

**5.1.3 Condition**

Vegetation condition was mapped as Completely Degraded to Very Good throughout the survey area (Figure 9). The majority of the survey area has been disturbed to some degree from existing infrastructure. The Completely Degraded area comprises 63% of the survey area, followed by ‘Poor’ condition vegetation at 13%, and Degraded at 12%. Of the 104 ha of vegetation, 1.83 ha (2%) represents vegetation in Very Good condition.

There are numerous areas of disturbance including cleared hardstand for permanent infrastructure (rail, road, buildings), roadside clearing and drainage, pipelines and powerlines with regrowth vegetation underneath, and historical borrow pits which have developed into artificial wetlands. Some examples of this is shown in Plate 1.

**Table 8 Vegetation Condition Extent**

Condition rating	Extent (ha)	Percent of Total Area (%)
Very Good	1.83	2
Good	10.71	10
Poor	13.14	13
Degraded	12.39	12
Completely Degraded/Cleared	65.90	63
Total	104.00	100

Note: Water represents 0.18 ha and is not included in calculations



**Plate 1 Evidence of disturbance from top right clockwise: pipeline, man-made rock wall, roadside drainage, earthworks**



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**LEGEND**

Survey Area

Vegetation Condition

- 0.1 - Completely Degraded
- 0.6 - Good



**Vegetation Condition**

**RIO TINTO**

*FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT*

**Figure 9.1**



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**LEGEND**

Survey Area

**Vegetation Condition**

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good
- 0.8 - Very Good

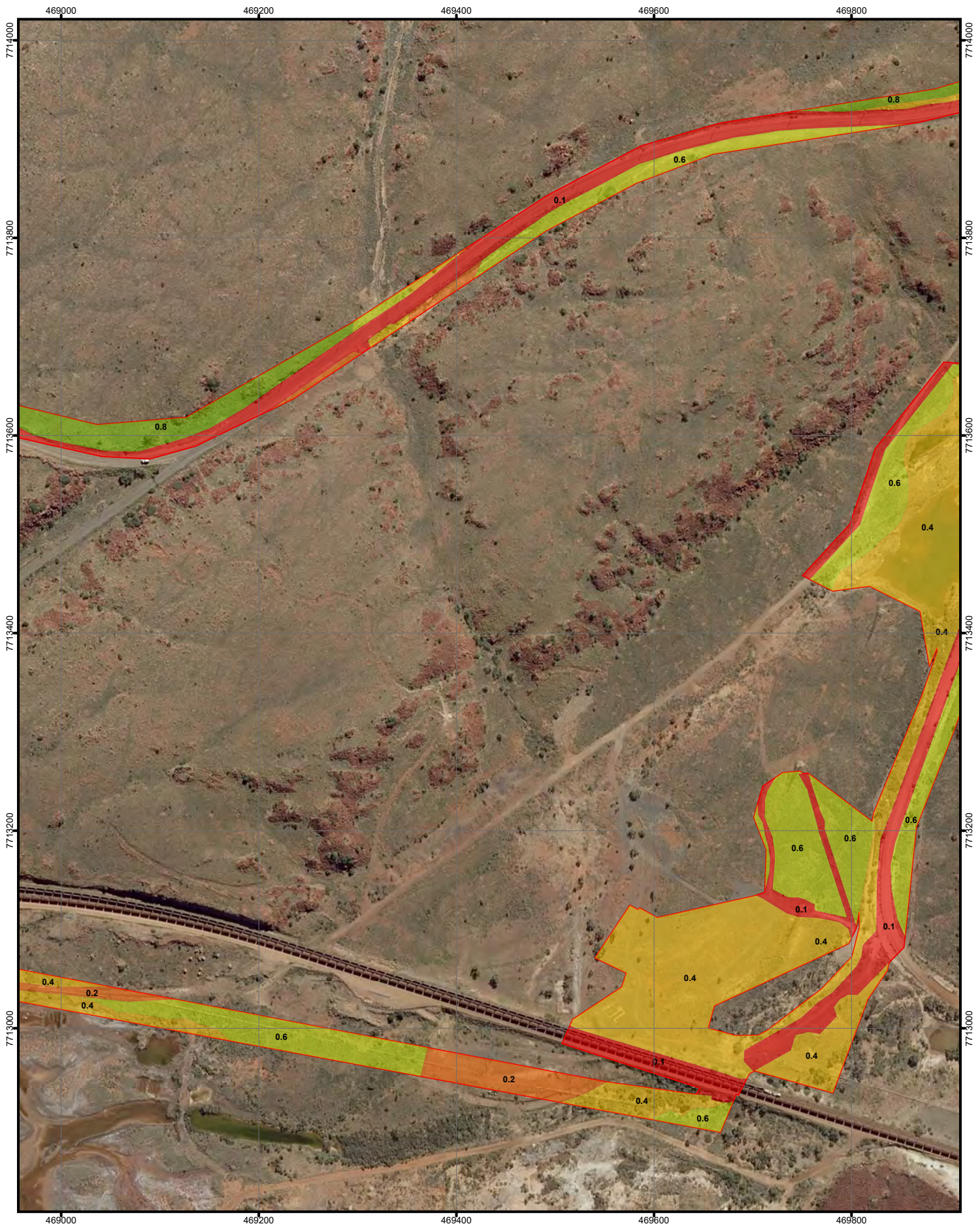


**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.2**



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**LEGEND**

Survey Area

**Vegetation Condition**

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good
- 0.8 - Very Good

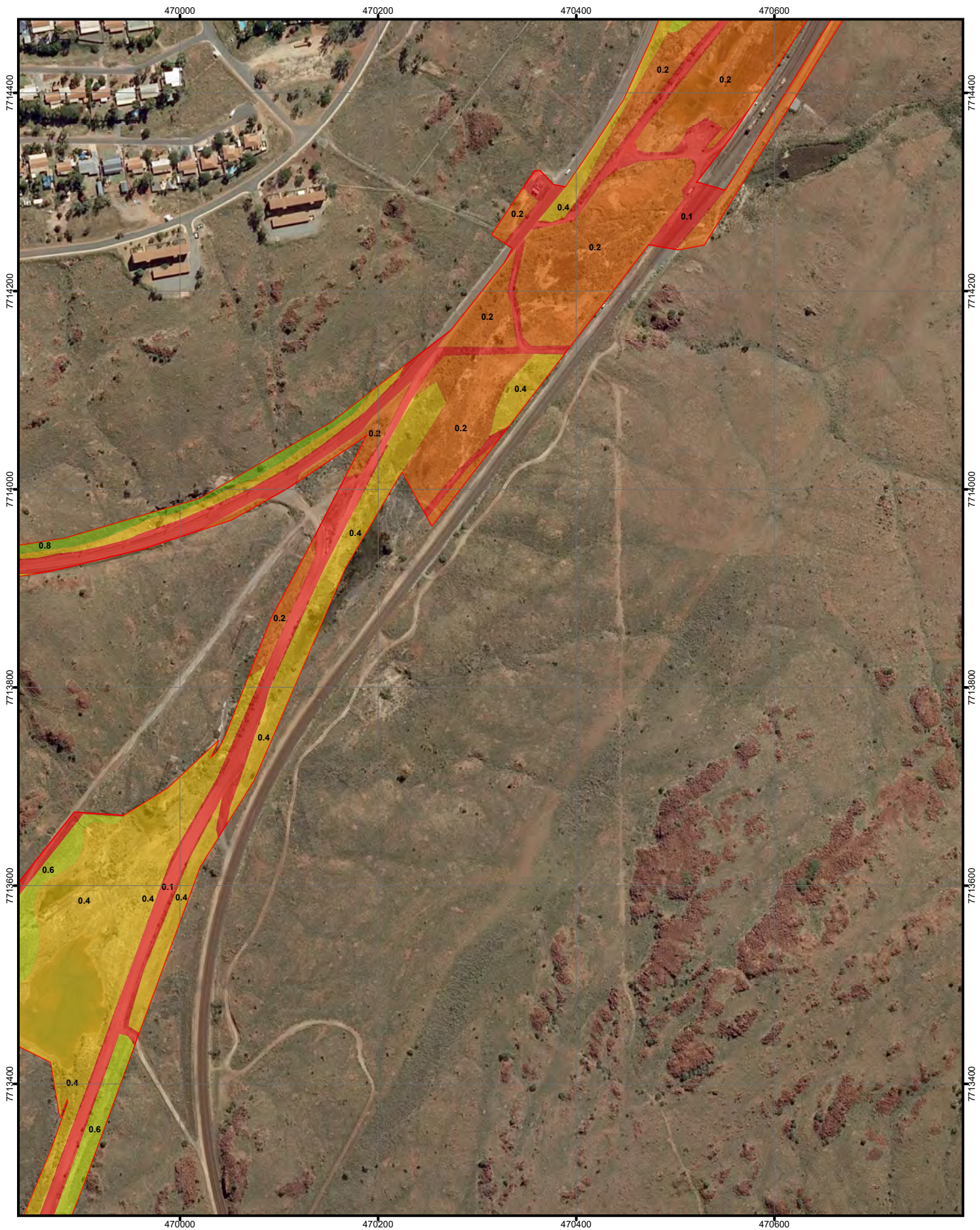


**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.3**



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**LEGEND**

Survey Area

**Vegetation Condition**

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good
- 0.8 - Very Good

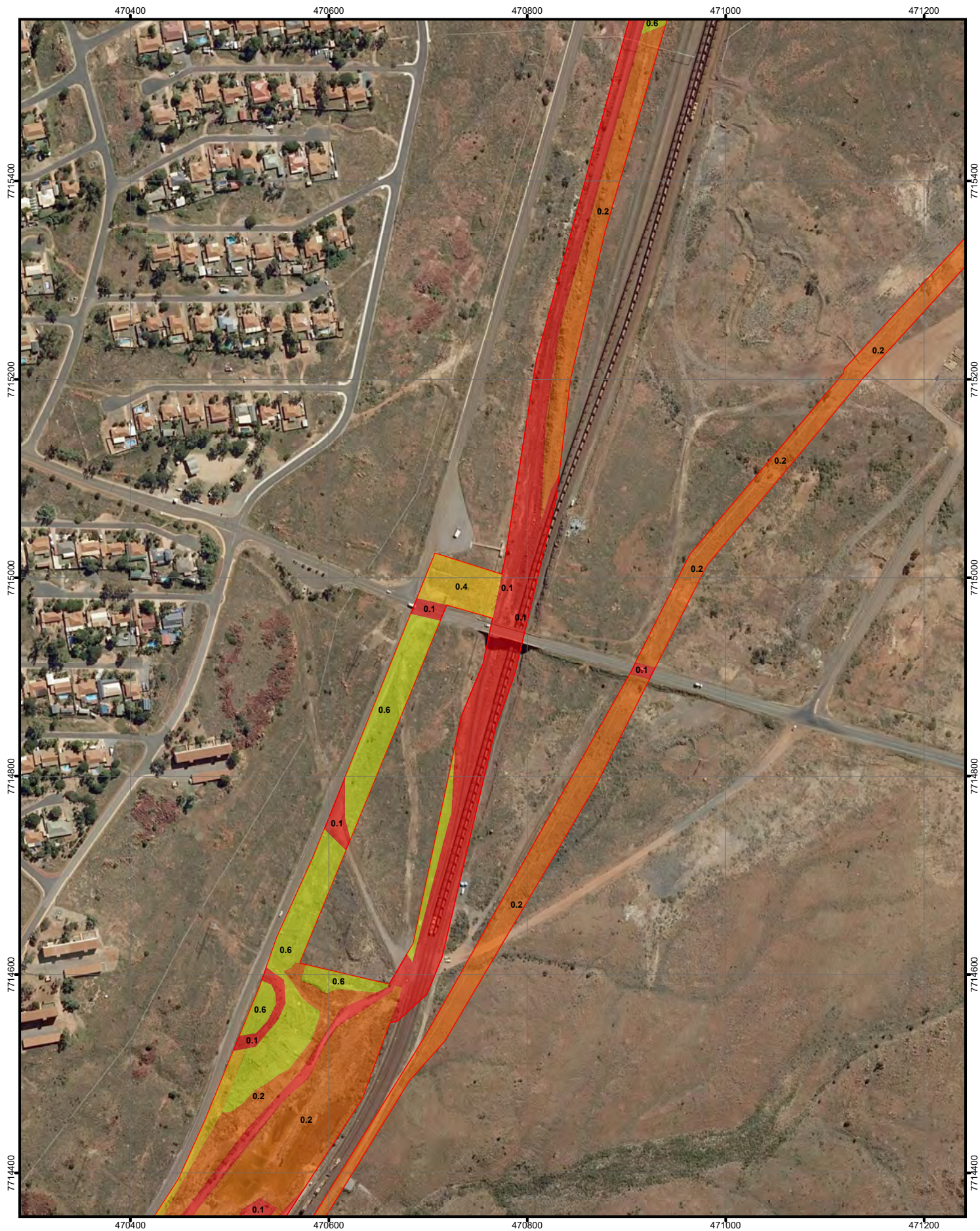


**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.4**



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**LEGEND**

Survey Area

Vegetation Condition

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good

**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.5**



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**LEGEND**

Survey Area

Vegetation Condition

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good

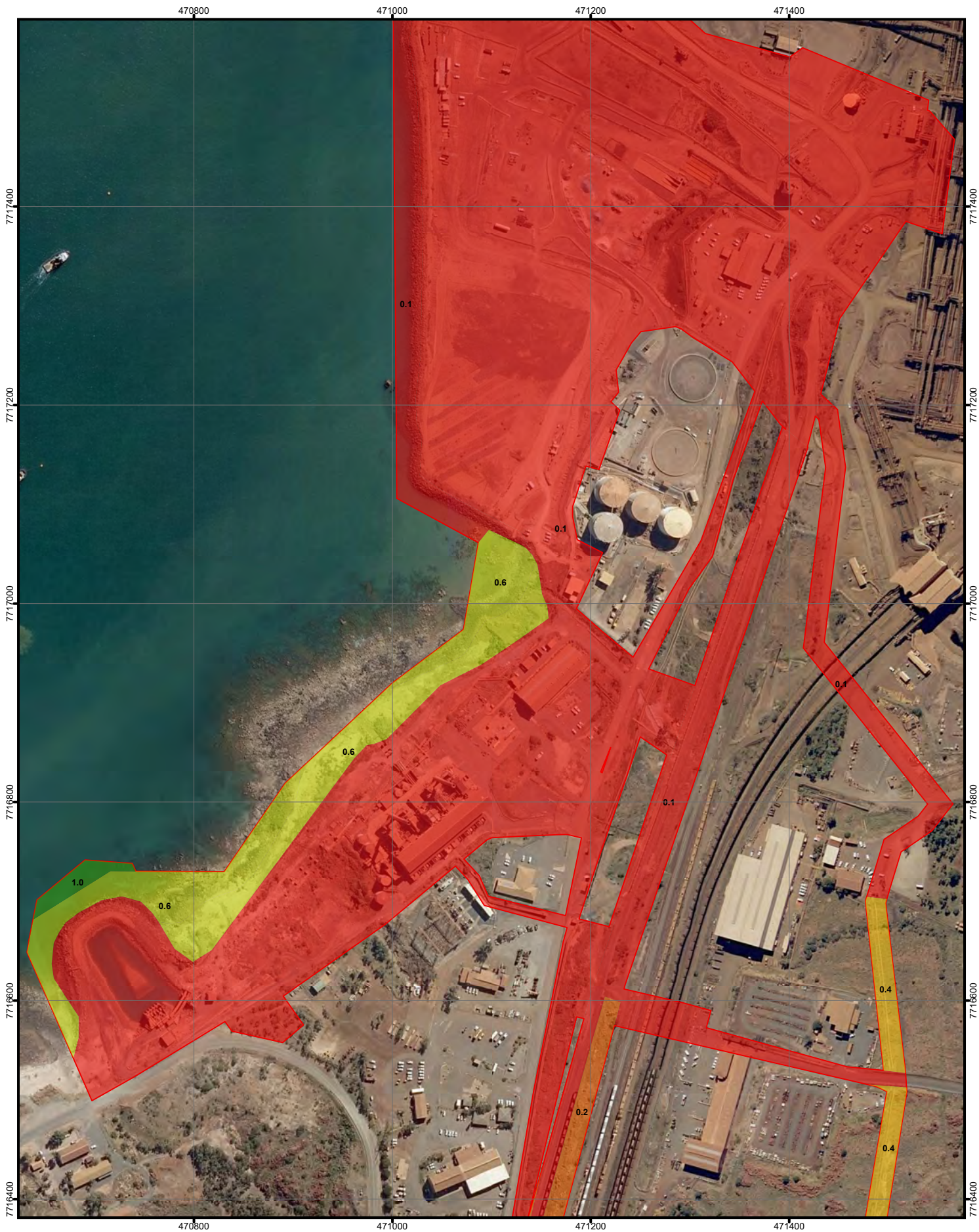


**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.6**



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**LEGEND**

Survey Area

**Vegetation Condition**

- 0.1 - Completely Degraded
- 0.2 - Degraded
- 0.4 - Poor
- 0.6 - Good
- 1 - Excellent



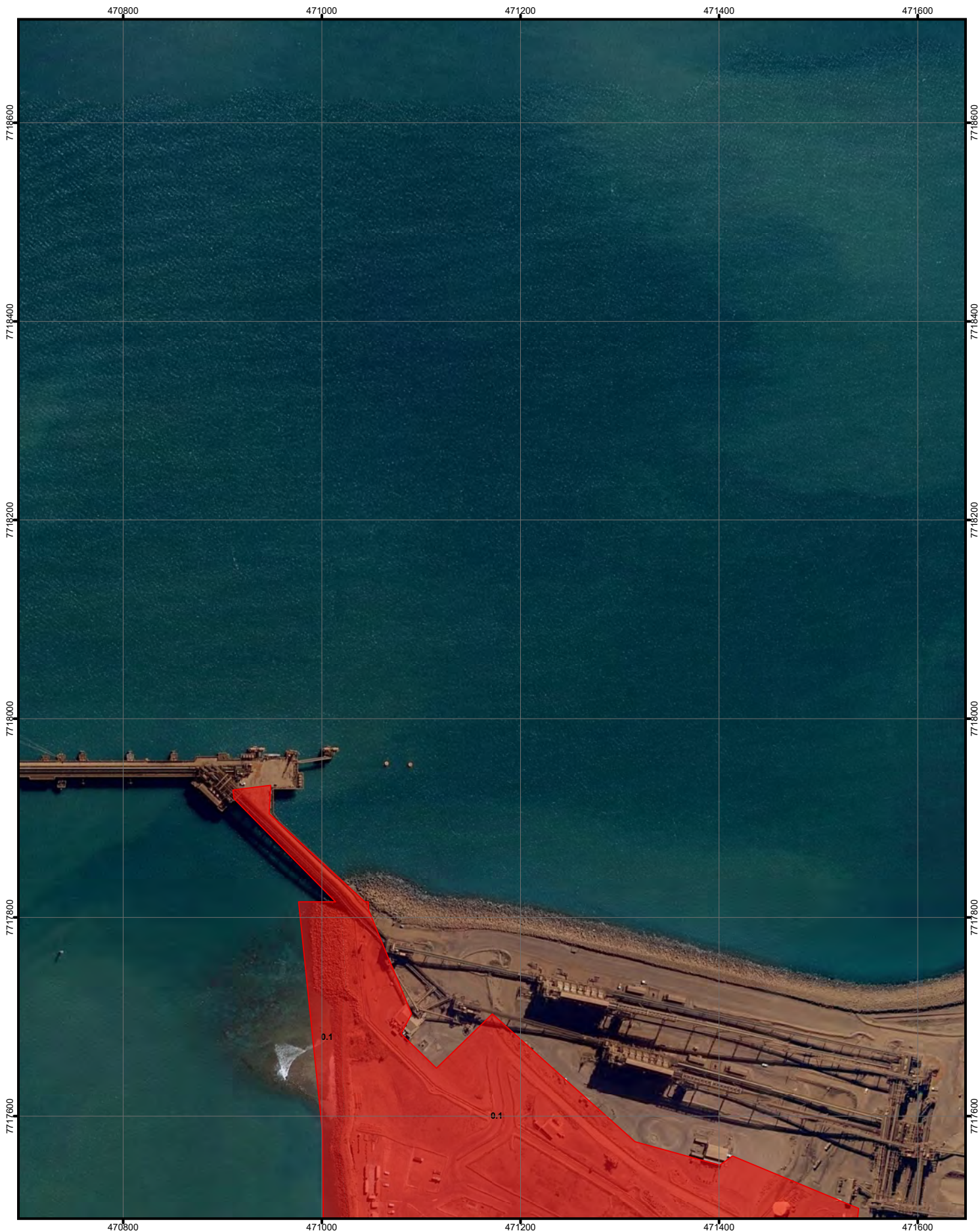
**Vegetation Condition**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 9.7**





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**LEGEND**

- Survey Area
- Vegetation Condition
- 0.1 - Completely Degraded

**Vegetation Condition**

**RIO TINTO**

*FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT*

**Figure 9.8**

## 5.2 Flora

### 5.2.1 Conservation Significant Flora

No species listed as Threatened under *the Biodiversity Conservation Act 2016* (BC Act), or under the EPBC Act were recorded in the survey area. One Priority 3 flora species listed by DBCA was recorded.

One population of *Eragrostis surreyana* (Priority 3) was recorded, comprising approximately 885 individuals. The population occurs within the Disturbed - Artificial Ephemeral Wetland (AaEgPr), shown on Figure 8 and presented in Appendix E.



Plate 2 *Eragrostis surreyana* (P3) habit (top) and habitat (bottom)

One species, *Hibiscus sturtii* var. *campylochlamys* may represent a range extension according to the Florabase (WAH, 1998) distribution. This species is highly variable (U. Sirisena *pers comm.*) and may have been previously identified as the group collective of *Hibiscus sturtii* of which there are three records within the Karratha area. It was recorded at five locations (relevés 8, 15, 16, 24 and 31). This species was not recorded in previous surveys (Biota, 2011; 2018), however Naturemap show it as occurring in the region. It is therefore unlikely to represent a significant occurrence.

### 5.2.2 Flora Inventory

A total of 124 native species from 88 genera, and 39 families were recorded within the survey area. Species richness was higher in phase I where 108 native species were recorded compared to 74 native species in phase II.

The best represented family was Fabaceae (30 native species), followed by Poaceae (12 native species) and Malvaceae (11 native species).

Six weed species were recorded, all of which are considered common in the Pilbara region. The most common weed was *\*Cenchrus ciliaris* (Buffel Grass). Two weed species were recorded only in phase II, including *\*Stylosanthes hamata* recorded along roadsides, and *\*Flaveria trinervia* recorded in the Disturbed – Artificial Ephemeral Wetland community. None of the weeds that were recorded are listed as Declared Pests under the BAM Act, or are of National Significance.

The comprehensive list of vascular flora species recorded and representative communities in which they occur in are presented in Appendix D. Qualitative data recorded from individual quadrats is presented in Appendix B.

## 5.3 Fauna Habitats


Five fauna habitats (including Cleared) were described and mapped from 21 Fauna Habitat Assessments. Fauna habitats have been described in their entirety within and adjacent to the survey area. Although some features may not be present in all locations, they still form part of the overall habitat description and complexity (i.e. mature trees and rock piles). Descriptions of the fauna habitats are provided in Table 9 and mapped in Figure 10. Fauna habitats generally aligned with the vegetation community mapping. Fauna Habitat Assessments are presented in Appendix D.


None of the five fauna habitats represent core habitat for conservation significant fauna species that potentially occur in the survey area. Habitat was considered 'suitable' and 'marginal' for 13 species listed as 'likely to occur' and eight species that 'may occur' from the desktop assessment.


### 5.3.1 Short Range Endemic


The survey area was traversed on foot (twice), and opportunistic searches conducted for SREs. No opportunistic observations of SREs, including trapdoor spiders, were observed in the survey area. No suitable habitat was identified in the survey area. The survey area largely comprises disturbed or previously cleared areas, and stony skeletal soils with substrates that would be difficult for burrowing spiders to penetrate.


**Table 9 Fauna Habitats of the Survey Area**

Description	Conservation Significant Fauna Habitat	Photograph
<p>Disturbed - Artificial wetlands</p> <p>Standing water (seasonal), occasional mature tree, sedges, herbs and low shrubs provide moderate ground cover. It appears that these relatively flat areas were created by earthworks (e.g. excavation of fill material) associated with the construction of nearby rail/road infrastructure.</p> <p>Moderate complexity when water is present.</p> <p>This habitat is a result of historical earthworks (likely for sourcing fill). Due to significant rainfall in July 2020, these relatively flat areas contained ponded water. It would be expected that surface water would be temporary, and these areas would be dry for much of the year.</p> <p>Area: 2.54 ha</p>	<p>Suitable foraging habitat for the Common Sandpiper and Caspian Tern, which were directly observed within this habitat during the survey.</p> <p>Provide marginal foraging habitat for the Pacific Golden Plover and Crested Tern</p> <p>Vagrant visitors:</p> <ul style="list-style-type: none"> <li>- Peregrine Falcon</li> <li>- Ghost Bat</li> <li>- Whimbrel</li> <li>- Little Whimbrel</li> <li>- Oriental Pratincole</li> </ul>	

Description	Conservation Significant Fauna Habitat	Photograph
<p><i>Triodia</i> grasslands on rocky slopes and flats</p> <p>Grasslands with moderate to high ground cover on rocky slopes and flat areas. Includes some tall shrubs over diverse low herbs, shrubs and grasses. Occurs on skeletal rocky slopes and around rock piles.</p> <p>Varies in complexity from high to low in the absence of rock piles to provide shelter. Recorded on skeletal slopes.</p> <p>Area: 23.10 ha</p>	<p>Considered suitable foraging habitat for the Northern Quoll and Lined Soil-crevice Skink. Rock piles provides suitable denning habitat for the Northern Quoll.</p> <p>Marginal habitat for the Western Pebble-mound Mouse and Pilbara Olive Python</p> <p>Vagrant visitors include:</p> <ul style="list-style-type: none"> <li>- Peregrine Falcon</li> <li>- Barn Swallow</li> <li>- Ghost Bat</li> <li>- Whimbrel</li> <li>- Little Whimbrel</li> <li>- Oriental Pratincole</li> </ul>	

Description	Conservation Significant Fauna Habitat	Photograph
<p>Minor creeks</p> <p>Ephemeral creeks that intersect existing railway. Includes mature trees in varying densities (no hollows observed), low log litter and moderate density groundcover of tussock grasses, herbs and shrubs. Recorded on skeletal rocky soils.</p> <p>Complexity is moderate to high with the presence of under-mid and upper-storey vegetation.</p> <p>Area: 1.76 ha</p>	<p>Marginal foraging habitat for the North-western Free-tailed Bat.</p> <p>Vagrant visitors include:</p> <ul style="list-style-type: none"> <li>- Peregrine Falcon</li> <li>- Oriental Pratincole</li> <li>- Whimbrel</li> <li>- Barn Swallow</li> <li>- Little Whimbrel</li> <li>- Ghost Bat</li> </ul>	

Description	Conservation Significant Fauna Habitat	Photograph
<p><b>Shoreline</b></p> <p>Rocky/boulder shoreline sloping from existing infrastructure (port) into subtidal areas. Intertidal areas were dominated by oyster encrusted rocks and there were no low tidal sand or mud mudflats exposed seaward of the rocky shoreline (i.e. no mudflat habitat suitable as foraging areas for shorebirds).</p> <p>Isolated patches of mangroves (predominantly <i>Avicennia marina</i>) occurred on mid-upper levels of the rocky shoreline.</p> <p>Complexity is low with minimal ground cover.</p> <p>Area: 5.44 ha</p>	<p>Suitable foraging and resting habitat for:</p> <ul style="list-style-type: none"> <li>- Common Sandpiper</li> <li>- Ruddy Turnstone</li> <li>- Caspian Tern</li> <li>- Large Sand Plover</li> <li>- Lesser Sand Plover</li> <li>- Pacific Golden Plover</li> <li>- Broad-billed Sandpiper</li> </ul> <p>Marginal roosting habitat for migratory species including:</p> <ul style="list-style-type: none"> <li>- Common Tern</li> <li>- Grey-tailed Tattler</li> </ul> <p>Marginal foraging habitat for vagrant species including:</p> <ul style="list-style-type: none"> <li>- Peregrine Falcon</li> <li>- Barn Swallow</li> <li>- North-western Free-tailed Bat</li> <li>- Bar-tailed Godwit</li> </ul>	

Description	Conservation Significant Fauna Habitat	Photograph
<p>Cleared</p> <p>Rail, road and port infrastructure providing minimal habitat. Includes some escarpments of rocks along the rail corridor.</p> <p>Area: 63.71 ha</p>	<p>Marginal habitat from man-made rock walls and rock piles for:</p> <ul style="list-style-type: none"> <li>- Northern Quoll</li> <li>- Pilbara Olive Python</li> </ul> <p>Vagrant visitors include:</p> <ul style="list-style-type: none"> <li>- Barn Swallow</li> <li>- Peregrine Falcon</li> <li>- Ghost Bat</li> </ul>	





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**LEGEND**

- Survey Area
- Fauna Habitat**
- Cleared
- Shoreline



**Fauna Habitats**

**RIO TINTO**

*FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT*

**Figure 10.1**



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**LEGEND**

Survey Area

Fauna Habitat

- Cleared
- Disturbed - Artificial Wetland
- Minor Creeks
- Shoreline
- Triodia* on Rocky Slopes



**Fauna Habitats**

**RIO TINTO**

**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 10.2**



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**LEGEND**

Survey Area

Fauna Habitat

- █ Cleared
- █ Disturbed - Artificial Wetland
- █ Minor Creeks
- █ *Triodia* on Rocky Slopes

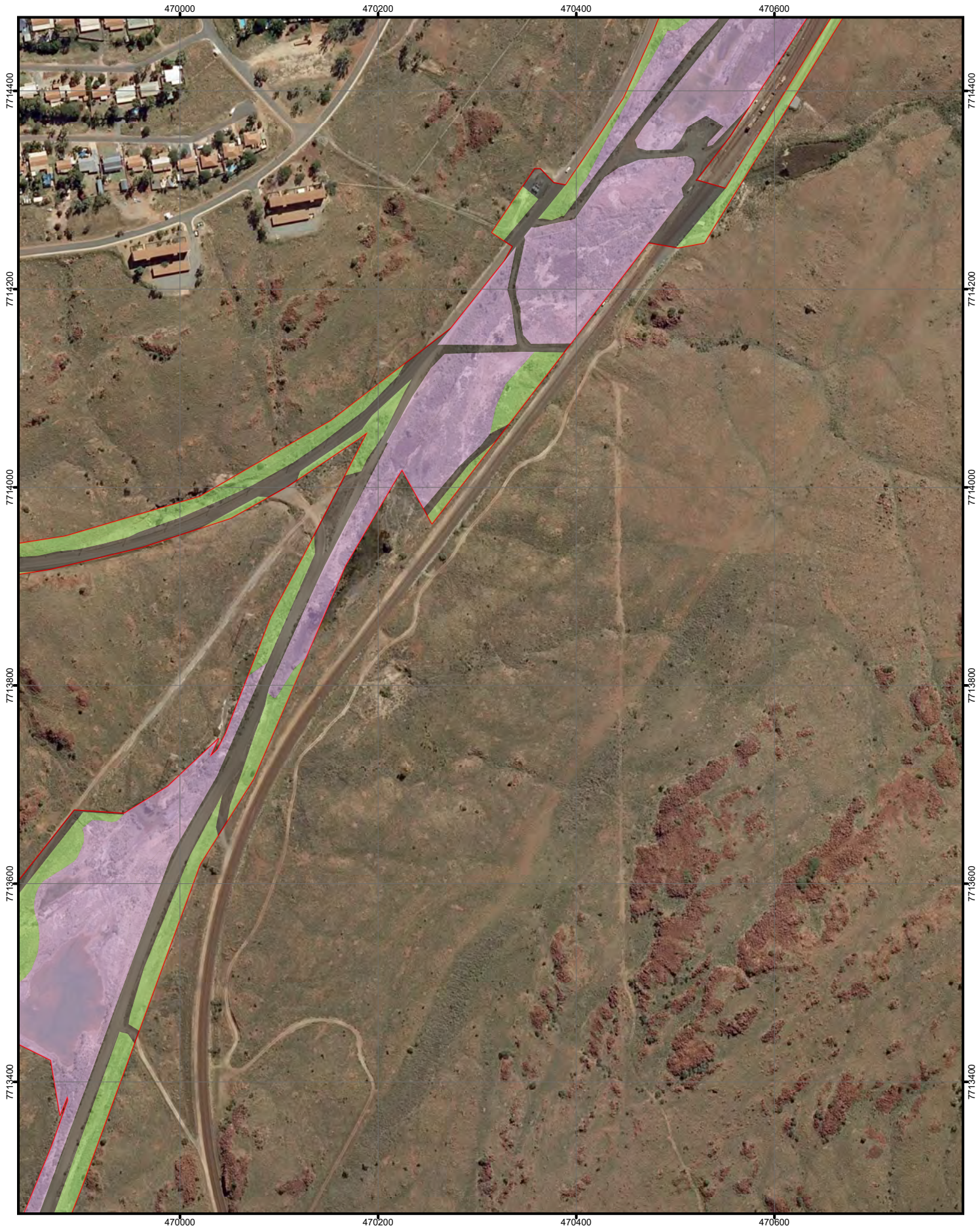


**Fauna Habitats**

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**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 10.3**



