



# Port of Derby – Derby Barge Facility Environmental Impact Assessment— Supporting Document

June 2020



# **Port of Derby – Derby Barge Facility**

## **Environmental Impact Assessment—Supporting Document**

Prepared for  
**Colonial Marine Consultants Pty Ltd**

**June 2020**

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## 1. Introduction

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The Port of Derby is located approximately 1,800 km north east of Perth in the Kimberley Region and was established in 1880 to provide general supplies from Perth for the Kimberley pastoral leases as well as facilitate the export wool and live cattle (Figure 1). The Port of Derby is vested with the Department of Transport (DoT) under the Shipping and Pilotage Act 1967 for Harbour Purposes<sup>1</sup>. In 1997 the DoT entered into a Port Operating Agreement with the Shire of Derby/West Kimberley (the Shire) to operate the port on behalf of the government.

The Shire is seeking opportunities to facilitate trade and maximise the competitive advantage of the Port of Derby. In 2014 the Shire sought Expressions of Interest (EOI) from organisations with an interest in sublease and/or management opportunities at the Port. At this time Colonial Marine Consultants Pty Ltd (CMC) submitted an EOI for the sublease of land to the north of Jetty Road and the construction and operation of a barge loading/unloading facility (Derby Barge Facility) to the north of the existing Derby Jetty (immediately north of the sublease area). In 2018 the Shire confirmed CMC's status as preferred proponent and CMC have signed a sublease agreement with the Shire for the area of the proposed development. This document has been prepared in support of an environmental referral to the Environmental Protection Authority under Section 38 of the Environmental Protection Act 1986.

## 2. Background

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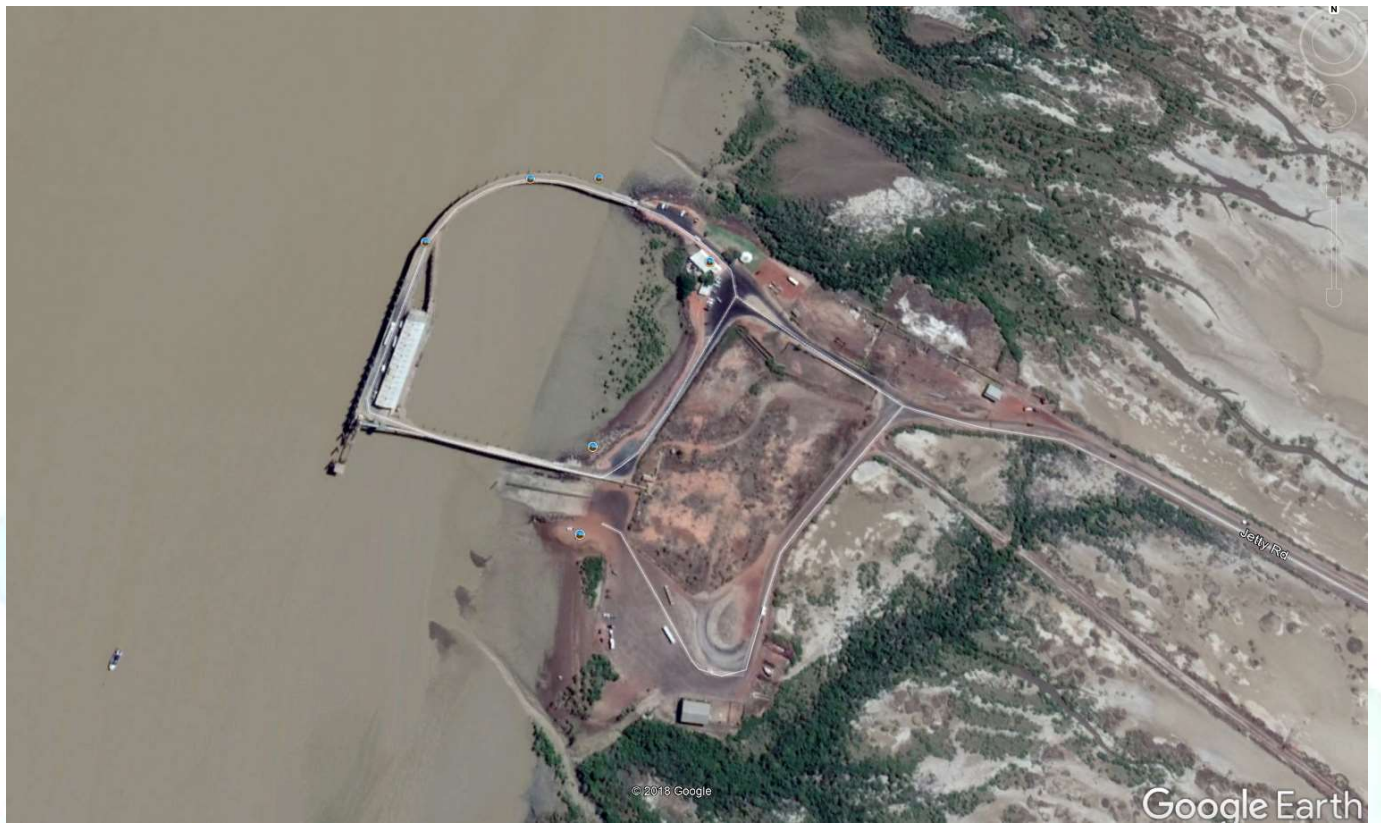
The Port of Derby is located in King Sound on Lot 325 on Plan 64512 which extends from the Derby townsite to encompass Jetty Road and the existing port infrastructure. The original Derby Jetty was constructed in 1885 and demolished and replaced in 1965 (Figure 2). Between 1947 and 1966<sup>2</sup> approximately 25,000 tonnes of high-grade zinc and lead ore were exported via Port of Derby from the Devonian Mine in the Napier Ranges which was owned and operated by the Russell family (Martinick, 1997). The ore was stockpiled to the north of Jetty Road and east of Wharf Park, immediately north of the existing western lead mark. A hardstand for the stockpile was in part constructed using low-grade lead ore (Martinick, 1997). Sampling has confirmed high concentrations of lead and zinc in the area of this hardstand, but that this contamination has not extended to adjacent areas which is consistent with the low solubilities of the ore concentrates which were stored there historically (Martinick, 1997). Until the replacement of the original Derby Jetty (1965) the area of the proposed Derby Barge Facility was used for vessel holding in the tidal creek and general laydown area (Figure 3).

