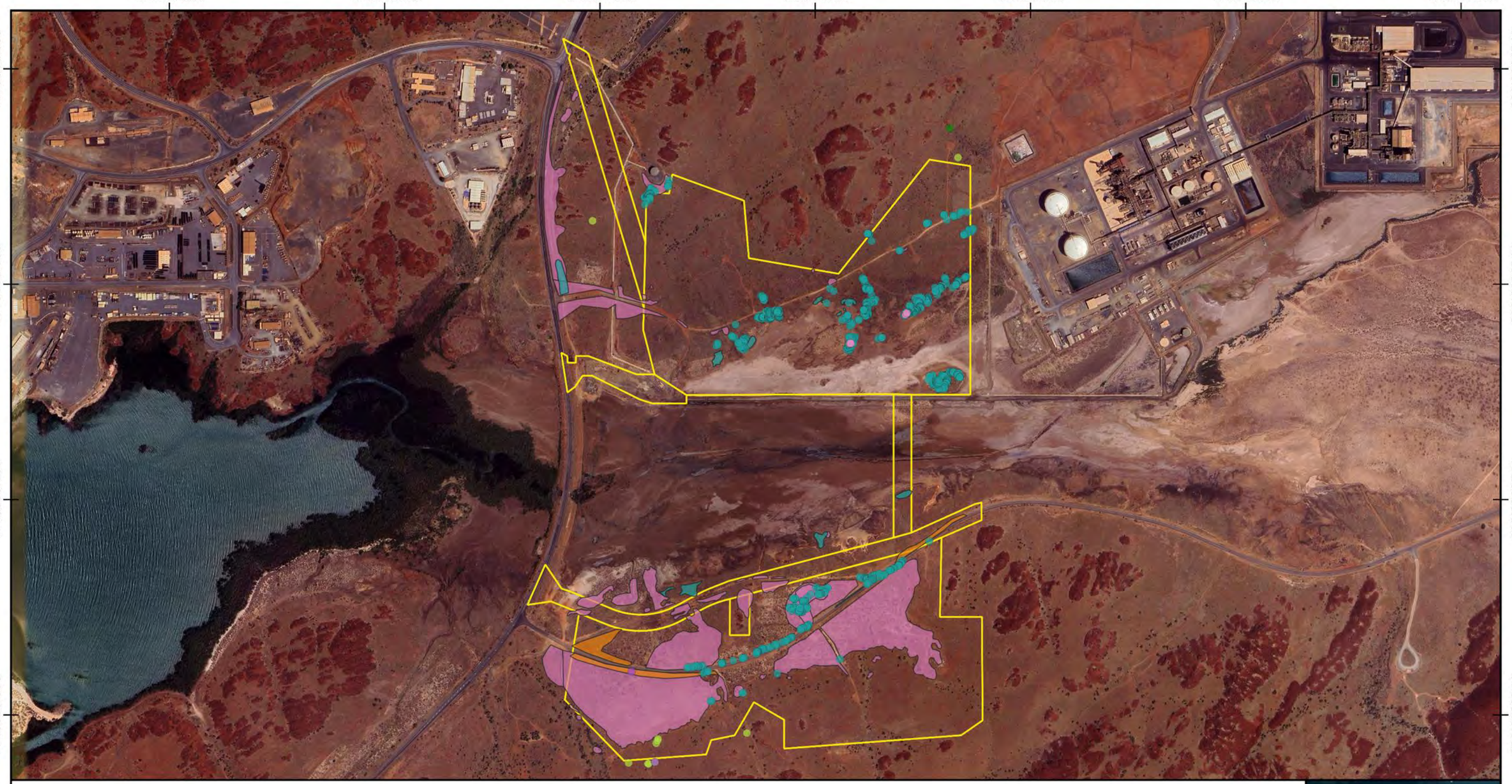

2023 Perdaman Urea Project

Map 2: Locations of weed species across the project clearing area.

TRACE
ARCHAEOLOGY & ECOLOGY

Legend

- Aerva javanica
- Stylosanthes hamata
- Cenchrus ciliaris
- Malvastrum americanum
- Portulaca oleracea

- Aerva javanica
- Amaranthus viridis
- Cenchrus ciliaris
- Cenchrus setigerus
- Clearing Boundary

Data Sources: SCJV 2023; Trace 2023
Coordinate System: GDA 2020 MGA Zone 50
Date Published: 1 July 2023
Cartographer: Zahra Stoney
Scale: 1 : 9,000
Size: A3

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2023 Perdaman Urea Project

Map 3: Location of conservation significant flora and ecological communities.

Legend

- Rhynchosia bungarensis (Priority 4)
- Terminalia supranitifolia (Priority 3)
- Recorded PEC APM (2019)
- Clearing Boundary

TRACE
ARCHAEOLOGY & ECOLOGY

Data Sources: SCJV 2023; Trace 2023
Coordinate System: GDA 2020 MGA Zone 50
Date Published: 1 July 2023
Cartographer: Zahra Stoney
Scale: 1 : 9,000
Size: A3

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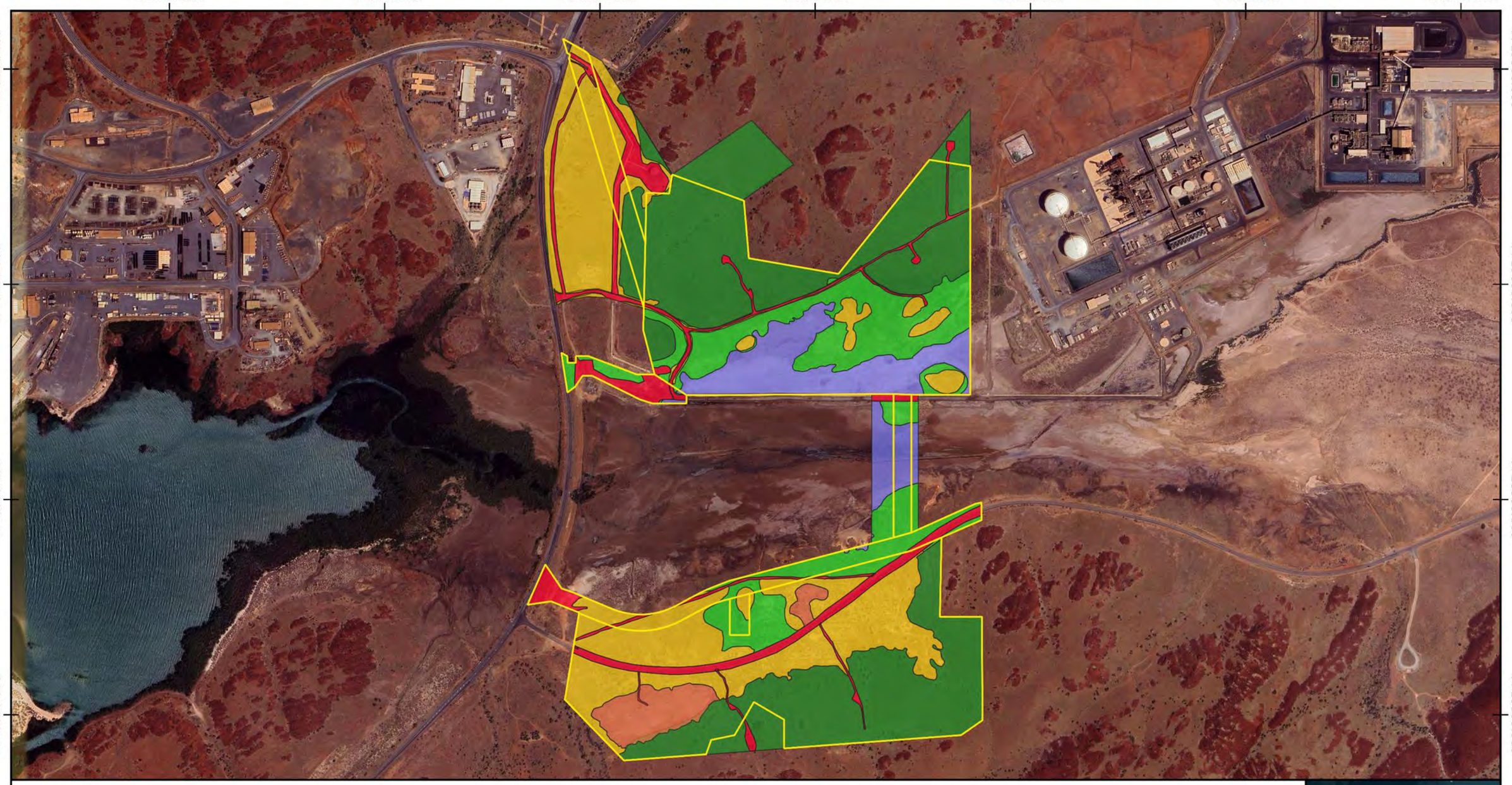

TRACE
ARCHAEOLOGY & ECOLOGY

Legend

- Excellent
- Very Good
- Good
- Poor
- Completely Degraded
- Mudflats - Excellent
- Clearing Boundary

2023 Perdaman Urea Project

Map 4: Vegetation condition across the project clearing area.