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**LEGEND**

Survey Area

Fauna Habitat

- █ Cleared
- █ Disturbed - Artificial Wetland
- █ *Triodia* on Rocky Slopes



**Fauna Habitats**

**RIO TINTO**

**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 10.4**



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**LEGEND**

Survey Area

Fauna Habitat

- Cleared
- Disturbed - Artificial Wetland
- Minor Creeks
- Triodia on Rocky Slopes

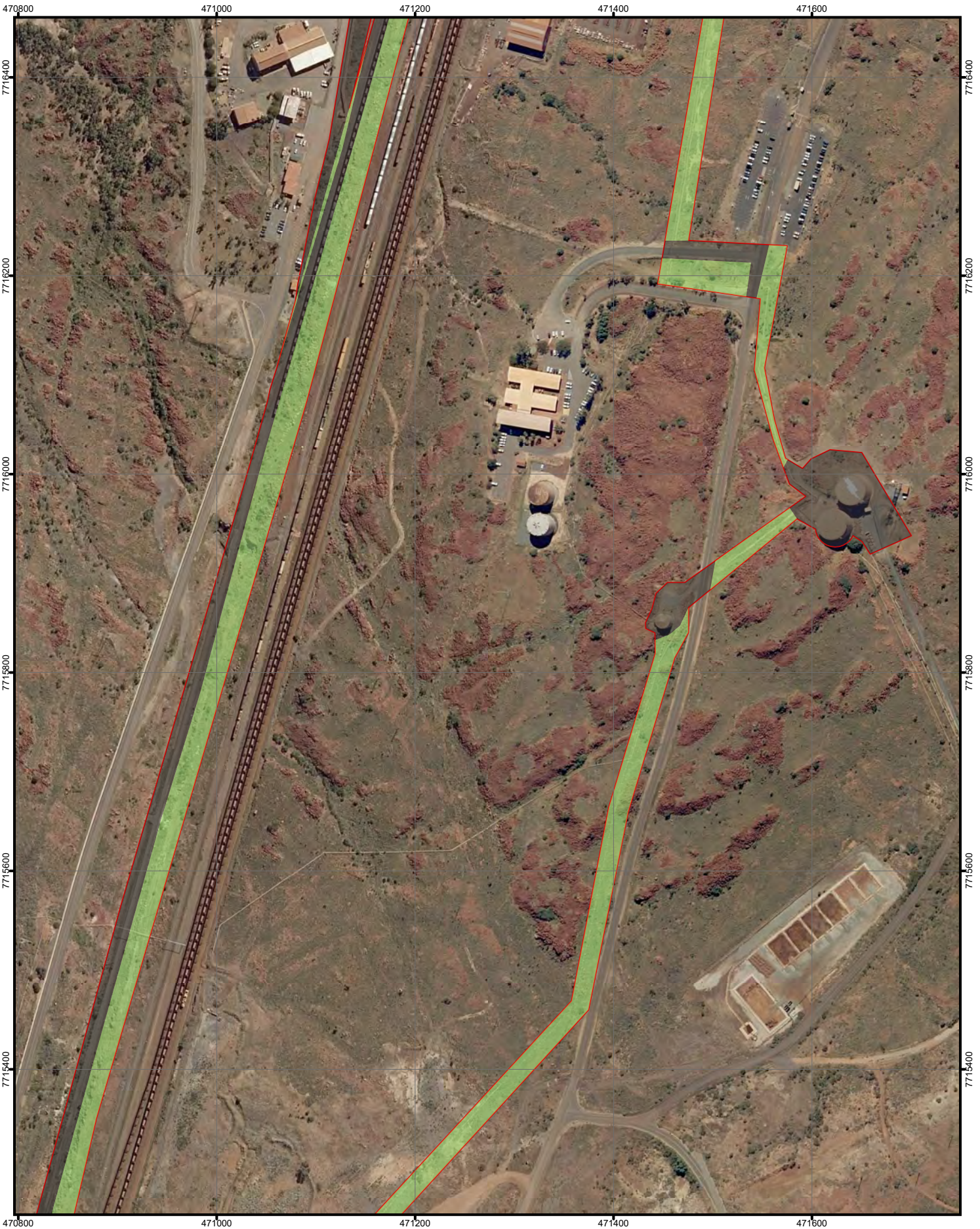


**Fauna Habitats**

**RIO TINTO**

FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT

**Figure 10.5**



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**LEGEND**  
 Survey Area  
 Fauna Habitat  
 Cleared  
 *Triodia* on Rocky Slopes



**Fauna Habitats**

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 FLORA, VEGETATION AND FAUNA  
 ASSESSMENT – DAMPIER  
 DESALINATION PROJECT

**Figure  
 10.6**



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**LEGEND**

Survey Area

Fauna Habitat

- Cleared
- Shoreline
- Triodia on Rocky Slopes
- Water

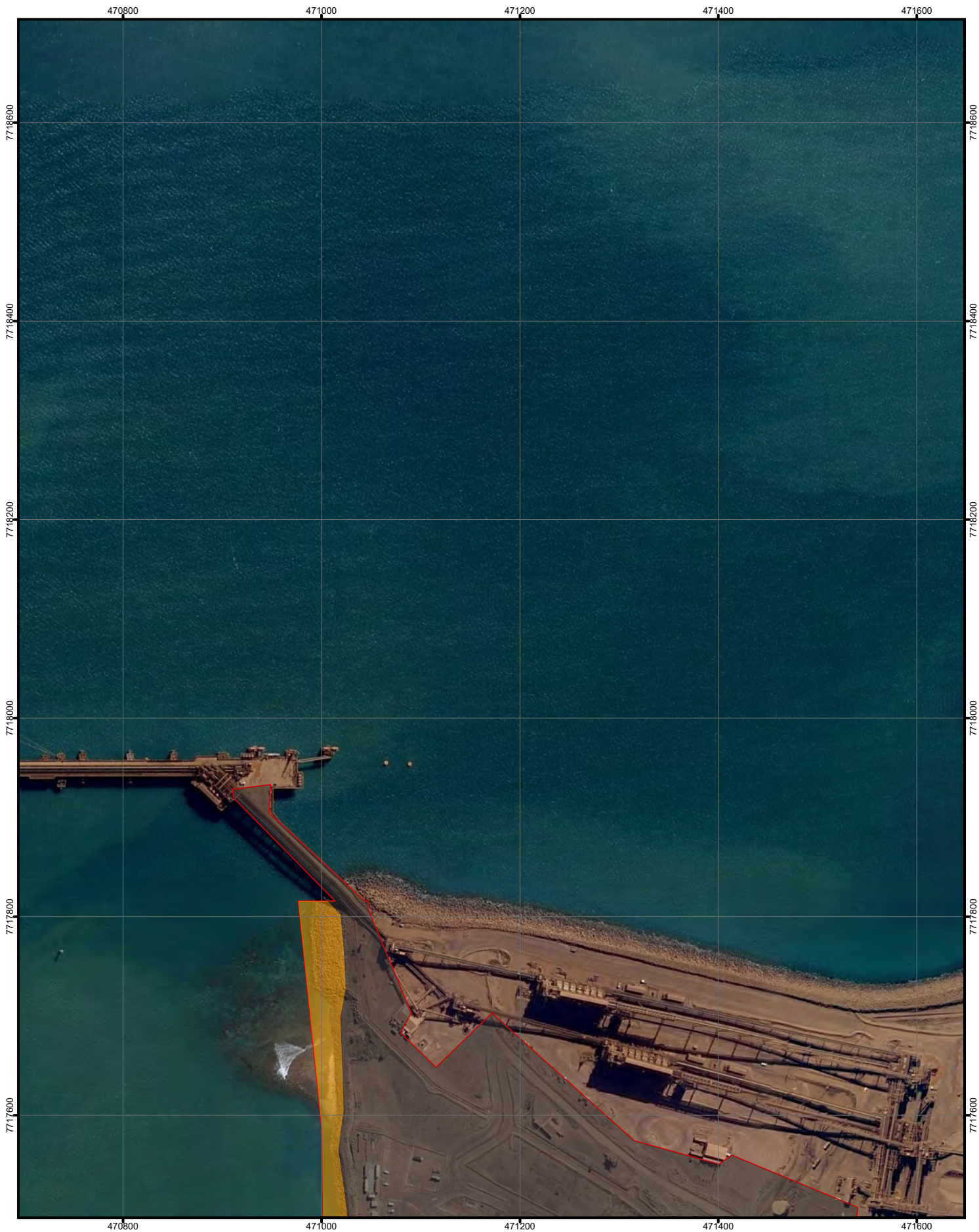


**Fauna Habitats**

**RIO TINTO**

**FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT**

**Figure 10.7**



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**LEGEND**

- Survey Area
- Fauna Habitat
- Cleared
- Shoreline



**Fauna Habitats**

**RIO TINTO**

*FLORA, VEGETATION AND FAUNA ASSESSMENT – DAMPIER DESALINATION PROJECT*

**Figure 10.8**



## 5.4 Fauna Species

A total of 61 fauna species were recorded during the field surveys including six mammal, six reptile, and 49 bird species. Fauna species observed and the habitats they were recorded in are listed in Appendix F.

Two bird species listed as Migratory and Marine under the EPBC Act and Migratory under the BC Act were observed including the Caspian Tern *Hydroprogne caspia* and the Common Sandpiper *Actitis hypoleucos*. Both species were recorded in the Artificial/ephemeral Wetland and Rocky Shoreline habitats respectively, mapped in Figure 10.

Six mammal species were recorded. The Euro *Osphranter robustus* was regularly observed and scats were recorded throughout the survey area. Short-Beaked Echidna *Tachyglossus aculeatus* scats were frequently observed in grassland and creek habitats, and one individual was recorded. One rodent species was captured on motion sensor camera along the man-made wall. The image was unable to provide adequate detail for confident identification. Several bat images were captured that were unable to be confidently identified to species. Other mammal species recorded included the introduced Wild Dog *Canis familiaris* and Feral Cat *Felis catus*,

Six reptile species were recorded including the Ring-tailed Dragon *Ctenophorus caudicinctus caudicinctus*, Bynoe's Gecko *Heteronotia bynoei*, Eastern Pilbara Lined Ctenotus *Ctenotus duricola*, Barred Wedgesnout Ctenotus *Ctenotus schomburgkii* and the Lined Firetail Skink *Morethia ruficauda*. Tracks of a medium sized monitor (*Varanus* sp.) were also noted at one location, with an unidentified dragon species captured on camera in the rocky shoreline habitat.

Forty-nine bird species were recorded, with more recorded during phase I (39 species) compared to phase II (33 species). Thirty of these bird species are predominantly terrestrial based and were observed within or over grasslands and minor creek lines. A few waterbird/wetland species, including Hoary-headed Grebe (*Poliiocephalus poliocephalus*), Straw-necked Ibis (*Threskiornis spinicollis*), White-necked Heron (*Ardea pacifica*), Black-fronted Dotterel (*Elseyornis melanops*) were recorded within the Artificial/ephemeral Wetlands habitat.

## 6.0 Discussion

### 6.1 Vegetation

Vegetation within the survey area has been largely impacted to some extent by the construction of infrastructure including pipelines, powerlines, road, and altered drainage.

The PEC Burrup Peninsula rock pile communities was identified in the desktop assessment as potentially occurring. Known occurrences of this PEC are approximately 3.3 km from the survey area. The survey area skirts edges of rockpiles that have similar characteristics to the PEC however the survey area follows existing tracks and pipelines that avoid all significant rock piles. The rockpiles in the survey area are not considered to represent this PEC and it has not been recorded previously in the survey area (Biota, 2018; Rio Tinto, 2011).

Seven vegetation communities were identified including five intact and three significantly altered communities. The diversity is typical of linear corridors, and areas where degradation has made determination of the pre-disturbance community difficult. None of the intact vegetation communities are restricted to the survey area.

The Disturbed – Artificial Wetlands community is restricted to the survey area and supports a population of the Priority 3 *Eragrostis surreyana* species. The significance of this artificial community is not considered elevated because it supports a Priority 3 flora population.

### 6.2 Flora

Flora was considered diverse, with 124 native and six introduced species recorded within a 104 ha area compared to 618 native species known from within a 20 km radius. The diversity reflects the various landforms encountered including wetland/creeks, shoreline, grasslands and rocky slopes. According to the desktop assessment, three flora species of conservation significance were considered 'likely to occur' and one 'may occur'. Each species is briefly outlined below.

#### ***Eragrostis surreyana* (P3)**

*E. surreyana* was collected during field phase II in the Disturbed – Artificial Wetlands vegetation community (locations presented in Appendix D). The subsequent targeted survey counted approximately 885 individuals in the population. It is likely that population size varies with water availability. This species was considered unlikely to occur in the desktop assessment due to lack of suitable habitat, which is described as "seepage areas near or on sheet rock and on fine alluvial sands on the banks of seasonal streams and drainage lines" (DPaW & Rio Tinto, 2015).

The *E. surreyana* population is restricted to the survey area where it is associated with the standing water in the artificial wetland created in a historical material extraction pit.

#### ***Rhynchosia bungarensis* (P4)**

This species is associated with rocky slopes, rockpiles, rock pools and gullies (WAH, 1998). Suitable habitat within the survey area occurs near Kangaroo Hill Administration Office buildings. Targeted surveys were undertaken however this species was not recorded. Suitable habitat was largely disturbed to some extent from infrastructure, clearing and weed invasion. Due to comprehensive survey efforts and good seasonal conditions, it is considered unlikely that this species occurs in the survey area.

#### ***Rostellularia adscendens* var. *latifolia* (P3)**

This species is known from ironstone soils and rocky hills (WAH, 1998) represented by communities Hummock Grasslands (AbEtTa and SdSfTe) in the survey area. There is a known record of this species from 2007 approximately 7 km southeast of the survey area (Rio Tinto, 2010). There are no DBCA database records within 40 km of the survey area as it is generally associated with the Hamersley Ranges (WAH, 1998). This species is considered unlikely to occur due to lack of suitable habitat.

### ***Terminalia supranitifolia* (P3)**

This species is associated with the Burrup Peninsula rock formations, rock piles and slopes, with populations recorded 4 km from the survey area. Marginal habitat was present in the survey area, however no individuals were recorded. This species is readily identified in the field as a perennial small tree readily distinguishable from other common species. As such, it is considered unlikely to occur.

### ***Vigna triodiophila* (P3)**

There are eight records of this species in the vicinity of the survey area, associated with rockpiles and rockpile habitats (Rio Tinto & DPaW, 2015). Suitable habitat in the survey area includes Hummock Grasslands (AbEtTa) near Kangaroo Hill Administration Offices including the edge of rock piles. Targeted searches were undertaken, however no individuals were recorded.

## **6.3 Fauna Habitats**

Four fauna habitats were defined and mapped within the survey area:

- Disturbed - Artificial Ephemeral Wetlands – Seasonally ponded water, occasional mature tree, sedges, herbs and low shrubs provide moderate ground cover. It appears that these relatively flat areas were created by earthworks (e.g. excavation of fill material) associated with the construction of nearby rail/road infrastructure. The value of these areas to fauna is temporary in nature and would be limited to periods when surface water is present, following sufficient rainfall. During these periods, it may provide suitable foraging habitat for the Ghost Bat and some migratory/marine species.
- *Triodia* on rocky slopes – Grasslands with moderate to high ground cover on rocky slopes. Includes some tall shrubs over diverse low herbs, shrubs and grasses. Occurs on skeletal rocky slopes and around rock piles. Varies in complexity from moderate to low in the absence of rock piles to provide shelter. The Grasslands habitat has the potential to be utilised by the conservation significant Northern Quoll, Ghost Bat, Pilbara Olive Python, Lined Soil-crevice Skink (Dampier), Peregrine Falcon and Barn Swallow.
- Minor creek lines – Ephemeral creeks that intersect existing railway. Includes mature trees in varying densities (no hollows observed), low log litter and moderate density groundcover of tussock grasses, herbs and shrubs. The minor creek lines habitat may provide marginal foraging habitat for the Ghost Bat, North-western Free-tailed Bat and some migratory/marine species.
- Rocky shorelines (intertidal) – Rocky/boulder shoreline sloping from existing infrastructure (port) into subtidal areas. Intertidal areas were dominated by oyster encrusted rocks and there were no low tidal sand or mud mudflats exposed seaward of the rocky shoreline (i.e. no mudflat habitat suitable as foraging areas for shorebirds). Isolated patches of mangroves (predominantly *Avicennia marina*) occurred on mid-upper levels of the rocky shoreline. This habitat may provide suitable foraging habitat for some migratory/marine bird species.

Habitats are widespread on the Burrup Peninsula. No fauna species are therefore likely to be restricted to or reliant on the habitats present. The relative value to fauna of habitats within the survey area should be considered in the context of the considerable historical and ongoing disturbance from the construction and operation of infrastructure (rail, road, power and water). The majority of the survey area has been either cleared for placement of infrastructure or contains habitats categorised as degraded. It is within these predominantly modified habitats that the proposed desalination plant and associated pipelines would be located.

## **6.4 Fauna Species**

The Burrup Peninsula supports a diverse terrestrial vertebrate fauna assemblage, with representatives of both the Eyrean and Torresian zoogeographic regions. It is populated with species that have typically adapted to high temperatures and intermittent rainfall (Astron, 2003). When considering its small area by comparison with the overall Pilbara, the species diversity of the Burrup Peninsula is comparatively high. This is partly due to a range of different macrohabitats found on the Burrup Peninsula, but also the diversity of micro-habitats providing food and shelter within each habitat type.

As many as 43 species of mammal, 204 species of bird and 109 species of reptile may inhabit or visit the area and surrounding coastal fringes. Few of these species are restricted to the Burrup Peninsula alone, however some key species are endemic to the Pilbara with several species on the Burrup Peninsula representing isolated populations.

#### **6.4.1 Conservation Significant Fauna**

Conservation significant fauna species that either totally or predominantly occur within terrestrial habitats and are likely to occur are discussed in further detail below.

##### **Northern Quoll – *Dasyurus hallucatus***

Northern Quolls on the Burrup Peninsula are likely to inhabit complex landforms of rocky outcrops, which can afford greater cover from predators than more open areas. They will usually den in hollow trees or small caves and crevices in rocky outcrops (DAWE, 2020). According to the DBCA database the nearest record is from 2015, approximately three kilometres from the survey area, and associated with rock piles on the Burrup Peninsula.

Suitable habitat for the Northern Quoll includes the Hummock Grasslands, with marginal habitat present in the Disturbed areas including man-made rock walls, and potentially the Rocky Shoreline. The majority of the rocky outcrops that are present in the survey area are in close proximity to existing infrastructure. It is recognised that there are man-made rocky habitats such as rockwalls/seawalls and road/rail embankments that may be used by Northern Quolls (as per the RTIO personnel anecdotal observation), however these areas are likely to be less important than the rock piles and rocky outcrops adjacent to the survey area that are less subject to disturbance and provide greater connectivity between areas of relatively secure habitat.

There were no opportunistic observations (including motion camera captures) or other evidence (e.g. den sites and scats) collected of this species during the survey.

##### **Ghost Bat - *Macroderma gigas***

This species has been recorded from recent surveys in the King Bay-Hearson Cove area of the Burrup Peninsula (Cardno, 2019) and is known to have a wide distribution along the Pilbara coast and up to 400 km inland. During the daytime they typically roost in caves and rock fissures where temperatures are relatively stable. No roosting habitat was observed within the survey area.

The Ghost Bat may forage in all of the fauna habitats mapped in the survey area including the Disturbed - Artificial Wetlands, Hummock Grasslands, Minor Creeks and Disturbed areas.

##### **North-western Free-tailed Bat - *Mormopterus cobourgianus***

This bat species is commonly associated with mangrove habitat, roosts in the hollows of those trees and are known to seek food in that habitat. The species has been recorded from recent biological surveys on the Burrup Peninsula (Hearson Cove – King Bay area) (GHD, 2020).

Isolated mangrove trees were observed along the Rocky Shoreline and this is considered marginal habitat for this species. No roosting habitat was observed within the survey area. The Minor Creek habitat is also considered marginal habitat as it supports larger trees that may provide suitable hollows.

There is extensive suitable habitat for this species south of East Intercourse Island causeway, directly south of the survey area. The North-western Free-tailed Bat is likely to forage in the survey area, but unlikely to depend on this habitat for survival.

##### **Pilbara Olive Python - *Liasis olivaceus barroni***

The Pilbara Olive Python prefers rocky environments such as escarpments, gorges, rock piles and associated water holes, and is terrestrial and rock-inhabiting (Wilson & Swan, 2010). On the Burrup Peninsula they prefer granophyre rock piles and occasionally are found in neighbouring spinifex grasslands (Cardno, 2019). The nearest record is from 2005 located near the Dampier townsite approximately one kilometre from the survey area, however there is anecdotal evidence of this species sighted on two occasions along constructed rock walls (Rio Tinto *pers comm.*). The majority of DBCA records of this species are from the rock formations northeast of the survey area.

No evidence of this species was recorded during the survey. Marginal habitat is available including the Hummock Grasslands on skeletal soils which includes the edge of rock piles and rocky outcrops, and the Disturbed habitat which incorporates man-made rockpiles.

#### **Lined Soil-crevice Skink (Dampier) - *Notoscincus butleri***

The Lined Soil-crevice Skink (Dampier) has been recorded on West Intercourse Island, approximately five kilometres from the survey area. It is generally associated with areas dominated by Hummock grassland near creek and river margins (Biota, 2013).

The Hummock Grasslands fauna habitat in the survey area is considered suitable habitat for this species. No evidence of the species was recorded; however it may utilise this area.

#### **Peregrine Falcon - *Falco peregrinus***

This species is widespread through the Pilbara region and inhabits a variety of environments, including habitats present in the survey area. There are seven records in the vicinity of the survey area on the DBCA database. This species may be a vagrant visitor to the survey area however it is unlikely to be reliant on the habitats present.

### **6.4.2 Marine and Migratory Species**

Field phase I coincided with the annual migratory wader visitation period (October-April), indicating that the results are likely to reflect shorebird usage in the survey area. Two species listed as Migratory and Marine under the EPBC Act and Migratory under the BC Act were observed during the field surveys, including the Caspian Tern *Hydroprogne caspia* and the Common Sandpiper *Actitis hypoleucos*. These species were recorded in the Artificial Wetlands and Rocky Foreshore habitats as per Section 5.4.

Further to this, another seven migratory species were determined as 'likely to occur' and 28 'may occur' in the desktop assessment. The majority of species within this category are migratory shorebirds that are protected by international migratory bird agreements such as the China-Australia Migratory Bird Agreement (CAMBA), Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA) and the Japan-Australia Migratory Bird Agreement (JAMBA).

The Shoreline habitat is considered to represent suitable to marginal habitat for 13 species listed as Migratory and Marine. The habitat is characterised by boulders, man-made rock walls, and sandy substrates that slope into the subtidal zone. The survey area lacks significant mud or sand flats due to the slope of the beach. The Shoreline habitat does not represent suitable nesting/breeding habitat for Migratory and Marine species. Typically, these species visit the west coast of Australia to feed and rest during their non-breeding period (October to April). This habitat is unlikely to represent 'core habitat' for any of these species and is well represented outside the survey area.

The Disturbed – Artificial Wetlands habitat provides suitable foraging habitat for the Common Sandpiper and Caspian Tern, as well as marginal foraging habitat for Pacific Golden Plover and Crested Tern, and vagrant visitors. The value of this habitat is represented by available water. Field phase I and II supported considerable bodies of standing water, however it is expected that these would be seasonally dry.

### **6.4.3 Short Range Endemic**

SREs are species with a patchy distribution of less than 10,000 km<sup>2</sup>, generally have slow growth, low fecundity, and poor dispersal capabilities (Harvey, 2002). The EPA have recognised the need to conserve SREs due to their small spatial scales, they are at greater risk of changes in conservation status (EPA, 2009).

Two trapdoor spider species, *Idiosoma* sp., and *Kwonkan* sp., were considered to potentially occur in the survey area based on the desktop assessment (as informed by ALA). Both genera are known to support SRE species, hence they were targeted during the field survey. No suitable habitats for supporting trapdoor species and no evidence of their occurrence was observed in the survey area as almost all areas searched comprised of rocky hard surface unsuitable for burrowing spiders.

## 7.0 Conclusion

A flora, vegetation and fauna habitat assessment was completed by AECOM on behalf of Rio Tinto for the Dampier Desalination Project. The survey area included a linear corridor with several larger construction areas for the Dampier Desalination Project.

A detailed desktop assessment, two field phases across two seasons, and a reporting component was completed, in summary:

- Five native vegetation communities and three altered communities were described and mapped. None are considered representative of a Threatened or Priority Ecological Community. The community Disturbed – Artificial Ephemeral Wetland is restricted to the survey area and supports a Priority 3 flora population. All intact vegetation communities are considered common and widespread on the Burrup Peninsula.
- The majority of the survey area has been either previously cleared for placement of infrastructure; reclaimed (plant area); or habitats categorised as degraded. It is within predominantly modified habitats that the proposed desalination plant and associated pipelines would be located.
- Flora diversity was high, a reflection of the numerous landforms encountered which is typical of linear survey areas.
- One population of a Priority 3 flora species, *Eragrostis surreyana* was recorded in the 'Disturbed – Artificial Ephemeral Wetland' community comprising 885 individuals. Total population size is likely to vary over time dependent on water availability and seasonality.
- Five fauna habitats were mapped. Fauna habitats were considered 'suitable' and 'marginal' for 13 species listed as 'likely to occur' and eight species that 'may occur' from the desktop assessment. It is expected that none of the identified conservation significant species are likely to be restricted to, or reliant on, the habitat in the survey area.
- Two species listed as Migratory and Marine under the EPBC Act and Migratory under the BC Act were observed during the field surveys, including the Caspian Tern *Hydroprogne caspia* and the Common Sandpiper *Actitis hypoleucos*.
- The relative value to fauna of habitats within the survey area also needs to be considered in the context of the considerable historical and ongoing disturbance from the construction and operation of existing port related infrastructure (rail, road, power and water).

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# Appendix A

## Desktop Results

- A1: Conservation Significant Flora
- A2: Conservation Significant Fauna
- A3: Naturemap Species List
- A4: EPBC Protected Matters Search Report

- Appendix A
- A1: Conservation Significant Flora
  - A2: Conservation Significant Fauna
  - A3: Naturemap Species List
  - A4: EPBC Protected Matters Search Report

Species	Cons. Status		Habitat <sup>1</sup>	Count Date	Likelihood of Occurrence	Justification
	EPBC	WA				
<i>Abutilon</i> sp. Pritzelianum (S. van Leeuwen 5095)		P3	Coastal to near coastal sand dunes, margins of estuaries, coastal plains in open scrubby vegetation (DPaW & Rio Tinto, 2015).	1982	Unlikely	No suitable habitat.
<i>Atriplex lindleyi</i> subsp. <i>conduplicata</i>		P3	Edge of crabhole plain. Spruce tussock grassland of <i>Eragrostis xerophila</i> .	1996	Unlikely	No suitable habitat.
<i>Corchorus congener</i>		P3	Sand, red sandy loam with limestone. Sand dunes, plains.	No records, naturemap only	Unlikely	No suitable habitat, no records nearby.
<i>Cucumis</i> sp. Barrow Island (D.W. Goodall 1264)		P2	Lower footslope of a basalt hill. Area burnt. Limestone plateau. Swale in a sandplain. Wide, 3m deep wash in a limestone landscape. Gentle calccrete slope. Red, sandy loam.	2011 (Rio Tinto)	Unlikely	No suitable habitat.
<i>Eragrostis surreyana</i>		P3	Seasonally wet areas. Shallow soils over rock and deep fine alluvial sands of creeks.	2009	Unlikely	No suitable habitat.
<i>Euphorbia australis</i> var. <i>glabra</i>		P2	Floodplains or edge of dry creek.	No records, naturemap only	Unlikely	No suitable habitat, no records nearby.
<i>Glycine falcata</i>		P3	Stony loam or cracking clays, typically in grassland in low lying areas.	2011	Unlikely	No suitable habitat.
<i>Gomphrena cucullata</i>		P3	Plains, red soils (loam/sand) in grassland. Open floodplains.	2012	Unlikely	No suitable habitat. Records from further inland.
<i>Gomphrena leptophylla</i>		P3	Sandy open flats in <i>Acacia</i> low open woodland with <i>Eremophila</i> spp. and grasses, sandy creek beds and floodplains with <i>E. camaldulensis</i> , sandy or clayey loam with <i>Melaaleuca</i> spp. and <i>Triodia</i> spp., on edges of salt pans and marshes or in low scrub and spinifex (DPaW & Rio Tinto, 2015).	2004	Unlikely	No suitable habitat.
<i>Goodenia pallida</i>		P1	Red soils. Annual grassland.	2001	Unlikely	No suitable habitat.
<i>Gymnanthera cunninghamii</i>		P3	Known from areas surrounding permanent or semi-permanent water-courses in sandy soils.	1987	Unlikely	No suitable habitat.
<i>Odenlandia</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)		P3	Cracking clay, basalt. Gently undulating plain with large surface rocks, flat crabholed plain.	2005	Unlikely	No suitable habitat.
<i>Rhynchosia bungarensis</i>		P4	Associated with rocky slopes, rockpiles, rock pools and gullies.	2010	Likely	Numerous records nearby associated with linear rock formation. Suitable habitat may be present in survey area.
<i>Rostellularia adscendens</i> var. <i>latifolia</i>		P3	Ironstone soils. Near creeks, rocky hills.	2007 (Rio Tinto)	May	One record (2007), suitable habitat potentially present. Not been associated with Dampier Peninsula previously.
<i>Schoenus punctatus</i>		P3	Mud. Watercourses.	1999	Unlikely	No suitable habitat.
<i>Solanum albotellatum</i>		P3	Cracking clay soils on open floodplains in open scrubland over grasses.	2011	Unlikely	No suitable habitat.
<i>Stackhousia clementii</i>		P3	Saline soil over limestone or sandy loam clay flats.	2013	Unlikely	No suitable habitat.
<i>Tephrosia rosea</i> var. Port Hedland (A.S. George 1114)		P1	Coastal ridge, pale orange dune sands.	2012	Unlikely	No suitable habitat.
<i>Terminalia supranitifolia</i>		P3	Rocky outcrops, slopes, piles. Among basalt rocks and on sand.	2003	Likely	Numerous records nearby associated with linear rock formation. Suitable habitat may be present in survey area.
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)		P3	Drainage lines, clay flats, crabhole flats and self mulching clays.	2007	Unlikely	No suitable habitat.
<i>Trianthema</i> sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)		P2	Floodplain, undulating hills, low-lying sandy areas and gibber plains.	2004	Unlikely	No suitable habitat.
<i>Vigna triodiophila</i>		P3	Scree and rockpiles.	2009	Likely	Numerous records nearby associated with linear rock formation. Suitable habitat may be present in survey area.