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<sup>1</sup> Following Royal Assent of the Ports Legislation Amendment Bill 2017 in February 2019 the Port Authorities Act 1999 has been amended to enable the transfer of the vesting of the Port of Derby from the DoT to the Kimberley Ports Authority.

<sup>2</sup> Most of the ore was exported between 1960 and 1966





Source: Google Earth

Figure 1 Port of Derby



Source: Archival images from Public Works Department (now Department of Transport)

Figure 2 Derby Port jetty in 1963 showing the original jetty (left side of image) and the new jetty under construction





Source: enlargement of Figure 2

**Figure 3 Area of the proposed Derby Barge Facility in 1963**

Following the grounding of Stateship MV Pilbara in November 1981, the Port of Derby was closed to commercial shipping in 1982. In 1997 the Shire reached an agreement to manage and operate the Port on behalf of the Department of Transport under a Port Operating Agreement. In 1997 Western Metals Limited obtained environmental works approval for the export of zinc and lead concentrates from their Lennard Shelf lead zinc operations via the Port of Derby. This ore concentrate was loaded at the Port of Derby, then transhipped in King Sound, ~37 km offshore. Export operations via the Port of Derby ceased in 2008.

In 2007, the Department of Environmental Regulation undertook a site inspection and subsequently classified the port lands under the Contaminated Sites Act 2003 as 'Possibly Contaminated – Investigation required' on 12 September 2008. This classification was based on the presence of soil lead and zinc concentrations above the Ecological Investigation Levels (MBS Environmental, 2016). Following the preparation of a detailed site investigation, site management and site closure plan (MBS Environmental, 2009) the site was remediated between 2010 and 2011. This remediation was undertaken to satisfy the 2010 Health Investigation Levels for industrial/commercial use of 1,500 mg/kg for lead and 35,000 mg/kg for zinc. Validation sampling in 2012 identified several locations across the site where residual lead and zinc levels were still above the Ecological Investigation Levels of 600 mg/kg for lead and 200 mg/kg for zinc (MBS Environmental, 2012). The site may be considered remediated for industrial/commercial land use with minimal risk to the surrounding environment from soil contamination (MBS Environmental, 2016). However, due to the requirement for further groundwater sampling, the site remains classified as 'Possibly Contaminated – Investigation required'.