Data Sources: SCJV 2023; Trace 2023
Coordinate System: GDA 2020 MGA Zone 50
Date Published: 1 July 2023
Cartographer: Zahra Stoney
Scale: 1 : 9,000
Size: A3

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9.0 Appendices

Appendix 1 Threatened and Priority Ecological Communities Classification Codes

Priority Ecological Communities (PEC) and Threatened Ecological Communities (TEC) are classified into three (3) threatened categories and five (5) priority categories (see Table 5). TEC are listed under the BC Act.

Table 5 Conservation codes of Threatened Ecological Communities (TEC) and Priority Ecological Communities (PEC).

Conservation Code	Category
Threatened Ecological Communities (TEC)	
T	CR – Critically Endangered An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.
	EN – Endangered An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.
	VU – Vulnerable An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if

Conservation Code	Category
	threatening processes continue or begin operating throughout its range.
Priority Ecological Communities (PEC)	
P1	Priority One Poorly known communities Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g., within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
P2	Priority Two Poorly known communities Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
P3	Priority Three Poorly known communities (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or;

Conservation Code	Category
	(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or; (iii) communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc. Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.
P4	Priority Four Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. (i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These communities are usually represented on conservation lands. (ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category. (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.
P5	Priority Five Conservation Dependent ecological communities are ecological communities that

Conservation Code	Category
	are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Appendix 2 Threatened and Priority Flora and Fauna Classification Codes

Threatened and Priority flora and fauna are classified into three (3) threatened and four (4) priority categories. Species under the BC Act can be specifically protected and are listed as Threatened (Critically Endangered, Endangered or Vulnerable) or Extinct.

Table 6 Conservation codes of Threatened and Priority flora and fauna.

Conservation Code	Category
Threatened Flora and Fauna	
T	CR – Critically Endangered Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines".
	EN – Endangered Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines".
	VU – Vulnerable Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines".
Priority Flora and Fauna	
P1	Priority One Poorly known species Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not

Conservation Code	Category
	managed for conservation, e.g., agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
P2	Priority Two Poorly known species Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g., national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
P3	Priority Three Poorly known species Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
P4	Priority Four Rare, Near Threatened and other species in need of monitoring (i) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not

Conservation Code	Category
	currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (ii) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (iii) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Appendix 3 Categories of Threatened Species under the EPBC Act

Category of threatened species under the EPBC Act.

Table 7 Classification of threatened species under the EPBC Act.

Conservation Code	Category
EX	**Extinct** Taxa where there is no reasonable doubt that the last member of the species has died
EW	**Extinct in the Wild** Taxa where it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CR	**Critically Endangered** Taxa that are facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
EN	**Endangered** Taxa which are not critically endangered and is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
VU	**Vulnerable** Taxa which are not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent** Taxa which are the focus of a specific conservation program the cessation of which

Conservation Code	Category
	would result in the species becoming vulnerable, endangered, or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long-term survival in nature are maximised; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; (iv) cessation of the plan of management would adversely affect the conservation status of the species.

Appendix 4 Vegetation Condition Scale

Vegetation Condition Scale in line with EPA Flora and Vegetation Technical Guidance (see Table 8).

Table 8 Vegetation Condition Scale (EPA)

Vegetation Condition	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.	
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds,	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.

Vegetation Condition	South West and Interzone Botanical Provinces	Eremaean and Northern Botanical Provinces
	partial clearing, dieback and grazing.	
Poor	.	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e., areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix 5 Location of Monitoring Sites Assessed.

A total of 34 retained monitoring sites were recorded across the survey area (see Table 9)

Table 9 Location of monitoring sites assessed outside of the project clearing area.

Monitoring Site	Easting	Northing
Site 1	476323.9	7719318
Site 10	476328.7	7718237
Site 11	476309.8	7717909
Site 13	476381	7717986
Site 14	475870.1	7717985
Site 15	475892.7	7717948
Site 16	475910.2	7718022
Site 18	475967.9	7717940
Site 19	475834.9	7717956
Site 20	475749.5	7717881
Site 21	476059.5	7719426
Site 22	476004.9	7719496
Site 23	475996.8	7719508
Site 24	476844.1	7719584
Site 25	476879.9	7719731
Site 26	476906.1	7719661
Site 27	476901.3	7719479
Site 30	476498.4	7718376
Site 34	476108	7718245
Site 36	476341.9	7717941
Site 39	476872.3	7719128

Monitoring Site	Easting	Northing
Site 40	476829.9	7719298
Site 41	476319.3	7719288
Site 43	476169.4	7718359
Site 44	476274.4	7718384
Site 45	476761.7	7718569
Site 46	476659.4	7718724
Site 49	476456.6	7719043
Site 50	476687.8	7719204
Site 51	476418.4	7719457
Site 54	476876.1	7719411
Site 56	475955.1	7718810
Site 57	475961.9	7719131
Site 58	475970.4	7719254

Appendix 6 Monitoring Site Description

Site 1

Vegetation description: Closed hummock grassland. *Triodia epactia* with *Trichodesma zeylanicum var. zeylanicum* and *Indigofera monophylla*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 23.2 m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sandy clay loam

Fire Regime: No

Disturbance: None

Vegetation condition: Excellent

Site 10

Vegetation description: Hummock grassland. *Acacia coriacea subsp. Pendens* and *Terminalia supranitifolia* over **Cenchrus ciliaris*, *Solanum lasiophyllum*.

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes, and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 11.6m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Loam

Fire Regime: No

Disturbance: Weeds, dominated by **Cenchrus ciliaris.*

Vegetation condition: Good

Site 11

Vegetation description: Hummock grassland. *Brachychiton acuminatus, Terminalia supranitifolia over Cymbopogon ambiguus* with *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 20.9m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sandy loam

Fire Regime: No

Disturbance: Minimal

Vegetation condition: Excellent

Site 13

Vegetation description: Hummock grassland. *Terminalia supranitifolia* over *Cymbopogon ambiguus, Trichodesma zeylanicum var. zeylanicum, Ipomoea costata* and *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 18m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: N/A

Fire Regime: No

Disturbance: Next to track and weeds.

Vegetation condition: Very good

Site 14

Vegetation description: Closed hummock grassland. *Hakea lorea subsp. Lorea, Grevillea pyramidalis subsp. Pyramidalis, Acacia bivenosa* over *Senna glutinosa subsp. Glutinosa, Dichrostachys spicata, Corchorus incanus subsp. Incanus* over *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 3.3m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Sandy clay loam

Fire Regime: No

Disturbance: Next to track, minimal.

Vegetation condition: Very good

Site 15

Vegetation description: Closed hummock grassland. *Grevillea pyramidalis subsp. pyramidalis, Corymbia hamersleyana, Acacia bivenosa*, over *Corchorus incanus subsp. incanus, Indigofera monophylla* over *Triodia epactia*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 5.5m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sandy loam

Fire Regime: No

Disturbance: Tracks

Vegetation condition: Very good

Site 16

Vegetation description: Open mallee woodland with hummock grassland. *Eucalyptus victrix* over *Dichrostachys spicata, Cyperus vaginatus*, over *Triodia epactia and Triodia angusta.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 2.3m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sandy loam

Fire Regime: No

Disturbance: Minimal

Vegetation condition: Very good

Site 18

Vegetation description: Open mallee woodland. Terminalia circumalata Eucalyptus victrix over Triodia epactia and Cenchrus ciliaris

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 2.8m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Sandy clay loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Good

Site 19

Vegetation description: Open mallee woodland with hummock grassland. *Eucalyptus victrix, Acacia coriacea subsp. pendens*, and *Alectryon oleifolius subsp. oleifolius*, over *Rhagodia eremaea, Cenchrus ciliaris*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 3m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Leaf litter

Soil: Sandy clay loam

Fire Regime: No

Disturbance: Tracks

Vegetation condition: Very good

Site 20

Vegetation description: Open mallee woodland with hummock grassland. *Corymbia hamersleyana, Acacia bivenosa,* over *Triodia epactia, Tephrosia sp. B Kimberley Flora, Indigofera monophylla, Corchorus incanus subsp. Incanus.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: -0.4m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sandy clay loam

Fire Regime: Yes, Fire disturbance in 2015.

Disturbance: Weeds

Vegetation condition: Very good

Site 21

Vegetation description: Hummock grasslands. *Acacia coriacea subsp. pendens*, *Brachychiton acuminatus, Ipomoea costata* over *Triodia epactia* with *Cymbopogon ambiguus* and **Cenchrus ciliaris*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 6.1m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Clay loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Good

Site 22

Vegetation description: Sparse woodland over Hummock grasslands. *Eucalyptus victrix, Acacia ampliceps* over *Ipomoea costata, Trichodesma zeylanicum* over *Triodia angusta.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 2.9 m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Loam

Fire Regime: No

Disturbance: Between pipelines and road.