Scientific Name	Common Name	Cons. Status		Last Record	Count	Distance from Survey Area of	Ecology	Likelihood of Occurrence	Justification
		EPBC Act	DBCAs / BC Act						
<b>Birds</b>									
<i>Actitis hypoleucos</i>	Common Sandpiper	Mi, Ma	MI	2017	24	1 km	The Common Sandpiper is widespread in small numbers utilising a wide range of coastal wetlands and some inland wetlands where it forages in muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties . Areas of national importance within Western Australia include Nuytsland Nature Reserve and Roebuck Bay (Watkins, 1993).	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Anous stolidus</i>	Common Noddy (Brown Noddy)	Mi, Ma	MI	1988	2	9 km	The Common Noddy occupies blue-water seas, usually far from the mainland and is distributed in Western Australia from northern seas south to Lancelin Island (Johnstone & Storr, 1998).	Unlikely to occur	Habitat in survey area restricted to coastline. No recent records.
<i>Apus pacificus</i>	Pacific Swift (Fork-tailed Swift)	Mi, Ma	MI	-	-	-	The Fork-tailed Swift is widespread in coastal and subcoastal areas between Augusta and Carnarvon and sparsely scattered inland and along the coast from Augusta to Carnarvon and south-west Pilbara to the north and east Kimberley region. It is almost exclusively aerial, and a non-breeding visitor to Australia. They mostly occur over inland plains over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh but sometimes above foothills or in coastal areas.	Unlikely to occur	No known records in vicinity. Suitable habitat present.
<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	Mi, Ma	MI	1981	4	7 km	The Wedge-tailed Shearwater is a pelagic, marine bird known from tropical and subtropical waters. In Australia, the species breeds on offshore islands and both the east and west coast.	Unlikely to occur	No recent records. Habitat in survey area unlikely to be significant for this species.
<i>Arenaria interpres</i>	Ruddy Turnstone	Mi, Ma	MI	2017	28	1 km	The Ruddy Turnstone are mainly found on exposed rocks or reefs, often with shallow pools, and on beaches. In the north, they are found in a wider range of habitats, including mudflats.	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Mi, Ma	MI	2017	15	5 km	The Sharp-tailed Sandpiper are widespread in Western Australia from the Pilbara region to the south-west. They prefer muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	May occur	Suitable habitat present, represented by disturbed - artificial wetlands. Several recent records.
<i>Calidris alba</i>	Sanderling	Mi, Ma	MI	2017	7	5 km	The Sanderling is almost always found on the coast where they forage in the wave-wash zone and in rotting seaweed. This species occurs from the coast near Eyre to Derby, however is more common on the southern and south-west coasts.	May occur	Potentially suitable habitat present, recent records in vicinity.
<i>Calidris canutus</i>	Red Knot	EN, Mi, Ma	EN	2016	3	5 km	The Red Knot mainly inhabits intertidal mudflats, sand flats, in estuaries, bays and lagoons. They are occasionally seen on inland salt lakes and wetlands but hardly ever use freshwater swamps.	May occur	Marginal intertidal mudflats, few records nearby
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR, Ma, Mi	CE	2017	21	5 km	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas and less often recorded inland around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand.	May occur	Potentially suitable habitat present, numerous records in vicinity.
<i>Calidris melanotos</i>	Pectoral sandpiper	Mi, Ma	MI	-	-	-	The Pectoral Sandpiper occupies shallow, fresh waters often containing low grass or other small herbs. It is also observed in swamp margins, flooded pastures and saltmarshes. This species breeds in the northern hemisphere and is a regular though uncommon summer visitor to Australia (Pizzey & Knight, 2007). Rarely recorded in Western Australia .	Unlikely to occur	No records of the species in vicinity, uncommon in Western Australia.
<i>Calidris ruficollis</i>	Red-necked Stint	Mi, Ma	MI	2017	19	3 km	The Red-necked Stint is found in coastal areas including sheltered inlets, bays, lagoons and estuaries with intertidal mudflats.	May occur	Marginal intertidal mudflat habitat. Only one record in vicinity.
<i>Calidris subminuta</i>	Long-toed Stint	Mi, Ma	MI	2016	5	7 km	The Long-toed Stint occurs in terrestrial wetlands. They prefer shallow freshwater or brackish wetlands. It has also been found on muddy shorelines, growths of short grass, weeds, sedges, low or floating aquatic vegetation, reeds, rushes and occasionally stunted samphire.	May occur	Vagrant visitor, one record from vicinity.
<i>Calidris tenuirostris</i>	Great Knot	CR, Ma, Mi	CE	2017	8	7 km	Restricted to coastal habitats around Australia utilising sheltered coastal habitats with large intertidal mudflats or sandflats (inlets, bays, harbours, estuaries, lagoons) .	May occur	Vagrant visitor. Marginal intertidal mudflats, few records nearby
<i>Calonectris leucomelas</i>	Streaked Shearwater	Mi, Ma	MI	-	-	-	Common and widespread around much of the northern coast of Australia the Streaked Shearwater rarely ventures inland (Knight & Pizzey 2007)	Unlikely to occur	No known records in vicinity.
<i>Charadrius leschenaultii</i>	Large Sand Plover	VU, Mi, Ma	VU	2017	22	1 km	It inhabits littoral and estuarine habitats, sheltered sandy shelly or muddy beaches with large intertidal mudflats or sandbanks, and sandy estuarine lagoons, inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs . Important areas of habitat in WA include Eighty Mile Beach, Roebuck Bay and Ashmore Reef (DAWE, 2020).	Likely to occur	Suitable habitat present, numerous records in vicinity.

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		EPBC Act	DBCAs / BC Act						
<i>Charadrius mongolus</i>	Lesser Sand Plover	EN, Mi, Ma	EN	2017	8	7 km	It occurs in littoral and estuarine environments, large intertidal sandflats or mudflats, sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops. Important WA sites include Eighty Mile Beach, Roebuck Bay, Broome and Port Hedland Saltworks.	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Mi, Ma	MI	2016	4	7 km	The Oriental Plover are common in coastal and northern inland Australia, this species can venture far from water and has been observed frequenting ploughed land, bare claypans, coastal margins and open plains (Pizzey & Knight, 2007).	May occur	Potentially suitable habitat present, numerous records in vicinity.
<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	Mi	MI	1977	1	9 km	The Oriental cuckoo occurs along the north coast from Karratha to the Northern Territory border. The Oriental Cuckoos are found mostly in forest and woodland.	Unlikely to occur	No suitable habitat, one record inland.
<i>Falco peregrinus</i>	Peregrine Falcon		OS	2012	7	8 km	A well-known falcon, the Peregrine inhabits a vast array of environs in Australia. Usually uncommon and migratory (Pizzey & Knight, 2007). This species lays its eggs in recesses of cliff faces, tree hollows or large abandoned nests (Bamford, 2009)	Likely to occur	Suitable habitat present, several records in vicinity.
<i>Fregata ariel</i>	Lesser Frigatebird, Least Frigatebird	Mi, Ma	MI	1981	4	9 km	The Lesser Frigatebird is a breeding visitor to the tropical/subtropical waters of Western Australia with breeding colonies on Christmas island. Only seen on the mainland's north coast prior to cyclonic events (Lindsey, 1986; DAWE, 2021).	Unlikely to occur	Vagrant visitor, known records in vicinity. May forage in survey area.
<i>Gelochelidon nilotica</i>	Gull-billed Tern	Mi	MI	2017	4	8 km	The Gull-billed Terns are found in freshwater swamps, brackish and salt lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands. They are only rarely found over the ocean.	May occur	Potentially suitable habitat present, known records in vicinity.
<i>Glareola maldivarum</i>	Oriental Pratincole	Mi, Ma	MI	2013	3	9.5 km	The Oriental Pratincole inhabits open plains, floodplains or short grassland (including farmland), often occurring near terrestrial wetlands, and also occurring along the coast. The species does not breed in Australia.	May occur	Potentially suitable habitat present, some recent records in vicinity.
<i>Hirundo rustica</i>	Barn Swallow	Mi, Ma	MI	2016	4	8 km	The Barn Swallow is widespread in northern Australia during the summer months (Pizzey & Knight, 2007). Habitat includes open country, agricultural land, especially near water, railyards and towns (Pizzey & Knight, 2007).	May occur	Potentially suitable habitat present, some recent records in vicinity.
<i>Hydroprogne caspia</i>	Caspian Tern	Mi, Ma	MI	2017	30	0 km	The largest tern in Australia, the Caspian Tern is widespread in coastal regions, breeding on variable types of sites including low islands, cays, spits, banks, ridges, beaches of sand or shell, terrestrial wetlands and stony or rocky islets or banks.	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Limicola falcinellus</i>	Broad-Billed Sandpiper	Mi, Ma	MI	2017	5	7 km	The Broad-billed Sandpiper occurs in sheltered parts of the coast, particularly estuarine mudflats, occasionally saltmarshes, shallow freshwater lagoons, saltworks and sewage farms and areas with large soft intertidal mudflats. They've also been observed on reefs or rocky platforms.	May occur	Suitable habitat present, some recent records in vicinity.
<i>Limosa lapponica</i>	Bar-tailed Godwit	Mi, Ma	MI	2017	26	1 km	The Bar-tailed Godwit is found in coastal habitats, particularly large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays.	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Numenius madagascariensis</i>	Eastern Curlew	CR, Ma, Mi	CE	2017	15	5 km	Eastern Curlew is a non-breeding visitor to Australia where it is known from estuaries, mangrove swamps, saltmarshes and intertidal flats (BirdLife, 2020).	May occur	Suitable habitat may be present, primarily old records from vicinity.
<i>Numenius minutus</i>	Little curlew, Little whimbrel	Mi, Ma	MI	2015	9	1 km	The Little Curlew congregates around pools, river beds and water-filled tidal channels, and shallow water at edges of billabongs. The species prefers pools with bare dry mud (including mudbanks in shallow water) and they do not use pools if they are totally dry, flooded or heavily vegetated (Higgins & Davies 1996). Birds utilise a variety of habitats while resting including grasslands, mudflats and swamps (Higgins & Davies, 1996).	May occur	Potentially suitable habitat present, primarily older records in vicinity.
<i>Numenius phaeopus</i>	Whimbrel	Mi, Ma	MI	2017	27	3 km	The Whimbrel occurs all along the Australian coast and inhabits estuaries, mangroves, tidal flats, flooded paddocks, and bare grasslands (Pizzey & Knight, 2007)	May occur	Potentially suitable habitat present, numerous records in vicinity.
<i>Oceanites oceanicus</i>	Wilson's Storm-petrel	Mi, Ma	MI	2008	2	7 km	Wilson's Storm Petrel spends most of its time at sea, migrating sometimes along the coasts of southern continents, feeding at ocean fronts.	Unlikely to occur	Vagrant visitor. Suitable habitat present, known records in vicinity.
<i>Onychoprion anaethetus</i>	Bridled Tern	Mi, Ma	MI	1994	8	7 km	The Bridled Tern is a non-breeding visitor to Australia. They are found on islands and rocky continental islands and rock stacks, rarely found in inshore continental waters or along mainland coastlines.	May occur	Numerous records in vicinity, potential vagrant visitor. Uncommon on mainland.
<i>Plegadis falcinellus</i>	Glossy Ibis	Mi, Ma	MI	2017	4	15 km	The Glossy Ibis occupies well vegetated wetlands, wet pastures, floodwaters, brackish wetlands and mudflats. This species is a non-breeding visitor to south-west Western Australia (Pizzey & Knight, 2007).	May occur	Marginal habitat present. Records from further inland

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<i>Pluvialis fulva</i>	Pacific Golden Plover	Mi, Ma	MI	2013	5	1 km	The Pacific Golden Plover usually forages on sandy or muddy shores (including mudflats and sandflats) or margins of sheltered areas such as estuaries and lagoons, though it also feeds on rocky shores, islands or reefs. In addition, Pacific Golden Plovers occasionally forage among vegetation, such as saltmarsh, mangroves or in pasture or crops.	Likely to occur	Suitable habitat present, several records in vicinity.
<i>Pluvialis squatarola</i>	Grey Plover	Mi, Ma	MI	2017	10	4.5 km	The Grey Plover is a non-breeding visitor to Australia and are almost entirely coastal inhabiting sheltered embankments, estuaries and lagoons with mudflats and sandflats.	May occur	Marginal habitat present, several records in vicinity.
<i>Rostratula australis</i>	Australian Painted Snipe	E, Ma	EN	-	-	-	The Australian Painted Snipe inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains.	Unlikely to occur	Marginal habitat (disturbed wetlands) present. No records in vicinity.
<i>Sterna dougallii</i>	Roseate Tern	Mi, Ma	MI	1981	5	9 km	The Roseate Tern occurs in coastal and marine areas in subtropical and tropical seas. The species inhabits rocky and sandy beaches, coral reefs, sand cays and offshore islands. Birds rarely occur in inshore waters or near the mainland, usually venturing into these areas only accidentally, when nesting islands are nearby (Higgins & Davies, 1996).	May occur	Vagrant visitor. Old records from vicinity. Suitable habitat may be present.
<i>Sterna hirundo</i>	Common Tern	Mi, Ma	MI	2000	2	12 km	The Common Tern is a marine, pelagic and coastal species. It has been recorded on ocean beaches, platforms and headlands and in sheltered waters.	May occur	Potentially suitable habitat present, old records in general vicinity.
<i>Sternula albifrons</i>	Little Tern	Mi, Ma	MI	2017	7	5 km	Little Terns inhabit sheltered coastal environments, including lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets, especially those with exposed sandbanks or sand-spits, and also on exposed ocean beaches	May occur	Potentially habitat present, several records in vicinity.
<i>Sternula nereis nereis</i>	Fairy Tern	VU	VU	1990	6	12 km	The Fairy Tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. It has also been found in embankments.	May occur	Very old records from wider area.
<i>Sula leucogaster</i>	Brown Booby	Mi, Ma	MI	1983	3	6 km	The Brown Booby occurs in, but is not restricted to, tropical waters of all major oceans, often staying close to breeding islands. The species is known to approach mainland coastlines more than other boobies and has been recorded in coastal waters, harbours and estuaries and near offshore islands but seldom flying over land (Marchant & Higgins, 1993).	May occur	Very old records in vicinity. Suitable habitat may be present.
<i>Thalasseus bergii</i>	Great Crested Tern	Mi, Ma	MI	2017	24	1 km	This large tern is predominantly found offshore and coastal, on beaches, bays, inlets, tidal rivers, salt swamps, lakes and larger rivers (Pizzey & Knight, 2010). The Crested Tern is usually a strictly coastal species, though there are occasional records in the arid interior of Australia, where birds were possibly blown by passing tropical cyclones (Birdlife Australia, 2020).	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Tringa brevipes</i>	Grey-tailed Tattler	Mi, Ma	P4	2017	33	1 km	The Grey-tailed Tattler is found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. Also found on intertidal rocky, coral or stony reefs, platforms and islets that are exposed at low tide.	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Tringa glareola</i>	Wood Sandpiper	Mi, Ma	MI	2017	7	7 km	The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially <i>Melaleuca</i> spp. and <i>Eucalyptus camaldulensis</i> and often with fallen timber. (Higgins & Davies, 1996).	May occur	May utilise disturbed artificial wetlands. Little to no intertidal mudflats present. Few records in vicinity.
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	Mi, Ma	MI	2017	36	1 km	The Common Greenshank is known from a variety of inland wetlands and sheltered coastal habitats. It prefers large mudflats and saltmarsh, mangroves or seagrass.	May occur	Vagrant visitor, marginal habitat present, numerous records in vicinity.
<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	Mi, Ma	MI	2017	19	7 km	The Marsh Sandpiper lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks. They are recorded less often at reservoirs, waterholes, soaks, bore-drain swamps and flooded inland lakes	May occur	May utilise disturbed artificial wetlands. Little to no intertidal mudflats present. Few records in vicinity.
<i>Tringa totanus</i>	Common Redshank, Redshank	Mi, Ma	MI	-	-	-	The Common Redshank is found at sheltered coastal wetlands such as bays, river estuaries, lagoons, inlets and saltmarsh (with bare open flats and banks of mud or sand).	May occur	Habitat present, no known records in vicinity.
<i>Xenus cinereus</i>	Terek sandpiper	Mi, Ma	MI	2017	4	8 km	The Terek Sandpiper is a coastal species, foraging on soft wet intertidal mudflats or sheltered estuaries, embankments, harbours or lagoons. Has been seen on sandy or shingle beaches or rock/coral reefs and platforms. It roosts among mangroves.	May occur	Suitable habitat present, several records in vicinity.

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		EPBC Act	DBCA / BC Act						
<b>Mammals</b>									
<i>Dasyurus hallucatus</i>	Northern quoll	EN	EN	2018	38	4 km	This species occupies a wide range of habitats including, rocky areas, deserts, eucalypt forests and woodlands, hummock grass ( <i>Plectrachne</i> spp.), basalt hills, mesas, high and low plateaux, lower slopes, occasional tor fields and stony plains supporting either hard or soft spinifex grasslands (Braithwaite & Griffiths 1994; van Vreeswyk et al. 2004). Northern quolls on the Burrup Peninsula are likely to inhabit complex landforms of rocky outcrops, which can afford greater cover from predators than more open areas (Cardno, 2019). They will usually den in hollow trees or small caves and crevices in rocky outcrops.	Likely to occur	While only limited in extent, some small areas of suitable habitat (i.e. rocky outcrops) occur in the survey area. Anecdotal evidence of this species sighted along rocky wall near shoreline (J. Trainer <i>pers. comm.</i> ) More extensive and undisturbed rocky outcrops occur to the east and south of the survey area.
<i>Hydromys chrysogaster</i>	Water-rat, Rakali		P4	1996	1	6 km	The Water Rat is one of the few Australian mammals adapted to the aquatic environment. The species occurs in the vicinity of permanent bodies of fresh or brackish water. Dens are made at the end of tunnels in banks and occasionally in logs (Van Dyck & Strahan, 2008).	Unlikely to occur	No permanent bodies of water, one record more than 20 years ago.
<i>Leggadina lakedownensis</i>	Northern Short-tailed Mouse		P4	2006	2	12 km	The Northern Short-tailed most occurs from Cape York to the Pilbara. Known to occur on sandy soils and cracking clays in Western Australia.	Unlikely to occur	No suitable habitat. Not recorded or determined as potential to occur in other recent surveys (Cardno, 2019; GHD, 2020).
<i>Macroderma gigas</i>	Ghost Bat	VU	VU	2006	3	11 km	The Ghost Bat occupy a range of habitats including arid Pilbara to tropical savanna woodlands and rainforests (TSSC, 2016). They roost in caves, rock crevices and old mines during the daytime (TSSC, 2016). Foraging occurs on average 1.9 km from active roosting areas (TSSC, 2016). The species has been recorded from a recent survey in the King Bay-Hearson Cove area of the Burrup Peninsula (Cardno, 2019).	May occur	Roosting habitat is not likely to occur in the survey area but may be present in the nearby ridges and hills. Species likely to be a resident and forage opportunistically in the survey area.
<i>Mormopterus cobourgiensis</i>	North-western Free-tailed Bat		P1	2006	3	12 km	The North-western Free-tailed Bat are associated with mangrove habitat and roost in the hollows of those trees and are known to seek food there and in eucalypt or melaleuca woodland or other coastal habitat (ALA 2020). The species has been recorded from a recent survey in the King Bay-Hearson Cove area of the Burrup Peninsula (Cardno, 2019).	May occur	Opportunistic forager in the survey area. No suitable roosting habitat. While only very limited mangrove habitat (i.e. a few scattered trees on a rocky shoreline) occurs within survey area, this species may be an incidental visitor due to the proximity of more suitable mangrove habitat to the south of the East Intercourse Island (EII) causeway.
<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse		P4	1993	1	6 km	The Western Pebble-mound Mouse prefers hummock grasslands, <i>Triodia basedowii</i> , <i>Acacia</i> spp. and <i>Ptilotus</i> spp. where it creates its own microhabitat by scattering a mound of pebbles around its burrows (Kitchener, 1983; Burbidge, 2016). Several disused mounds have been recorded on the Burrup recently (GHD, 2020).	May occur	Limited suitable habitat present, one record in vicinity.
<b>Reptiles</b>									
<i>Liasis olivaceus barroni</i>	Pilbara Olive Python	VU	VU	2019	20	1 km	The Olive Python (Pilbara subspecies) is known to occur at 17 locations in the Pilbara, mostly in the Hammersley Range and Dampier Archipelago and is terrestrial and rock-inhabiting (Wilson & Swan, 2010). It is often associated with rockpiles around permanent water pools and seasonal creek. On the Burrup Peninsula they prefer granophyre rock piles and occasionally are found in neighbouring spinifex grasslands (Cardno, 2019).	Likely to occur	Suitable habitat present, numerous records in vicinity.
<i>Notoscincus butleri</i>	Lined Soil-crevice Skink (Dampier)		P4	2005	12	6 km	Usually found in hummock grasslands on stony or sandy ground. A relatively poorly known species that has been collected in the Hearson Cove - King Bay area of the Burrup Peninsula.	Likely to occur	Suitable habitat present, numerous records in vicinity.



# NatureMap Species Report

Created By Guest user on 19/04/2021

**Method** 'By Circle'

**Centre** 116° 42' 27" E, 20° 40' 22" S

**Buffer** 40km

**Group By** Family

Family	Species	Records
Acanthaceae	3	75
Aizoaceae	9	65
Amaranthaceae	46	571
Anadyomenaceae	1	20
Apocynaceae	6	107
Araliaceae	4	76
Arecaceae	3	7
Areschougaceae	1	3
Asteraceae	47	363
Bignoniaceae	1	1
Bonnemaisoniaceae	1	15
Boodleaceae	1	7
Boraginaceae	17	177
Brassicaceae	5	24
Bryopsidaceae	1	2
Cactaceae	1	70
Callithamiaceae	2	11
Campanulaceae	2	5
Capparaceae	2	43
Caryophyllaceae	4	26
Caulerpaceae	22	253
Celastraceae	4	8
Ceramiaceae	2	9
Champiaceae	2	23
Chenopodiaceae	47	523
Cladophoraceae	4	17
Cleomaceae	3	92
Codiaceae	5	13
Combretaceae	4	67
Commelinaceae	1	10
Convolvulaceae	31	240
Corallinaceae	3	7
Corynomorphaceae	1	1
Cucurbitaceae	5	56
Cymodoceaceae	2	38
Cyperaceae	26	137
Cystocloniaceae	3	4
Dasyaceae	3	26
Dasycladaceae	4	21
Delesseriaceae	1	1
Dichotomosiphonaceae	3	12
Ditrichaceae	1	1
Dumontiaceae	1	3
Elatinaceae	2	4
Euphorbiaceae	21	394
Fabaceae	132	1617
Frankeniaceae	3	15
Galaxauraceae	5	51
Gelidiaceae	1	1
Gelidiellaceae	1	10
Gentianaceae	3	5
Geraniaceae	1	1
Goodeniaceae	18	251
Gracilariaceae	3	14
Gyrostemonaceae	1	1
Halimedaceae	8	95
Haloragaceae	1	1
Halymeniaceae	4	22
Hydrocharitaceae	7	71
Hydroliothaceae	1	2
Hymenocladaceae	1	4
Lamiaceae	4	35
Lauraceae	2	14
Liagoraceae	8	32
Lomentariaceae	2	17
Loranthaceae	3	5
Lythraceae	4	15
Malvaceae	56	538
Marsileaceae	2	2
Meliaceae	1	3
Menispermaceae	1	26
Molluginaceae	3	12
Montiaceae	3	9
Moraceae	8	135
Mychodeaceae	1	1
Myrtaceae	15	71
Nemastomataceae	1	1
Nyctaginaceae	9	101
Oleaceae	2	22
Orobanchaceae	1	10
Passifloraceae	1	14

Peyssonneliaceae	1	1
Phrymaceae	3	7
Phyllanthaceae	10	75
Pittosporaceae	2	40
Plantaginaceae	3	41
Plumbaginaceae	3	46
Poaceae	100	1159
Polygalaceae	3	11
Polygonaceae	1	1
Polyphysaceae	1	3
Portulacaceae	7	78
Primulaceae	1	6
Proteaceae	7	42
Pteridaceae	4	12
Rhamnaceae	2	6
Rhizophoraceae	3	68
Rhizophyllidaceae	1	17
Rhodomelaceae	13	86
Rhodymeniaceae	3	20
Ricciaceae	1	1
Rubiaceae	7	68
Santalaceae	2	18
Sapindaceae	5	61
Schizymeniaceae	1	11
Scinaiaceae	1	1
Scrophulariaceae	3	63
Sebdeniaceae	1	7
Siphonocladaceae	3	30
Solanaceae	21	194
Solieriaceae	2	15
Stylidiaceae	2	5
Surianaceae	1	22
Tamaricaceae	1	4
Thymelaeaceae	1	2
Udoteaceae	6	68
Valoniaceae	3	8
Violaceae	2	51
Wrangeliaceae	1	3
Zygophyllaceae	7	74
<b>TOTAL</b>	<b>914</b>	<b>9277</b>

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
<b>Acanthaceae</b>				
1.	6828 <i>Avicennia marina</i> (White Mangrove)			
2.	14555 <i>Avicennia marina</i> subsp. <i>marina</i>			
3.	7166 <i>Dicliptera armata</i>			
<b>Aizoaceae</b>				
4.	2802 <i>Gunnioopsis calcarea</i>			
5.	2818 <i>Sesuvium portulacastrum</i>			
6.	44305 <i>Trianthema pilosum</i>			
7.	2830 <i>Trianthema portulacastrum</i> (Giant Pigweed)	Y		
8.	33278 <i>Trianthema</i> sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)		P2	
9.	44362 <i>Trianthema triquetrum</i>			
10.	44360 <i>Trianthema turgidifolium</i>			
11.	2834 <i>Zaleya galericulata</i> (Hogweed)			
12.	29095 <i>Zaleya galericulata</i> subsp. <i>galericulata</i>			
<b>Amaranthaceae</b>				
13.	2645 <i>Achyranthes aspera</i> (Chaff Flower)			
14.	2646 <i>Aerva javanica</i> (Kapok Bush)	Y		
15.	2647 <i>Alternanthera angustifolia</i>			
16.	2651 <i>Alternanthera nana</i> (Hairy Joyweed)			
17.	2652 <i>Alternanthera nodiflora</i> (Common Joyweed)			
18.	31076 <i>Amaranthus cochleitepalus</i>			
19.	2660 <i>Amaranthus cuspidifolius</i>			
20.	2663 <i>Amaranthus interruptus</i> (Native Amaranth)			
21.	2666 <i>Amaranthus mitchellii</i> (Boggabri Weed)			
22.	20018 <i>Amaranthus undulatus</i>			
23.	2671 <i>Amaranthus viridis</i> (Green Amaranth)	Y		
24.	2674 <i>Gomphrena affinis</i>			
25.	18361 <i>Gomphrena affinis</i> subsp. <i>pilbarensis</i>			
26.	2676 <i>Gomphrena canescens</i> (Batchelors Buttons)			
27.	18363 <i>Gomphrena canescens</i> subsp. <i>canescens</i>			
28.	18360 <i>Gomphrena cucullata</i>		P3	
29.	2680 <i>Gomphrena cunninghamii</i>			
30.	2682 <i>Gomphrena flaccida</i> (Gomphrena Weed)			
31.	18367 <i>Gomphrena kanisii</i>			
32.	2683 <i>Gomphrena leptoclada</i>			
33.	18257 <i>Gomphrena leptoclada</i> subsp. <i>leptoclada</i>			
34.	17894 <i>Gomphrena leptophylla</i>		P3	
35.	11131 <i>Gomphrena sordida</i>			
36.	31074 <i>Gomphrena</i> sp. Martins Well (K.F. Kenneally 6116)			Y
37.	2687 <i>Gomphrena tenella</i>			
38.	2690 <i>Ptilotus aevroides</i>			
39.	2696 <i>Ptilotus astrolasius</i>			
40.	2698 <i>Ptilotus auriculifolius</i>			
41.	2699 <i>Ptilotus axillaris</i> (Mat Mulla Mulla)			
42.	2704 <i>Ptilotus calostachyus</i> (Weeping Mulla Mulla)			
43.	2706 <i>Ptilotus carinatus</i>			
44.	2711 <i>Ptilotus clementii</i> (Tassel Top)			
45.	2717 <i>Ptilotus divaricatus</i> (Climbing Mulla Mulla)			
46.	2721 <i>Ptilotus exaltatus</i> (Tall Mulla Mulla)			
47.	2725 <i>Ptilotus fusiformis</i>			
48.	2728 <i>Ptilotus gomphrenoides</i>			
49.	2729 <i>Ptilotus grandiflorus</i>			
50.	2731 <i>Ptilotus helipteroides</i> (Hairy Mulla Mulla)			
51.	2734 <i>Ptilotus incanus</i>			
52.	2745 <i>Ptilotus murrayi</i>			
53.	2746 <i>Ptilotus nobilis</i> (Tall Mulla Mulla)			
54.	2747 <i>Ptilotus obovatus</i> (Cotton Bush)			
55.	11396 <i>Ptilotus obovatus</i> var. <i>obovatus</i>			
56.	2751 <i>Ptilotus polystachyus</i> (Prince of Wales Feather)			
57.	2766 <i>Ptilotus villosiflorus</i>			
58.	43203 <i>Surreya diandra</i>			
<b>Anadyomenaceae</b>				
59.	35872 <i>Anadyomene plicata</i>			
<b>Apocynaceae</b>				
60.	6580 <i>Asclepias curassavica</i> (Redhead Cottonbush)	Y		

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
61.	6567 <i>Carissa lanceolata</i> (Conkerberry, Marnuwiji)			
62.	6584 <i>Cynanchum floribundum</i> (Dumara Bush, Tjipa)			
63.	48280 <i>Cynanchum viminalis</i> subsp. australe			
64.	12832 <i>Gymnanthera cunninghamii</i>		P3	
65.	6578 <i>Wrightia saligna</i>			
<b>Araliaceae</b>				
66.	6270 <i>Trachymene didiscoides</i>			
67.	6273 <i>Trachymene glaucifolia</i> (Wild Carrot)			
68.	6278 <i>Trachymene oleracea</i>			
69.	19043 <i>Trachymene oleracea</i> subsp. oleracea			
<b>Arecaceae</b>				
70.	<i>Cocos nucifera</i>			Y
71.	1042 <i>Phoenix dactylifera</i> (Date Palm)	Y		
72.	17910 <i>Washingtonia filifera</i>	Y		
<b>Areschougiaceae</b>				
73.	26823 <i>Erythroclonium sonderi</i>			
<b>Asteraceae</b>				
74.	7827 <i>Angianthus cunninghamii</i> (Coast Angianthus)			
75.	7832 <i>Angianthus milnei</i> (Cone-spike Angianthus)			
76.	<i>Baccharis</i> sp.			Y
77.	7854 <i>Bidens bipinnata</i> (Bipinnate Beggartick)	Y		
78.	7866 <i>Blumea tenella</i>			
79.	14090 <i>Calocephalus beardii</i>			
80.	7905 <i>Calotis multicaulis</i> (Many-stemmed Burr-daisy)			
81.	7906 <i>Calotis plumulifera</i>			
82.	7919 <i>Centipeda minima</i> (Spreading Sneezewood, Kanjirralaa, Inteng-inteng, Karengkal, Kata-palkalpa, Munyu-parnti-parnti)			
83.	19762 <i>Centipeda minima</i> subsp. macrocephala			
84.	33516 <i>Chrysocephalum gilesii</i>			
85.	7939 <i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
86.	35558 <i>Flaveria trinervia</i> (Speedy Weed)	Y		
87.	8088 <i>Ixiochlamys cuneifolia</i>			
88.	8095 <i>Lactuca saligna</i> (Wild Lettuce, Willow-leaf Lettuce)	Y		
89.	<i>Launaea sarmentosa</i>			
90.	8098 <i>Launaea sarmentosa</i>			
91.	8109 <i>Minuria integerrima</i> (Smooth Minuria)			
92.	8110 <i>Minuria leptophylla</i> (Minnie Daisy)			
93.	<i>Olearia Kennedy Range</i> (G. Byrne 66)			
94.	8127 <i>Olearia axillaris</i> (Coastal Daisybush)			
95.	42024 <i>Olearia</i> sp. Kennedy Range (G. Byrne 66)			
96.	13494 <i>Pentalepis trichodesmoides</i>			
97.	42160 <i>Pentalepis trichodesmoides</i> subsp. trichodesmoides			
98.	8167 <i>Pluchea dentex</i>			
99.	17816 <i>Pluchea ferdinandi-muelleri</i>			
100.	43944 <i>Pluchea longiseta</i>			
101.	8168 <i>Pluchea rubelliflora</i>			
102.	8170 <i>Pluchea tetranthera</i>			
103.	8189 <i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
104.	8191 <i>Pterocaulon serrulatum</i>			
105.	<i>Pterocaulon</i> sp.			
106.	8192 <i>Pterocaulon sphacelatum</i> (Apple Bush, Fruit Salad Plant)			
107.	8193 <i>Pterocaulon sphaeranthoides</i>			
108.	13301 <i>Rhodanthe floribunda</i>			
109.	13246 <i>Rhodanthe humboldtiana</i>			
110.	13310 <i>Rhodanthe margarethae</i>			
111.	45146 <i>Roebuckiella oncocarpa</i>			
112.	8231 <i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
113.	8234 <i>Streptoglossa adscendens</i>			
114.	8235 <i>Streptoglossa bubakii</i>			
115.	8236 <i>Streptoglossa cylindriceps</i>			
116.	8237 <i>Streptoglossa decurrens</i>			
117.	8238 <i>Streptoglossa liatroides</i>			
118.	8240 <i>Streptoglossa odora</i>			
119.	8241 <i>Streptoglossa tenuiflora</i>			
120.	8252 <i>Tridax procumbens</i> (Tridax, Tridax Daisy)	Y		
<b>Bignoniaceae</b>				
121.	48390 <i>Dolichandrone occidentalis</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Bonnemaisoniaceae</b>				
122.	26486 <i>Asparagopsis taxiformis</i>			
<b>Boodleaceae</b>				
123.	26508 <i>Boodlea composita</i>			
<b>Boraginaceae</b>				
124.	6682 <i>Ehretia saligna</i> (False Cedar)			
125.	14301 <i>Ehretia saligna</i> var. <i>saligna</i>			
126.	17301 <i>Heliotropium chrysocarpum</i>			
127.	6704 <i>Heliotropium conocarpum</i>			
128.	6705 <i>Heliotropium crispatum</i>			
129.	6706 <i>Heliotropium cunninghamii</i>			
130.	6707 <i>Heliotropium curassavicum</i> (Smooth Heliotrope)			
131.	17305 <i>Heliotropium glanduliferum</i>			
132.	6712 <i>Heliotropium heteranthum</i>			
133.	17307 <i>Heliotropium inexplicitum</i>			
134.	6713 <i>Heliotropium ovalifolium</i>			
135.	17309 <i>Heliotropium pachyphyllum</i>			
136.	6714 <i>Heliotropium paniculatum</i>			
137.	17315 <i>Heliotropium tanythrix</i>			
138.	6718 <i>Heliotropium tenuifolium</i> (Mamukata)			
139.	6727 <i>Trichodesma zeylanicum</i> (Camel Bush, Kumbalin)			
140.	11750 <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>			
<b>Brassicaceae</b>				
141.	2995 <i>Brassica x napus</i>	Y		
142.	3029 <i>Lepidium linifolium</i>			
143.	3035 <i>Lepidium pedicellosum</i>			
144.	3038 <i>Lepidium pholidogynum</i>			
145.	3039 <i>Lepidium platypetalum</i> (Slender Peppergrass)			
<b>Bryopsidaceae</b>				
146.	27191 <i>Pseudobryopsis hainanensis</i>			
<b>Cactaceae</b>				
147.	5227 <i>Opuntia stricta</i> (Common Prickly Pear)	Y		
<b>Callithamniaceae</b>				
148.	26450 <i>Aglaothamnion cordatum</i>			
149.	26706 <i>Crouania attenuata</i>			
<b>Campanulaceae</b>				
150.	37480 <i>Lobelia arnhemiaca</i>			
151.	7393 <i>Wahlenbergia tumidifruca</i>			
<b>Capparaceae</b>				
152.	2981 <i>Capparis spinosa</i>			
153.	48291 <i>Capparis spinosa</i> subsp. <i>nummularia</i>			
<b>Caryophyllaceae</b>				
154.	2898 <i>Polycarpaea corymbosa</i>			
155.	12075 <i>Polycarpaea corymbosa</i> var. <i>corymbosa</i>			
156.	2901 <i>Polycarpaea holtzei</i>			
157.	2903 <i>Polycarpaea longiflora</i>			
<b>Caulerpaceae</b>				
158.	26554 <i>Caulerpa brachypus</i>			
159.	42620 <i>Caulerpa chemnitzia</i>			
160.	26558 <i>Caulerpa constricta</i>			
161.	35158 <i>Caulerpa corynephora</i>			
162.	26559 <i>Caulerpa cupressoides</i>			
163.	47053 <i>Caulerpa cupressoides</i> var. <i>cupressoides</i>			
164.	47054 <i>Caulerpa cupressoides</i> var. <i>elegans</i>			
165.	27378 <i>Caulerpa cupressoides</i> var. <i>lycopodium</i>			
166.	36368 <i>Caulerpa cupressoides</i> var. <i>mamillosa</i>			Y
167.	44539 <i>Caulerpa cylindracea</i>			
168.	26562 <i>Caulerpa fergusonii</i>			
169.	44547 <i>Caulerpa lamourouxii</i>			
170.	26568 <i>Caulerpa lentillifera</i>			
171.	37643 <i>Caulerpa parvifolia</i>			
172.	26573 <i>Caulerpa racemosa</i>			
173.	35122 <i>Caulerpa racemosa</i> var. <i>racemosa</i>			
174.	26576 <i>Caulerpa serrulata</i>			
175.	26577 <i>Caulerpa sertularioides</i>			