In August 2018 Sheffield Resources obtained environmental approval for storage and export of bulk mineral sands via the Port of Derby from the Thunderbird Mineral Sands Project (Ministerial Statement, 1080). These operations will be located on already disturbed land to the east of the existing Jetty which was previously used by Western Metals. It is anticipated that

these operations will require up to 40 ship loadings per year which shall be serviced via transhipment operation whereby the ships in King Sound are loaded from barges operating from the Derby Wharf. However, in February 2020 Sheffield Resources announced that it is scaling back work on the Thunderbird project while seeking potential funding partners.

In May 2018 it was reported that Warburton Group Pty Ltd Property No3 and Australian Capital Equity Infrastructure had entered discussions with the Shire to lease undeveloped land within the Port of Derby and undertake a feasibility study for a locked wharf at Derby to cater for bulk exports and military vessels (Figure 4). This development would be complimentary to the proposed CMC Derby Barge Facility. No further public information is available regarding this proposal at present.



Source: <https://www.abc.net.au/news/2019-09-23/port-development-proposed-for-derby/11520852>

**Figure 4 Concept design for port development proposed by Warburton Group and Australian Capital Equity**

Prior to early-2000, small boat access and limited barging operations at Port of Derby were undertaken from the mangrove creek to the north of the jetty (Figure 3). However, this area was exposed to the north-west from the prevailing winds and currents which caused navigational difficulties. These operations were subsequently moved to the present location, south of the jetty.

### 3. Project description

CMC has been operating in the Kimberley since 1998 and has facilities at Broome and Derby. CMC has a sublease agreement with the Shire (Port of Derby) and operate a number of vessels (Table 3.1) to transport goods and equipment from Derby to Koolan Island (for Mt Gibson mining) and to Cockatoo Island as well as occasional supplies to various operations and indigenous communities in the region. The barge loading/unloading operations in Derby are presently undertaken at the barge ramp located immediately south of the dual-lane recreational boat ramp. Typically, two to five barge loading/unloading operations occur per week; however, at the present location operation are considerably restricted and to tidal elevations from +8.5 m CD to +9.5 m CD (which provides ~15% tidal availability).

**Table 3.1 Vessels operated by CMC**



Name	Vessel	Length (m)	Beam (m)	Draft (m)
Jaya	Landing barge	45.5	10.9	3.2
Robert Ladlow	Landing barge	45.5	11.0	3.2
Yampi Sound	Landing barge	51.2	10.7	2.49
Lionfish III	Crew transfer	16.4	4.0	1.8

Due to the strong prevailing tidal currents the gravel access and barge ramp was required to be reformed with gravel prior to the arrival of each barge loading/unloading to facilitate access and operations. The prevailing currents have caused gravel to be lost from the ramp and redistributed along the shore to the south of the barge ramp. In 2019 retaining structures were constructed to minimise the loss of gravel from this ramp; however, the exposed location means that barge loading/unloading cannot be undertaken during periods of strong north-westerly winds. Barging operations and use of the carpark to the east for staging and laydown<sup>3</sup> can cause conflicts of use with public users of the adjacent recreational boat ramp. To improve the efficiency of the barging operations CMC is seeking to develop a dedicated barge facility on within the Port of Derby, immediately to the north of the Jetty where there will be no conflict with the general public and recreational boaters.

The Local Planning Strategy for the Shire of Derby/West Kimberley recognised a growing demand for a marine and industrial support facility at Derby, including the need for safe wharfage (Shire of Derby/West Kimberley, 2013). Following the 2014 EOI from the Shire, CMC was identified as the preferred applicant for the sub-lease of land to the north of Jetty Road and east of Wharf Park. It is proposed that the Derby Barge Facility will be located immediately north of this sublease area and will include a purpose-built barge loading/unloading facility, associated servicing (including fuel and water), logistic and administrative facilities.