Vegetation condition: Good

Site 23

Vegetation description: Tussock grassland. *Acacia bivenosa, Acacia ancistrocarpa* over *Pterocaulon sphacelatum,* over *Triodia bivenosa* and **Cenchrus ciliaris*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 0.4m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Sandy clay loam

Fire Regime: No

Disturbance: Weeds, dominated by **Cenchrus ciliaris.*

Vegetation condition: Good

Site 24

Vegetation description: Hummock grassland. *Enchylaena tomentosa var. tomentosa* and *Ipomoea costata* over *Cymbopogon ambiguus* and *Triodia epactia.*

*Cenchrus ciliaris

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 40m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Very good

Site 25

Vegetation description: Hummock grassland. *Acacia bivenosa, Hakea lorea subsp lorea, Grevillea pyramidalis subsp. pyramidalis* over *Rhynchosia minima* and *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 46.2m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Clay loam

Fire Regime: No

Disturbance: None

Vegetation condition: Excellent

Site 26

Vegetation description: Hummock grassland. *Ficus brachypoda* over *Trichodesma zeylanicum, Solanum horridum* over *Triodia epactia* and *Cymbopogon ambiguus*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 50.2m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: N/A

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Very good

Site 27

Vegetation description: Hummock grassland. *Triodia epactia* with *Gomphrena cunninghamii* and *Trachymene oleracea subsp. oleracea.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 25.1m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Clay Loam

Fire Regime: No

Disturbance: Weeds, next to clearing site

Vegetation condition: Good

Site 30

Vegetation description: Hummock grassland. *Acacia bivenosa* over *Cymbopogon ambiguus, Triodia epactia* and *Stemodia grossa.*

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes, and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 8.6m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Clay loam

Fire Regime: No

Disturbance: Minimal

Vegetation condition: Excellent

Site 35

Vegetation description: Open grassland. Acacia ampliceps over *Eriachne mucronata* with *Triodia epactia.*

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: -0.6m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Shells

Soil: Clay loam

Fire Regime: No

Disturbance: Weeds, next to road.

Vegetation condition: Degraded

Site 36

Vegetation description: Hummock grassland with scattered trees. *Corymbia hamersleyana, Flueggea virosa subsp. melanthesoides, Acacia bivenosa* over *Triodia epactia, Solanum lasiophyllum* over *Triodia epactia*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 12.2m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks, gravel

Soil: Loam

Fire Regime: No

Disturbance: Weeds, tracks

Vegetation condition: Good

Site 39

Vegetation description: Hummock grassland. *Dolichandrone occidentalis* and *Grevillea pyramidalis* over *Senna glutinosa subsp. glutinosa* over *Triodia epactia* with **Cenchrus ciliaris.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 17.7m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Clay loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Good

Site 40

Vegetation description: Hummock grassland. *Acacia inaequilatera, Grevillea pyramidalis* and *Acacia bivenosa* over *Solanum phlomoides, Trichodesma zeylanicum, Trachymene oleracea* over *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 12.4m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Clay loam

Fire Regime: No

Disturbance: Minimal

Vegetation condition: Excellent

Site 41

Vegetation description: Closed hummock grassland. *Grevillea pyramidalis subsp. pyramidalis* over *Trichodesma zeylanicum* and *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 18.8m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Clay loam

Fire Regime: No

Disturbance: None

Vegetation condition: Excellent

Site 43

Vegetation description: Sparse chenopod shrubland. *Tecticornia halocnemoides* and *Tecticornia auriculata.*

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes, and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 0.19m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sand

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Good

Site 44

Vegetation description: Sparse chenopod shrubland. *Tecticornia auriculata* and *Eragrostis falcata*.

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 3.6m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

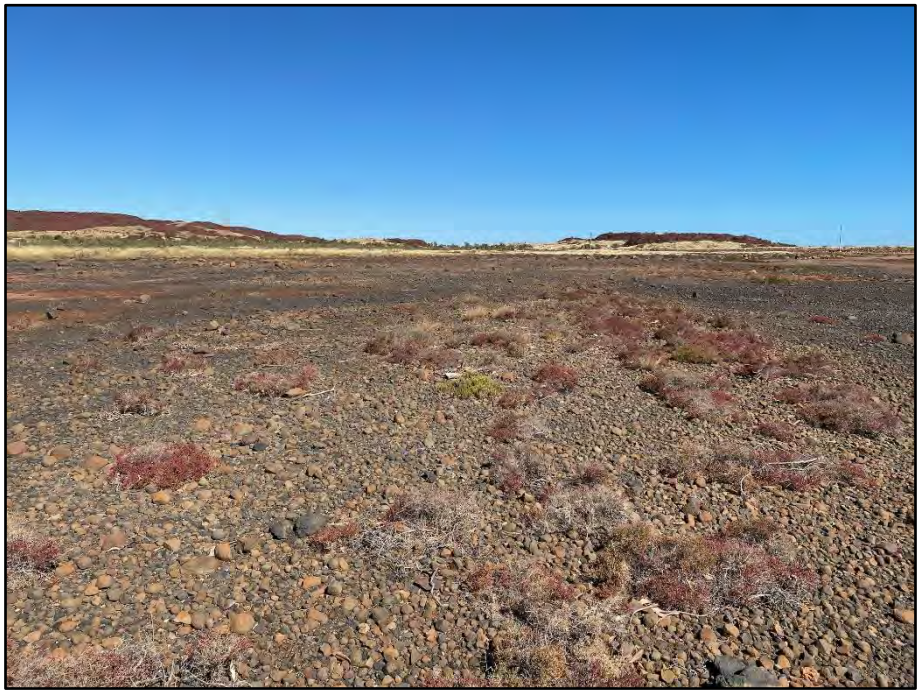
Surface fragments: Gravel

Soil: Sand

Fire Regime: No

Disturbance: Minimal

Vegetation condition: Mudflat excellent



Site 45

Vegetation description: Sparse chenopod shrubland. *Tecticornia halocnemoides*.

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 4.1m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock/shell fragments

Soil: Sandy clay loam

Fire Regime: No

Disturbance: None

Vegetation condition: Mudflat excellent

Site 46

Vegetation description: Hummock grassland. *Threlkeldia diffusa, Frankenia ambita, Eragrostis falcata,* over *Triodia epactia.*

Landform: Bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Elevation: 1.9m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Shell fragment

Soil: Sand

Fire Regime: No

Disturbance: Near road and pipeline

Vegetation condition: Very good

Site 49

Vegetation description: Hummock grassland. *Acacia coriacea subsp. pendens, Acacia inaequilatera* over, *Trichodesma zeylanicum var. zeylanicum, Swainsona formosa,* over *Triodia epactia.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 2.6m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Clay loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Very good

Site 50

Vegetation description: Hummock grassland. *Acacia inaequilatera,* and *Grevillea pyramidalis* over *Triodia epactia* over *Gomphrena cunninghamii* and *Cymbopogon ambiguus.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 18.2m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Very good

Site 51

Vegetation description: Closed hummock grassland. *Acacia colei var. colei,* over *Corchorus incanus subsp. incanus, Indigofera monophylla, Enchylaena tomentosa var. tomentosa* over *Triodia epactia* and *Cymbopogon ambiguus.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 25.3m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Loam

Fire Regime: No

Disturbance: None

Vegetation condition: Excellent

Site 54

Vegetation description: Closed hummock grassland. *Trichodesma zeylanicum* over *Triodia epactia, Cymbopogon ambiguus*, over *Rhynchosia minima*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 24.3m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Loam

Fire Regime: No

Disturbance: Weeds

Vegetation condition: Very good

Site 56

Vegetation description: Completely degraded. Area has been excavated.

The following common species were recorded: *Trichodesma zeylanicum*, over **Aerva javanica, *Cenchrus ciliaris*, over *Trianthema turgidifolium*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 4.4m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Sand

Fire Regime: No

Disturbance: Cleared by bulldozer with sparse vegetation comprising largely of weeds.

Vegetation condition: Completely degraded.

Site 57

Vegetation description: Hummock grassland. *Acacia inaequilatera* and *Grevillea pyramidalis subsp. pyramidalis*, over *Abutilon lepidum, Senna glutinosa subsp. glutinosa*, over *Cymbopogon ambiguus* with *Triodia epactia*.

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 13.1m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rocks

Soil: Clay loam

Fire Regime: No

Disturbance: Between pipeline and road

Vegetation condition: Very good

Site 58

Vegetation description: Hummock grassland. *Grevillea pyramidalis subsp. pyramidalis*, and *Tinospora smilacina* over *Senna glutinosa subsp. glutinosa* over *Triodia epactia* with *Cymbopogon ambiguus* over *Crotalaria novae hollandiae subsp. novae hollandiae.*

Landform: Rugged granitic hills supporting shrubby hard and soft spinifex grasslands.