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176.	26579 <i>Caulerpa taxifolia</i>			
177.	35124 <i>Caulerpa taxifolia</i> var. <i>taxifolia</i>			
178.	26582 <i>Caulerpa verticillata</i>			
179.	26584 <i>Caulerpa webbiana</i>			
<b>Celastraceae</b>				
180.	4729 <i>Stackhousia clementii</i>		P3	
181.	4731 <i>Stackhousia intermedia</i>			
182.	19555 <i>Stackhousia muricata</i> subsp. <i>annual</i> (W.R. Barker 2172)			
183.	4736 <i>Stackhousia umbellata</i>		P3	
<b>Ceramiaceae</b>				
184.	26587 <i>Centroceras clavulatum</i>			
185.	27310 <i>Spyridia filamentosa</i>			
<b>Champiaceae</b>				
186.	26619 <i>Champia stipitata</i>			
187.	26691 <i>Coelothrix irregularis</i>			
<b>Chenopodiaceae</b>				
188.	2450 <i>Atriplex amnicola</i> (Swamp Saltbush)			
189.	2451 <i>Atriplex bunburyana</i> (Silver Saltbush)			
190.	2453 <i>Atriplex codonocarpa</i> (Flat-topped Saltbush)			
191.	2463 <i>Atriplex isatidea</i> (Coast Saltbush)			
192.	2466 <i>Atriplex lindleyi</i>			
193.	17520 <i>Atriplex lindleyi</i> subsp. <i>conduplicata</i>		P3	
194.	2476 <i>Atriplex semilunaris</i> (Annual Saltbush)			
195.	33479 <i>Dysphania melanocarpa</i> (Black Crumbweed)			
196.	2504 <i>Dysphania plantaginella</i>			
197.	2506 <i>Dysphania rhadinostachya</i>			
198.	11653 <i>Dysphania rhadinostachya</i> subsp. <i>inflata</i>			
199.	11890 <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>			
200.	2511 <i>Enchylaena tomentosa</i> (Barrier Saltbush)			
201.	12064 <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> (Barrier Saltbush)			
202.	2544 <i>Maireana georgei</i> (Satiny Bluebush)			
203.	2556 <i>Maireana planifolia</i> (Low Bluebush)			
204.	2564 <i>Maireana stipitata</i>			
205.	11662 <i>Maireana tomentosa</i> subsp. <i>tomentosa</i>			
206.	2573 <i>Neobassia astrocarpa</i>			
207.	2582 <i>Rhagodia eremaea</i> (Thorny Saltbush)			
208.	2584 <i>Rhagodia preissii</i>			
209.	11240 <i>Rhagodia preissii</i> subsp. <i>obovata</i>			
210.	11254 <i>Rhagodia preissii</i> subsp. <i>preissii</i>			
211.	30434 <i>Salsola australis</i>			
212.	2597 <i>Sclerolaena bicornis</i> (Goathead Burr)			
213.	11650 <i>Sclerolaena bicornis</i> var. <i>bicornis</i> (Goathead Burr)			
214.	2604 <i>Sclerolaena costata</i>			
215.	2607 <i>Sclerolaena densiflora</i>			
216.	2609 <i>Sclerolaena diacantha</i> (Grey Copperburr)			
217.	8877 <i>Sclerolaena gardneri</i>			
218.	2616 <i>Sclerolaena glabra</i>			
219.	2617 <i>Sclerolaena hostilis</i>			
220.	2633 <i>Sclerolaena uniflora</i> (Two-spined Saltbush)			
221.	2638 <i>Suaeda arbusculoides</i>			
222.	31616 <i>Tecticornia auriculata</i>			
223.	33236 <i>Tecticornia halocnemoides</i> (Shrubby Samphire)			
224.	33240 <i>Tecticornia halocnemoides</i> subsp. <i>longispicata</i>			
225.	33238 <i>Tecticornia halocnemoides</i> subsp. <i>tenuis</i>			
226.	33317 <i>Tecticornia indica</i>			
227.	33319 <i>Tecticornia indica</i> subsp. <i>bidens</i>			
228.	33356 <i>Tecticornia indica</i> subsp. <i>indica</i>			
229.	33357 <i>Tecticornia indica</i> subsp. <i>julacea</i>			
230.	33318 <i>Tecticornia indica</i> subsp. <i>leiostachya</i> (Samphire)			
231.	33299 <i>Tecticornia pergranulata</i> subsp. <i>elongata</i>			
232.	31618 <i>Tecticornia pruinosa</i>			
233.	33220 <i>Tecticornia pterygosperma</i> subsp. <i>denticulata</i>			
234.	2644 <i>Threlkeldia diffusa</i> (Coast Bonefruit)			
<b>Cladophoraceae</b>				
235.	44320 <i>Chaetomorpha basiretrorsa</i>			Y
236.	26612 <i>Chaetomorpha melagonium</i>			
237.	35865 <i>Cladophora catenata</i>			
238.	36316 <i>Cladophora herpestica</i>			

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<b>Cleomaceae</b>				
239.	2985 <i>Cleome oxalidea</i>			
240.	2987 <i>Cleome uncifera</i>			
241.	2988 <i>Cleome viscosa</i> (Tickweed, Tjinduwadhu)			
<b>Codiaceae</b>				
242.	35917 <i>Codium arabicum</i>			
243.	47113 <i>Codium arenicola</i>			Y
244.	35857 <i>Codium dwarkense</i>			
245.	26673 <i>Codium geppiorum</i>			
246.	<i>Codium platyclados</i>			Y
<b>Combretaceae</b>				
247.	5300 <i>Terminalia canescens</i> (Joolal)			
248.	45698 <i>Terminalia circumalata</i>			
249.	5310 <i>Terminalia platyphylla</i> (Wild Plum, Durin)			
250.	5313 <i>Terminalia supranitfolia</i>		P3	
<b>Commelinaceae</b>				
251.	1165 <i>Commelina ensifolia</i> (Wandering Jew, Buargu)			
<b>Convolvulaceae</b>				
252.	11167 <i>Bonamia erecta</i>			
253.	6605 <i>Bonamia linearis</i>			
254.	6606 <i>Bonamia media</i>			
255.	6608 <i>Bonamia pannosa</i>			
256.	44782 <i>Bonamia pilbarensis</i>			
257.	6609 <i>Bonamia rosea</i> (Feltly Bellflower)			
258.	19880 <i>Convolvulus angustissimus</i>			
259.	6612 <i>Convolvulus clementii</i>			
260.	19565 <i>Cressa australis</i>			
261.	6662 <i>Cuscuta australis</i> (Australian Dodder)			
262.	13733 <i>Cuscuta victoriana</i>			
263.	48738 <i>Distimake dissectus</i> var. <i>dissectus</i>	Y		
264.	31274 <i>Duperreya commixta</i>			
265.	6617 <i>Evolvulus alsinoides</i> (Tropical Speedwell)			
266.	11200 <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>			
267.	6623 <i>Ipomoea coptica</i>			
268.	6624 <i>Ipomoea costata</i> (Rock Morning Glory, Kanti)			
269.	6631 <i>Ipomoea lonchophylla</i> (Cowvine)			
270.	6632 <i>Ipomoea macrantha</i>			
271.	6633 <i>Ipomoea muelleri</i> (Poison Morning Glory, Yumbu)			
272.	6635 <i>Ipomoea pes-caprae</i>			
273.	11312 <i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>			
274.	6636 <i>Ipomoea plebeia</i> (Bellvine)			
275.	6637 <i>Ipomoea polymorpha</i>			
276.	<i>Ipomoea</i> sp.			
277.	6651 <i>Operculina aequisejala</i>			
278.	6652 <i>Operculina brownii</i> (Potato Vine, Bara)			
279.	6653 <i>Polymeria ambigua</i> (Morning Glory)			
280.	6655 <i>Polymeria calycina</i>			
281.	17513 <i>Polymeria lanata</i>			
282.	<i>Polymeria</i> sp.			
<b>Corallinaceae</b>				
283.	26461 <i>Amphiroa foliacea</i>			
284.	26462 <i>Amphiroa fragilissima</i>			
285.	27037 <i>Lithophyllum kotschyannum</i>			
<b>Corynomorphaceae</b>				
286.	26698 <i>Corynomorpha prismatica</i>			
<b>Cucurbitaceae</b>				
287.	41720 <i>Cucumis argenteus</i>			
288.	7371 <i>Cucumis melo</i> (Ulcardo Melon)			
289.	41721 <i>Cucumis variabilis</i>			
290.	7381 <i>Trichosanthes cucumerina</i>			
291.	12032 <i>Trichosanthes cucumerina</i> var. <i>cucumerina</i>			
<b>Cymodoceaceae</b>				
292.	131 <i>Halodule uninervis</i>			
293.	132 <i>Syringodium isoetifolium</i>			
<b>Cyperaceae</b>				

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294.	750 <i>Bulbostylis barbata</i>			
295.	752 <i>Bulbostylis turbinata</i>			
296.	774 <i>Cyperus bifax</i> (Downs Nutgrass)			
297.	12801 <i>Cyperus blakeanus</i>			
298.	777 <i>Cyperus bulbosus</i> (Bush Onion, Tjanmata)			
299.	786 <i>Cyperus cunninghamii</i>			
300.	12811 <i>Cyperus cunninghamii</i> subsp. <i>cunninghamii</i>			
301.	789 <i>Cyperus difformis</i> (Rice Sedge)			
302.	798 <i>Cyperus iria</i>			
303.	804 <i>Cyperus nervulosus</i>			
304.	807 <i>Cyperus pulchellus</i>			
305.	814 <i>Cyperus squarrosus</i>			
306.	818 <i>Cyperus vaginatus</i> (Stiffleaf Sedge)			
307.	826 <i>Eleocharis dulcis</i> (Chinese Water Chestnut)			
308.	827 <i>Eleocharis geniculata</i>			
309.	851 <i>Fimbristylis dichotoma</i> (Eight Day Grass)			
310.	853 <i>Fimbristylis elegans</i>			
311.	855 <i>Fimbristylis ferruginea</i>			
312.	859 <i>Fimbristylis littoralis</i>			
313.	862 <i>Fimbristylis microcarya</i>			
314.	878 <i>Fimbristylis rara</i>			
315.	880 <i>Fimbristylis schultzei</i>			
316.	12159 <i>Fimbristylis simulans</i>			
317.	16257 <i>Schoenoplectus subulatus</i>			
318.	1006 <i>Schoenus odontocarpus</i>			
319.	1010 <i>Schoenus punctatus</i>		P3	

#### Cystocloniaceae

- |      |                              |  |  |  |
|------|------------------------------|--|--|--|
| 320. | 35922 <i>Hypnea cornuta</i>  |  |  |  |
| 321. | 26970 <i>Hypnea pannosa</i>  |  |  |  |
| 322. | 26972 <i>Hypnea spinella</i> |  |  |  |

#### Dasyaceae

- |      |                                       |  |  |  |
|------|---------------------------------------|--|--|--|
| 323. | 26738 <i>Dasya elongata</i>           |  |  |  |
| 324. | 26740 <i>Dasya frutescens</i>         |  |  |  |
| 325. | 26930 <i>Heterosiphonia crassipes</i> |  |  |  |

#### Dasycladaceae

- |      |                                    |  |  |  |
|------|------------------------------------|--|--|--|
| 326. | 26509 <i>Bornetella oligospora</i> |  |  |  |
| 327. | 26510 <i>Bornetella sphaerica</i>  |  |  |  |
| 328. | 44548 <i>Neomeris bilimbata</i>    |  |  |  |
| 329. | 27099 <i>Neomeris van-bosseae</i>  |  |  |  |

#### Delesseriaceae

- |      |                                |  |  |  |
|------|--------------------------------|--|--|--|
| 330. | 27056 <i>Martensia elegans</i> |  |  |  |
|------|--------------------------------|--|--|--|

#### Dichotomosiphonaceae

- |      |                                   |  |  |  |
|------|-----------------------------------|--|--|--|
| 331. | 48138 <i>Avrainvillea carteri</i> |  |  |  |
| 332. | 36362 <i>Avrainvillea erecta</i>  |  |  |  |
| 333. | 26498 <i>Avrainvillea obscura</i> |  |  |  |

#### Ditrichaceae

- |      |                                   |  |  |  |
|------|-----------------------------------|--|--|--|
| 334. | 32348 <i>Eccremidium arcuatum</i> |  |  |  |
|------|-----------------------------------|--|--|--|

#### Dumontiaceae

- |      |                                     |  |  |  |
|------|-------------------------------------|--|--|--|
| 335. | 26851 <i>Gibsmithia hawaiiensis</i> |  |  |  |
|------|-------------------------------------|--|--|--|

#### Elatinaceae

- |      |                                 |  |  |  |
|------|---------------------------------|--|--|--|
| 336. | 5183 <i>Bergia ammannioides</i> |  |  |  |
| 337. | 5186 <i>Bergia trimera</i>      |  |  |  |

#### Euphorbiaceae

- |      |   |  |    |  |
|------|---|--|----|--|
| 338. | 4583 <i>Adriana tomentosa</i>                             |  |    |  |
| 339. | 17422 <i>Adriana tomentosa</i> var. <i>tomentosa</i>      |  |    |  |
| 340. | 4617 <i>Euphorbia australis</i> (Namana)                  |  |    |  |
| 341. | 35307 <i>Euphorbia australis</i> var. <i>australis</i>    |  |    |  |
| 342. | 42843 <i>Euphorbia australis</i> var. <i>glabra</i>       |  | P2 |  |
| 343. | 35303 <i>Euphorbia australis</i> var. <i>subtomentosa</i> |  |    |  |
| 344. | 4619 <i>Euphorbia biconvexa</i>                           |  |    |  |
| 345. | 4620 <i>Euphorbia boophthona</i> (Gascoyne Spurge)        |  |    |  |
| 346. | 9048 <i>Euphorbia careyi</i>                              |  |    |  |
| 347. | 4623 <i>Euphorbia coghlani</i> (Namana)                   |  |    |  |
| 348. | 4626 <i>Euphorbia drummondii</i> (Caustic Weed, Piwi)     |  |    |  |
| 349. | 4629 <i>Euphorbia hirta</i> (Asthma Plant)                |  |    |  |
| 350. | 4634 <i>Euphorbia mitchelliana</i>                        |  |    |  |

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Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
351.	4635 <i>Euphorbia myrtilodes</i>			
352.	4642 <i>Euphorbia schultzei</i>			
353.	4644 <i>Euphorbia sharkoensis</i>			
354.	4647 <i>Euphorbia tannensis</i>			
355.	12097 <i>Euphorbia tannensis</i> subsp. <i>eremophila</i> (Desert Spurge)			
356.	42879 <i>Euphorbia trigonosperma</i>			
357.	13281 <i>Euphorbia vaccaria</i>			
358.	42876 <i>Euphorbia vaccaria</i> var. <i>vaccaria</i>			

**Fabaceae**

359.	<i>Acacia Airlie Island</i> (V. Long VL163)			
360.	<i>Acacia ampliceps</i>			
361.	44580 <i>Acacia ampliceps</i> x <i>bivenosa</i>			
362.	44586 <i>Acacia ampliceps</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>			
363.	3214 <i>Acacia ancistrocarpa</i> (Fitzroy Wattle)			
364.	3223 <i>Acacia arida</i>			
365.	3241 <i>Acacia bivenosa</i>			
366.	44588 <i>Acacia bivenosa</i> x <i>sclerosperma</i> subsp. <i>sclerosperma</i>			
367.	3260 <i>Acacia citrinoviridis</i>			
368.	13403 <i>Acacia colei</i>			
369.	17013 <i>Acacia colei</i> var. <i>colei</i>			
370.	3270 <i>Acacia coriacea</i> (Wirewood)			
371.	13500 <i>Acacia coriacea</i> subsp. <i>coriacea</i>			
372.	13502 <i>Acacia coriacea</i> subsp. <i>pendens</i>			
373.	16174 <i>Acacia elachantha</i>			
374.	12673 <i>Acacia glaucocaesia</i>			
375.	3356 <i>Acacia gregorii</i> (Gregory's Wattle)			
376.	3372 <i>Acacia holosericea</i> (Candelbra Wattle, Liringgin)			
377.	3377 <i>Acacia inaequilatera</i> (Baderi)			
378.	3419 <i>Acacia ligulata</i> (Umbrella Bush, Watarka)			
379.	3434 <i>Acacia maitlandii</i> (Maitland's Wattle)			
380.	3471 <i>Acacia orthocarpa</i> (Needleleaf Wattle)			
381.	3506 <i>Acacia pyrifolia</i> (Ranji Bush, Kandji)			
382.	29016 <i>Acacia pyrifolia</i> var. <i>morrisonii</i>			
383.	29015 <i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			
384.	15203 <i>Acacia sabulosa</i>			
385.	13078 <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			
386.	29135 <i>Acacia sericophylla</i>			
387.	29102 <i>Acacia</i> sp. <i>Airlie Island</i> (V. Long VL 163)			
388.	3551 <i>Acacia sphaerostachya</i>			
389.	19456 <i>Acacia stellaticeps</i>			
390.	13070 <i>Acacia synchronicia</i>			
391.	3573 <i>Acacia tenuissima</i>			
392.	3579 <i>Acacia trachycarpa</i> (Minni Ritchi, Balgali)			
393.	3585 <i>Acacia tumida</i> (Pindan Wattle, Walgali)			
394.	20319 <i>Acacia tumida</i> var. <i>pilbarensis</i>			
395.	3606 <i>Acacia xiphophylla</i>			
396.	3680 <i>Aeschynomene indica</i> (Budda Pea)			
397.	3609 <i>Albizia lebbek</i>			
398.	17147 <i>Alysicarpus muelleri</i>			
399.	11055 <i>Cajanus cinereus</i>			
400.	10972 <i>Cajanus marmoratus</i>			
401.	11150 <i>Cajanus pubescens</i>			
402.	3749 <i>Canavalia rosea</i> (Wild Jack Bean)			
403.	3769 <i>Clitoria ternatea</i>	Y		
404.	3774 <i>Crotalaria cunninghamii</i> (Green Birdflower, Bilbun)			
405.	20176 <i>Crotalaria cunninghamii</i> subsp. <i>cunninghamii</i>			
406.	19378 <i>Crotalaria dissitiflora</i> subsp. <i>benthamiana</i>			
407.	3783 <i>Crotalaria medicaginea</i>			
408.	20179 <i>Crotalaria medicaginea</i> var. <i>neglecta</i>			
409.	3785 <i>Crotalaria novae-hollandiae</i> (New Holland Rattlepod)			
410.	11231 <i>Crotalaria novae-hollandiae</i> subsp. <i>novae-hollandiae</i>			
411.	17433 <i>Cullen badocanum</i>			
412.	17117 <i>Cullen cinereum</i>			
413.	17436 <i>Cullen graveolens</i>			
414.	17439 <i>Cullen lachnostachys</i>			
415.	17118 <i>Cullen leucanthum</i>			
416.	17119 <i>Cullen leucochaites</i>			
417.	17120 <i>Cullen pogonocarpum</i>			
418.	15714 <i>Cullen stipulaceum</i>			
419.	3852 <i>Desmodium campylocaulon</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
420.	3853 <i>Desmodium filiforme</i>			
421.	3856 <i>Desmodium muelleri</i>			
422.	3612 <i>Dichrostachys spicata</i> (Pied Piper Bush)			
423.	3871 <i>Erythrina vespertilio</i> (Yulbah)			
424.	3938 <i>Glycine canescens</i> (Silky Glycine)			
425.	3940 <i>Glycine falcata</i>		P3	
426.	14587 <i>Indigastrium parviflorum</i>			
427.	3973 <i>Indigofera colutea</i> (Sticky Indigo)			
428.	3980 <i>Indigofera linifolia</i>			
429.	3981 <i>Indigofera linnaei</i> (Birdsville Indigo)			
430.	3982 <i>Indigofera monophylla</i>			
431.	3987 <i>Indigofera trita</i>			
432.	31035 <i>Indigofera trita</i> subsp. <i>trita</i>			
433.	3989 <i>Isotropis atropurpurea</i> (Poison Sage)			
434.	3613 <i>Leucaena leucocephala</i> (Leucaena)	Y		
435.	4060 <i>Lotus australis</i> (Austral Trefoil)			
436.	4061 <i>Lotus cruentus</i> (Redflower Lotus)			
437.	3614 <i>Neptunia dimorphantha</i> (Sensitive Plant)			
438.	3617 <i>Neptunia monosperma</i>			
439.	3675 <i>Petalostylis labicheoides</i> (Slender Petalostylis)			
440.	4190 <i>Rhynchosia australis</i> (Rhynchosia)			
441.	20862 <i>Rhynchosia bungarensis</i>		P4	
442.	4191 <i>Rhynchosia minima</i> (Rhynchosia)			
443.	12279 <i>Senna artemisioides</i> subsp. <i>helmsii</i>			
444.	12280 <i>Senna artemisioides</i> subsp. <i>oligophylla</i>			
445.	18444 <i>Senna charlesiana</i>			
446.	12303 <i>Senna costata</i>			
447.	18443 <i>Senna ferraria</i>			
448.	18346 <i>Senna glutinosa</i>			
449.	<i>Senna glutinosa</i> subsp. <i>X luerssenii</i>			Y
450.	12305 <i>Senna glutinosa</i> subsp. <i>chatelainiana</i>			
451.	12307 <i>Senna glutinosa</i> subsp. <i>glutinosa</i>			
452.	12309 <i>Senna glutinosa</i> subsp. <i>pruinosa</i>			
453.	12308 <i>Senna glutinosa</i> subsp. <i>x luerssenii</i>			
454.	18451 <i>Senna hamersleyensis</i>			
455.	12312 <i>Senna notabilis</i>			
456.	18450 <i>Senna symonii</i>			
457.	12319 <i>Senna venusta</i>			
458.	4196 <i>Sesbania cannabina</i> (Sesbania Pea)			
459.	4198 <i>Sesbania formosa</i> (White Dragon Tree)			
460.	12353 <i>Stylosanthes hamata</i> (Verano Stylo)	Y		
461.	4220 <i>Swainsona canescens</i> (Grey Swainsona)			
462.	12356 <i>Swainsona formosa</i>			
463.	4231 <i>Swainsona kingii</i>			
464.	4233 <i>Swainsona leeana</i>			
465.	4234 <i>Swainsona maccullochiana</i> (Ashburton Pea)			
466.	4242 <i>Swainsona pterostylis</i>			
467.	<i>Tephrosia Fortescue</i> (A.A. Mitchell 606)			Y
468.	39500 <i>Tephrosia brachyodon</i> var. <i>longifolia</i>			
469.	4263 <i>Tephrosia clementii</i>			
470.	49016 <i>Tephrosia densa</i>			
471.	4269 <i>Tephrosia flammea</i>			
472.	4272 <i>Tephrosia leptoclada</i>			
473.	4280 <i>Tephrosia rosea</i> (Flinders River Poison, Bungoo'dah)			
474.	19531 <i>Tephrosia rosea</i> var. <i>clementii</i>			
475.	<i>Tephrosia rosea</i> var. <i>fortescue</i> creeks (M.I.H. Brooker 2186)			
476.	19529 <i>Tephrosia rosea</i> var. <i>rosea</i>			
477.	15947 <i>Tephrosia</i> sp. <i>B Kimberley Flora</i> (C.A. Gardner 7300)			
478.	17768 <i>Tephrosia</i> sp. <i>Bungaroo Creek</i> (M.E. Trudgen 11601)			
479.	15949 <i>Tephrosia</i> sp. <i>D Kimberley Flora</i> (R.D. Royce 1848)			
480.	42442 <i>Tephrosia</i> sp. <i>NW Eremaean</i> (S. van Leeuwen et al. PBS 0356)			
481.	40060 <i>Tephrosia</i> sp. <i>clay soils</i> (S. van Leeuwen et al. PBS 0273)			
482.	4285 <i>Tephrosia supina</i>			
483.	30716 <i>Vachellia farnesiana</i> (Mimosa Bush)	Y		
484.	4323 <i>Vigna lanceolata</i> (Maloga Vigna, Wega)			
485.	<i>Vigna lanceolata</i> subsp. <i>latifolia</i>			Y
486.	11576 <i>Vigna lanceolata</i> var. <i>lanceolata</i>			
487.	31391 <i>Vigna</i> sp. <i>Hamersley Clay</i> (A.A. Mitchell PRP 113)			
488.	46577 <i>Vigna triodiophila</i>		P3	
489.	4326 <i>Zornia albiflora</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
490.	12679 <i>Zornia muelleriana</i> subsp. <i>congesta</i>			
<b>Frankeniaceae</b>				
491.	5188 <i>Frankenia ambita</i>			
492.	5209 <i>Frankenia pauciflora</i> (Seaheath)			
493.	14297 <i>Frankenia pauciflora</i> var. <i>pauciflora</i>			
<b>Galaxauraceae</b>				
494.	29616 <i>Dichotomaria marginata</i>			
495.	29615 <i>Dichotomaria obtusata</i>			
496.	26835 <i>Galaxaura rugosa</i>			
497.	27340 <i>Tricleocarpa cylindrica</i>			
498.	27341 <i>Tricleocarpa fragilis</i>			
<b>Gelidiaceae</b>				
499.	26848 <i>Gelidium crinale</i>			
<b>Gelidiellaceae</b>				
500.	26842 <i>Gelidiella acerosa</i>			
<b>Gentianaceae</b>				
501.	6539 <i>Centaurium erythraea</i> (Common Centaury)	Y		
502.	41660 <i>Schenkia australis</i>			
503.	41646 <i>Schenkia clementii</i>			
<b>Geraniaceae</b>				
504.	4335 <i>Erodium cygnorum</i> (Blue Heronsbill)			
<b>Goodeniaceae</b>				
505.	7495 <i>Goodenia berardiana</i>			
506.	7509 <i>Goodenia forrestii</i>			
507.	7515 <i>Goodenia heterochila</i>			
508.	7521 <i>Goodenia lamprosperma</i>			
509.	7526 <i>Goodenia microptera</i>			
510.	12552 <i>Goodenia muelleriana</i>			
511.	12570 <i>Goodenia pallida</i>		P1	
512.	10982 <i>Goodenia stobbsiana</i>			
513.	7556 <i>Goodenia tenuiloba</i>			
514.	7560 <i>Goodenia vilmoriniae</i>			
515.	12578 <i>Scaevola acacioides</i>			
516.	12723 <i>Scaevola amblyanthera</i>			
517.	7595 <i>Scaevola anchusifolia</i>			
518.	7606 <i>Scaevola crassifolia</i> (Thick-leaved Fan-flower)			
519.	7608 <i>Scaevola cunninghamii</i>			
520.	7614 <i>Scaevola globulifera</i>			
521.	7644 <i>Scaevola spinescens</i> (Currant Bush, Maroon)			
522.	7660 <i>Velleia glabrata</i> (Pee the Bed)			
<b>Gracilariaceae</b>				
523.	35899 <i>Gracilaria canaliculata</i>			
524.	26873 <i>Gracilaria salicornia</i>			
525.	35871 <i>Hydropuntia urvillei</i>			
<b>Gyrostemonaceae</b>				
526.	2778 <i>Codonocarpus cotinifolius</i> (Native Poplar, Kundurangu)			
<b>Halimedaceae</b>				
527.	47313 <i>Halimeda borneensis</i>			
528.	26891 <i>Halimeda cylindracea</i>			
529.	26892 <i>Halimeda discoidea</i>			
530.	26894 <i>Halimeda macroloba</i>			
531.	26896 <i>Halimeda simulans</i>			
532.	26897 <i>Halimeda tuna</i>			
533.	26898 <i>Halimeda velasquezii</i>			
534.	47213 <i>Halimeda versatilis</i>			
<b>Haloragaceae</b>				
535.	6151 <i>Gonocarpus ephemerus</i>			
<b>Halymeniaceae</b>				
536.	26708 <i>Cryptonemia kallymenioides</i>			
537.	37642 <i>Halymenia durvillei</i>			
538.	37640 <i>Halymenia floresii</i>			
539.	44523 <i>Spongophloea tissotii</i>			
<b>Hydrocharitaceae</b>				
540.	160 <i>Enhalus acoroides</i>			