The concept design for the Derby Barge Facility provides (Figure 5 and Table 3.2):

- Docking of three barges simultaneously
- Loading/unloading of barges and refuelling (ideally simultaneously)
- Facilities for roll-on/roll-off and lift-on/lift-off loading and unloading
- Fuel (diesel) storage (500,000–1,000,000 L)<sup>4</sup>
- Water storage (≤1,000,000 L)
- Connections to water, power and fuel
- Access and manoeuvring area to allow handing of triple road trains without reversing
- Storage and laydown areas
- Administration building and parking for facility users

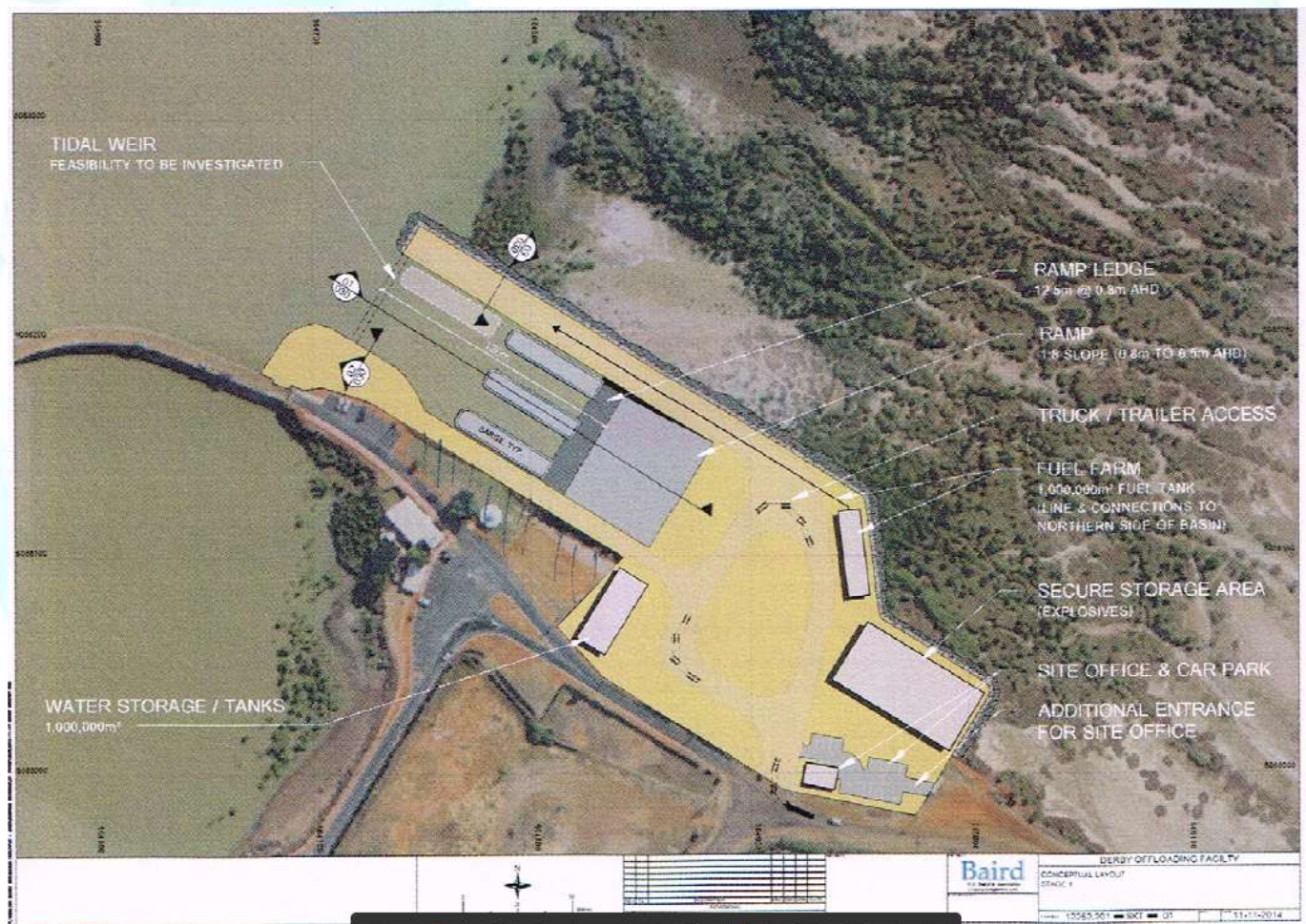
The basin will be dredged to a depth of -1.0 m Australian Height Datum (AHD) and will allow for both roll-on/roll-off and lift-on/lift-off operations which will significantly improve the tidal operation window. Land levels will be finished to +6.5 m AHD and will require approximately 35,000 m<sup>3</sup> of fill to complete the earthworks. It is anticipated that a portion of the fill shall be obtained from dredging the basin (assuming material characteristics are suitable) with the remaining clean fill sourced locally. The southern side of the facility will tie in with the existing reclamation land of Port of Derby whereas the west, north and eastern edge of the reclamation area will be stabilised with rock revetment. It is anticipated that regular barge movements during operation of the facility shall provide sufficient agitation to minimise maintenance dredging requirements.