Elevation: 16m

Geology: Granite

Geomorphology: Igneous and medium to high-grade metamorphic rocks.

Surface fragments: Rock

Soil: Loam

Fire Regime: No

Disturbance: Between pipeline and road.

Vegetation condition: Very good

Appendix 7 Comprehensive species list

Comprehensive species recorded across monitoring site (see Table 10).

Table 10 Comprehensive species recorded across the monitoring site

Family	Species
Agaricaceae	*Podaxis pistillaris*
Aizoaceae	*Trianthema turgidifolia*
Amaranthaceae	*Achyranthes aspera*
	**Aerva javanica*
	Amaranthus undulatus
	Amaranthus viridis
	Gomphrena cunninghamii
	Ptilotus exaltatus
	Ptilotus fusiformis
Apocynaceae	*Cynanchum floribundum*
Araliaceae	*Trachymene oleracea subsp. oleracea*
	Pluchea rubelliflora
	Pterocaulon sphacelatum
	Pterocaulon sphaeranthoides
Bignoniaceae	*Dolichandrone occidentalis*
Boraginaceae	*Ehretia saligna var. saligna*
	Heliotropium tenuifolium
	Trichodesma zeylanicum var. zeylanicum
Capparaceae	*Capparis spinosa*
Caryophyllales	*Polycarpa longiflora*
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*
	Neobassia astrocarpa
	Rhagodia eremaea
	Salsola australis
	Tecticornia auriculata
	Tecticornia halocnemoides
	Threlkeldia diffusa
Cleomaceae	*Cleome viscosa*
Combretaceae	*Terminalia circumalata*
	Terminalia supranitifolia (P3)
	Evolvulus alsinoides var. villosicalyx
	Ipomoea costata
Cucurbitaceae	*Cucumis variabilis*
Cyperaceae	*Cyperus vaginatus*
	Euphorbia coghlanii
	Euphorbia tannensis subsp. eremophila
Fabaceae	*Acacia ampliceps*
	Acacia ancistrocarpa
	Acacia bivenosa
	Acacia colei var. colei
	Acacia coriacea subsp. pendens
	Acacia inaequilatera
	Acacia pyrifolia
	Crotalaria medicaginea var. neglecta
	"Crotalaria novae hollandiae subsp. novae hollandiae "
	Dichrostachys spicata

Family	Species
	Erythrina vespertilio
	Indigofera monophylla
	Indigofera colutea
	Indigofera trita
	Rhynchosia bungarensis (P4)
	Rhynchosia minima
	Senna artemisioides subsp. oligophylla
	Senna glutinosa subsp. glutinosa
	Sesbania cannabina
	**Stylosanthes hamata*
	Swainsona pterostylis
	Swainsona formosa
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)
	Tephrosia supina
Frankeniaceae	*Frankenia ambita*
Goodeniaceae	*Goodenia microptera*
	Goodenia lamprosperma
	Scaevola cunninghamii
	Scaevola spinescens
	Scaevola sericophylla
Malvaceae	*Abutilon fraseri*
	Abutilon lepidum
	Brachychiton acuminatus
	Corchorus incanus subsp. incanus

Family	Species
	Corchorus incanus subsp. incanus
	Corchorus walcottii
	Cullen graviols
	Gossypium australe
	Hibiscus sturtii var. campochlamys
	Lawrencia viridigrisea
	Melhania oblongifolia
	Sida intricata
	Triumfetta appendiculata
	Waltheria indica
	Waltheria virgata
Menispermaceae	*Tinospora smilacina*
Moraceae	*Ficus brachypoda*
Myrtaceae	*Corymbia hamersleyana*
	Eucalyptus victrix
Nyctaginaceae	*Boerhavia gardneri*
Oleaceae	*Jasminum didymum subsp. lineare*
Passifloraceae	**Passiflora foetida var. foetida*
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*
	Nellica maderaspatensis
Pittosporaceae	*Pittosporum phillyreoides*
Plantaginaceae	*Stemodia grossa*
Poaceae	**Cenchrus ciliaris*
	Cymbopogon ambiguus
	Eragrostis falcata

Family	Species
	Eriachne mucronata
	Paspalidium tabulatum
	Themeda triandra
	Triodia angusta
	Triodia epactia
Portulacaceae	*Portulaca oleracea*
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*
	Hakea lorea subsp. lorea
Santalaceae	*Santalum lanceolatum*
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*
Solanaceae	*Nicotiana occidentalis*
	Solanum horridum
	Solanum lasiophyllum
	Solanum phlomoides
Violaceae	*Hybanthus aurantiacus*

Appendix 8 Species by site matrix comparison

Flora species by site matrix comparing APM (2019) and Trace (2023).

Family	Species	1		10		11		13		14		15	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*												
Aizoaceae	*Trianthema turgidifolia*												
	Trianthema triquetrum												
Amaranthaceae	*Achyranthes aspera*												
	**Aerva javanica*											0.1	
	Amaranthus undulatus												
	Amaranthus viridis												
	Gomphrena cunninghamii		0.1				1						
	Gomphrena leptoclada subsp. leptoclada					1		2					
	Ptilotus exaltatus									1	0.1		
	Ptilotus fusiformis					0.1							
Apocynaceae	*Cynanchum floribundum*	0.1											
Araliaceae	*Trachymene oleracea subsp. oleracea*	0.1					0.1	1					
Asteraceae	*Pluchea rubelliflora*												
	Pterocaulon sphacelatum		1						0.1				
	Pterocaulon sphaeranthoides	0.1											
	Streptoglossa decurrens												
Bignoniaceae	*Dolichandrone occidentalis*												
Boraginaceae	*Ehretia saligna var. saligna*					1							
	Heliotropium cunninghamii												
	Trichodesma zeylanicum var. zeylanicum	0.1	2			0.1		0.1	2				
Capparaceae	*Capparis spinosa*												
Caryophyllales	*Polycarpa logiflora*						0.1		0.1				

Family	Species	1		10		11		13		14		15	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*												
	Neobassia astrocarpa												
	Rhagodia eremaea	0.1						0.1	0.1		0.1	1	
	Salsola australis									0.1			
	Tecticornia auriculata												
	Tecticornia halocnemoides												
	Tecticornia indica subsp. indica												
	Threlkeldia diffusa												
Cleomaceae	*Cleome viscosa*	0.1		1		1		0.1					
Combretaceae	*Terminalia circumalata*												
	Terminalia supranitifolia (P3)			20	2	1	1	20	4				
Convolvulaceae	*?Bonamia erecta*												
	Evolvulus alsinoides var. villosicalyx		0.1		0.1					0.1		0.1	
	Ipomoea costata			1		1	1	1	2				
Cucurbitaceae	*Cucumis variabilis*	0.1		1	0.1			0.1		0.1			
Cyperaceae	*Cyperus vaginatus*												
Euphorbiaceae	*Adriana tomentosa var. tomentosa*												
	Euphorbia coghlanii												
	Euphorbia tannensis subsp. eremophila									0.1			
Fabaceae	*Acacia ampliceps*			1	0.1								
	Acacia ancistrocarpa												
	Acacia bivenosa	1	0.1						0.1	15	4	0.1	4
	Acacia colei var. colei	0.1	5										
	Acacia coriacea subsp. pendens	1	0.1	0.1	3	5	5	1	1		0.1		
	Acacia inaequilatera												
	Acacia pyrifolia											1	1
	Acacia trachycarpa												
	Crotalaria medicaginea var. neglecta												

Family	Species	1		10		11		13		14		15	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	"Crotalaria novae hollandiae subsp. novae hollandiae "	0.1											
	Cullen badocanum												
	Dichrostachys spicata			1				5			2		
	Erythrina vespertilio				0.1								
	Indigofera monophylla	0.1	2							0.1	1	0.1	2
	Indigofera colutea					0.1							
	Indigofera trita												
	Rhynchosia bungarensis (P4)												
	Rhynchosia minima	0.1	0.1	1				0.1					
	Senna artemisioides subsp. oligophylla												
	Senna glutinosa subsp. glutinosa		0.1							1	2		
	Sesbania cannabina											0.1	
	**Stylosanthes hamata*												
	Swainsona pterostylis												
	Swainsona formosa				0.1				0.1			0.1	
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)												
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)												
	Tephrosia supina					0.1	0.1						0.1
Frankeniaceae	*Frankenia ambita*												
Goodeniaceae	*Goodenia microptera*									0.1			
	Goodenia lamprosperma												
	Scaevola cunninghamii												
	Scaevola spinescens		0.1					0.1		0.1			
	Scaevola sericholla				0.1								
Lamiaceae	*lanceolatum*	0.1				1		15				0.1	
Lauraceae	*Cassytha filiformis*	0.1											