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541.	162 <i>Halophila decipiens</i>			
542.	163 <i>Halophila minor</i>			
543.	164 <i>Halophila ovalis</i> (Sea Wrack)			
544.	165 <i>Halophila spinulosa</i>			
545.	139 <i>Najas tenuifolia</i> (Water Nymph)			
546.	169 <i>Thalassia hemprichii</i>			
<b>Hydroolithaceae</b>				
547.	26956 <i>Hydroolithon reinboldii</i>			
<b>Hymenocladaceae</b>				
548.	36140 <i>Asteromenia exanimans</i>			
<b>Lamiaceae</b>				
549.	6729 <i>Clerodendrum floribundum</i> (Lollybush)			
550.	6732 <i>Clerodendrum tomentosum</i>			
551.	13689 <i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i>			
552.	13690 <i>Clerodendrum tomentosum</i> var. <i>tomentosum</i>			
<b>Lauraceae</b>				
553.	2949 <i>Cassytha capillaris</i>			
554.	2950 <i>Cassytha filiformis</i> (Love Vine, Jirawan)			
<b>Liagoraceae</b>				
555.	26837 <i>Ganonema farinosum</i>			
556.	26839 <i>Ganonema pinnatum</i>			
557.	27021 <i>Liagora ceranoides</i>			
558.	44525 <i>Neoizziella divaricata</i>			
559.	35120 <i>Patenocarpus paraphysiferus</i>			Y
560.	29601 <i>Titanophycus validus</i>			
561.	27339 <i>Trichogloea requienii</i>			
562.	27370 <i>Yamadaella caenomyce</i>			
<b>Lomentariaceae</b>				
563.	26606 <i>Ceratodictyon spongiosum</i>			
564.	26845 <i>Gelidiopsis intricata</i>			
<b>Loranthaceae</b>				
565.	2381 <i>Amyema miraculosa</i>			
566.	2383 <i>Amyema preissii</i> (Wireleaf Mistletoe)			
567.	11874 <i>Amyema sanguinea</i> var. <i>sanguinea</i>			
<b>Lythraceae</b>				
568.	5276 <i>Ammannia auriculata</i>			
569.	5277 <i>Ammannia baccifera</i>			
570.	5278 <i>Ammannia multiflora</i>			
571.	<i>Lawsonia inermis</i>			
<b>Malvaceae</b>				
572.	4886 <i>Abutilon amplum</i>			
573.	9080 <i>Abutilon cunninghamii</i>			
574.	4891 <i>Abutilon fraseri</i> (Lantern Bush)			
575.	18120 <i>Abutilon fraseri</i> subsp. <i>fraseri</i>			
576.	4894 <i>Abutilon indicum</i> (Indian Lantern Flower)			
577.	11325 <i>Abutilon indicum</i> var. <i>australiense</i>			
578.	4895 <i>Abutilon lepidum</i>			
579.	4899 <i>Abutilon malvifolium</i> (Bastard Marshmallow)			
580.	4901 <i>Abutilon otocarpum</i> (Desert Chinese Lantern)			
581.	4902 <i>Abutilon oxycarpum</i> (Flannel Weed)			
582.	43020 <i>Abutilon oxycarpum</i> subsp. <i>Prostrate</i> (A.A. Mitchell PRP 1266)			
583.	12716 <i>Brachychiton acuminatus</i>			
584.	<i>Brachychiton australe</i>			Y
585.	18411 <i>Corchorus congener</i>		P3	
586.	4857 <i>Corchorus elachocarpus</i>			
587.	17339 <i>Corchorus incanus</i>			
588.	25847 <i>Corchorus incanus</i> subsp. <i>incanus</i>			
589.	13659 <i>Corchorus laniflorus</i>			
590.	18409 <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i>			
591.	4862 <i>Corchorus parviflorus</i>			
592.	<i>Corchorus</i> sp.			
593.	17661 <i>Corchorus tectus</i>			
594.	4865 <i>Corchorus tridens</i>			
595.	13467 <i>Corchorus trilocularis</i>			
596.	4867 <i>Corchorus walcottii</i> (Woolly Corchorus)			
597.	4910 <i>Gossypium australe</i> (Native Cotton)			

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598.	4913 <i>Gossypium hirsutum</i> (Upland Cotton)	Y		
599.	4918 <i>Gossypium robinsonii</i> (Wild Cotton)			
600.	29316 <i>Hibiscus austrinus</i>			
601.	29317 <i>Hibiscus austrinus</i> var. <i>austrinus</i>			
602.	4923 <i>Hibiscus brachysiphonius</i>			
603.	4925 <i>Hibiscus coatesii</i>			
604.	4933 <i>Hibiscus leptocladus</i>			
605.	4942 <i>Hibiscus sturtii</i> (Sturt's Hibiscus)			
606.	11651 <i>Hibiscus sturtii</i> var. <i>campylochlamys</i>			
607.	11385 <i>Hibiscus sturtii</i> var. <i>grandiflorus</i>			
608.	11477 <i>Hibiscus sturtii</i> var. <i>platychlamys</i>			
609.	4960 <i>Lawrenzia viridigrisea</i>			
610.	4962 <i>Malvastrum americanum</i> (Spiked Malvastrum)	Y		
611.	5051 <i>Melhania oblongifolia</i>			
612.	<i>Sida Excedentifolia</i> (J.L. Egan 1925)			Y
613.	31758 <i>Sida arsinata</i>			
614.	4971 <i>Sida cardiophylla</i>			
615.	4972 <i>Sida clementii</i>			
616.	4976 <i>Sida echinocarpa</i>			
617.	4977 <i>Sida fibulifera</i> (Silver Sida)			
618.	4988 <i>Sida rohlenae</i>			
619.	33698 <i>Sida</i> sp. <i>Pilbara</i> (A.A. Mitchell PRP 1543)			
620.	16617 <i>Sida</i> sp. <i>spiciform panicles</i> (E. Leyland s.n. 14/8/90)			
621.	4989 <i>Sida spinosa</i> (Spiny Sida)			
622.	4873 <i>Triumfetta appendiculata</i>			
623.	4875 <i>Triumfetta chaetocarpa</i> (Urchins)			
624.	14694 <i>Triumfetta clementii</i>			
625.	4879 <i>Triumfetta leptacantha</i>			
626.	14942 <i>Triumfetta maconochieana</i>			
627.	5106 <i>Waltheria indica</i>			
<b>Marsileaceae</b>				
628.	75 <i>Marsilea exarata</i>			
629.	76 <i>Marsilea hirsuta</i> (Nardoo)			
<b>Meliaceae</b>				
630.	4518 <i>Owenia reticulata</i> (Native Walnut, Bandal)			
<b>Menispermaceae</b>				
631.	2942 <i>Tinospora smilacina</i> (Snakevine, Oondala)			
<b>Molluginaceae</b>				
632.	2836 <i>Glinus oppositifolius</i>			
633.	48203 <i>Hypertelis cerviana</i>			
634.	48201 <i>Trigastrotheca molluginea</i>			
<b>Montiaceae</b>				
635.	2864 <i>Calandrinia ptychosperma</i>			
636.	2866 <i>Calandrinia quadrivalvis</i>			
637.	2872 <i>Calandrinia tepperiana</i>			
<b>Moraceae</b>				
638.	25811 <i>Ficus aculeata</i>			
639.	31578 <i>Ficus aculeata</i> var. <i>indecora</i> (Ranji)			
640.	19648 <i>Ficus brachypoda</i>			
641.	1753 <i>Ficus platypoda</i> (Native Fig, Makartu)			
642.	<i>Ficus</i> sp.			
643.	1759 <i>Ficus virens</i> (Albayi)			
644.	11572 <i>Ficus virens</i> var. <i>sublanceolata</i>			
645.	12096 <i>Ficus virens</i> var. <i>virens</i>			
<b>Mychodeaceae</b>				
646.	27079 <i>Mychodea carnosa</i>			
<b>Myrtaceae</b>				
647.	19125 <i>Corymbia dichromophloia</i>			
648.	17089 <i>Corymbia greeniana</i>			
649.	17093 <i>Corymbia hamersleyana</i>			
650.	17092 <i>Corymbia opaca</i>			
651.	5580 <i>Eucalyptus camaldulensis</i> (River Gum, Yabalinyba)			
652.	35345 <i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i> (Blunt-budded River Red Gum)			
653.	35343 <i>Eucalyptus camaldulensis</i> subsp. <i>refulgens</i>			
654.	5714 <i>Eucalyptus microtheca</i> (Coolibah)			
655.	5752 <i>Eucalyptus prominens</i>			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
656.	14548 <i>Eucalyptus victrix</i>			
657.	15592 <i>Eucalyptus xerothermica</i>			
658.	5875 <i>Melaleuca argentea</i> (Silver Cadjeput, Bandaran)			
659.	5915 <i>Melaleuca glomerata</i>			
660.	5933 <i>Melaleuca linophylla</i>			
661.	6005 <i>Osbornia octodonta</i> (Myrtle Mangrove)			
<b>Nemastomataceae</b>				
662.	27189 <i>Predaea weldii</i>			
<b>Nyctaginaceae</b>				
663.	2769 <i>Boerhavia burbridgeana</i>			
664.	2770 <i>Boerhavia coccinea</i> (Tar Vine, Wituka)			
665.	8357 <i>Boerhavia diffusa</i>			
666.	2772 <i>Boerhavia gardneri</i>			
667.	2773 <i>Boerhavia paludosa</i>			
668.	2774 <i>Boerhavia repleta</i>			
669.	2775 <i>Boerhavia schomburgkiana</i>			
670.	<i>Boerhavia</i> sp.			
671.	2776 <i>Commicarpus australis</i> (Perennial Tar Vine)			
<b>Oleaceae</b>				
672.	6501 <i>Jasminum didymum</i>			
673.	12059 <i>Jasminum didymum</i> subsp. <i>lineare</i> (Desert Jasmine)			
<b>Orobanchaceae</b>				
674.	7103 <i>Striga curviflora</i>			
<b>Passifloraceae</b>				
675.	5226 <i>Passiflora foetida</i> (Stinking Passion Flower)	Y		
<b>Peyssonneliaceae</b>				
676.	44731 <i>Sonderophycus capensis</i>			
<b>Phrymaceae</b>				
677.	7082 <i>Mimulus gracilis</i>			
678.	7092 <i>Peplidium muelleri</i>			
679.	18462 <i>Peplidium</i> sp. <i>E. Evol. Fl. Fauna Arid Aust. (A.S. Weston 12768)</i>			
<b>Phyllanthaceae</b>				
680.	<i>Breyinia desorii</i>			
681.	4603 <i>Bridelia tomentosa</i>			
682.	4654 <i>Flueggea virosa</i>			
683.	12013 <i>Flueggea virosa</i> subsp. <i>melanthesoides</i> (Dogwood, Guwal)			
684.	38421 <i>Notoleptopus decaisnei</i>			
685.	38422 <i>Notoleptopus decaisnei</i> var. <i>decaisnei</i>			
686.	4673 <i>Phyllanthus amarus</i>	Y		
687.	9056 <i>Phyllanthus baccatus</i>			
688.	17626 <i>Phyllanthus erwinii</i>			
689.	4680 <i>Phyllanthus maderaspatensis</i>			
<b>Pittosporaceae</b>				
690.	19744 <i>Pittosporum angustifolium</i>			
691.	41300 <i>Pittosporum phillyreoides</i> (Weeping Pittosporum, Yaliti)			
<b>Plantaginaceae</b>				
692.	7098 <i>Stemodia grossa</i> (Marsh Stemodia, Mindjaara)			
693.	7099 <i>Stemodia kingii</i>			
694.	7102 <i>Stemodia viscosa</i> (Pagurda)			
<b>Plumbaginaceae</b>				
695.	6486 <i>Aegialitis annulata</i> (Club Mangrove)			
696.	6490 <i>Muellerolimon salicorniaceum</i>			
697.	6491 <i>Plumbago zeylanica</i> (Native Plumbago)			
<b>Poaceae</b>				
698.	172 <i>Acrachne racemosa</i>			
699.	204 <i>Aristida burbridgeae</i>			
700.	207 <i>Aristida contorta</i> (Bunched Kerosene Grass)			
701.	210 <i>Aristida holathera</i>			
702.	12063 <i>Aristida holathera</i> var. <i>holathera</i>			
703.	215 <i>Aristida latifolia</i> (Feathertop Wiregrass)			
704.	217 <i>Aristida nitidula</i> (Flat-awned Threawn)			
705.	226 <i>Arundo donax</i> (Giant Reed)	Y		
706.	229 <i>Astrebala pectinata</i> (Barley Mitchell Grass)			
707.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		

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708.	259 <i>Cenchrus echinatus</i> (Burrgrass)	Y		
709.	41568 <i>Cenchrus setaceus</i> (Fountain Grass)	Y		
710.	29721 <i>Cenchrus setiger</i> (Birdwood Grass)	Y		
711.	266 <i>Chloris barbata</i> (Purpletop Chloris)	Y		
712.	269 <i>Chloris pectinata</i> (Comb Chloris)			
713.	270 <i>Chloris pumilio</i>			
714.	273 <i>Chrysopogon fallax</i> (Golden Beard Grass)			
715.	275 <i>Chrysopogon pallidus</i> (Ribbongrass)			
716.	279 <i>Cymbopogon ambiguus</i> (Scentgrass)			
717.	280 <i>Cymbopogon bombycinus</i> (Silky Oilgrass)			
718.	281 <i>Cymbopogon obtectus</i> (Silkyheads)			
719.	282 <i>Cymbopogon procerus</i> (Lemon Grass)			
720.	46558 <i>Cynodon convergens</i>			
721.	46555 <i>Cynodon prostratus</i>			
722.	290 <i>Dactyloctenium radulans</i> (Button Grass)			
723.	303 <i>Dichanthium fecundum</i> (Curly Bluegrass)			
724.	13741 <i>Dichanthium sericeum</i> subsp. <i>humilius</i>			
725.	11964 <i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			
726.	310 <i>Digitaria brownii</i> (Cotton Panic Grass)			
727.	313 <i>Digitaria ctenantha</i> (Comb Finger Grass)			
728.	328 <i>Echinochloa colona</i> (Awnless Barnyard Grass)	Y		
729.	343 <i>Ectrosia leporina</i> (Hare's-foot Grass)			
730.	357 <i>Enneapogon caerulescens</i> (Limestone Grass)			
731.	358 <i>Enneapogon cylindricus</i> (Jointed Nineawn)			
732.	360 <i>Enneapogon lindleyanus</i> (Wiry Nineawn, Purple-head Nineawn)			
733.	363 <i>Enneapogon pallidus</i> (Conetop Nineawn)			
734.	365 <i>Enneapogon polyphyllus</i> (Leafy Nineawn)			
735.	12749 <i>Enneapogon purpurascens</i> (Purple Nineawn)			
736.	368 <i>Enteropogon ramosus</i> (Windmill Grass, Curly Windmill Grass)			
737.	373 <i>Eragrostis brownii</i> (Brown's Lovegrass)			
738.	375 <i>Eragrostis cumingii</i> (Cuming's Love Grass)			
739.	378 <i>Eragrostis dielsii</i> (Mallee Lovegrass)			
740.	379 <i>Eragrostis elongata</i> (Clustered Lovegrass)			
741.	380 <i>Eragrostis eriopoda</i> (Woollybutt Grass, Wangurnu)			
742.	16731 <i>Eragrostis exigua</i>			
743.	381 <i>Eragrostis falcata</i> (Sickle Lovegrass)			
744.	388 <i>Eragrostis leptocarpa</i> (Drooping Lovegrass)			
745.	393 <i>Eragrostis setifolia</i> (Neverfail Grass)			
746.	38505 <i>Eragrostis surreyana</i>		P3	
747.	398 <i>Eragrostis tenellula</i> (Delicate Lovegrass)			
748.	399 <i>Eragrostis xerophila</i> (Knotty-butt Neverfail)			
749.	400 <i>Eriachne aristidea</i>			
750.	403 <i>Eriachne benthamii</i> (Swamp Wanderrrie)			
751.	409 <i>Eriachne gardneri</i>			
752.	411 <i>Eriachne helmsii</i> (Buck Wanderrrie Grass)			
753.	413 <i>Eriachne mucronata</i> (Mountain Wanderrrie Grass)			
754.	414 <i>Eriachne obtusa</i> (Northern Wanderrrie Grass)			
755.	417 <i>Eriachne pulchella</i> (Pretty Wanderrrie)			
756.	16485 <i>Eriachne pulchella</i> subsp. <i>dominii</i>			
757.	16486 <i>Eriachne pulchella</i> subsp. <i>pulchella</i>			
758.	421 <i>Eriachne tenuiculmis</i>			
759.	425 <i>Eriochloa procera</i> (Cupgrass)			
760.	11011 <i>Eulalia aurea</i>			
761.	458 <i>Iseilema dolichotrichum</i>			
762.	459 <i>Iseilema eremaeum</i>			
763.	465 <i>Iseilema vaginiflorum</i> (Red Flinders Grass)			
764.	503 <i>Panicum decompositum</i> (Native Millet, Kaltu-kaltu)			
765.	504 <i>Panicum effusum</i> (Hairy Panic Grass)			
766.	505 <i>Panicum laevinode</i>			
767.	515 <i>Paraneurachne muelleri</i> (Northern Mulga Grass)			
768.	10975 <i>Paspalidium basicladum</i>			
769.	518 <i>Paspalidium clementii</i> (Clements Paspalidium)			
770.	523 <i>Paspalidium rarum</i> (Rare Paspalidium)			
771.	525 <i>Paspalidium tabulatum</i>			
772.	546 <i>Perotis rara</i> (Comet Grass)			
773.	599 <i>Schizachyrium fragile</i> (Senale Redgrass)			
774.	606 <i>Setaria dielsii</i> (Diels' Pigeon Grass)			
775.	613 <i>Setaria verticillata</i> (Whorled Pigeon Grass)	Y		
776.	619 <i>Sorghum plumosum</i> (Plume Canegrass)			
777.	12919 <i>Sorghum plumosum</i> var. <i>plumosum</i>			

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778.	622 <i>Sorghum timorense</i>			
779.	625 <i>Spinifex longifolius</i> (Beach Spinifex)			
780.	629 <i>Sporobolus australasicus</i> (Fairy Grass)			
781.	635 <i>Sporobolus virginicus</i> (Marine Couch)			
782.	<i>Themeda Mt Barricade</i> (M.E. Trudgen 2471)			Y
783.	672 <i>Themeda avenacea</i> (Native Oatgrass)			
784.	17820 <i>Themeda sp. Hamersley Station</i> (M.E. Trudgen 11431)		P3	
785.	17819 <i>Themeda sp. Mt Barricade</i> (M.E. Trudgen 2471)			
786.	673 <i>Themeda triandra</i>			
787.	678 <i>Tragus australianus</i> (Small Burrgrass)			
788.	679 <i>Triodia angusta</i>			
789.	13131 <i>Triodia epactia</i>			
790.	696 <i>Triodia pungens</i> (Soft Spinifex)			
791.	704 <i>Triodia wiseana</i> (Limestone Spinifex)			
792.	706 <i>Triraphis mollis</i> (Needle Grass)			
793.	725 <i>Whiteochloa airoides</i>			
794.	728 <i>Whiteochloa cymbiformis</i>			
795.	729 <i>Xerochloa barbata</i> (Rice Grass)			
796.	731 <i>Xerochloa laniflora</i> (Rice Grass)			
797.	732 <i>Yakirra australiensis</i>			

### Polygalaceae

798.	41363 <i>Polygala galeocephala</i>			
799.	41365 <i>Polygala glaucifolia</i>			
800.	4572 <i>Polygala isingii</i>			

### Polygonaceae

801.	2443 <i>Rumex vesicarius</i> (Ruby Dock)	Y		
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### Polyphysaceae

802.	48409 <i>Acetabularia caliculus</i>			
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### Portulacaceae

803.	2875 <i>Portulaca australis</i>			
804.	2878 <i>Portulaca conspicua</i>			
805.	2879 <i>Portulaca cyclophylla</i>			
806.	43981 <i>Portulaca decipiens</i>			
807.	2882 <i>Portulaca intraterranea</i>			
808.	2884 <i>Portulaca oleracea</i> (Purslane, Wakati)			
809.	2886 <i>Portulaca pilosa</i> (Djanggara)	Y		

### Primulaceae

810.	6478 <i>Aegiceras corniculatum</i> (River Mangrove)			
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### Proteaceae

811.	2079 <i>Grevillea pyramidalis</i> (Caustic Bush, Tjungu)			
812.	19570 <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i>			
813.	15975 <i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>			
814.	13440 <i>Grevillea wickhamii</i> subsp. <i>aprica</i>			
815.	2138 <i>Hakea chordophylla</i>			
816.	2177 <i>Hakea lorea</i> (Witinti)			
817.	19137 <i>Hakea lorea</i> subsp. <i>lorea</i>			

### Pteridaceae

818.	31 <i>Cheilanthes austrotenuifolia</i>			
819.	33 <i>Cheilanthes contigua</i>			
820.	12818 <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>			
821.	8462 <i>Cheilanthes tenuifolia</i> (Rock Fern)			

### Rhamnaceae

822.	4809 <i>Cryptandra pungens</i>			
823.	4846 <i>Ventilago viminalis</i> (Supplejack, Barndaragu)			

### Rhizophoraceae

824.	5291 <i>Bruguiera exaristata</i> (Ribbed Mangrove)			
825.	39680 <i>Ceriops australis</i>			
826.	5295 <i>Rhizophora stylosa</i> (Spotted-leaved Red Mangrove)			

### Rhizophyllidaceae

827.	27186 <i>Portieria homemannii</i>			
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### Rhodomelaceae

828.	26440 <i>Acanthophora dendroides</i>			
829.	26441 <i>Acanthophora spicifera</i>			
830.	26628 <i>Chondria armata</i>			
831.	26762 <i>Dictyomenia sonderi</i>			



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832.	26782 <i>Digenea simplex</i>			
833.	26800 <i>Echinophycus minutus</i>			Y
834.	48408 <i>Laurencia dendroidea</i>			
835.	<i>Laurencia similis</i>			
836.	27018 <i>Leveillea jungermannioides</i>			
837.	46834 <i>Osmundaria melvillii</i>			
838.	36400 <i>Palisada perforata</i>			
839.	27335 <i>Tolypocladia calodictyon</i>			
840.	27336 <i>Tolypocladia glomerulata</i>			
<b>Rhodymeniaceae</b>				
841.	26516 <i>Botryocladia leptopoda</i>			
842.	26685 <i>Coelarthrum cliftonii</i>			
843.	26686 <i>Coelarthrum opuntia</i>			
<b>Ricciaceae</b>				
844.	<i>Riccia albida</i>			
<b>Rubiaceae</b>				
845.	7317 <i>Dentella asperata</i>			
846.	7318 <i>Dentella minutissima</i>			
847.	7338 <i>Oldenlandia crouchiana</i>			
848.	19640 <i>Oldenlandia</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)		P3	
849.	<i>Pomax Desert</i> (A.S. George 11968)			Y
850.	7363 <i>Synaptantha tillaeacea</i>			
851.	13339 <i>Synaptantha tillaeacea</i> var. <i>tillaeacea</i>			
<b>Santalaceae</b>				
852.	10977 <i>Exocarpos aphyllus</i> (Leafless Ballart)			
853.	2357 <i>Santalum lanceolatum</i> (Northern Sandalwood, Yarnguli)			
<b>Sapindaceae</b>				
854.	4739 <i>Alectryon oleifolius</i>			
855.	11487 <i>Alectryon oleifolius</i> subsp. <i>oleifolius</i>			
856.	4740 <i>Atalaya hemiglauca</i> (Whitewood)			
857.	4745 <i>Diplopeltis eriocarpa</i> (Hairy Pepperflower)			
858.	4759 <i>Dodonaea coriacea</i>			
<b>Schizymeniaceae</b>				
859.	35182 <i>Titanophora pikeana</i>			
<b>Scinaiaceae</b>				
860.	27270 <i>Scinaia tsinglanensis</i>			
<b>Scrophulariaceae</b>				
861.	7234 <i>Eremophila longifolia</i> (Berrigan, Tulypurpa)			
862.	16363 <i>Eremophila maculata</i> subsp. <i>brevifolia</i> (Native Fuchsia)			
863.	17158 <i>Myoporum montanum</i> (Native Myrtle)			
<b>Sebdeniaceae</b>				
864.	27274 <i>Sebdenia flabellata</i>			
<b>Siphonocladaceae</b>				
865.	26507 <i>Boergesenia forbesii</i>			
866.	26769 <i>Dictyosphaeria caverosa</i>			
867.	27280 <i>Siphonocladus tropicus</i>			
<b>Solanaceae</b>				
868.	6962 <i>Datura leichhardtii</i> (Native Thornapple)	Y		
869.	6963 <i>Datura metel</i> (Downy Thornapple)	Y		
870.	6966 <i>Duboisia hopwoodii</i> (Pituri, Kundugu)			
871.	6971 <i>Nicotiana benthamiana</i> (Tjuntiwari)			
872.	6976 <i>Nicotiana occidentalis</i> (Native Tobacco)			
873.	11331 <i>Nicotiana occidentalis</i> subsp. <i>obliqua</i>			
874.	11856 <i>Nicotiana occidentalis</i> subsp. <i>occidentalis</i>			
875.	11734 <i>Nicotiana rosulata</i> subsp. <i>rosulata</i>			
876.	6980 <i>Nicotiana umbratica</i>		P3	
877.	20652 <i>Physalis angulata</i>	Y		
878.	<i>Solanum Boomerang Bay</i> (K.F. Kenneally 10021)			Y
879.	41820 <i>Solanum albostellatum</i>		P3	
880.	6998 <i>Solanum cleistogamum</i>			
881.	7002 <i>Solanum diversiflorum</i>			
882.	7007 <i>Solanum esuriale</i> (Quena)			
883.	7009 <i>Solanum gabrielae</i>			
884.	7014 <i>Solanum horridum</i>			
885.	7018 <i>Solanum lasiophyllum</i> (Flannel Bush, Mindjulu)			

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886.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
887.	7029 <i>Solanum phlomoides</i>			
888.	7036 <i>Solanum sturtianum</i> (Thargomindah Nightshade)			
<b>Solieriaceae</b>				
889.	48503 <i>Betaphycus speciosus</i>			
890.	26827 <i>Eucheuma denticulatum</i>			
<b>Stylidiaceae</b>				
891.	7729 <i>Stylidium fluminense</i>			
892.	7799 <i>Stylidium spathulatum</i> (Creamy Triggerplant)			
<b>Surianaceae</b>				
893.	3182 <i>Stylobasium spathulatum</i> (Pebble Bush)			
<b>Tamaricaceae</b>				
894.	15741 <i>Tamarix aphylla</i> (Athel Tree)	Y		
<b>Thymelaeaceae</b>				
895.	5230 <i>Pimelea ammocharis</i>			
<b>Udoteaceae</b>				
896.	27121 <i>Penicillus nodulosus</i>			
897.	27213 <i>Rhipidosiphon javensis</i>			
898.	27348 <i>Udotea argentea</i>			
899.	27349 <i>Udotea flabellum</i>			
900.	35302 <i>Udotea glaucescens</i>			
901.	35121 <i>Udotea orientalis</i>			
<b>Valoniaceae</b>				
902.	36143 <i>Valonia fastigiata</i>			
903.	46438 <i>Valonia ventricosa</i>			
904.	27357 <i>Valoniopsis pachynema</i>			
<b>Violaceae</b>				
905.	5215 <i>Hybanthus aurantiacus</i>			
906.	5219 <i>Hybanthus enneaspermus</i>			
<b>Wrangeliaceae</b>				
907.	45078 <i>Grallatoria reptans</i>			
<b>Zygophyllaceae</b>				
908.	48900 <i>Roepera retivalvis</i>			
909.	4375 <i>Tribulus cistoides</i>			
910.	4377 <i>Tribulus hirsutus</i>			
911.	4379 <i>Tribulus macrocarpus</i>			
912.	4380 <i>Tribulus occidentalis</i> (Perennial Caltrop)			
913.	4381 <i>Tribulus platypterus</i> (Cork Hobbush)			
914.	4383 <i>Tribulus terrestris</i> (Caltrop)	Y		

**Conservation Codes**

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

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



# EPBC Act Protected Matters Report

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

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

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

Report created: 04/03/20 16:36:04

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

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[Coordinates](#)

[Buffer: 20.0Km](#)

No Image  
Available

# 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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	1
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	29
<a href="#">Listed Migratory Species:</a>	59

## 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.

<a href="#">Commonwealth Land:</a>	2
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	100
<a href="#">Whales and Other Cetaceans:</a>	12
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	5
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	17
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

National Heritage Properties		[ Resource Information ]
Name	State	Status
Indigenous		
<a href="#">Dampier Archipelago (including Burrup Peninsula)</a>	WA	Listed place

Listed Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
Birds		
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area

Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Dasyurus hallucatus</a> Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
<a href="#">Macroderma gigas</a> Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhinonictoris aurantia (Pilbara form)</a> Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#">Liasis olivaceus barroni</a> Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<b>Sharks</b>		
<a href="#">Carcharias taurus (west coast population)</a> Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<b>Listed Migratory Species</b>		<b>[ Resource Information ]</b>
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		

Name	Threatened	Type of Presence
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardenna pacifica</a> Wedge-tailed Shearwater [84292]		Breeding known to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
<a href="#">Hydroprogne caspia</a> Caspian Tern [808]		Breeding known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Onychoprion anaethetus</a> Bridled Tern [82845]		Breeding known to occur within area
<a href="#">Sterna dougallii</a> Roseate Tern [817]		Breeding likely to occur within area
<b>Migratory Marine Species</b>		
<a href="#">Anoxypristis cuspidata</a> Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#">Manta alfredi</a> 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
<a href="#">Manta birostris</a> 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

Name	Threatened	Type of Presence
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat known to occur within area
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area



Name	Threatened	Type of Presence
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat known to occur within area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Phalaropus lobatus</a> Red-necked Phalarope [838]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Species or species habitat known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Species or species habitat known to occur within area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species

Name	Threatened	Type of Presence
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		habitat known to occur within area  Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Species or species 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
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species

Name	Threatened	Type of Presence
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	habitat known to occur within area Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
<a href="#">Chrysococcyx osculans</a> Black-eared Cuckoo [705]		Species or species habitat known to occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat known to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Breeding known to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Larus novaehollandiae</a> Silver Gull [810]		Breeding known to occur within area

Name	Threatened	Type of Presence
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Phalaropus lobatus</a> Red-necked Phalarope [838]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Species or species habitat known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Species or species habitat known to occur within area
<a href="#">Puffinus pacificus</a> Wedge-tailed Shearwater [1027]		Breeding known to occur within area
<a href="#">Recurvirostra novaehollandiae</a> Red-necked Avocet [871]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Sterna anaethetus</a> Bridled Tern [814]		Breeding known to occur within area
<a href="#">Sterna caspia</a> Caspian Tern [59467]		Breeding known to occur within area
<a href="#">Sterna dougallii</a> Roseate Tern [817]		Breeding likely to occur within area
<a href="#">Stiltia isabella</a> Australian Pratincole [818]		Species or species

Name	Threatened	Type of Presence
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		habitat known to occur within area  Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Species or species habitat known to occur within area
<b>Fish</b>		
<a href="#">Bulbonaricus brauni</a> Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
<a href="#">Campichthys tricarinatus</a> Three-keel Pipefish [66192]		Species or species habitat may occur within area
<a href="#">Choeroichthys brachysoma</a> Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
<a href="#">Choeroichthys suillus</a> Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
<a href="#">Doryrhamphus janssi</a> Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
<a href="#">Doryrhamphus negrosensis</a> Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
<a href="#">Festucalex scalaris</a> Ladder Pipefish [66216]		Species or species habitat may occur within area
<a href="#">Filicampus tigris</a> Tiger Pipefish [66217]		Species or species habitat may occur within area
<a href="#">Halicampus brocki</a> Brock's Pipefish [66219]		Species or species habitat may occur within area
<a href="#">Halicampus grayi</a> Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
<a href="#">Halicampus nitidus</a> Glittering Pipefish [66224]		Species or species habitat may occur within area
<a href="#">Halicampus spinirostris</a> Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
<a href="#">Haliichthys taeniophorus</a> Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
<a href="#">Hippichthys penicillus</a> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species

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

Name	Threatened	Type of Presence
<a href="#">Aipysurus laevis</a> Olive Seasnake [1120]		Species or species habitat may occur within area
<a href="#">Aipysurus tenuis</a> Brown-lined Seasnake [1121]		Species or species habitat may occur within area
<a href="#">Astrotia stokesii</a> Stokes' Seasnake [1122]		Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Disteira kingii</a> Spectacled Seasnake [1123]		Species or species habitat may occur within area
<a href="#">Disteira major</a> Olive-headed Seasnake [1124]		Species or species habitat may occur within area
<a href="#">Emydocephalus annulatus</a> Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
<a href="#">Ephalophis greyi</a> North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
<a href="#">Hydrelaps darwiniensis</a> Black-ringed Seasnake [1100]		Species or species habitat may occur within area
<a href="#">Hydrophis czeb lukovi</a> Fine-spined Seasnake [59233]		Species or species habitat may occur within area
<a href="#">Hydrophis elegans</a> Elegant Seasnake [1104]		Species or species habitat may occur within area
<a href="#">Hydrophis mcdowellii</a> null [25926]		Species or species habitat may occur within area
<a href="#">Hydrophis ornatus</a> Spotted Seasnake, Ornate Reef Seasnake [1111]		Species or species habitat may occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<a href="#">Pelamis platurus</a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

## Whales and other Cetaceans

[ [Resource Information](#) ]

Name	Status	Type of Presence
Mammals		

Name	Status	Type of Presence
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat known to occur within area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

## Extra Information

State and Territory Reserves	[ <a href="#">Resource Information</a> ]
Name	State
Murujuga	WA
Unnamed WA36907	WA
Unnamed WA36909	WA
Unnamed WA36910	WA
Unnamed WA36915	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 Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species



Name	Status	Type of Presence
Passer domesticus House Sparrow [405]		habitat likely to occur within area  Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
<b>Mammals</b>		
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 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
<b>Plants</b>		
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 within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
<b>Reptiles</b>		
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

# 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

-20.67278 116.7075

# Acknowledgements

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

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

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

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

# Appendix B

Relevé Data

## Appendix B Relevé Data

## Appendix B - Relevé Data

Site No: 3	Date: 6/8/2020	Longitude: 116.72161	Latitude: -20.65720
<b>Type:</b> Releve		<b>Soil Types:</b>	
<b>Topography:</b> Rocky Outcrop		<b>Surface:</b> rocks with clay loam	
<b>Outcrops:</b> rocks 70%		<b>Litter:</b>	
<b>Condition:</b> Good		<b>Condition Notes:</b> historically cleared, earth moved	
<b>Vegetation Type:</b> ToAITE Hummock Grassland			
<b>Vegetation Description:</b> <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> and <i>Swainsona formosa</i> mid to tall herbland with <i>Abutilon lepidum</i> , <i>Crotalaria novae-hollandiae</i> and <i>Senna notabilis</i> low shrubland over <i>Triodia epactia</i> tall hummock grassland.			