<sup>3</sup> Mount Gibson Iron presently have a sub-lease agreement with Sheffield Resources to access land for laydown and CMC, as a supplier to MGI, have been granted access to this area

<sup>4</sup> Note - fuel storage will not be necessary if MGI and the Shire agree to the development of a fuel storage facility on land immediately east of the Sheffield Resources lease area

**Table 3.2 Key characteristics of the Derby Barge Facility**

Element	Size
Total footprint	3.5 ha (1.66 ha land reclamation and 1.84 ha harbour basin)
Basin dimensions	Length 120 m Width 90 m <sup>5</sup>
Dredging volume	30,000 m <sup>3</sup>
Basin depth	-1.0 m AHD
Fuel storage	≤1,000,000 L diesel (only required if MGI & Shire do not proceed with fuel storage facility)
Water storage	≤1,000,000 L



Source: Baird (2014)

**Figure 5 Concept design for proposed Derby Barge Facility**

<sup>5</sup> Note that the basin width has been increased from the original design of 60 m (as shown in Figure 5) to allow barge turn around inside the facility and thereby facilitate safe egress



## 4. Environmental setting

### 4.1 Metocean conditions

Derby experiences a tropical climate with warm winters and hot humid summers. The wet season extends from December to March and experiences a high level of cloud cover, humidity and thunderstorms. Mean annual rainfall is 694 mm, 88% of which falls during the wet season (BoM, 2018a). Mean monthly rainfall during the wet season ranges from 79 mm (in December) to 203 mm (February) and daily maximum temperatures range from 35 to 37°C (BoM, 2018a). During the dry season (May to October) the skies are generally clear and mean maximum temperatures range from 31 to 37°C. North-westerly winds prevail during the afternoons throughout the year and exceed 20 km/hr for 25% of the time. These winds are particularly relevant at Port of Derby as this represents the direction of the longest wave fetch length across King Sound. Derby has a reduced risk of cyclones than Broome and other coastal Pilbara towns in part due to the weakening of the cyclone as it moves away from the open coast (Derby is located in King Sound ~120 km south of the open coast). Cyclones at Derby are most frequently observed between December and March and can result in strong winds, heavy rainfall, elevated water levels and high energy waves. However, the large tides and low probability of significant strength cyclone results in a low risk of significant storm surge at Derby (BoM, 2018b). Modelling of a worst-case cyclone identified that an excess water level of 2.0 m and wave heights up to 4.5 m could be generated at Derby (Australian Port Consultants, 1983).

King Sound has an average depth of 18 m and experiences the highest tidal range in Australia (second highest in the world behind the Bay of Fundy, Canada). The tidal range at Derby reaches a maximum of 11.8 m which typically occur in late-March/early-April. Maximum tidal currents in King Sound have been measured to be 0.75 m/s but exhibit a strong asymmetry with peak flood tide velocities 25% greater than peak ebb currents (Wolanski and Spagnol, 2003). Tidal currents in restricted regions can exceed 2–3 m/s (Halpern Glick Maunsell, 1997).

### 4.2 Geology and geomorphology

Derby is located on the eastern shore of King Sound, a large gulf which opens to the Indian Ocean at the north and is approximately 150 km long and averages 50 km in width and maximum depth of 20–30 m. A series of islands (the Buccaneer Archipelago) separates King Sound from the Indian Ocean and the preferred navigable passage is via Sunday Strait. Fitzroy River, one of Australia's largest watercourses, discharge heavy sediment load into the southern end of King Sound. Other rivers which discharge into the Sound include Lennard River, Meda River, Robinson River and May River.