Family	Species	1		10		11		13		14		15	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Malvaceae	**Malvastrum americanum*												
	Abutilon fraseri				0.1								
	Abutilon lepidum	0.1	0.1		0.1	0.1		0.1					
	Brachychiton acuminatus			20		20	20	1	1			0.1	
	Corchorus incanus subsp. incanus	0.1											
	Corchorus incanus subsp. incanus									1	2	2	3
	Corchorus walcottii												
	Cullen graviols												
	Gossypium australe									0.1			
	Hibiscus sturtii var. campochlamys					0.1	1			0.1			
	Lawrencia viridigrisea												
	Melhania oblongifolia												2
	Sida intricata												
	Triumfetta appendiculata					0.1	0.1	0.1		0.1		1	0.1
	Waltheria indica		0.1							0.1			0.1
	Waltheria virgata												
Menispermaceae	*Tinospora smilacina*			1	0.1	0.1	0.1						
	Tinospora smilacina												
Molluginaceae	*Trigastrotheca molluginea*												
Moraceae	*Ficus brachypoda*												
Myrtaceae	*Corymbia hamersleyana*									0.1		1	6
	Eucalyptus victrix												
Nyctaginaceae	*Boerhavia gardneri*	0.1	0.1			0.1	0.1		0.1	0.1			
Oleaceae	*Jasminum didymum subsp. lineare*	0.1						1	0.1				
Passifloraceae	**Passiflora foetida var. foetida*												
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*							2					
	Nellica maderaspatensis												
	Notoleptopus decaisnei												
Pittosporaceae	*Pittosporum phillyreoides*									0.1			
Plantaginaceae	*Stemodia grossa*									0.1		0.1	0.1

Family	Species	1		10		11		13		14		15	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Poaceae	**Cenchrus ciliaris*			2	70	60	30	30	30	0.1		1	
	Chrysopogon fallax									0.1			
	Cymbopogon ambiguus	0.1	0.1			0.1	0.1	0.1					
	Eragrostis falcata												
	Eriachne mucronata				0.1								
	Eriachne obtusa												
	Eriachne tenuiculmis												
	Paspalidium tabulatum												
	Paspalidium clementii									0.1			
	Sporobolus virginicus												
	Themeda triandra					0.1	0.1	0.1	5				
	Triodia? basedowii (sterile)												
	Triodia angusta									0.1			
	Triodia epactia	40	80		3	20	40	30	2	10	75	40	70
Portulacaceae	*Portulaca oleracea*												
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*	0.1								5	6	10	15
	Hakea lorea subsp. lorea	1								0.1	4		
Santalaceae	*Santalum lanceolatum*												
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*												
Solanaceae	*Nicotiana occidentalis*												
	Solanum diversiflorum											0.1	
	Solanum horridum	0.1	1							0.1		0.1	
	Solanum lasiophyllum				5								
	Solanum phlomoides												
Violaceae	*Hybanthus aurantiacus*	0.1											
Zygophyllaceae	*Tribulus hirsutus*							0.1		0.1			

Family	Species	16		18		19		20		21		22	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*												
Aizoaceae	*Trianthema turgidifolia*												
	Trianthema triquetrum												
Amaranthaceae	*Achyranthes aspera*												
	**Aerva javanica*						1	0.1					0.1
	Amaranthus undulatus												
	Amaranthus viridis												
	Gomphrena cunninghamii												
	Gomphrena leptoclada subsp. leptoclada									5			
	Ptilotus exaltatus							0.1					
	Ptilotus fusiformis												
Apocynaceae	*Cynanchum floribundum*												0.1
Araliaceae	*Trachymene oleracea subsp. oleracea*			0.1				0.1					
Asteraceae	*Pluchea rubelliflora*												1
	Pterocaulon sphacelatum												0.1
	Pterocaulon sphaeranthoides										0.1		
	Streptoglossa decurrens												
Bignoniaceae	*Dolichandrone occidentalis*												
Boraginaceae	*Ehretia saligna var. saligna*						0.1						
	Heliotropium tenuifolium												0.1
	Trichodesma zeylanicum var. zeylanicum								0.1		0.1		1
Capparaceae	*Capparis spinosa*												
Caryophyllales	*Polycarpaea longiflora*										0.1		
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*									1	0.1		
	Neobassia astrocarpa												
	Rhagodia eremaea	0.1		0.1		3	1	0.1					
	Salsola australis												

Family	Species	16		18		19		20		21		22	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Tecticornia auriculata												
	Tecticornia halocnemoides												
	Tecticornia indica subsp. indica	0.1											
	Threlkeldia diffusa							0.2					
Cleomaceae	*Cleome viscosa*						1			0.1			
Combretaceae	*Terminalia circumalata*	0.1		40									
	Terminalia supranitifolia (P3)												
Convolvulaceae	*?Bonamia erecta*							0.1					
	Evolvulus alsinoides var. villosicalyx			0.1				0.1			0.1		
	Ipomoea costata						1				5		1
Cucurbitaceae	*Cucumis variabilis*			0.1	45			0.1	4		1		1
Cyperaceae	*Cyperus vaginatus*	0.1		0.1	3				0.1			0.1	0.1
Euphorbiaceae	*Adriana tomentosa var. tomentosa*												
	Euphorbia coghlanii							0.1	0.1				
	Euphorbia tannensis subsp. eremophila			0.1				0.1					
Fabaceae	*Acacia ampliceps*											10	10
	Acacia ancistrocarpa												
	Acacia bivenosa	1				0.1	1	0.1	2	1	0.1		
	Acacia colei var. colei					0.1	1						
	Acacia coriacea subsp. pendens	1		1	0.1	1	4			1	3	0.1	2
	Acacia inaequilatera												
	Acacia pyrifolia	0.1	0.1					0.1					
	Acacia trachycarpa												
	Crotalaria medicaginea var. neglecta												
	"Crotalaria novae hollandiae subsp. novae hollandiae "										0.1		
	Cullen badocanum												

Family	Species	16		18		19		20		21		22	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Dichrostachys spicata	1		0.1	2	0.1	0.1	0.1	2	0.1	2		
	Erythrina vespertilio												
	Indigofera monophylla							1	2		0.1		
	Indigofera colutea												
	Indigofera trita												
	Rhynchosia bungarensis (P4)												
	Rhynchosia minima				0.1				1		0.1		0.1
	Senna artemisioides subsp. oligophylla												
	Senna glutinosa subsp. glutinosa	0.1				0.1	0.1	0.1					
	**Stylosanthes hamata*												
	Sesbania cannabina												
	Swainsona pterostylis												
	Swainsona formosa							0.1					0.1
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)												
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)								3				
	Tephrosia supina				0.1						0.1		
Frankeniaceae	*Frankenia ambita*												
Goodeniaceae	*Goodenia microptera*												
	Goodenia lamprosperma												
	Scaevola cunninghamii												
	Scaevola spinescens							0.1					
	Scaevola sericholla												
Lamiaceae	*lanceolatum*	0.1				0.1							
Lauraceae	*Cassytha filiformis*	1										1	
Malvaceae	**Malvastrum americanum*							0.1					
	Abutilon fraseri												
	Abutilon lepidum						0.1				0.1		
	Brachychiton acuminatus					0.1	0.1			1	2		

Family	Species	16		18		19		20		21		22	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Corchorus incanus subsp. incanus												
	Corchorus incanus subsp. incanus			0.1	2			1	3				
	Corchorus walcottii												
	Cullen graviols												
	Gossypium australe							0.1			0.1		
	Hibiscus sturtii var. campochlamys												
	Lawrencia viridigrisea												
	Melhania oblongifolia					0.3							0.1
	Sida intricata												
	Triumfetta appendiculata			0.1				0.1	2				
	Waltheria indica	0.1							0.1				
	Waltheria virgata												
Menispermaceae	*Tinospora smilacina*												
	Tinospora smilacina												
Molluginaceae	*Trigastrotheca molluginea*												
Moraceae	*Ficus brachypoda*									1			
Myrtaceae	*Corymbia hamersleyana*							25	15				
	Eucalyptus victrix	10		1	2	60	20					80	10
Nyctaginaceae	*Boerhavia gardneri*										0.1		
Oleaceae	*Jasminum didymum subsp. lineare*					1	0.1	1					
Passifloraceae	**Passiflora foetida var. foetida*											80	1
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*			0.1	0.1								
	Nellica maderaspatensis												
	Notoleptopus decaisnei												
Pittosporaceae	*Pittosporum phillyreoides*	0.1				5		0.1					
Plantaginaceae	*Stemodia grossa*							1	0.1		0.1	0.1	1