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	60	4
<i>Acacia bivenosa</i>	100	1
<i>Acacia pyrifolia</i>	50	1
<i>Alysicarpus muelleri</i>	5	0
<i>Boerhavia coccinea</i>	0	3
* <i>Cenchrus ciliaris</i>	30	20
<i>Cynanchum floribundum</i>		Opportunistic
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	30	0.5
<i>Euphorbia biconvexa</i>	40	1
<i>Evolvulus alsinoides</i>	15	0.5

Taxon		Ht (cm)	Foliage (%)
	<i>Indigofera colutea</i>	5	0
	<i>Indigofera linifolia</i>	15	0
	<i>Indigofera monophylla</i>	40	0
	<i>Portulaca oleracea</i>	0	0
	<i>Ptilotus exaltatus</i>	20	0
	<i>Rhynchosia minima</i>	40	2
	<i>Rhynchosia minima</i>	0	0.5
	<i>Salsola australis</i>	30	0
	<i>Solanum diversiflorum</i>	20	0.5
	<i>Swainsona formosa</i>	30	5
	<i>Terminalia canescens</i>	200	0
	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	60	5
	<i>Triodia epactia</i>	40	26
	<i>Triumfetta ?appendiculata</i>	10	1

**Site No:** 4      **Date:** 6/8/2020      **Longitude:** 116.71818      **Latitude:** -20.66829

**Type:** Revele

**Soil Types:** clay

**Topography:** Lower Slope

**Surface:**

**Outcrops:** small rocks

**Litter:**

**Condition:** Good

**Condition Notes:** cleared, weeds, regularly disturbed

**Vegetation Type:** AaEgPr Artificial wetland

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	150	7
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	60	0
<i>Ammannia baccifera</i>	20	0
<i>Ammannia baccifera</i>	40	4
* <i>Cenchrus ciliaris</i>	30	15
* <i>Chloris barbata</i>	30	4
<i>Eleocharis geniculata</i>	5	2
<i>Eragrostis pergracilis</i>	20	1
<i>Euphorbia australis</i>		Opportunistic
<i>Ficus aculeata</i>	250	0.5
<i>Grevillea pyramidalis</i>	200	0
<i>Indigofera monophylla</i>	30	0
* <i>Passiflora foetida</i>	0	1



Taxon	Ht (cm)	Foliage (%)
<i>Pluchea rubelliflora</i>	20	1
<i>Portulaca oleracea</i>	0	1
<i>Ptilotus exaltatus</i>	20	2
<i>Samolus repens</i>	20	0.5
<i>Schoenus falcatus</i>	100	4
<i>Sesbania cannabina</i>	180	1
<i>Stemodia grossa</i>	30	0.5
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	50	0.5
<i>Triodia ?angusta</i>	40	5

<b>Site No:</b> OBS	<b>Date:</b> 6/8/2020	<b>Longitude:</b> 116.71751	<b>Latitude:</b> -20.66903
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**Type:** Observation**Soil Types:****Topography:** Wetland**Surface:****Outcrops:****Litter:****Condition:** Degraded**Condition Notes:** cleared**Vegetation Type:** AaEgPr Artificial wetland

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	200	2
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	150	0
<i>Ammannia baccifera</i>	40	0.5
<i>Brachychiton acuminatus</i>	350	0
<i>Cyperus vaginatus</i>	60	2
<i>Eleocharis geniculata</i>	10	5
<i>Eragrostis pergracilis</i>	20	1
<i>Pluchea rubelliflora</i>	20	1
<i>Ptilotus exaltatus</i>	30	0
<i>Salsola australis</i>	40	0.5
<i>Samolus repens</i>	30	3
<i>Schoenus falcatus</i>	60	2
<i>Sesbania cannabina</i>	200	1

Taxon	Ht (cm)	Foliage (%)
<i>Stemodia grossa</i>	30	2
<i>Trianthera turgidifolium</i>	30	0.5
<i>Triodia ?angusta</i>	10	1
<i>Typha domingensis</i>	150	2

Site No: 5	Date: 6/8/2020	Longitude: 116.71422	Latitude: -20.67281
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**Type:** Releve

**Soil Types:** clay

**Topography:** Wetland

**Surface:** water and saturated clay

**Outcrops:** none

**Litter:**

**Condition:** Degraded

**Condition Notes:** cleared, weeds, tracks

**Vegetation Type:** AaEgPr Artificial wetland

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	200	2
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	150	0.1
<i>Ammannia baccifera</i>	40	0.5
<i>Brachychiton acuminatus</i>	350	0.1
<i>Cyperus vaginatus</i>	60	2
<i>Eleocharis geniculata</i>	10	5
<i>Eragrostis pergracilis</i>	20	1
<i>Pluchea rubelliflora</i>	20	1
<i>Ptilotus exaltatus</i>	30	0.1
<i>Salsola australis</i>	40	0.5
<i>Samolus repens</i>	30	3
<i>Schoenus falcatus</i>	60	2
<i>Sesbania cannabina</i>	200	1
<i>Stemodia grossa</i>	30	2
<i>Trianthema turgidifolium</i>	30	0.5
<i>Triodia ?angusta</i>	30	1
<i>Typha domingensis</i>	150	2

**Site No:** 6      **Date:** 6/8/2020      **Longitude:** 116.72298      **Latitude:** -20.64594

**Type:** Releve

**Soil Types:** silt sand clay

**Topography:** Shoreline

**Surface:**

**Outcrops:** rocks and sand

**Litter:**

**Condition:** Degraded

**Condition Notes:** weeds, cleared

**Vegetation Type:** FvTdLc Tidal / Shoreline

**Vegetation Description:** *Flueggea virosa* subsp. *melanthesoides*, *Rhizophora stylosa* and *Avicennia marina* scattered mangrove patches with *Typha domingensis*, *Cyperus vaginatus* and *Spinifex longifolius* low scattered sedges with *Ipomoea costata* and \**Passiflora foetida* scattered climbers.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	350	0.1
<i>Acacia colei</i>	300	2
* <i>Aerva javanica</i>	70	0.1
<i>Arivela viscosa</i>	50	0.1
<i>Avicennia marina</i>	250	0.1
<i>Boerhavia coccinea</i>	0	0.1
* <i>Cenchrus ciliaris</i>	40	0.1
<i>Cyperus vaginatus</i>	80	0.1
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	300	2
<i>Ipomoea costata</i>	10	5
<i>Ipomoea pes-caprae</i>	10	0.1
<i>Melaleuca argentea</i>	400	0.1
* <i>Passiflora foetida</i>	cl	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Phyllanthus maderaspatensis</i>	20	1
<i>Rhynchosia minima</i>	0	0.5
<i>Spinifex longifolius</i>	40	0.1
<i>Stemodia grossa</i>	15	0.1
<i>Swainsona formosa</i>	40	0.1
<i>Trianthema turgidifolium</i>	5	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	100	0.1
<i>Triodia epactia</i>	30	25
<i>Typha domingensis</i>	200	0.1

**Site No:** 7      **Date:** 7/8/2020      **Longitude:** 116.71273      **Latitude:** -20.67546

**Type:** Observation

**Soil Types:**

**Topography:** Flat

**Surface:** rocks and clay

**Outcrops:**

**Litter:**

**Condition:** Degraded

**Condition Notes:** between rail and road

**Vegetation Type:** SdSfTe Hummock Grassland

**Vegetation Description:** *Solanum diversifolium*, *Indigofera monophylla* and *Acacia synchronicia* mid to low open shrubland with *Swainsona formosa*, *Boerhavia coccinea* and *Euphorbia australis* mid to low open herbland over *Triodia epactia* Hummock Grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>		0.1
<i>Acacia bivenosa</i>	150	0.1
* <i>Aerva javanica</i>	30	0.5
<i>Atriplex semilunaris</i>	30	0.1
<i>Brachychiton acuminatus</i>	250	1
* <i>Cenchrus ciliaris</i>	40	40
<i>Corchorus walcottii</i>	30	0.1
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	0.1
<i>Indigofera colutea</i>	20	0.1
<i>Indigofera monophylla</i>	30	0.1
<i>Phyllanthus maderaspatensis</i>	10	0.1
<i>Rhynchosia minima</i>	0	0.1
<i>Salsola australis</i>	40	2
<i>Solanum diversiflorum</i>	10	1



Taxon	Ht (cm)	Foliage (%)
<i>Stemodia grossa</i>	50	1
<i>Swainsona formosa</i>	20	0.1
<i>Trianthema turgidifolium</i>	40	1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	200	2
<i>Triodia epactia</i>	20	2
<i>Triumfetta ?clementii</i>	20	0.1

<b>Site No:</b> 8	<b>Date:</b> 7/8/2020	<b>Longitude:</b> 116.71080	<b>Latitude:</b> -20.67651
<b>Type:</b> Revele		<b>Soil Types:</b> rocks with clay	
<b>Topography:</b> Slope		<b>Surface:</b> rocky	
<b>Outcrops:</b> numerous		<b>Litter:</b> less than 5%	
<b>Condition:</b> Very Good		<b>Condition Notes:</b> disturbance at edge, slope represents native veg	
<b>Vegetation Type:</b> SdSfTe Hummock Grassland			
<b>Vegetation Description:</b> <i>Solanum diversifolium</i> , <i>Indigofera monophylla</i> and <i>Acacia synchronicia</i> mid to low open shrubland with <i>Swainsona formosa</i> , <i>Boerhavia coccinea</i> and <i>Euphorbia australis</i> mid to low open herbland over <i>Triodia epactia</i> Hummock Grassland.			



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	40	0.5
<i>Acacia coriacea</i>	100	0.5
<i>Acacia synchronicia</i>	80	0.5
<i>Arivela viscosa</i>	30	0.1
<i>Boerhavia coccinea</i>	0	2
* <i>Cenchrus ciliaris</i>	20	1
<i>Corchorus parviflorus</i>	20	0.1
<i>Crotalaria novae-hollandiae</i>	20	0.1
<i>Cymbopogon ambiguus</i>	100	1
<i>Eriachne obtusa</i>	20	0.1
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	0.1
<i>Euphorbia australis</i>	0	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Goodenia microptera</i>	15	0.1
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	30	0.5
<i>Indigofera monophylla</i>	30	1
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Rhynchosia minima</i>	0	0.5
<i>Solanum diversiflorum</i>	10	1
<i>Stemodia grossa</i>	10	0.1
<i>Swainsona formosa</i>	30	3
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	140	2
<i>Triodia epactia</i>	20	20
<i>Triumfetta ?clementii</i>	15	0.1

<b>Site No:</b> 9	<b>Date:</b> 7/8/2020	<b>Longitude:</b> 116.71080	<b>Latitude:</b> -20.67704
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**Type:** Revele**Soil Types:** clay**Topography:** Wetland**Surface:****Outcrops:** moderate to high**Litter:****Condition:** Degraded**Condition Notes:****Vegetation Type:** AaEgPr Artificial wetland

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	100	0.5
<i>Ammannia baccifera</i>	30	0.1
* <i>Cenchrus ciliaris</i>	20	4
<i>Cyperus vaginatus</i>	80	0.1
<i>Eleocharis geniculata</i>	5	1
<i>Eriachne obtusa</i>	30	0.5
<i>Heliotropium curassavicum</i>	0	0.1
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Pluchea rubelliflora</i>	20	4
<i>Samolus repens</i>	10	0.1
<i>Samolus repens</i>	30	1
<i>Sesbania cannabina</i>	180	0.5
<i>Stemodia grossa</i>	30	2

Taxon	Ht (cm)	Foliage (%)
<i>Streptoglossa decurrens</i>	20	0.5
<i>Tecticornia indica</i>	30	5
<i>Trianthema turgidifolium</i>	30	1

**Site No:** 10      **Date:** 7/8/2020      **Longitude:** 116.70942      **Latitude:** -20.68022

**Type:** Releve

**Soil Types:**

**Topography:** Rocky Outcrop

**Surface:**

**Outcrops:** numerous

**Litter:** less than 5%

**Condition:** Very Good

**Condition Notes:** near powerline

**Vegetation Type:** ToAlTe Hummock Grassland

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	4
<i>Acacia synchronicia</i>	120	0.1
<i>Arivela viscosa</i>	30	0.1
<i>Boerhavia coccinea</i>	0	1
* <i>Cenchrus ciliaris</i>	10	0.5
<i>Crotalaria novae-hollandiae</i>	10	0.5
<i>Cucumis variabilis</i>	0	0.1
<i>Dysphania rhadinostachya</i> subsp. <i>Rhadinostachya</i>	10	0.1
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	0.5
<i>Grevillea pyramidalis</i>	100	0.1
<i>Hybanthus aurantiacus</i>	10	0.1
<i>Ipomoea costata</i>	0	0.1
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Portulaca oleracea</i>	0	0.5

Taxon	Ht (cm)	Foliage (%)
<i>Ptilotus auriculifolius</i>	40	0.1
<i>Rhynchosia minima</i>	0	1
<i>Scaevola acacioides</i>	100	0.1
<i>Solanum diversiflorum</i>	10	0.5
<i>Streptoglossa decurrens</i>	20	0.1
<i>Tephrosia densa</i>	10	0.1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	50	7
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	100	2
<i>Triodia epactia</i>	30	30

**Site No:** 11      **Date:** 7/8/2020      **Longitude:** 116.70842      **Latitude:** -20.68158

**Type:** Revele

**Soil Types:** gravel and clay

**Topography:** Flat To Slope

**Surface:**

**Outcrops:** small

**Litter:**

**Condition:** Good

**Condition Notes:** cleared, natural regrowth

**Vegetation Type:** SdSfTe Hummock Grassland

**Vegetation Description:** *Solanum diversifolium*, *Indigofera monophylla* and *Acacia synchronicia* mid to low open shrubland with *Swainsona formosa*, *Boerhavia coccinea* and *Euphorbia australis* mid to low open herbland over *Triodia epactia* Hummock Grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>		Opportunistic
<i>Acacia synchronicia</i>	150	0.5
* <i>Aerva javanica</i>		Opportunistic
<i>Boerhavia coccinea</i>	0	4
* <i>Cenchrus ciliaris</i>	20	15
<i>Corchorus parviflorus</i>		Opportunistic
<i>Cullen pogonocarpum</i>		Opportunistic
<i>Eucalyptus camaldulensis</i>	300	0.1
<i>Euphorbia australis</i>	0	2
<i>Solanum diversiflorum</i>	20	0.5
<i>Solanum horridum</i>	10	0.5
<i>Swainsona formosa</i>	20	3
<i>Triodia epactia</i>	30	0.1



**Site No:** 12      **Date:** 8/7/2020      **Longitude:** 116.70846      **Latitude:** -20.68283

**Type:** Revele

**Soil Types:**

**Topography:** Creek

**Surface:** rocky creekbed

**Outcrops:**

**Litter:**

**Condition:** Good

**Condition Notes:** weeds, altered drainage, pipeline

**Vegetation Type:** EcScCc Minor Flowline

**Vegetation Description:** *Eucalyptus camaldulensis* and *Melaleuca lasiandra* low woodland over *Sesbania cannabina*, *Acacia coriacea* and *Solanum horridum* mid open shrubland over \**Cenchrus ciliaris* low open tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>		0.1
<i>Acacia coriacea</i>	300	1
<i>Adriana tomentosa</i> var. <i>tomentosa</i>		0.1
<i>Arivela viscosa</i>		0.1
<i>Brachychiton acuminatus</i>	100	0.1
<i>Capparis spinosa</i> subsp. <i>nummularia</i>		0.1
* <i>Cenchrus ciliaris</i>	30	10
<i>Cucumis variabilis</i>	0	1
<i>Cyperus vaginatus</i>	50	1
<i>Eucalyptus camaldulensis</i>	500	30
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	180	0.1
<i>Heliotropium curassavicum</i>		0.1
<i>Melaleuca lasiandra</i>	350	15
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Pluchea rubelliflora</i>	20	2

Taxon	Ht (cm)	Foliage (%)
<i>Pterocaulon sphaeranthoides</i>	20	0.1
<i>Sesbania cannabina</i>	200	4
<i>Solanum horridum</i>	20	0.1
<i>Stemodia grossa</i>	50	1
<i>Streptoglossa decurrens</i>	30	0.5
<i>Swainsona formosa</i>		0.1
<i>Tecticornia indica</i>	30	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	120	1
<i>Triumfetta ?clementii</i>	40	0.5

**Site No:** 13      **Date:** 8/7/2020      **Longitude:** 116.70506      **Latitude:** -20.68237

**Type:** Revele

**Soil Types:**

**Topography:** Undulating

**Surface:** rocky with clay

**Outcrops:** moderate

**Litter:**

**Condition:** Good To Very Good

**Condition Notes:** clearing, pipeline, tracks

**Vegetation Type:** AbEtTa Hummock Grassland

**Vegetation Description:** *Acacia bivenosa*, *Salsola australis* and *Corchorus walcottii* mid to low open shrubland over *Euphorbia tannensis* subsp. *eremophila*, *Euphorbia australis* and *Tribulus hirsutus* low open herbland over *Triodia angusta* and *Triodia epactia* tall Hummock Grassland



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	0.5
<i>Acacia bivenosa</i>	200	7
<i>Corchorus walcottii</i>	20	0.5
<i>Diplopeltis eriocarpa</i>	30	0.1
<i>Dysphania rhadinostachya</i> subsp. <i>Rhadinostachya</i>	10	0.1
<i>Eriachne obtusa</i>	30	0.1
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	2
<i>Euphorbia australis</i>	0	0.1
<i>Evolvulus alsinoides</i>	5	0.1
<i>Goodenia microptera</i>	10	0.1
<i>Hybanthus aurantiacus</i>	10	0.1
<i>Indigofera monophylla</i>	30	0.1
<i>Ptilotus exaltatus</i>	50	1
<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	130	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Senna notabilis</i>	10	0.1
<i>Solanum diversiflorum</i>	10	0.1
<i>Solanum horridum</i>	20	0.5
<i>Streptoglossa decurrens</i>	30	0.1
<i>Stylobasium spathulatum</i>	100	1
<i>Swainsona formosa</i>	30	1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	10	0.1
<i>Tribulus hirsutus</i>	0	1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	100	0.5
<i>Triodia ?angusta</i>	30	35
<i>Triumfetta ?clementii</i>	30	0.1

**Site No:** 14      **Date:** 8/7/2020      **Longitude:** 116.70349      **Latitude:** -20.68216

**Type:** Releve

**Soil Types:**

**Topography:** Wetland

**Surface:**

**Outcrops:** moderate

**Litter:**

**Condition:** Good

**Condition Notes:** dead shrubs, tracks, earth moving

**Vegetation Type:** PaTiEo Tidal Flats

**Vegetation Description:** *Pittosporum phillyreoides* and *Acacia coriacea* scattered tall trees over *Tecticornia indica*, *Enchylaena tomentosa* and *Acacia ampliceps* low open shrubland over *Eriachne obtusa* and \**Cenchrus ciliaris* low open tussock grassland. AbEtT



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	200	4
<i>Acacia coriacea</i>		Opportunistic
* <i>Cenchrus ciliaris</i>	20	1
<i>Enchylaena tomentosa</i>	30	1
<i>Eriachne obtusa</i>	20	1
<i>Neobassia astrocarpa</i>	10	1
<i>Pittosporum phillyreoides</i>	100	0.1
<i>Solanum horridum</i>	20	0.5
<i>Tecticornia indica</i>	30	8
<i>Trianthema turgidifolium</i>	30	4

**Site No:** 15      **Date:** 8/7/2020      **Longitude:** 116.70106      **Latitude:** -20.68155

**Type:** Revele

**Soil Types:**

**Topography:** Slope Rocky Outcrop

**Surface:**

**Outcrops:** numerous

**Litter:**

**Condition:** Very Good

**Condition Notes:** disturbance on all sides, pipeline, clearing

**Vegetation Type:** ToAITe Hummock Grassland

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	40	1
<i>Arivela viscosa</i>	5	0.1
<i>Boerhavia coccinea</i>	0	3
* <i>Cenchrus ciliaris</i>	10	0.5
<i>Cucumis variabilis</i>	0	0.1
<i>Evolvulus alsinoides</i>	5	0.1
<i>Gomphrena cunninghamii</i>	5	0.1
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	0	0.1
<i>Phyllanthus maderaspatensis</i>	10	0.1
<i>Portulaca oleracea</i>	0	2
<i>Rhynchosia minima</i>	0	0.1
<i>Senna notabilis</i>	20	0.5
<i>Streptoglossa decurrens</i>	20	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Swainsona formosa</i>	30	1
<i>Tephrosia densa</i>	10	0.1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	40	8
<i>Trianthema turgidifolium</i>	20	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	100	5
<i>Triodia epactia</i>	30	12
<i>Triumfetta ?clementii</i>	30	1

**Site No:** 16      **Date:** 8/10/2020      **Longitude:** 116.71090      **Latitude:** -20.67354

**Type:** Releve

**Soil Types:** rocks

**Topography:** Rocky Hill

**Surface:** hill slope

**Outcrops:**

**Litter:**

**Condition:** Very Good

**Condition Notes:**

**Vegetation Type:** ToAIte Hummock Grassland

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon		Ht (cm)	Foliage (%)
*	<i>Cenchrus ciliaris</i>	10	1
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	10	0.1
	<i>Dysphania rhadinostachya</i> subsp. <i>Rhadinostachya</i>		Opportunistic
	<i>Eriachne obtusa</i>		Opportunistic
	<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	0.5
	<i>Euphorbia australis</i>		Opportunistic
	<i>Ficus brachypoda</i>		Opportunistic
	<i>Gomphrena cunninghamii</i>	5	0.1
	<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	10	0.1
	<i>Panicum decompositum</i>	10	0.1
	<i>Phyllanthus maderaspatensis</i>	15	0.5
	<i>Pittosporum angustifolium</i>		Opportunistic
	<i>Polycarpaea longiflora</i>		Opportunistic



Taxon	Ht (cm)	Foliage (%)
<i>Portulaca oleracea</i>	0	0.5
<i>Ptilotus auriculifolius</i>	10	0.1
<i>Ptilotus exaltatus</i>	5	0.1
<i>Solanum diversiflorum</i>	10	0.1
<i>Streptoglossa decurrens</i>	20	0.5
<i>Streptoglossa liatroides</i>		Opportunistic
<i>Swainsona formosa</i>	20	0.1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	40	15
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	130	4
<i>Triodia epactia</i>	30	15
<i>Triumfetta ?clementii</i>	15	0.1
<i>Vigna ?sp.</i> Hamersley Clay (A.A. Mitchell PRP 113)	0	0.5

**Site No:** 17      **Date:** 8/10/2020      **Longitude:** 116.70885      **Latitude:** -20.67380

**Type:** Releve

**Soil Types:** rocks with clay

**Topography:** Undulating Flat

**Surface:** rocky

**Outcrops:** numerous

**Litter:**

**Condition:** Very Good

**Condition Notes:** old laydown area?

**Vegetation Type:** AbEtTa Hummock Grassland

**Vegetation Description:** *Acacia bivenosa*, *Salsola australis* and *Corchorus walcottii* mid to low open shrubland over *Euphorbia tannensis* subsp. *eremophila*, *Euphorbia australis* and *Tribulus hirsutus* low open herbland over *Triodia angusta* and *Triodia epactia* tall Hummock Grassland



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	30	1
<i>Acacia bivenosa</i>	120	3
<i>Aristida contorta</i>	10	0.1
<i>Arivela viscosa</i>	30	0.1
<i>Boerhavia coccinea</i>	0	0.5
<i>Bonamia pilbarensis</i>	0	0.1
* <i>Cenchrus ciliaris</i>	5	0.5
<i>Corchorus walcottii</i>	10	1
<i>Eriachne obtusa</i>	20	0.1
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	20	2
<i>Euphorbia australis</i>	0	4
<i>Goodenia microptera</i>	15	0.1
<i>Grevillea pyramidalis</i>	100	0.5
<i>Indigofera colutea</i>		
<i>Indigofera monophylla</i>	30	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Ptilotus auriculifolius</i>	30	1
<i>Ptilotus exaltatus</i>	30	0.5
<i>Rhynchosia minima</i>	0	0.1
<i>Salsola australis</i>	20	2
<i>Sida fibulifera</i>	5	0.1
<i>Solanum diversiflorum</i>	20	0.1
<i>Solanum horridum</i>	20	0.1
<i>Swainsona formosa</i>	30	0.1
<i>Tephrosia supina</i>	20	0.1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	30	0.1
<i>Tribulus hirsutus</i>	0	2
<i>Triodia epactia</i>	20	8
<i>Triumfetta ?clementii</i>	20	0.1

**Site No:** 18      **Date:** 11/8/2020      **Longitude:** 116.70550      **Latitude:** -20.67507

**Type:** Releve

**Soil Types:** sand and rocks

**Topography:** Drainage

**Surface:** channel

**Outcrops:**

**Litter:**

**Condition:** Good

**Condition Notes:** altered drainage, tracks

**Vegetation Type:** GpTzTa Minor Flowline

**Vegetation Description:** *Grevillea pyramidalis* and *Terminalia canescens* low isolated trees over *Trichodesma zeylanicum* var. *zeylanicum*, *Pluchea rubelliflora* and *Streptoglossa decurrens* tall herbland over *Triodia angusta* and \**Cenchrus ciliaris* tall mixed Hummock and Tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia pyrifolia</i>	40	0.1
<i>Boerhavia coccinea</i>	0	1
* <i>Cenchrus ciliaris</i>	20	0.5
<i>Cullen stipulaceum</i>		Opportunistic
<i>Cyperus vaginatus</i>	40	0.5
<i>Gomphrena cunninghamii</i>	10	0.1
<i>Grevillea pyramidalis</i>	200	0.5
<i>Indigofera colutea</i>	10	0.1
<i>Indigofera colutea</i>	20	0.5
<i>Indigofera monophylla</i>	30	0.5
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Pluchea rubelliflora</i>	20	6
<i>Portulaca oleracea</i>	0	0.1
<i>Pterocaulon sphaeranthoides</i>	30	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Solanum phlomoides</i>	20	0.1
<i>Stemodia grossa</i>	30	0.1
<i>Streptoglossa decurrens</i>	20	1
<i>Swainsona formosa</i>	30	2
<i>Terminalia canescens</i>	200	0.1
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	60	0.5
<i>Trianthema turgidifolium</i>	10	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	120	8
<i>Triodia ?angusta</i>	30	15
<i>Triumfetta appendiculata</i>	20	0.1

**Site No:** 19      **Date:** 11/8/2020      **Longitude:** 116.69813      **Latitude:** -20.67547

**Type:** Observation

**Soil Types:**

**Topography:** Drainage

**Surface:** channel

**Outcrops:** numerous

**Litter:**

**Condition:** Good

**Condition Notes:** man made, weeds

**Vegetation Type:** Drain outside Minor channel

**Vegetation Description:** *Eucalyptus camaldulensis* and *Melaleuca lasiandra* low woodland over *Sesbania cannabina*, *Acacia coriacea* and *Solanum horridum* mid open shrubland over \**Cenchrus ciliaris* low open tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia coriacea</i>	300	4
<i>Acacia synchronicia</i>	60	0.1
<i>Arivela viscosa</i>		Opportunistic
* <i>Cenchrus ciliaris</i>	20	20
<i>Chrysopogon fallax</i>	50	4
<i>Corymbia hamersleyana</i>	600	10
<i>Ficus aculeata</i>	250	1
<i>Indigofera monophylla</i>	30	0.5
<i>Pittosporum phillyreoides</i>	60	0.5
<i>Rhynchosia minima</i>	0	0.5
<i>Sida fibulifera</i>	20	0.5
<i>Solanum phlomoides</i>	20	0.1
<i>Stemodia grossa</i>	30	2
<i>Streptoglossa decurrens</i>	30	1

Taxon	Ht (cm)	Foliage (%)
<i>Swainsona formosa</i>		Opportunistic
<i>Terminalia canescens</i>		Opportunistic
<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	30	1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	100	3
<i>Triodia epactia</i>	20	2
<i>Triumfetta ?clementii</i>	20	10

<b>Site No:</b> 20	<b>Date:</b> 11/8/2020	<b>Longitude:</b> 116.69545	<b>Latitude:</b> -20.67301
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**Type:** Releve**Soil Types:****Topography:** Rocky Shoreline**Surface:****Outcrops:** numerous**Litter:****Condition:** Very Good**Condition Notes:****Vegetation Type:** FvTdLc Tidal / Shoreline

**Vegetation Description:** *Flueggea virosa* subsp. *melanthesoides*, *Rhizophora stylosa* and *Avicennia marina* scattered mangrove patches with *Typha domingensis*, *Cyperus vaginatus* and *Spinifex longifolius* low scattered sedges with *Ipomoea costata* and \**Passiflora foetida* scattered climbers.