The Town of Derby is located on a sandplain promontory which extends across the mudflats into King Sound. This surficial geology overlies Upper Jurassic sandstone and siltstones of the Canning Basin. The Port of Derby is located on reclaimed land formed from imported fill material (Pindan soils) at the edge of the intertidal mudflats of King Sound (MBS Environmental, 2016). The Port is accessed via Jetty Road, a constructed causeway from the town.

A typical west to east traverse across the western shore of King Sound in the vicinity of Derby includes the following landforms (Semeniuk, 1982, Semeniuk and Brocx, 2011):

- Subtidal muds of King Sound
- Intertidal mudflats which include:
  - Tidal mud flats which are exposed at low tide and form an extensive fringe around King Sound
  - Fringing mangroves which occur along incised tidal creeks
  - Saline supratidal mud flats, bare of vegetation and only inundated during spring high tides (~1–5 times per month)
- Narrow fringe of samphire flats characterised by salt tolerant plants
- Pindan sands aeolian sands which form low coastal dunes up to 5 m above spring high tide level

The stratigraphy in the vicinity of the proposed Barge Wharf shows laminated mud overlying a slate grey clay with fossil mangrove fragments (Semeniuk, 1980). Offshore these units are covered with a thin veneer of modern muds which transition to a sand veneer with distance offshore.



### 4.3 Hydrology

A shallow perched saline aquifer exists across the reclaimed fill material of the Port which is controlled by tidal movements. This aquifer sits atop the highly impermeable compacted clays of the mudflats and discharge of groundwater from this perched aquifer can be seen across the shore during low tides (MBS Environmental, 2016). There are no beneficial groundwater uses on site.

### 4.4 Sediment quality

In September 2008 the port was classified under the Contaminated Sites Act 2003 as 'Possibly contaminated – investigation required' due to the presence of elevated lead and zinc concentrations associated with export of mineral concentrates. A Detailed Site Investigation and site closure plan were prepared in 2009 and the site was remediated by Rey Resources in 2010/2011 (MBS Environmental, 2016). Validation sampling in 2012 identified discrete locations where elevated lead and zinc concentrations remain. However, the risk to users and visitors was considered to be low and the site was deemed to be remediated for industrial/commercial uses, consistent with the ongoing port operations. However, the site is still classified as 'Possibly contaminated – investigation required' due to the absence of groundwater sampling (MBS Environmental, 2016).

Regional mapping has indicated that the soils of the Port of Derby are classified as having a high probability of acid sulfate soils risk but with a low or very low confidence (Australian Soil Resource Information System, 2018). Recent acid sulfate soil sampling across the port area (including a sample at the proposed Derby Wharf location) indicated that all mudflat and basement clay samples had no detectable net acidity and are not classified as acid sulfate soils (MBS Environmental, 2016). One sample of marine sediment had a positive net acidity and may be classified as Potential Acid Sulfate Soil (PASS).

Sediment sampled at the proposed site was found to be silt/clay and was analysed for a range of heavy metals<sup>6</sup>. A slight exceedance of the ANZECC (2000) Interim Sediment Quality Guideline Low (ISQG-Low) values for aquatic ecosystems for chromium (80 mg/kg) and nickel (21 mg/kg) was observed: chromium 81 mg/kg and nickel 29 mg/kg (MBS Environmental, 2016). The nickel concentrations of the silt/clay marine sediments sampled across the port area were relatively consistent (ranging between 22 and 31 mg/kg) and were observed in the basement clays and may be indicative of naturally elevated levels (MBS Environment, 2016).

### 4.5 Marine water quality

Analysis of a marine water sample obtained in the at the base of the recreational boat ramp showed no exceedances of the ANZECC (2000) ecological investigation levels with dissolved metals very low and mostly below laboratory limits of reporting, including, chromium, copper, lead, nickel and zinc (MBS Environmental, 2016). Turbidity of this sample was very high (89 mg/L) and is consistent with the very high ambient levels of suspended sediment concentrations throughout King Sound which have been observed; up to 3 kg/m<sup>3</sup> in the upper reaches of King Sound (Wolanski and Sapgnol, 2003) and 110–650 mg/L at the mouth of Doctors Creek (~12 km north of the Port) (HGM, 1997). The very high turbidity levels are the result of the strong tidal currents acting on the on extensive mudflats and river inputs.