Family	Species	16		18		19		20		21		22	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Poaceae	**Cenchrus ciliaris*	0.1		0.1	35	1	20				10	10	0.1
	Chrysopogon fallax							0.1					
	Cymbopogon ambiguus	0.1		0.1					5	2	15		
	Eragrostis falcata												
	Eriachne mucronata												
	Eriachne obtusa			30									
	Eriachne tenuiculmis	1											
	Paspalidium tabulatum							0.1					
	Paspalidium clementii												
	Sporobolus virginicus												
	Themeda triandra										0.1		
	Triodia? basedowii (sterile)												
	Triodia angusta	30										50	70
	Triodia epactia	30		40	10	40		15	6	40	40		
Portulacaceae	*Portulaca oleracea*												0.1
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*							1	3				0.1
	Hakea lorea subsp. lorea						2	1					
Santalaceae	*Santalum lanceolatum*								0.1				
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*	0.1				3	2						
Solanaceae	*Nicotiana occidentalis*												
	Solanum diversiflorum							0.1					
	Solanum horridum							0.1			0.1		0.1
	Solanum lasiophyllum					0.1							
	Solanum phlomoides												
Violaceae	*Hybanthus aurantiacus*												
Zygophyllaceae	*Tribulus hirsutus*												

Family	Species	23		24		25		26		27		30	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*												
Aizoaceae	*Trianthema turgidifolia*		1									0.1	
	Trianthema triquetrum												
Amaranthaceae	*Achyranthes aspera*												
	**Aerva javanica*												
	Amaranthus undulatus										0.1		
	Amaranthus viridis												
	Gomphrena cunninghamii				0.1		0.1				5		
	Gomphrena leptoclada subsp. leptoclada												
	Ptilotus exaltatus			1								0.1	
	Ptilotus fusiformis												
Apocynaceae	*Cynanchum floribundum*						0.1						
Araliaceae	*Trachymene oleracea subsp. oleracea*				2	0.1	0.1		0.1		2		
Asteraceae	*Pluchea rubelliflora*												
	Pterocaulon sphacelatum		1		1								0.1
	Pterocaulon sphaeranthoides												
	Streptoglossa decurrens												
Bignoniaceae	*Dolichandrone occidentalis*												
Boraginaceae	*Ehretia saligna var. saligna*												
	Heliotropium tenuifolium										0.1		
	Trichodesma zeylanicum var. zeylanicum				0.1	0.1			2		0.1	0.1	
Capparaceae	*Capparis spinosa*												
Caryophyllales	*Polycarpa longiflora*										2		
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*	0.1			5			0.1			1		
	Neobassia astrocarpa												
	Rhagodia eremaea												
	Salsola australis												

Family	Species	23		24		25		26		27		30	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Tecticornia auriculata												
	Tecticornia halocnemoides												
	Tecticornia indica subsp. indica												
	Threlkeldia diffusa												
Cleomaceae	*Cleome viscosa*		0.1			0.1			0.1				
Combretaceae	*Terminalia circumalata*												
	Terminalia supranitifolia (P3)				3								
Convolvulaceae	*?Bonamia erecta*												
	Evolvulus alsinoides var. villosicalyx				0.1		0.1		0.1		0.1		
	Ipomoea costata				4			0.1	1				
Cucurbitaceae	*Cucumis variabilis*				3	0.1	0.1				0.1		
Cyperaceae	*Cyperus vaginatus*	0.1											
Euphorbiaceae	*Adriana tomentosa var. tomentosa*	0.1											
	Euphorbia coghlanii											0.1	
	Euphorbia tannensis subsp. eremophila												
Fabaceae	*Acacia ampliceps*	0.1											
	Acacia ancistrocarpa		3										
	Acacia bivenosa	0.1	4			1	1				0.1	1	1
	Acacia colei var. colei					0.1	0.1						
	Acacia coriacea subsp. pendens	0.1	0.1			0.1	0.1				0.1	0.1	
	Acacia inaequilatera												
	Acacia pyrifolia												
	Acacia trachycarpa												
	Crotalaria medicaginea var. neglecta											0.1	
	"Crotalaria novae hollandiae subsp. novae hollandiae "												
	Cullen badocanum					0.1							
	Cullen graveolens												1

Family	Species	23		24		25		26		27		30	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Dichrostachys spicata											0.1	
	Erythrina vespertilio					0.1							
	Indigofera monophylla		0.1									0.1	0.1
	Indigofera colutea		3										
	Indigofera trita												
	Rhynchosia bungarensis (P4)						1						
	Rhynchosia minima		0.1		1	2			0.1		0.1		0.1
	Senna artemisioides subsp. oligophylla												
	Senna glutinosa subsp. glutinosa						0.1						
	Sesbania cannabina		0.1										
	**Stylosanthes hamata*		0.1										
	Swainsona pterostylis												
	Swainsona formosa		0.1		0.1								0.1
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)												
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)												0.1
	Tephrosia supina												
Frankeniaceae	*Frankenia ambita*												
Goodeniaceae	*Goodenia microptera*											0.1	
	Goodenia lamprosperma												
	Scaevola cunninghamii												
	Scaevola spinescens			1			0.1	0.1	0.1			0.1	
	Scaevola sericophylla												
Lamiaceae	*lanceolatum*												
Lauraceae	*Cassytha filiformis*											0.1	
Malvaceae	**Malvastrum americanum*												
	Abutilon fraseri								1				
	Abutilon lepidum						0.1						
	Brachychiton acuminatus			1	0.1						2		

Family	Species	23		24		25		26		27		30	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Corchorus incanus subsp. incanus												
	Corchorus incanus subsp. incanus		0.1									0.1	
	Corchorus walcottii												
	Gossypium australe										4		
	Hibiscus sturtii var. campochlamys												
	Lawrencia viridigrisea												
	Melhania oblongifolia												
	Sida intricata		0.1										
	Triumfetta appendiculata					0.1	0.1					0.1	
	Waltheria indica						0.1						
	Waltheria virgata												0.1
Menispermaceae	*Tinospora smilacina*			0.1				0.1					
	Tinospora smilacina												
Molluginaceae	*Trigastrotheca molluginea*												
Moraceae	*Ficus brachypoda*							1	3				
Myrtaceae	*Corymbia hamersleyana*												
	Eucalyptus victrix	50	1										
Nyctaginaceae	*Boerhavia gardneri*		0.1		0.1				0.1				
Oleaceae	*Jasminum didymum subsp. lineare*				3			0.1	2				
Passifloraceae	**Passiflora foetida var. foetida*	1	0.1		1								
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*												
	Nellica maderaspatensis												0.1
	Notoleptopus decaisnei											0.1	
Pittosporaceae	*Pittosporum phillyreoides*												
Plantaginaceae	*Stemodia grossa*	0.1											2
Poaceae	**Cenchrus ciliaris*	1	85		0.1				0.1			0.1	0.1
	Chrysopogon fallax												
	Cymbopogon ambiguus			1	6	0.1	0.1		8	10	1		2
	Eragrostis falcata												
	Eriachne mucronata												

Family	Species	23		24		25		26		27		30	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Eriachne obtusa												
	Eriachne tenuiculmis												
	Paspalidium tabulatum												
	Paspalidium clementii												
	Sporobolus virginicus												
	Themeda triandra											0.1	
	Triodia? basedowii (sterile)												
	Triodia angusta	80	5									85	
	Triodia epactia			25	20	90	85	70	3		15	1	85
Portulacaceae	*Portulaca oleracea*										2		
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*					0.1	0.1	0.1					
	Hakea lorea subsp. lorea					1	1						
Santalaceae	*Santalum lanceolatum*												
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*							0.1					
Solanaceae	*Nicotiana occidentalis*				0.1				0.1				
	Solanum diversiflorum												
	Solanum horridum		1	0.1		0.1	0.1		2		0.1	0.1	
	Solanum lasiophyllum												0.1
	Solanum phlomoides												
Violaceae	*Hybanthus aurantiacus*												
Zygophyllaceae	*Tribulus hirsutus*												

Family	Species	39		40		41		43		44		45	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*												
Aizoaceae	*Trianthema turgidifolia*									0.1			
	Trianthema triquetrum												
Amaranthaceae	*Achyranthes aspera*												
	**Aerva javanica*		3										
	Amaranthus undulatus					0.1							
	Amaranthus viridis								0.1				
	Gomphrena cunninghamii						0.1						
	Gomphrena leptoclada subsp. leptoclada					0.1							
	Ptilotus exaltatus			0.1									
	Ptilotus fusiformis												
Apocynaceae	*Cynanchum floribundum*												
Araliaceae	*Trachymene oleracea subsp. oleracea*	0.1				0.1							
Asteraceae	*Pluchea rubelliflora*												
	Pterocaulon sphacelatum		0.1		1								
	Pterocaulon sphaeranthoides												
	Streptoglossa decurrens			0.1	1								
Bignoniaceae	*Dolichandrone occidentalis*	1	4										
Boraginaceae	*Ehretia saligna var. saligna*												
	Heliotropium tenuifolium			0.1									
	Trichodesma zeylanicum var. zeylanicum	0.1	2	0.1	1		5						
Capparaceae	*Capparis spinosa*												
Caryophyllales	*Polycarpa longiflora*		2										
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*												
	Neobassia astrocarpa								0.1				
	Rhagodia eremaea												
	Salsola australis		0.1										