Taxon	Ht (cm)	Foliage (%)
<i>Aegialitis annulata</i>	40	Opportunistic
<i>Avicennia marina</i>	200	5
<i>Bruguiera exaristata</i>	80	Opportunistic
<i>Ceriops australis</i>	200	Opportunistic
<i>Rhizophora stylosa</i>	180	30



**Site No:** 21      **Date:** 13/4/2021      **Longitude:** 116.71596      **Latitude:** -20.67090

**Type:** Revele

**Soil Types:** rocky sand clay

**Topography:** artificial wetland

**Surface:**

**Outcrops:** Some rocks

**Litter:**

**Condition:** Degraded

**Condition Notes:**

**Vegetation Type:** AaEgPr

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	200	4
<i>Acacia coriacea</i>	200	1
<i>Adriana tomentosa</i> var. <i>tomentosa</i>	150	0.5
<i>Ammannia baccifera</i>	50	0.1
<i>Boerhavia coccinea</i>	0	1
* <i>Cenchrus ciliaris</i>	30	15
* <i>Chloris barbata</i>	10	2
<i>Cucumis variabilis</i>	0	0.01
<i>Cyperus vaginatus</i>	80	1
<i>Eleocharis geniculata</i>	5	1
<i>Enchylaena tomentosa</i>	30	15
* <i>Flaveria trinervia</i>	50	0.5

Taxon		Ht (cm)	Foliage (%)
	<i>Heliotropium curassavicum</i>	3	0.5
	<i>Ipomoea costata</i>	0	1
	<i>Melaleuca argentea</i>		opp
	<i>Neptunia dimorphantha</i>	0	0.1
	<i>Phyllanthus maderaspatensis</i>	20	0.1
	<i>Rhynchosia minima</i>	Opportunistic	Opportunistic
	<i>Salsola australis</i>	Opportunistic	Opportunistic
	<i>Samolus repens</i>	20	20
	<i>Sesbania cannabina</i>	150	5
	<i>Stemodia grossa</i>	50	5
*	<i>Stylosanthes hamata</i>	20	0.1
	<i>Trianthema turgidifolium</i>	20	0.1
	<i>Triodia epactia</i>	30	3

<b>Site No:</b> 22	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.71136	<b>Latitude:</b> -20.67673
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**Type:** Revele**Soil Types:** sand rock**Topography:** artificial wetland**Surface:****Outcrops:** None**Litter:** <1%**Condition:** Degraded**Condition Notes:****Vegetation Type:** AaEgPr

**Vegetation Description:** *Acacia ampliceps* and *Sesbania cannabina* medium open shrubland over *Eleocharis geniculata*, *Schoenus falcatus* and *Cyperus vaginatus* low open sedgeland over *Pluchea rubelliflora*, *Samolus repens* and *Stemodia grossa* low open herbland



Taxon	Ht (cm)	Foliage (%)
<i>Acacia ampliceps</i>	40	0.1
<i>Boerhavia coccinea</i>	0	0.1
* <i>Cenchrus ciliaris</i>	10	0.1
* <i>Chloris barbata</i>	10	0.1
<i>Cyperus vaginatus</i>	50	0.1
<i>Enchylaena tomentosa</i>	40	1
<i>Eragrostis surreyana</i> (P3)	0	0.01
<i>Heliotropium curassavicum</i>	5	0.1
<i>Ipomoea costata</i>	0	0.1
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Salsola australis</i>	50	0.1
<i>Samolus repens</i>	20	4
<i>Sesbania cannabina</i>	120	0.5

Taxon	Ht (cm)	Foliage (%)
<i>Stemodia grossa</i>	30	0.5
<i>Tecticornia indica</i>	20	6
<i>Trianthema turgidifolium</i>	20	2

<b>Site No:</b> 23	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.70989	<b>Latitude:</b> -20.68239
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**Type:** Revele

**Soil Types:** Clay

**Topography:** Shallow ephemeral drainage

**Surface:**

**Outcrops:** None

**Litter:** 20%

**Condition:** Good

**Condition Notes:** Man made, altered drainage, rubbish, pipeline, partial clearing.

**Vegetation Type:** EcScCc

**Vegetation Description:** *Eucalyptus camaldulensis* and *Melaleuca lasiandra* low woodland over *Sesbania cannabina*, *Acacia coriacea* and *Solanum horridum* mid open shrubland over \**Cenchrus ciliaris* low open tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	30	0.01
<i>Acacia coriacea</i>	150	1
<i>Arivela viscosa</i>	20	0.5
<i>Cassutha capillaris</i>	0	0.01
* <i>Cenchrus ciliaris</i>	20	25
<i>Crotalaria novae-hollandiae</i>	40	0.01
<i>Cucumis variabilis</i>	0	0.1
<i>Enchylaena tomentosa</i>	20	0.1
<i>Eucalyptus camaldulensis</i>	600	20
<i>Evolvulus alsinoides</i>	10	0.1
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>	60	0.01
<i>Neptunia dimorphantha</i>	0	0.01

Taxon	Ht (cm)	Foliage (%)
<i>Phyllanthus maderaspatensis</i>	30	0.01
<i>Rhynchosia minima</i>	20	3
<i>Salsola australis</i>	40	0.1
<i>Sesbania cannabina</i>	20	0.1
<i>Solanum diversiflorum</i>	20	0.1
<i>Solanum horridum</i>	30	0.01
<i>Tecticornia indica</i>	20	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	80	0.01
<i>Triodia epactia</i>	30	15
<i>Triumfetta ?clementii</i>	20	0.1

<b>Site No:</b> 24	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.70946	<b>Latitude:</b> -20.68070
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**Type:** Revele

**Soil Types:** clay

**Topography:** hill

**Surface:** rocky

**Outcrops:** 80%

**Litter:** 5%

**Condition:** Very Good

**Condition Notes:** Powerline

**Vegetation Type:** ToAITe

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	8
<i>Acacia pyrifolia</i>	150	0.1
<i>Arivela viscosa</i>	40	0.5
<i>Boerhavia coccinea</i>	5	0.5
<i>Bonamia media</i>	5	2
* <i>Cenchrus ciliaris</i>	10	2
<i>Crotalaria novae-hollandiae</i>	30	0.01
<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	30	0.1
<i>Grevillea pyramidalis</i>	80	0.01
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	20	0.01
<i>Indigofera linifolia</i>	10	0.01
<i>Indigofera trita</i>	10	0.01

Taxon	Ht (cm)	Foliage (%)
<i>Ipomoea costata</i>	0	0.1
<i>Rhynchosia minima</i>	10	0.5
<i>Solanum horridum</i>	10	0.5
<i>Tephrosia densa</i>	50	0.1
<i>Triodia epactia</i>	50	15



<b>Site No:</b> 25	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.70195	<b>Latitude:</b> -20.68194
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**Type:** Releve**Soil Types:** silt**Topography:** wetland / inlet**Surface:** bare**Outcrops:** 5% rocks**Litter:** 0%**Condition:** Good**Condition Notes:** condition difficult to determine, manmade rock wall, altered drainage**Vegetation Type:** PaTiEo

**Vegetation Description:** *Pittosporum phillyreoides* and *Acacia coriacea* scattered tall trees over *Tecticornia indica*, *Enchylaena tomentosa* and *Acacia ampliceps* low open shrubland over *Eriachne obtusa* and \**Cenchrus ciliaris* low open tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Enchylaena tomentosa</i>	30	0.1
<i>Tecticornia indica</i>	30	5
<i>Trianthema turgidifolium</i>	30	0.1

<b>Site No:</b> 26	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.70416	<b>Latitude:</b> -20.68208
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**Type:** Revele**Soil Types:** gravel clay**Topography:** slopes**Surface:** rocky**Outcrops:** 1% rocks**Litter:** 5%**Condition:** Very Good**Condition Notes:****Vegetation Type:** AbEtTa

**Vegetation Description:** *Acacia bivenosa*, *Salsola australis* and *Corchorus walcottii* mid to low open shrubland over *Euphorbia tannensis* subsp. *eremophila*, *Euphorbia australis* and *Tribulus hirsutus* low open herbland over *Triodia angusta* and *Triodia epactia* tall Hummock Grassland



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	40	1
<i>Acacia ampliceps</i>	100	0.5
<i>Acacia bivenosa</i>	220	0.5
<i>Acacia coriacea</i>	150	0.1
<i>Acacia pyrifolia</i>	50	0.1
<i>Cassutha capillaris</i>	0	0.5
* <i>Cenchrus ciliaris</i>	20	10
<i>Crotalaria novae-hollandiae</i>	30	0.1
<i>Cucumis variabilis</i>		0.01
<i>Cullen pogonocarpum</i>	20	0.01
<i>Euphorbia biconvexa</i>	30	0.1
<i>Grevillea pyramidalis</i>	200	0.1
<i>Indigofera monophylla</i>	20	0.5
<i>Phyllanthus maderaspatensis</i>	30	0.5

Taxon	Ht (cm)	Foliage (%)
<i>Pterocaulon sphaeranthoides</i>	40	0.1
<i>Rhynchosia minima</i>	20	0.5
<i>Salsola australis</i>	30	0.1
<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	20	0.1
<i>Solanum diversiflorum</i>	20	0.5
<i>Solanum horridum</i>	20	2
<i>Trianthema turgidifolium</i>	30	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	50	0.1
<i>Triodia epactia</i>	60	10

**Site No:** 27      **Date:** 13/4/2021      **Longitude:** 116.72546      **Latitude:** -20.65806

**Type:** Revele

**Soil Types:** clay between rocks

**Topography:** rock piles and slopes

**Surface:** rocky

**Outcrops:** 75%

**Litter:** 1%

**Condition:** Good to Very Good

**Condition Notes:** condition better 5m from pipeline

**Vegetation Type:** ToAI<sub>Te</sub>

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	0.5
<i>Boerhavia coccinea</i>	0	0.01
<i>Brachychiton acuminatus</i>	300	0.1
<i>Cajanus pubescens</i>	70	0.5
* <i>Cenchrus ciliaris</i>	20	1
<i>Commelina ensifolia</i>	10	0.01
<i>Cucumis variabilis</i>		
<i>Cullen ?leucochaites</i>	200	0.01
<i>Cymbopogon ambiguus</i>	130	0.1
<i>Euphorbia australis</i>	10	0.01
<i>Evolvulus alsinoides</i>	10	0.1
<i>Gomphrena cunninghamii</i>	5	0.01

Taxon	Ht (cm)	Foliage (%)
<i>Grevillea pyramidalis</i>	100	0.5
<i>Ipomoea costata</i>	0	1
<i>Paspalidium tabulatum</i>	20	0.01
<i>Rhynchosia minima</i>	20	5
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	80	0.1
<i>Triodia epactia</i>	50	10
<i>Triumfetta ?appendiculata</i>	40	0.1
<i>Triumfetta ?clementii</i>	5	0.01
<i>Triumfetta maconochieana</i>	20	0.01

<b>Site No:</b> 28	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.72200	<b>Latitude:</b> -20.66312
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**Type:** Quick observation**Soil Types:****Topography:** drainage shallow**Surface:****Outcrops:****Litter:****Condition:** degraded**Condition Notes:****Vegetation Type:** EcScCc

**Vegetation Description:** *Eucalyptus camaldulensis* and *Melaleuca lasiandra* low woodland over *Sesbania cannabina*, *Acacia coriacea* and *Solanum horridum* mid open shrubland over \**Cenchrus ciliaris* low open tussock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Acacia coriacea</i>	250	
<i>Arivela viscosa</i>	40	
<i>Cyperus vaginatus</i>	40	
<i>Eucalyptus camaldulensis</i>	400	
<i>Goodenia microptera</i>	30	

**Site No:** 29      **Date:** 13/4/2021      **Longitude:** 116.72164      **Latitude:** -20.66348

**Type:** Revele

**Soil Types:** clay and rocks

**Topography:** flat undulating

**Surface:** small rocks

**Outcrops:** 5%

**Litter:** 1%

**Condition:** Very Good

**Condition Notes:** pipeline

**Vegetation Type:** ToAI Te

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	0.5
<i>Acacia bivenosa</i>	Opportunistic	Opportunistic
<i>Acacia pyrifolia</i>	60	0.1
<i>Arivela viscosa</i>	20	0.1
<i>Bonamia media</i>	20	2
<i>Cajanus pubescens</i>	30	0.1
* <i>Cenchrus ciliaris</i>	20	0.5
<i>Eucalyptus camaldulensis</i>	350	0.1
<i>Evolvulus alsinoides</i>	10	0.5
<i>Hakea lorea</i>	150	0.1
<i>Heliotropium inexplicitum</i>	Opportunistic	Opportunistic
<i>Hybanthus aurantiacus</i>	20	0.1
<i>Indigofera linifolia</i>	20	0.1

Taxon		Ht (cm)	Foliage (%)
	<i>Phyllanthus maderaspatensis</i>	30	0.1
	<i>Rhynchosia minima</i>	20	0.5
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>	Opportunistic	Opportunistic
	<i>Solanum diversiflorum</i>	20	0.1
*	<i>Stylosanthes hamata</i>	20	0.1
	<i>Tephrosia densa</i>	10	0.1
	<i>Tribulus hirsutus</i>	10	0.1
	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	8	0.1
	<i>Triodia epactia</i>	50	15
	<i>Triumfetta ?appendiculata</i>	30	0.1



**Site No:** 30      **Date:** 13/4/2021      **Longitude:** 116.72609      **Latitude:** -20.65227

**Type:** Revele

**Soil Types:** clay

**Topography:** rock piles

**Surface:** rocky

**Outcrops:** 30%

**Litter:**

**Condition:** Good

**Condition Notes:** pipeline, powerline, weeds

**Vegetation Type:** ToAITe

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	20	0.01
<i>Acacia bivenosa</i>	150	0.1
<i>Acacia pyrifolia</i>	150	0.1
<i>Bonamia media</i>	Opportunistic	Opportunistic
<i>Cajanus pubescens</i>	30	0.1
* <i>Cenchrus ciliaris</i>	20	5
<i>Cucumis variabilis</i>	0	0.01
<i>Evolvulus alsinoides</i>	20	0.01
<i>Grevillea pyramidalis</i>	150	0.1
<i>Hakea lorea</i>	200	0.1
<i>Hybanthus aurantiacus</i>	20	0.1
<i>Paspalidium tabulatum</i>	30	0.01
<i>Pittosporum phillyreoides</i>	80	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Rhynchosia minima</i>	20	1
<i>Solanum horridum</i>	10	0.01
<i>Themeda triandra</i> sens. Lat	30	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	80	0.5
<i>Triodia epactia</i>	30	12
<i>Triumfetta</i> ? <i>appendiculata</i>	40	0.5
<i>Triumfetta</i> ? <i>clementii</i>	20	0.1
<i>Triumfetta maconochieana</i>	30	0.1

<b>Site No:</b> 31	<b>Date:</b> 13/4/2021	<b>Longitude:</b> 116.70798	<b>Latitude:</b> -20.67446
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**Type:** Revele**Soil Types:** clay**Topography:** rockpiles, slopes**Surface:** rocky**Outcrops:** 75%**Litter:** <1%**Condition:** Very Good to Good**Condition Notes:** Weeds**Vegetation Type:** ToAIte

**Vegetation Description:** *Trachymene oleracea* subsp. *oleracea*, *Trichodesma zeylanicum* var. *zeylanicum* and *Swainsona formosa* mid to tall herbland with *Abutilon lepidum*, *Crotalaria novae-hollandiae* and *Senna notabilis* low shrubland over *Triodia epactia* tall hummock grassland.



Taxon	Ht (cm)	Foliage (%)
<i>Abutilon lepidum</i>	50	5
<i>Acacia coriacea</i>	250	0.1
<i>Arivela viscosa</i>	20	0.1
<i>Boerhavia coccinea</i>	0	0.5
<i>Cajanus pubescens</i>	Opportunistic	Opportunistic
<i>Cassyltha capillaris</i>	0	0.01
* <i>Cenchrus ciliaris</i>	20	1
<i>Commelina ensifolia</i>	10	0.1
<i>Cucumis variabilis</i>	Opportunistic	Opportunistic
<i>Cynanchum floribundum</i>	Opportunistic	Opportunistic
<i>Evolvulus alsinoides</i>	20	0.5
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>	30	1
<i>Ficus brachypoda</i>	250	0.1

Taxon	Ht (cm)	Foliage (%)
<i>Gomphrena cunninghamii</i>	10	0.1
<i>Grevillea pyramidalis</i>	100	0.01
<i>Hibiscus sturtii</i> var. <i>campylochlamys</i>	10	0.01
<i>Indigofera trita</i>	20	0.01
<i>Ipomoea costata</i>	0	0.1
<i>Phyllanthus maderaspatensis</i>	20	0.1
<i>Portulaca oleracea</i>	10	0.01
<i>Portulaca pilosa</i>	10	0.01
<i>Ptilotus auriculifolius</i>	30	0.01
<i>Rhynchosia minima</i>	20	2
<i>Scaevola acacioides</i>	Opportunistic	Opportunistic
<i>Solanum horridum</i>	20	0.5
<i>Tephrosia densa</i>	20	0.1
<i>Themeda triandra</i> sens. Lat	30	0.1
<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	80	0.1
<i>Triodia epactia</i>	50	20
<i>Triumfetta ?appendiculata</i>	20	0.01
<i>Triumfetta ?clementii</i>	20	0.01
<i>Triumfetta maconochieana</i>	30	0.01

# Appendix C

## Statistical Analysis of Floristic Data

## Appendix C Statistical Analysis of Floristic Data

Appendix C Statistical Analysis of Floristic Data

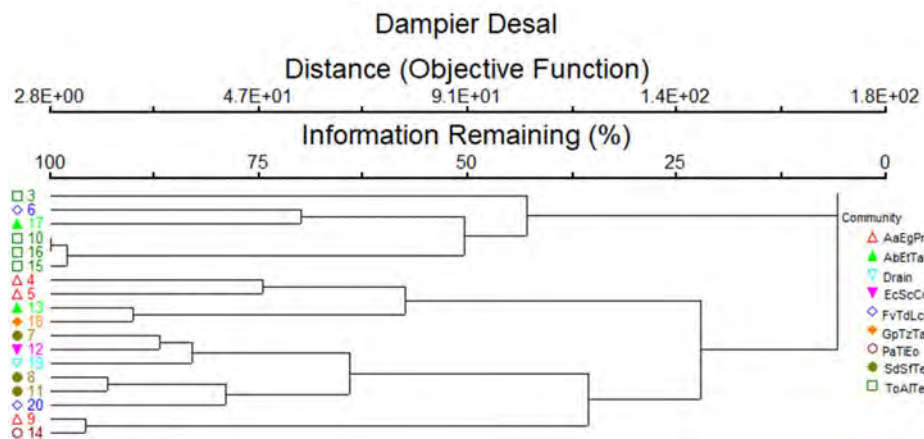


Figure 1 Similarity dendrogram using PC Ord following 2020 survey symbolised by vegetation community

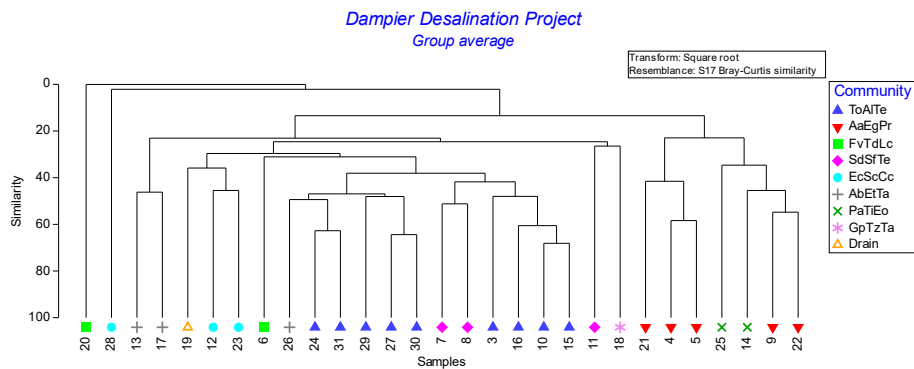


Figure 2 Similarity dendrogram using Primer following 2021 survey symbolised by vegetation community

Field Code Changed

# Appendix D

Flora Species by  
Community Matrix



## Appendix D Flora Species by Community Matrix

Family	Taxon	Hummock Grassland			Artificial Wetland	Minor Flow		Tidal		Survey	
		AbEtTa	SdSfTe	ToAlTe	AaEgPr	EcScCc	GpTzTa	FvTdLc	PaTiEo	Phase I	Phase II
Acanthaceae	<i>Avicennia marina</i>							x		x	x
	<i>Aizoaceae</i>		x	x	x		x	x	x	x	
Aizoaceae	<i>Trianthema turgidifolium</i>	x	x	x	x		x	x	x	x	x
Amaranthaceae	<i>*Aerva javanica</i>		x	x				x		x	
	<i>Gomphrena cunninghamii</i>			x			x			x	x
	<i>Ptilotus auriculifolius</i>	x		x						x	x
	<i>Ptilotus exaltatus</i>	x		x	x					x	
Apiaceae	<i>Trachymene oleracea</i> subsp. <i>oleracea</i>	x		x			x			x	
Apocynaceae	<i>Cynanchum floribundum</i>			x						x	x
Asteraceae	<i>*Flaveria trinervia</i>				x						x
	<i>Pluchea rubelliflora</i>				x	x	x			x	
	<i>Pterocaulon sphaeranthoides</i>	x				x	x			x	x
	<i>Streptoglossa decurrens</i>	x		x	x	x	x			x	
	<i>Streptoglossa liatroides</i>			x						x	
Boraginaceae	<i>Heliotropium curassavicum</i>				x	x				x	x
	<i>Heliotropium inexplicitum</i>			x							x
	<i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>	x	x	x	x	x	x	x		x	x
Capparaceae	<i>Capparis spinosa</i> subsp. <i>nummularia</i>					x				x	
Caryophyllaceae	<i>Polycarpaea longiflora</i>			x						x	
Chenopodiaceae	<i>Atriplex semilunaris</i>		x							x	
	<i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i>	x		x						x	
	<i>Enchylaena tomentosa</i>				x	x			x		x
	<i>Neobassia astrocarpa</i>								x		
	<i>Salsola australis</i>	x	x	x	x					x	x
	<i>Tecticornia indica</i>				x	x			x	x	x

Family	Taxon	Hummock Grassland			Artificial Wetland	Minor Flow		Tidal		Survey	
		AbEtTa	SdSfTe	ToAlTe	AaEgPr	EcScCc	GpTzTa	FvTdLc	PaTiEo	Phase I	Phase II
Cleomaceae	<i>Arivela viscosa</i>	x	x	x		x		x		x	x
Combretaceae	<i>Terminalia canescens</i>			x			x			x	
Commelinaceae	<i>Commelina ensifolia</i>			x							x
Convolvulaceae	<i>Bonamia media</i>			x						x	x
	<i>Bonamia pilbarensis</i>	x								x	
	<i>Evolvulus alsinoides</i>	x		x		x				x	x
	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>										x
	<i>Ipomoea costata</i>			x	x			x		x	x
	<i>Ipomoea pes-caprae</i>							x		x	
	Cucurbitaceae			x		x				x	
	<i>Cucumis variabilis</i>			x		x				x	
Cucurbitaceae	* <i>Cucumis variabilis</i>	x		x	x	x				x	x
Cyperaceae	<i>Cyperus vaginatus</i>				x	x	x	x		x	x
	<i>Eleocharis geniculata</i>				x					x	x
	<i>Schoenus falcatus</i>				x					x	
	<i>Typha domingensis</i>				x					x	
Euphorbiaceae	<i>Adriana tomentosa</i> var. <i>tomentosa</i>				x	x				x	x
	<i>Euphorbia ?tannensis</i> subsp. <i>eremophila</i>	x	x	x						x	x
	<i>Euphorbia australis</i>	x	x	x	x					x	x
	<i>Euphorbia biconvexa</i>	x		x						x	x
Fabaceae	<i>Acacia ampliceps</i>	x			x	x		x	x	x	x
	<i>Acacia bivenosa</i>	x	x	x						x	x
	<i>Acacia coleii</i>							x		x	
	<i>Acacia coriacea</i>	x	x	x	x	x			x	x	x
	<i>Acacia pyrifolia</i>	x		x			x			x	x
	<i>Acacia synchronicia</i>		x	x						x	

Family	Taxon	Hummock Grassland			Artificial Wetland	Minor Flow		Tidal		Survey	
		AbEtTa	SdSfTe	ToAlTe	AaEgPr	EcScCc	GpTzTa	FvTdLc	PaTiEo	Phase I	Phase II
	<i>Alysicarpus muelleri</i>			X						X	
	<i>Cajanus pubescens</i>			X							X
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>	X		X		X				X	X
	<i>Crotalaria novae-hollandiae</i>		X	X						X	
	<i>Cullen ?leucochaites</i>			X							X
	<i>Cullen pogonocarpum</i>	X	X							X	X
	<i>Cullen stipulaceum</i>						X			X	
	<i>Indigofera colutea</i>	X	X	X			X			X	
	<i>Indigofera linifolia</i>			X						X	X
	<i>Indigofera monophylla</i>	X	X	X	X		X			X	X
	<i>Indigofera trita</i>			X							X
	<i>Neptunia dimorphantha</i>				X	X					X
	<i>Rhynchosia minima</i>	X	X	X	X	X		X		X	X
	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>	X									X
	<i>Senna glutinosa</i> subsp. <i>glutinosa</i>	X								X	
	<i>Senna glutinosa</i> subsp. <i>pruinosa</i>			X							X
	<i>Senna notabilis</i>	X		X						X	
	<i>Sesbania cannabina</i>				X	X				X	X
	<i>Stylobasium spathulatum</i>	X								X	
	* <i>Stylosanthes hamata</i>			X	X						X
	<i>Swainsona formosa</i>	X	X	X		X	X	X		X	
	<i>Swainsona sturtii</i>			X						X	
	<i>Tephrosia supina</i>	X								X	
	<i>Tephrosia densa</i>			X						X	X
	<i>Vigna ?sp.</i> Hamersley Clay (A.A. Mitchell PRP 113)			X						X	
Goodeniaceae											
	<i>Goodenia microptera</i>	X	X			X				X	X
	<i>Scaevola acacioides</i>			X						X	X
Lauraceae											
	<i>Cassythia capillaris</i>	X		X		X					X
Lythraceae											
	<i>Ammannia baccifera</i>				X					X	X
Malvaceae											
	<i>Abutilon lepidum</i>	X	X	X		X				X	X
	<i>Brachychiton acuminatus</i>		X	X	X	X				X	X



Family	Taxon	Hummock Grassland			Artificial Wetland	Minor Flow		Tidal		Survey	
		AbEtTa	SdSfTe	ToAlTe	AaEgPr	EcScCc	GpTzTa	FvTdLc	PaTiEo	Phase I	Phase II
Poa cont.	<i>*Chloris barbata</i>				X					X	X
	<i>Chrysopogon fallax</i>					X				X	
	<i>Cymbopogon ambiguus</i>		X	X						X	X
	<i>Eragrostis pergracilis</i>				X					X	
	<i>Eragrostis surreyana</i>										X
	<i>Eriachne obtusa</i>	X	X	X	X				X	X	
	<i>Panicum decompositum</i>			X						X	
	<i>Paspalidium tabulatum</i>										X
	<i>Spinifex longifolius</i>							X		X	
	<i>Themeda triandra</i> sens. Lat			X							X
	<i>Triodia ?angusta</i>	X			X		X			X	
	<i>Triodia epactia</i>	X	X	X	X	X		X		X	X
Portulacaceae											
	<i>Portulaca oleracea</i>			X	X		X			X	X
	<i>Portulaca pilosa</i>			X							X
Primulaceae											
	<i>Samolus repens</i>				X					X	X
Proteaceae											
	<i>Grevillea pyramidalis</i>	X		X	X		X			X	X
	<i>Hakea lorea</i>			X							X
Rhizophoraceae											
	<i>Bruguiera exaristata</i>							X		X	
	<i>Ceriops australis</i>							X		X	
	<i>Rhizophora stylosa</i>							X		X	
Sapindaceae											
	<i>Diplopeltis eriocarpa</i>	X								X	
Solanaceae											
	<i>Solanum diversiflorum</i>	X	X	X		X				X	X
	<i>Solanum horridum</i>	X	X	X		X			X	X	X
	<i>Solanum phlomoides</i>						X			X	
Typhaceae											
	<i>Typha domingensis</i>							X		X	
Violaceae											
	<i>Hybanthus aurantiacus</i>	X		X						X	X
Zygophyllaceae											
	<i>Tribulus hirsutus</i>	X		X						X	

# Appendix E

## Priority Flora Locations

## Appendix E Priority Flora Locations

Eastings	Northing	Population Count	Species
469937	7713603	Not counted	Eragrostis surreyana
470255	7714043	200	Eragrostis surreyana
470240	7714006	100	Eragrostis surreyana
470208	7714016	10	Eragrostis surreyana
470049	7713794	10	Eragrostis surreyana
469983	7713696	4	Eragrostis surreyana
469947	7713678	100	Eragrostis surreyana
469919	7713522	2	Eragrostis surreyana
469933	7713607	100	Eragrostis surreyana
469938	7713629	10	Eragrostis surreyana
470035	7713747	20	Eragrostis surreyana
470024	7713731	1	Eragrostis surreyana
469989	7713676	3	Eragrostis surreyana
469971	7713656	50	Eragrostis surreyana
469934	7713576	5	Eragrostis surreyana
469966	7713648	200	Eragrostis surreyana
469978	7713659	50	Eragrostis surreyana
469993	7713687	20	Eragrostis surreyana



# Appendix F

## Fauna Species List

## Appendix F Fauna Species List

Family	Taxon	Common Name	Habitat Type				Survey	
			Grasslands on rocky slopes	Minor creeks/drainage lines	Artificial/ephemeral wetlands	Rocky shoreline	Phase I	Phase II
<b>Mammals</b>								
Canidae	<i>Canis familiaris</i>	Wild Dog			X			X
Felidae	<i>Felis catus</i>	Cat	X	X			X	X
Macropodidae	<i>Osphranter robustus</i>	Euro/Common Wallaroo	X	X	X	X	X	X
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-Beaked Echidna	X	X			X	X
Unidentified bat species	Unidentified species		X	X	X		X	
Unidentified small rodent species	Unidentified species					X		X
<b>Reptiles</b>								
Agamidae (Dragons)	<i>Ctenophorus caudicinctus caudicinctus</i>	Ring-tailed Dragon	X					X
	Unidentified species					X		X
Gekkonidae (Geckoes)	<i>Heteronotia binoei</i>	Bynoe's Gecko	X					X
Scincidae (Skinks)	<i>Ctenotus duricola</i>	Eastern Pilbara Lined Ctenotus	X					X
	<i>Ctenotus schomburgkii</i>	Barred Wedgesnout Ctenotus	X					X
	<i>Morethia ruficauda</i>	Lined Firetail Skink	X					X
<b>Birds</b>								
Accipitridae (Osprey, Hawks, Eagles)	<i>Circus assimilis</i>	Spotted Harrier	X	X	X		X	
	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	X	X	X		X	X
	<i>Haliastur indus</i>	Brahminy Kite				X	X	
	<i>Haliastur sphenurus</i>	Whistling Kite	X	X	X		X	X
	<i>Pandion cristatus</i>	Osprey			X			X
Alcedinidae (Kingfishers)	<i>Todiramphus chloris</i>	Collared Kingfisher				X	X	
	<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher	X	X			X	X
	<i>Todiramphus sanctus</i>	Sacred Kingfisher		X				X
Anatidae (Ducks)	<i>Anas superciliosa</i>	Pacific Black Duck			X			X
Ardeidae (Hérons, Egrets, Bitterns)	<i>Ardea novaehollandiae</i>	White-faced Heron			X	X	X	
	<i>Ardea sacra</i>	Eastern Reef Heron				X	X	
	<i>Ixobrychus flavicollis</i>	Black Bittern				X		X
Artamidae (Woodswallows)	<i>Artamus cinereus</i>	Black-faced Woodswallow	X	X	X		X	X
	<i>Artamus personatus</i>	Masked Woodswallow	X				X	X
	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow			X	X	X	X
	<i>Cracticus torquatus</i>	Grey Butcherbird	X					X
Cacatuidae (Cockatoos)	<i>Cacatua roseicapilla</i>	Galah	X				X	X
	<i>Cacatua sanguinea</i>	Little Corella	X	X			X	X

Family	Taxon	Common Name	Habitat Type				Survey	
			Grasslands on rocky slopes	Minor creeks/drainage lines	Artificial/ephemeral wetlands	Rocky shoreline	Phase I	Phase II
Campephagidae (Cuckoo-shrikes, Trillers)	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	X				X	X
	<i>Lalage tricolor</i>	White-winged Triller	X	X			X	
Charadriidae (Lapwings, Plovers, Dotterels)	<i>Eisayornis melanops</i>	Black-fronted Dotterel			X		X	X
Columbidae (Pigeons, Doves)	<i>Geopelia striata</i>	Peaceful Dove	X				X	
	<i>Geophaps plumifera</i>	Spinifex Pigeon	X		X		X	X
	<i>Ocyphaps lophotes</i>	Crested Pigeon	X	X	X		X	X
Corvidae (Ravens, Crows)	<i>Corvus coronoides</i>	Australian Raven	X					X
Cracticidae (Butcherbirds, Magpies, Currawongs)	<i>Cracticus nigrogularis</i>	Pied Butcherbird	X	X	X	X	X	X
Cuculidae (Cuckoos)	<i>Cacomantis pallidus</i>	Pallid Cuckoo	X	X			X	
	<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo						
Estrildidae (Finches)	<i>Emblema pictum</i>	Painted Finch	X	X	X		X	
	<i>Taeniopygia guttata</i>	Zebra Finch	X	X	X		X	
Falconidae (Falcons)	<i>Falco cenchroides</i>	Nankeen Kestrel	X	X	X		X	X
Hirundinidae (Swallows, Martins)	<i>Hirundo neoxena</i>	Welcome Swallow		X	X		X	X
	<i>Petrochelidon ariel</i>	Fairy Martin			X			X
Laridae (Gulls, Noddies, Terns)	<i>Larus novaehollandiae</i>	Silver Gull			X	X	X	X
	<i>Hydroprogne caspia</i>	Caspian Tern			X	X	X	X
Locustellidae (Songlarks, Cisticolas, Spinifex-bird)	<i>Cincloramphus mathewsi</i>	Rufous Songlark	X				X	
Meliphagidae (Honeyeaters)	<i>Gavicalis virescens</i>	Singing Honeyeater	X	X	X		X	X
	<i>Lichmera indistincta</i>	Brown Honeyeater	X	X	X		X	X
	<i>Manorina flavigula</i>	Yellow-throated Miner	X	X	X		X	X
	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	X				X	
Meropidae (Bee-eaters)	<i>Merops ornatus</i>	Rainbow Bee-eater	X	X			X	X
Monarchidae (Monarchs, Flycatchers)	<i>Grallina cyanoleuca</i>	Magpie-lark	X		X	X	X	X
Motacillidae (Pipits)	<i>Anthus australis</i>	Australian Pipit	X		X		X	
Podicipedidae (Grebes)	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe			X			X
	<i>Polocephalus polocephalus</i>	Hoary-headed Grebe			X		X	
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt			X			X
Rhipiduridae (Fantails)	<i>Rhipidura leucophrys</i>	Willie Wagtail	X	X			X	X
Scolopacidae (Curlews, Sandpipers, Snipes, Godwits)	<i>Actitis hypoleucos</i>	Common Sandpiper			X	X	X	X
Threskiornithidae (Ibises & Spoonbills)	<i>Threskiornis spinicollis</i>	Straw-necked Ibis			X		X	

# Appendix G

## Fauna Habitat Assessments

## Appendix G Fauna Habitat Assessments

Fauna Habitat Assessment										
<b>Site Information</b>										
Site number	2021-1									
Observer	J. Leigh									
Photo's taken	2									
<b>General Habitat Description</b>										
Triodia on rocky slopes and flats. Grasslands with moderate cover. Includes some tall shrubs over diverse low herbs, shrubs and grasses.										
<b>Habitat Characteristics</b>										
<b>Characteristics</b>	<b>Abundance</b>		<b>Notes</b>							
Hollows small	Rare									
Hollows large	Absent									
Logs (<10cm diam)	Occasional									
Logs (10-30cm diam)	Rare									
Logs (>30cm diam)	Absent									
Decorticating bark	Rare to occasional									
Course litter (>2cm diam)	Occasional									
Fine litter (<2cm diam)	Rare to occasional									
Bare ground	Common									
Grass	Common									
Soil cracks	Rare		Soil Description: Clayey brown soils							
Stones (<20cm)	Common to abundant									
Stones (20-60cm)	Common to abundant									
Boulders (60cm-2m)	Occasional									
Large boulders (>2m)	Rare									
Rock crevices	Occasional									
Exfoliating rock	Rare to occasional									
Cryptogamic crust	Absent									
Water body/wetland	Absent									
Large mature trees	Absent									
Vines	Absent									
Mistletoe	Absent									
Dense understorey	Absent									
<b>Disturbance (e.g. type, severity)</b>										
Some edge effects										
<b>Animal Signs/Observations</b>										
Euro scat common, yellow throated miners, several skink species observed in rockpiles, crested pigeons, zebra finches.										
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>										
Does not provide significant habitat for SREs or quolls.										
<b>Other</b>										
<b>Habitat Quality</b>										
Moderate to High										
<b>Connectivity</b> Common in landscape										
<b>Other significant features</b>										

Fauna Habitat Assessment									
<b>Site Information</b>									
Site number	2021-2								
Observer	J. Leigh								
Photo's taken	2								
<b>General Habitat Description</b>									
<p>Minor creeks and drainage - ephemeral creeks and drainage.            Includes mature trees in varying densities (no large hollows observed), moderate density groundcover of tussock grasses, herbs and shrubs.</p>									
<b>Habitat Characteristics</b>									
<b>Characteristics</b>	<b>Abundance</b>			<b>Notes</b>					
Hollows small	Rare								
Hollows large	Absent								
Logs (<10cm diam)	Occasional								
Logs (10-30cm diam)	Rare to occasional								
Logs (>30cm diam)	Absent								
Decorticating bark	Rare								
Course litter (>2cm diam)	Rare to occasional								
Fine litter (<2cm diam)	Rare								
Bare ground	Abundant								
Grass	Occasional								
Soil cracks	Rare to occasional			Soil Description: Clayey brown soils					
Stones (<20cm)	Abundant								
Stones (20-60cm)	Abundant								
Boulders (60cm-2m)	Rare to occasional								
Large boulders (>2m)	Rare								
Rock crevices	Rare to occasional								
Exfoliating rock	Rare								
Cryptogamic crust	Rare								
Water body/wetland	Abundant								
Large mature trees	Absent								
Vines	Rare								
Mistletoe	Absent								
Dense understorey	Absent								
<b>Disturbance (e.g. type, severity)</b>									
Some drainage areas may be modified.									
<b>Animal Signs/Observations</b>									
Euros, zebra finches.									
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>									
Does not provide significant habitat for SREs or quolls.									
<b>Other</b>									
<b>Habitat Quality</b>									
Moderate to High									
<b>Connectivity</b> Creeklines are used by fauna as linkages through the landscape.									
<b>Other significant features</b>									



Fauna Habitat Assessment									
<b>Site Information</b>									
Site number	2021-3								
Observer	J. Leigh								
Photo's taken	0								
<b>General Habitat Description</b>									
<p>Minor creeks and drainage - ephemeral creeks and drainage.            Includes mature trees in varying densities (no large hollows observed), moderate density groundcover of tussock grasses, herbs and shrubs.</p>									
<b>Habitat Characteristics</b>									
<b>Characteristics</b>	<b>Abundance</b>			<b>Notes</b>					
Hollows small	Rare								
Hollows large	Absent								
Logs (<10cm diam)	Occasional								
Logs (10-30cm diam)	Rare to occasional								
Logs (>30cm diam)	Absent								
Decorticating bark	Rare								
Course litter (>2cm diam)	Rare to occasional								
Fine litter (<2cm diam)	Rare								
Bare ground	Abundant								
Grass	Occasional								
Soil cracks	Rare to occasional			Soil Description: Clayey brown soils					
Stones (<20cm)	Abundant								
Stones (20-60cm)	Abundant								
Boulders (60cm-2m)	Rare to occasional								
Large boulders (>2m)	Rare								
Rock crevices	Rare to occasional								
Exfoliating rock	Rare								
Cryptogamic crust	Rare								
Water body/wetland	Abundant								
Large mature trees	Absent								
Vines	Rare								
Mistletoe	Absent								
Dense understorey	Absent								
<b>Disturbance (e.g. type, severity)</b>									
Some drainage areas may be modified.									
<b>Animal Signs/Observations</b>									
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>									
Does not provide significant habitat for SREs or quolls.									
<b>Other</b>									
<b>Habitat Quality</b>									
Moderate to High									
<b>Connectivity</b> Creeklines are used by fauna as linkages through the landscape.									
<b>Other significant features</b>									

Fauna Habitat Assessment										
<b>Site Information</b>										
Site number	2021-4									
Observer	J. Leigh									
Photo's taken	3									
<b>General Habitat Description</b>										
Isolated rockpiles - large rockpiles with minimal vegetation.										
<b>Habitat Characteristics</b>										
<b>Characteristics</b>	<b>Abundance</b>		<b>Notes</b>							
Hollows small	Absent									
Hollows large	Absent									
Logs (<10cm diam)	Absent									
Logs (10-30cm diam)	Absent									
Logs (>30cm diam)	Absent									
Decorticating bark	Absent									
Course litter (>2cm diam)	Absent									
Fine litter (<2cm diam)	Absent									
Bare ground	Absent									
Grass	Absent									
Soil cracks	Absent		Soil Description: Clayey brown soils							
Stones (<20cm)	Occasional to common									
Stones (20-60cm)	Occasional to common									
Boulders (60cm-2m)	Abundant									
Large boulders (>2m)	Abundant									
Rock crevices	Common to abundant									
Exfoliating rock	Occasional									
Cryptogamic crust	Absent									
Water body/wetland	Absent									
Large mature trees	Absent									
Vines	Absent									
Mistletoe	Absent									
Dense understorey	Absent									
<b>Disturbance (e.g. type, severity)</b>										
<b>Animal Signs/Observations</b>										
Euro and bird scat, likely to be used by reptiles and possibly quolls.										
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>										
May provide habitat for quolls.										
<b>Other</b>										
<b>Habitat Quality</b>										
Moderate										
<b>Connectivity</b> Most have limited connectivity - isolated piles.										
<b>Other significant features</b>										

Fauna Habitat Assessment										
<b>Site Information</b>										
Site number	2021-5									
Observer	J. Leigh									
Photo's taken	1									
<b>General Habitat Description</b>										
Triodia on rocky slopes and flats. Grasslands with moderate cover. Includes some tall shrubs over diverse low herbs, shrubs and grasses.										
<b>Habitat Characteristics</b>										
<b>Characteristics</b>	<b>Abundance</b>		<b>Notes</b>							
Hollows small	Rare									
Hollows large	Absent									
Logs (<10cm diam)	Occasional									
Logs (10-30cm diam)	Absent									
Logs (>30cm diam)	Absent									
Decorticating bark	Rare									
Course litter (>2cm diam)	Occasional									
Fine litter (<2cm diam)	Occasional									
Bare ground	Common									
Grass	Abundant									
Soil cracks	Rare		Soil Description: Clayey brown soils							
Stones (<20cm)	Common to abundant									
Stones (20-60cm)	Common to abundant									
Boulders (60cm-2m)	Common									
Large boulders (>2m)	Rare									
Rock crevices	Rare to occasional									
Exfoliating rock	Occasional									
Cryptogamic crust	Absent									
Water body/wetland	Absent									
Large mature trees	Absent									
Vines	Rare									
Mistletoe	Absent									
Dense understorey	Absent									
<b>Disturbance (e.g. type, severity)</b>										
Moderate levels from pipeline construction, landform modification and weeds (buffel).										
<b>Animal Signs/Observations</b>										
Euro scat common, yellow throated miners, reptiles likely, crested pigeons.										
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>										
Isolated rockpiles scattered throughout, potential to be used by foraging quolls										
<b>Other</b>										
<b>Habitat Quality</b>										
Moderate to High										
<b>Connectivity</b> Common in landscape										
<b>Other significant features</b>										

Fauna Habitat Assessment									
<b>Site Information</b>									
Site number	2021-6								
Observer	J. Leigh								
Photo's taken	2								
<b>General Habitat Description</b>									
Minor creeks and drainage - ephemeral creeks and drainage. Includes mature trees in varying densities (no large hollows observed), moderate density groundcover of tussock grasses, herbs and shrubs.									
<b>Habitat Characteristics</b>									
<b>Characteristics</b>	<b>Abundance</b>			<b>Notes</b>					
Hollows small	Rare								
Hollows large	Absent								
Logs (<10cm diam)	Occasional								
Logs (10-30cm diam)	Rare to occasional								
Logs (>30cm diam)	Absent								
Decorticating bark	Rare to occasional								
Course litter (>2cm diam)	Rare to occasional								
Fine litter (<2cm diam)	Rare to occasional								
Bare ground	Common to abundant								
Grass	Common to abundant								
Soil cracks	Absent			Soil Description: Clayey brown soils					
Stones (<20cm)	Common								
Stones (20-60cm)	Common								
Boulders (60cm-2m)	Rare to occasional								
Large boulders (>2m)	Absent								
Rock crevices	Rare								
Exfoliating rock	Rare								
Cryptogamic crust	Occasional								
Water body/wetland	Abundant								
Large mature trees	Absent								
Vines	Absent								
Mistletoe	Absent								
Dense understorey	Absent								
<b>Disturbance (e.g. type, severity)</b>									
Appears to be a modified drainage area.									
<b>Animal Signs/Observations</b>									
2 x magpie larks, euro scat common.									
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>									
Smaller area, may be utilised by migratory waders but very marginal habitat.									
<b>Other</b>									
<b>Habitat Quality</b>									
Moderate to High									
<b>Connectivity</b> Creeklines are used by fauna as linkages through the landscape. See aerial.									
<b>Other significant features</b>									

Fauna Habitat Assessment										
<b>Site Information</b>										
Site number	2021-6									
Observer	J. Leigh									
Photo's taken	2									
<b>General Habitat Description</b>										
Minor creeks and drainage - ephemeral creeks and drainage. Includes mature trees in varying densities (no large hollows observed), moderate density groundcover of tussock grasses, herbs and shrubs.										
<b>Habitat Characteristics</b>										
<b>Characteristics</b>	<b>Abundance</b>		<b>Notes</b>							
Hollows small	Rare									
Hollows large	Absent									
Logs (<10cm diam)	Occasional									
Logs (10-30cm diam)	Rare to occasional									
Logs (>30cm diam)	Absent									
Decorticating bark	Occasional									
Course litter (>2cm diam)	Common									
Fine litter (<2cm diam)	Common									
Bare ground	Common									
Grass	Common to abundant									
Soil cracks	Rare		Soil Description: Clayey brown soils							
Stones (<20cm)	Common to abundant									
Stones (20-60cm)	Common to abundant									
Boulders (60cm-2m)	Occasional									
Large boulders (>2m)	Absent									
Rock crevices	Absent									
Exfoliating rock	Absent									
Cryptogamic crust	Rare to occasional									
Water body/wetland	Abundant									
Large mature trees	Absent									
Vines	Absent									
Mistletoe	Absent									
Dense understorey	Absent									
<b>Disturbance (e.g. type, severity)</b>										
Potential landform modification and pipeline construction, weeds abundant.										
<b>Animal Signs/Observations</b>										
<i>Ctenopus schomburgkii</i> , echidna, magpie larks, Euro scat common.										
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>										
<b>Other</b>										
<b>Habitat Quality</b>										
Moderate										
<b>Connectivity</b> Creeklines are used by fauna as linkages through the landscape. See aerial.										
<b>Other significant features</b>										

Fauna Habitat Assessment									
<b>Site Information</b>									
Site number	2021-8								
Observer	J. Leigh								
Photo's taken	2								
<b>General Habitat Description</b>									
Triodia on rocky slopes and flats. Grasslands with moderate cover. Includes some tall shrubs over diverse low herbs, shrubs and grasses.									
<b>Habitat Characteristics</b>									
<b>Characteristics</b>	<b>Abundance</b>	<b>Notes</b>							
Hollows small	Rare								
Hollows large	Absent								
Logs (<10cm diam)	Occasional								
Logs (10-30cm diam)	Rare								
Logs (>30cm diam)	Absent								
Decorticating bark	Rare								
Course litter (>2cm diam)	Rare								
Fine litter (<2cm diam)	Rare								
Bare ground	Common to abundant								
Grass	Abundant								
Soil cracks	Rare	Soil Description: Clayey red brown soils							
Stones (<20cm)	Abundant								
Stones (20-60cm)	Abundant								
Boulders (60cm-2m)	Occasional								
Large boulders (>2m)	Absent								
Rock crevices	Rare to occasional								
Exfoliating rock	Rare								
Cryptogamic crust	Occasional								
Water body/wetland	Absent								
Large mature trees	Absent								
Vines	Absent								
Mistletoe	Absent								
Dense understorey	Absent								
<b>Disturbance (e.g. type, severity)</b>									
Some landform modification and weed (buffel) presence - pipeline installation.									
<b>Animal Signs/Observations</b>									
Whistling Kite flying over, Yellow-throated Miners, Euro scat comon, Rainbow Bee Eaters heard.									
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>									
Does not provide significant habitat for SREs, contains potential foraging areas for quolls.									
<b>Other</b>									
<b>Habitat Quality</b>									
Moderate									
<b>Connectivity</b>	Common throughout landscape.								
<b>Other significant features</b>	Adjacent drainage area.								

Fauna Habitat Assessment									
<b>Site Information</b>									
Site number	2021-9								
Observer	J. Leigh								
Photo's taken	2								
<b>General Habitat Description</b>									
Triodia on rocky slopes and flats. Grasslands with moderate cover. Includes some tall shrubs over diverse low herbs, shrubs and grasses.									
<b>Habitat Characteristics</b>									
<b>Characteristics</b>	<b>Abundance</b>			<b>Notes</b>					
Hollows small	Rare								
Hollows large	Absent								
Logs (<10cm diam)	Rare to occasional								
Logs (10-30cm diam)	Rare								
Logs (>30cm diam)	Absent								
Decorticating bark	Rare								
Course litter (>2cm diam)	Rare to occasional								
Fine litter (<2cm diam)	Rare to occasional								
Bare ground	Occasional to common								
Grass	Abundant								
Soil cracks	Rare			Soil Description: Clayey brown to red soils					
Stones (<20cm)	Abundant								
Stones (20-60cm)	Abundant								
Boulders (60cm-2m)	Common to abundant								
Large boulders (>2m)	Rare to occasional								
Rock crevices	Common								
Exfoliating rock	Rare to occasional								
Cryptogamic crust	Absent								
Water body/wetland	Absent								
Large mature trees	Absent								
Vines	Absent								
Mistletoe	Absent								
Dense understorey	Absent								
<b>Disturbance (e.g. type, severity)</b>									
Minor landform disturbance from pipeline construction. Presence of buffel.									
<b>Animal Signs/Observations</b>									
Euro scat common, Echidna scat, Yellow-throated Miners, Raven.									
<b>Conservation Significant Fauna Signs and / or Potential Habitat</b>									
Landscape likely to provide foraging habitat for quolls, possibly rare denning opportunity. No SRE habitat likely.									
<b>Other</b>									
<b>Habitat Quality</b>									
Moderate to High									
<b>Connectivity</b> Common across landscape.									
<b>Other significant features</b>									

**APPENDIX I – DAMPIER DESALINATION PLANT – PARKER POINT  
POWER STATION POND SEDIMENT QUALITY STUDY (MSCIENCE,  
2020B)**



# Dampier Desalination Plant



18 September 2020

## Parker Point Power Station Pond Sediment Quality Study

Report to Hamersley Iron Pty Limited

From

MScience Pty Ltd  
Western Australia

# Dampier Desalination Plant

## Parker Point Power Station Pond Sediment Quality Study

### Document Information

REPORT NO.	MSA286R01
DATE	18 September 2020
CLIENT	Hamersley Iron Pty Limited
USAGE	This report is provided for use as a preliminary assessment of sediment quality within the decommissioned Parker Point Power Station pond in terms of the <i>National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013</i> (NEPM) and Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG). The current report details the results of the preliminary assessment.
KEYWORDS	Dampier, power station pond, sediment
CITATION	MScience 2020. Dampier Desalination Plant – Parker Point Power Station Pond Sediment Quality Study. Unpublished report MSA286R01 to Hamersley Iron Pty Limited, Perth Western Australia, pp47

### Version History

Version/Date	Issued as	Author	Approved
1/18.09.2020	Draft for client review	IJP	JAS

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*Acronyms and Abbreviations*

<b>Abbreviation</b>	<b>Definition</b>
Al	Aluminium
Ag	Silver
ALS	Australian Laboratory Services
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
As	Arsenic
ASS	Acid Sulphate Soils
B	Boron
Ba	Barium
Be	Beryllium
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
Cd	Cadmium
Co	Cobalt
COPC	Contaminant of Potential Concern
Cr	Chromium
Cu	Copper
DQO	Data Quality Objective
DWER	Department of Water and Environmental Regulation
EILs	Ecological Investigation Levels
Fe	Iron
Hg	Mercury
HILs	Health Investigation Levels
LOR	Limit of Reporting
NATA	National Association of Testing Authorities
NEPM	National Environment Protection (Assessment of Site Contamination) Measure
Ni	Nickel
OC/OP	Organochlorine/Organophosphorus
PP	Parker Point
PAH	Polycyclic Aromatic Hydrocarbon
Pb	Lead
PSD	Particle Size Distribution
QA/QC	Quality Assurance and Quality Control
RO	Reverse Osmosis
RTIO	Rio Tinto Iron Ore
Sb	Antimony
Se	Selenium
SQGV	Sediment Quality Guideline Value
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
UCL	Upper Confidence Limit
V	Vanadium
Zn	Zinc

## EXECUTIVE SUMMARY

Hamersley Iron Pty Limited (Hamersley, the Proponent), is undertaking an assessment of the environmental impacts of constructing and operating a reverse osmosis (RO) desalination plant at its Parker Point facility within its Dampier Operations within the Port of Dampier in Western Australia's (WA) Pilbara Region. The Proponent is a wholly owned company of Rio Tinto Iron Ore (RTIO) and the project is being managed by RTIO on behalf of the Proponent.

Hamersley propose to locate the plant's associated seawater intake and brine discharge pipes near existing port infrastructure. The seawater intake is proposed to be located at the site of the decommissioned Power Station pond (the Pond). The Pond has been partially infilled by sediments since being decommissioned and will require excavation. It is anticipated that the excavated material will be disposed to landfill. The *National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013* (NEPM 2013) provides guidance on the assessment of site contamination. In WA, contaminated sites are regulated by the Department of Water and Environmental Regulation (DWER) through the *Contaminated Sites Act 2003* and *Contaminated Sites Regulations 2006*. Material that is to be disposed to landfill should be characterised in accordance with Schedule B2 of the NEPM (2013) and classified using criteria provided in *Landfill Waste Classification and Waste Definitions 1996, as amended 2019* (DWER 2019). The assessment of sediments is not covered in detail in the NEPM, but DWER provides additional guidance specific to WA within the *Contaminated Sites Guidelines (CSG) Assessment and management of contaminated sites* (DWER 2014). The CSG suggest sediment quality should be assessed against the default sediment quality guideline values (SQGVs) provided in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG) (2018).

A study to assess the sediment quality within the decommissioned Power Station pond was undertaken to provide a preliminary view of compliance with the relevant sediment quality and contaminated site guidelines. The objective of the study was to screen for a comprehensive suite of the metals, hydrocarbons, nutrients, pesticides and herbicides recommended in the NEPM and ANZG. On the 13 August 2020, samples were collected from sediments around the edges of the Pond and subsequently assayed for relevant analytes.

When analysed for particle sizing, approximately 70-80% of the sediments from the Power Station pond reported to the coarse sand and gravel fractions (500 – 10000 µm). Sediment from sites 2 and 3 reported a higher fraction of fines with the clay and silt fraction (sediments <62 µm), comprising 45 – 50% of the sample, and the remaining fraction being represented by sand (62 – 2000 µm) and gravel. Fine to medium sand (62 – 500 µm) contributed to approximately 10 – 20% of the sample at each site.

Concentrations of most metals were relatively low. The investigation into metal and metalloid concentrations in sediments showed that 95% UCL concentrations of all sediment metals were below the available ANZG and NEPM screening guideline levels. Concentrations of iron were elevated when compared to derived SQGVs, but were consistent with previous recent assessments of sediments in the Port of Dampier (MScience 2015; MScience 2020) and are considered to be representative of ambient conditions. Assessment of 95% UCL concentrations of sediment metals against the landfill waste contaminant threshold levels (DWER 2019) indicated sediments within the Pond would be suitable for disposal in a Class III landfill facility.

Results of assays for the suite of organic compounds (TPH, PAH, BTEXN, OC/OP pesticides and phenoxyacetic acid herbicides) were below levels of detection in every sample.

The nutrient concentrations reported were generally low and similar to other studies of marine sediments in the Port of Dampier (MScience 2007; Worley Parsons 2009).

Overall, concentrations of candidate contaminants of potential concern in sediment samples collected for this study were shown to be below the default SQGVs described in the ANZG, below the ecological investigation levels and health investigation levels prescribed by the NEPM and below the contaminant threshold levels for a Class III landfill as detailed in the DWER landfill waste guidelines; noting there are no screening guidelines for some of the analytes investigated in this survey. This preliminary assessment of compliance against the relevant guidelines suggests that sediment from the edges of the decommissioned Parker Point Power Station pond would be suitable for disposal within a Class III landfill facility, however further sampling to characterise the sediment located in the middle of the pond, which was not accessed here, may be required prior to excavation and disposal. If the sediment was stockpiled on land prior to disposal at a landfill, additional sample collection may be required at the stockpile location to determine background concentrations, depending on the sensitivity of the area around the stockpile site. The decant water from the excavated material will also need to be managed if it is to be stockpiled on land prior to disposal at a Class III landfill. Excavated material will be at a seawater level of salinity with readily leachable salts, which has the potential to impact terrestrial environmental quality.

# 1 INTRODUCTION

## 1.1 Background

Hamersley Iron Pty Limited (Hamersley, the Proponent), is undertaking an assessment of the environmental impacts of constructing and operating a reverse osmosis (RO) desalination plant at its Parker Point facility within its Dampier Operations within the Port of Dampier in Western Australia's (WA) Pilbara Region. MScience Pty Ltd (MScience) have been commissioned to conduct a variety of studies to support that assessment. The Proponent is a wholly owned company of Rio Tinto Iron Ore (RTIO) and the project is being managed by RTIO on behalf of the Proponent.

Hamersley propose to locate the plant's associated seawater intake and brine discharge pipes near existing port infrastructure. The seawater intake is proposed to be located at the site of the decommissioned Power Station pond (the Pond). The Pond has been partially infilled by sediments since being decommissioned and will require excavation, it is anticipated that the excavated material will be disposed to landfill.

The *National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013* (NEPM 2013) provides guidance on the assessment of site contamination. In WA, contaminated sites are regulated by the Department of Water and Environmental Regulation (DWER) through the *Contaminated Sites Act 2003* and *Contaminated Sites Regulations 2006*. Material that is to be disposed to landfill should be characterised in accordance with Schedule B2 of the NEPM (2013) and classified using criteria provided in *Landfill Waste Classification and Waste Definitions 1996, as amended 2019* (DWER 2019). The assessment of sediments is not covered in detail in the NEPM, the DWER provides additional guidance specific to WA within the *Contaminated Sites Guidelines (CSG) Assessment and management of contaminated sites* (DWER 2014). The CSG suggest sediment quality should be assessed against the default sediment quality guideline values (SQGVs) provided in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG) (2018)*.

A study to assess the sediment quality within the decommissioned Power Station pond was undertaken to provide a preliminary view of compliance with the relevant sediment quality and contaminated site guidelines. The objective of the study was to screen for a comprehensive suite of the metals, hydrocarbons, nutrients, pesticides and herbicides recommended in the NEPM and ANZG. Sampling was conducted on 13 August 2020 and the results of subsequent analyses are described in this report.

## 1.2 Structure of this Document

The document contains:

- The methods used for sampling and analysis;
- The results of sediment assays for chemistry and particle size; and
- A discussion of the significance of the results relative to NEPM and ANZG guidelines.

The document is current as at the date on the cover page and is referenced as Version 1 (Documents with a lower version number are superseded by this document).



## 2 METHODS

### 2.1 Contaminants of Potential Concern

Testing of marine sediments for contaminants of potential concern (COPC) within the Port of Dampier has been undertaken on many occasions for dredging programs with spoil proposed for disposal at sea (MScience 2016). Sediments within Parker Point were most recently tested in July 2020 (MScience 2020) under the National Assessment Guidelines for Dredging. On the basis of past investigations of sediment chemistry within the Port of Dampier, the potential for pesticides and herbicides to be used on the land surrounding the Pond and recommendations in the NEPM (2013) and ANZG (2018), the following analytes were investigated:

- Particle Size Distribution (PSD)
- Metals (Ag, Al, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, V, Zn)
- Total Organic Carbon (TOC)
- Total Petroleum Hydrocarbons (TPH)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene (BTEXN)
- Organochlorine/Organophosphorus (OC/OP) pesticides
- Phenoxyacetic Acid Herbicides

Nutrients such as ammonium, phosphate and nitrate are generally not considered COPC, however they may become chemical stressors at high concentrations (Simpson et al. 2013), therefore their concentrations were also investigated.

The shorelines of Dampier have only minimal development of mangroves where sediments may accumulate and are generally rocky substrates (Semeniuk et al. 1982). There is no significant record of acid-generating soils at Parker Point and none are expected within the pond, therefore the presence of acid sulphate soils (ASS) was not investigated.

### 2.2 Sampling Design

The NEPM (2013) recommends that sample numbers should be based on the estimated volume of material to be disposed to landfill. Since the volume of material to be disposed was not known at the time of the study, sampling followed a spatially balanced design, where sites were randomly selected but distributed across the study area with a view to maximise the spatial independence between the sample sites. Site selection was constrained by access restrictions. At the time of the study it was not possible to access the middle of the Pond safely and all samples were collected from around its edge. Sample collection occurred at the four corners of the Pond, with an additional sample randomly collected along the Pond's edge at a more central location. The distribution of sample numbers is shown in Figure 2-1, with sampling coordinates for the 5 sites shown in Table 2-1. The sampling design was implemented on 13 August 2020.

Table 2-1. Sampling point names and locations

Site ID	Easting (GDA2020Z50)	Northing (GDA2020Z50)	Longitude (WGS84)	Latitude (WGS84)
1	470742	7716578	-20.64985316	116.71913104
2	470698	7716642	-20.64927417	116.71870972
3	470730	7716660	-20.64911202	116.71901720
4	470768	7716625	-20.64942887	116.71938141
5	470713	7716620	-20.64947319	116.71885335

## 2.3 Field Procedures

Sample collection and processing were conducted in accordance with the methods prescribed by the ANZG (2018).

### 2.3.1 Sample collection

Surface sediments (from the top 0 - 15 cm) were collected using a stainless-steel Petite Ponar Grab sampler (the Grab). To collect sediments, the Grab was manually deployed from the edge of the pond and retrieved once the bucket had closed over the substrate. Retrieval was conducted carefully to maximise retention of all sediments. Sample material in the Grab was transferred to a stainless-steel bowl, photographed and homogenised prior to being placed into a pre-labelled sample jar supplied by the laboratory. Sediments to be analysed for volatiles were collected from the centre of the Grab prior to homogenisation.

All field staff in contact with the sample material wore Nitrile gloves while transferring sample material. Before the initial deployment of the Grab and between each subsequent deployment, the Grab and all sampling equipment (e.g. sample mixing bowls, scoops) were washed with Decon 90 cleaning solution and then rinsed twice with deionised water. Representative photographs of the sediment samples are included in **Appendix A**.

### 2.3.2 Sample handling, preservation, storage and transport

Once collected into pre-labelled jars, the samples were stored in a dark cooler box with ice and were freighted on Thursday 13 August to the MScience Perth offices. Samples arrived in Perth on Monday 17 August where they received a final check before being express couriered cold the same day to the nominated laboratory with the attendant chain of custody (CoC) form. All samples reached the laboratory within nominated holding times for relevant assays.

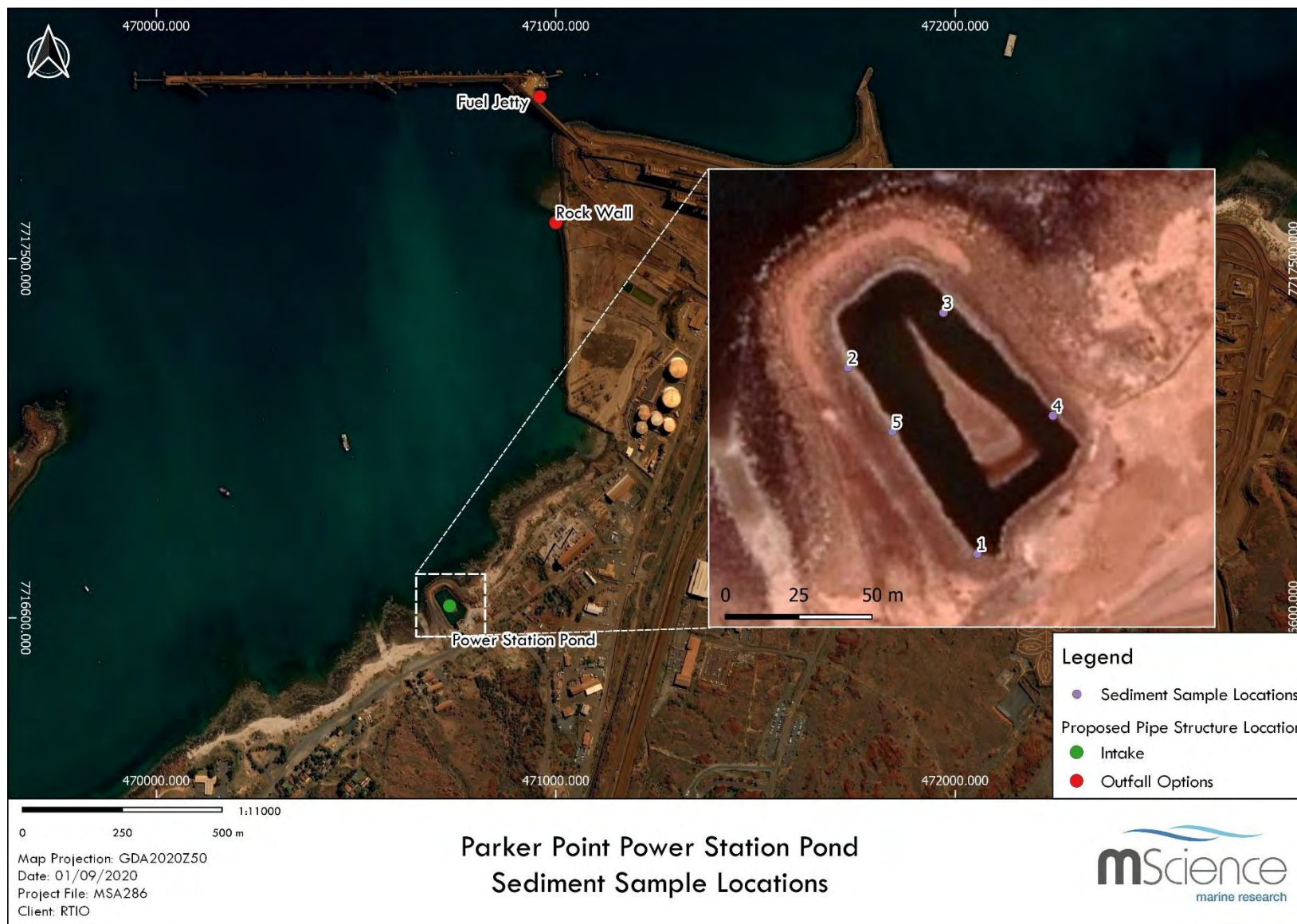


Figure 2-1. Map of sediment sample collection sites