Family	Species	39		40		41		43		44		45	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Tecticornia auriculata								5	0.1	15		0.1
	Tecticornia halocnemoides							20	30	15	0.1	10	1
	Tecticornia indica subsp. indica												
	Threlkeldia diffusa												
Cleomaceae	*Cleome viscosa*	0.1				0.1							
Combretaceae	*Terminalia circumalata*												
	Terminalia supranitifolia (P3)												
Convolvulaceae	*?Bonamia erecta*												
	Evolvulus alsinoides var. villosicalyx		0.1		0.1		0.1						
	Ipomoea costata					0.1							
Cucurbitaceae	*Cucumis variabilis*	0.1	1	0.1		0.1	0.1						
Cyperaceae	*Cyperus vaginatus*												
Euphorbiaceae	*Adriana tomentosa var. tomentosa*												
	Euphorbia coghlanii					0.1							
	Euphorbia tannensis subsp. eremophila												
Fabaceae	*Acacia ampliceps*												
	Acacia ancistrocarpa												
	Acacia bivenosa	1		0.1	4								
	Acacia colei var. colei			0.1									
	Acacia coriacea subsp. pendens		1										
	Acacia inaequilatera			30	10								
	Acacia pyrifolia												
	Acacia trachycarpa												
	Crotalaria medicaginea var. neglecta												
	"Crotalaria novae hollandiae subsp. novae hollandiae "	0.1				0.1	0.1						
	Cullen badocanum												

Family	Species	39		40		41		43		44		45	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Cullen graviols												
	Dichrostachys spicata					0.1							
	Erythrina vespertilio												
	Indigofera monophylla	0.1		0.1	3								
	Indigofera colutea												
	Indigofera trita					0.1							
	Rhynchosia bungarensis (P4)			0.1	0.1								
	Rhynchosia minima	0.1	0.1	0.1		2	0.1						
	Senna artemisioides subsp. oligophylla				0.1								
	Senna glutinosa subsp. glutinosa		2	0.1	2		0.1						
	Sesbania cannabina												
	**Stylosanthes hamata*												
	Swainsona pterostylis												
	Swainsona formosa				0.1								
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)												
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)	0.1				0.1							
	Tephrosia supina			0.1									
Frankeniaceae	*Frankenia ambita*												
Goodeniaceae	*Goodenia microptera*												
	Goodenia lamprosperma												
	Scaevola cunninghamii												
	Scaevola spinescens												
	Scaevola sericophylla												
Lamiaceae	*lanceolatum*			0.1									
Lauraceae	*Cassytha filiformis*												
Malvaceae	**Malvastrum americanum*												
	Abutilon fraseri												
	Abutilon lepidum		2										

Family	Species	39		40		41		43		44		45	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Brachychiton acuminatus												
	Corchorus incanus subsp. incanus												
	Corchorus incanus subsp. incanus			0.1	0.1		0.1						
	Corchorus walcottii												
	Gossypium australe	0.1											
	Hibiscus sturtii var. campochlamys	0.1		0.1									
	Lawrencia viridigrisea												
	Melhania oblongifolia												
	Sida intricata												
	Triumfetta appendiculata			1	0.1								
	Waltheria indica				1								
	Waltheria virgata												
Menispermaceae	*Tinospora smilacina*						0.1						
	Tinospora smilacina	0.1											
Molluginaceae	*Trigastrotheca molluginea*												
Moraceae	*Ficus brachypoda*												
Myrtaceae	*Corymbia hamersleyana*												
	Eucalyptus victrix												
Nyctaginaceae	*Boerhavia gardneri*	0.1											
Oleaceae	*Jasminum didymum subsp. lineare*												
Passifloraceae	**Passiflora foetida var. foetida*												
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*												
	Nellica maderaspatensis		0.1										
	Notoleptopus decaisnei												
Pittosporaceae	*Pittosporum phillyreoides*												
Plantaginaceae	*Stemodia grossa*				2								
Poaceae	**Cenchrus ciliaris*		5			0.1							
	Chrysopogon fallax												

Family	Species	39		40		41		43		44		45	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Cymbopogon ambiguus			0.1		0.1							
	Eragrostis falcata										1		
	Eriachne mucronata												
	Eriachne obtusa												
	Eriachne tenuiculmis												
	Paspalidium tabulatum												
	Paspalidium clementii												
	Sporobolus virginicus												
	Themeda triandra	3											
	Triodia? basedowii (sterile)												
	Triodia angusta	1											
	Triodia epactia	85	75	70	70	75	80						
Portulacaceae	*Portulaca oleracea*												
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*	1	1	10	3		4						
	Hakea lorea subsp. lorea												
Santalaceae	*Santalum lanceolatum*												
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*												
Solanaceae	*Nicotiana occidentalis*												
	Solanum diversiflorum												
	Solanum horridum		0.1	0.1	0.1		0.1						
	Solanum lasiophyllum	0.1											
	Solanum phlomoides			0.1	5								
Violaceae	*Hybanthus aurantiacus*												
Zygophyllaceae	*Tribulus hirsutus*												

Family	Species	46		49		50		51		54		56	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*												
Aizoaceae	*Trianthema turgidifolia*	0.1										20	3
	Trianthema triquetrum												
Amaranthaceae	*Achyranthes aspera*						3						
	**Aerva javanica*	20	1									20	0.1
	Amaranthus undulatus												
	Amaranthus viridis												
	Gomphrena cunninghamii						10		0.1				
	Gomphrena leptoclada subsp. leptoclada												
	Ptilotus exaltatus									0.1			
	Ptilotus fusiformis			0.1									
Apocynaceae	*Cynanchum floribundum*												
Araliaceae	*Trachymene oleracea subsp. oleracea*					0.1				0.1			
Asteraceae	*Pluchea rubelliflora*												
	Pterocaulon sphacelatum				1		2		0.1				
	Pterocaulon sphaeranthoides		0.1										
	Streptoglossa decurrens												
Bignoniaceae	*Dolichandrone occidentalis*			10									
Boraginaceae	*Ehretia saligna var. saligna*												
	Heliotropium tenuifolium												
	Trichodesma zeylanicum var. zeylanicum			0.1	2	1	2		1		2		0.1
Capparaceae	*Capparis spinosa*												
Caryophyllales	*Polycarpa longiflora*												
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*		1			0.1			1				
	Neobassia astrocarpa	0.1											
	Rhagodia eremaea					0.1	1						
	Salsola australis	20	1										
	Tecticornia auriculata												

Family	Species	46		49		50		51		54		56	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Tecticornia halocnemoides												
	Tecticornia indica subsp. indica												
	Threlkeldia diffusa	0.1	10										
Cleomaceae	*Cleome viscosa*	0.1				0.1	0.1			0.1			
Combretaceae	*Terminalia circumalata*												
	Terminalia supranitifolia (P3)												
Convolvulaceae	*?Bonamia erecta*												
	Evolvulus alsinoides var. villosicalyx				0.1				0.1		0.1		
	Ipomoea costata					0.1							
Cucurbitaceae	*Cucumis variabilis*						1		1	0.1	2		
Cyperaceae	*Cyperus vaginatus*			0.1									
Euphorbiaceae	*Adriana tomentosa var. tomentosa*												
	Euphorbia coghlanii												
	Euphorbia tannensis subsp. eremophila	0.1	0.1										
Fabaceae	*Acacia ampliceps*												
	Acacia ancistrocarpa												
	Acacia bivenosa									0.1	0.1		
	Acacia colei var. colei			0.1	1				2				
	Acacia coriacea subsp. pendens				6	0.1				0.1			
	Acacia inaequilatera				5	15	6						
	Acacia pyrifolia												
	Acacia trachycarpa												
	Crotalaria medicaginea var. neglecta						0.1				0.1		
	"Crotalaria novae hollandiae subsp. novae hollandiae "								0.1				
	Cullen badocanum												
	Cullen graveolens												
	Dichrostachys spicata			0.1						0.1			
	Erythrina vespertilio												
	Indigofera monophylla			0.1	1	0.1			2				

Family	Species	46		49		50		51		54		56	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Indigofera colutea						8		0.1				
	Indigofera trita												
	Rhynchosia bungarensis (P4)												
	Rhynchosia minima			0.1	0.1	0.1	2		0.1	2	2		
	Senna artemisioides subsp. oligophylla												
	Senna glutinosa subsp. glutinosa				1								
	Sesbania cannabina												
	**Stylosanthes hamata*												
	Swainsona pterostylis												
	Swainsona formosa				2								
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)												
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)					0.1				0.1			
	Tephrosia supina												
Frankeniaceae	*Frankenia ambita*		6										
Goodeniaceae	*Goodenia microptera*			0.1	0.1								
	Goodenia lamprosperma												
	Scaevola cunninghamii	5	5										
	Scaevola spinescens												
	Scaevola sericophylla												
Lamiaceae	*lanceolatum*					0.1							
Lauraceae	*Cassytha filiformis*												
Malvaceae	**Malvastrum americanum*												
	Abutilon fraseri												
	Abutilon lepidum												
	Brachychiton acuminatus												
	Corchorus incanus subsp. incanus												
	Corchorus incanus subsp. incanus			0.1	0.1				2				
	Corchorus walcottii			3		0.1							

Family	Species	46		49		50		51		54		56	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Gossypium australe		0.1				0.1				0.1		
	Hibiscus sturtii var. campochlamys												
	Lawrencia viridigrisea		0.1										
	Melhania oblongifolia		0.1										
	Sida intricata												
	Triumfetta appendiculata			0.1	0.1	0.1	2				0.1		
	Waltheria indica		0.1		0.1								
	Waltheria virgata												
Menispermaceae	*Tinospora smilacina*												
	Tinospora smilacina												
Molluginaceae	*Trigastrotheca molluginea*			0.1									
Moraceae	*Ficus brachypoda*												
Myrtaceae	*Corymbia hamersleyana*												
	Eucalyptus victrix												
Nyctaginaceae	*Boerhavia gardneri*			1	0.1	0.1			0.1				
Oleaceae	*Jasminum didymum subsp. lineare*												
Passifloraceae	**Passiflora foetida var. foetida*												
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*												
	Nellica maderaspatensis												
	Notoleptopus decaisnei					0.1							
Pittosporaceae	*Pittosporum phillyreoides*												
Plantaginaceae	*Stemodia grossa*				4		3		1				
Poaceae	**Cenchrus ciliaris*	1	0.1							0.1		20	15
	Chrysopogon fallax												
	Cymbopogon ambiguus			0.1		0.1	5	15			10		
	Eragrostis falcata		15										
	Eriachne mucronata												
	Eriachne obtusa			0.1									
	Eriachne tenuiculmis												
	Paspalidium tabulatum	0.1	0.1										

Family	Species	46		49		50		51		54		56	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Paspalidium clementii												
	Sporobolus virginicus	5											
	Themeda triandra												
	Triodia? basedowii (sterile)												
	Triodia angusta												
	Triodia epactia	1	10	65	80	70	70	70	80	75	80		
Portulacaceae	*Portulaca oleracea*												
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*			2	1	3	1			0.1			
	Hakea lorea subsp. lorea												
Santalaceae	*Santalum lanceolatum*												
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*												
Solanaceae	*Nicotiana occidentalis*												
	Solanum diversiflorum												
	Solanum horridum			0.1	2	0.1	1		1		1		
	Solanum lasiophyllum												
	Solanum phlomoides				2	0.1							
Violaceae	*Hybanthus aurantiacus*		0.1										
Zygophyllaceae	*Tribulus hirsutus*												

Family	Species	57		58	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
Agaricaceae	*Podaxis pistillaris*				0.1
Aizoaceae	*Trianthema turgidifolia*				
	Trianthema triquetrum				
Amaranthaceae	*Achyranthes aspera*				
	**Aerva javanica*				
	Amaranthus undulatus				
	Amaranthus viridis				
	Gomphrena cunninghamii		0.1		0.1
	Gomphrena leptoclada subsp. leptoclada			0.1	
	Ptilotus exaltatus				
	Ptilotus fusiformis		0.1	0.1	0.1
Apocynaceae	*Cynanchum floribundum*				
Araliaceae	*Trachymene oleracea subsp. oleracea*	0.1		0.1	0.1
Asteraceae	*Pluchea rubelliflora*				
	Pterocaulon sphacelatum		1		
	Pterocaulon sphaeranthoides				
	Streptoglossa decurrens				
Bignoniaceae	*Dolichandrone occidentalis*				
Boraginaceae	*Ehretia saligna var. saligna*				
	Heliotropium tenuifolium				
	Trichodesma zeylanicum var. zeylanicum	0.1	1		0.1
Capparaceae	*Capparis spinosa*				0.1
Caryophyllales	*Polycarpaea longiflora*				
Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*				
	Neobassia astrocarpa				
	Rhagodia eremaea				
	Salsola australis				
	Tecticornia auriculata				
	Tecticornia halocnemoides				

Family	Species	57		58	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Tecticornia indica subsp. indica				
	Threlkeldia diffusa				
Cleomaceae	*Cleome viscosa*			0.1	
Combretaceae	*Terminalia circumalata*				
	Terminalia supranitifolia (P3)				
Convolvulaceae	*?Bonamia erecta*				
	Evolvulus alsinoides var. villosicalyx		0.1		0.1
	Ipomoea costata				
Cucurbitaceae	*Cucumis variabilis*		0.1		2
Cyperaceae	*Cyperus vaginatus*				
Euphorbiaceae	*Adriana tomentosa var. tomentosa*				
	Euphorbia coghlanii				
	Euphorbia tannensis subsp. eremophila				
Fabaceae	*Acacia ampliceps*				
	Acacia ancistrocarpa				
	Acacia bivenosa	0.1			
	Acacia colei var. colei		0.1		0.1
	Acacia coriacea subsp. pendens				
	Acacia inaequilatera	5	4		
	Acacia pyrifolia				
	Acacia trachycarpa				
	Crotalaria medicaginea var. neglecta				
	"Crotalaria novae hollandiae subsp. novae hollandiae "				1
	Cullen badocanum				
	Cullen graveolens				
	Dichrostachys spicata				
	Erythrina vespertilio				
	Indigofera monophylla			0.1	
	Indigofera colutea				

Family	Species	57		58	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Indigofera trita				
	Rhynchosia bungarensis (P4)				
	Rhynchosia minima	0.1	0.1		0.1
	Senna artemisioides subsp. oligophylla				
	Senna glutinosa subsp. glutinosa		1		2
	Sesbania cannabina				
	**Stylosanthes hamata*		0.1		0.1
	Swainsona pterostylis				
	Swainsona formosa				
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)		0.1		
	Tephrosia supina		0.1		
Frankeniaceae	*Frankenia ambita*				
Goodeniaceae	*Goodenia microptera*				
	Goodenia lamprosperma				
	Scaevola cunninghamii				
	Scaevola spinescens				
	Scaevola sericophylla				
Lamiaceae	*lanceolatum*				
Lauraceae	*Cassytha filiformis*				
Malvaceae	**Malvastrum americanum*				
	Abutilon fraseri				
	Abutilon lepidum	0.1	1	0.1	0.1
	Brachychiton acuminatus		0.1		
	Corchorus incanus subsp. incanus				
	Corchorus incanus subsp. incanus				
	Corchorus walcottii				
	Gossypium australe				
	Hibiscus sturtii var. campochlamys				

Family	Species	57		58	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Lawrencia viridigrisea				
	Melhania oblongifolia				
	Sida intricata				
	Triumfetta appendiculata	0.1	0.1	0.1	
	Waltheria indica		0.1		0.1
	Waltheria virgata				
Menispermaceae	*Tinospora smilacina*				2
	Tinospora smilacina				
Molluginaceae	*Trigastrotheca molluginea*				
Moraceae	*Ficus brachypoda*				
Myrtaceae	*Corymbia hamersleyana*				
	Eucalyptus victrix				
Nyctaginaceae	*Boerhavia gardneri*	0.1	0.1		
Oleaceae	*Jasminum didymum subsp. lineare*		0.1		
Passifloraceae	**Passiflora foetida var. foetida*				
Phyllanthaceae	*Flueggea virosa subsp. melanthesoides*				
	Nellica maderaspatensis				
	Notoleptopus decaisnei				
Pittosporaceae	*Pittosporum phillyreoides*				
Plantaginaceae	*Stemodia grossa*				1
Poaceae	**Cenchrus ciliaris*		0.1		0.1
	Chrysopogon fallax				
	Cymbopogon ambiguus	0.1	1		3
	Eragrostis falcata				
	Eriachne mucronata				
	Eriachne obtusa				
	Eriachne tenuiculmis				
	Paspalidium tabulatum				
	Paspalidium clementii				
	Sporobolus virginicus				
	Themeda triandra				

Family	Species	57		58	
		APM (2019)	Trace (2023)	APM (2019)	Trace (2023)
	Triodia? basedowii (sterile)				
	Triodia angusta				
	Triodia epactia	80	80	80	80
Portulacaceae	*Portulaca oleracea*		0.1		0.1
Proteaceae	*Grevillea pyramidalis subsp. pyramidalis*	10	5	0.1	2
	Hakea lorea subsp. lorea				
Santalaceae	*Santalum lanceolatum*				
Sapindaceae	*Alectryon oleifolius subsp. oleifolius*				
Solanaceae	*Nicotiana occidentalis*				
	Solanum diversiflorum				
	Solanum horridum		0.1		0.1
	Solanum lasiophyllum				
	Solanum phlomoides				
Violaceae	*Hybanthus aurantiacus*				
Zygophyllaceae	*Tribulus hirsutus*				

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