### 4.6 Benthic habitats

In King Sound, mangrove communities have been found to be present along 84.6% of the coastline and cover an area of 373 km (Duke et al., 2010). Several surveys of mangroves in King Sound have been completed, including: Semeniuk (1980b), Bridgewater (1985), Martinick & Associates (1997), Paling (1997), HGM (1997), Duke (20060) and Biota (2011). Eleven mangrove species have been identified in King Sound, none of which are listed as conservation significant (MBS Environmental, 2017).

A mangrove community exists across the littoral zone in the vicinity of the proposed Barge Wharf site. This community is located between Mean Sea Level and Mean High Water Spring and reaches a maximum density along a small unnamed tidal creek which traverses the site. This mangrove habitat extends up to ~500 m east of the open water of King Sound and is

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<sup>6</sup> Metals analysed were: arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, vanadium, uranium and zinc

concentrated along the tidal creeks. Mapping in the vicinity of the proposed barge wharf by Paling (1997) and HGM (1997) indicated two vegetation assemblages:

- *Ceriops*/*Avicennia*/*Excoecaria*/*Osbornia*/*Aegiceras* (with occasional *Xylocarpus*) association, and
- *Avicennia* with *samphire* understory

A survey of the mangrove habitat immediately south of the proposed Barge Wharf (west of the port lease area) identified a range of mangrove species, including (Biota, 2011):

- *Avicennia marina* var. *marina* low open forest over *Tecticornia* sp. low open shrubland, and
- A fringe of denser mangroves towards the east consisting of *Avicennia marina* var. *Excoecaria agallocha* low closed forest

This survey also found most of the mangrove species where in good health and no conservation significant flora were identified. With the extreme turbidity of King Sound, it is unlikely that seagrass or coral benthic primary producer habitats are located in the vicinity of the site (Waples, 2007). Further, seabed images taken during a period of very low tides did not indicate any significant benthic primary producer habitat (MScience, 2010).

## 4.7 Conservation fauna

Online searches of the Environmental Protection and Biodiversity Conservation Act Protected Matters Search Tool (PMST) identified 29 threatened species that could potentially occur in the vicinity of the Derby Barge Facility (Appendix A):

- 11 Birds (3 critically endangered, 5 endangered, 3 vulnerable)
- 6 Mammals (1 endangered, 5 vulnerable)
- 6 reptiles (1 critically endangered, 2 endangered, 3 vulnerable)
- 6 sharks (1 endangered, 5 vulnerable)

A search of WA Museum NatureMap database (Appendix B) showed that of these threatened species only five birds, one mammal, one reptile and one shark have previously been recorded in the vicinity of the site (Table 4.1). The Protected Matters Search (Appendix A) identified 43 listed migratory species which could potentially occur in the vicinity of the proposed Derby Barge Facility. Of these two migratory marine birds, two migratory marine species, one migratory terrestrial species and seven migratory wetlands species have been observed in the area (Table 4.2, Appendix B).

**Table 4.1 Listed threatened species recorded in the vicinity of the project site**

Species	Common name	Conservation status
<b>Birds</b>		
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered
<i>Erythrura gouldiae</i>	Gouldian Finch	Endangered
<i>Limosa lapponica baueri</i>	Bar-tailed Godwit	Vulnerable
<i>Numenius madagascariensis</i>	Eastern curlew	Critically endangered
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered
<b>Mammals</b>		
<i>Macroderma gigas</i>	Ghost bat	Vulnerable
<b>Reptiles</b>		
<i>Chelonia mydas</i>	Green Turtle	Vulnerable
<b>Sharks</b>		
<i>Pristis zijsron</i>	Green Sawfish	Vulnerable

**Table 4.2 Listed migratory species recorded in the vicinity of the project site**

Species	Common name	Conservation status
<b>Migratory Marine Birds</b>		
<i>Apus pacificus</i>	Fork-tailed Swift	-
<i>Sternula albifrons</i>	Little Tern	-
<b>Migratory Marine Species</b>		
<i>Chelonia mydas</i>	Green Turtle	Vulnerable
<i>Pristis zijsron</i>	Green Sawfish	Vulnerable
<b>Migratory Terrestrial Species</b>		
<i>Hirundo rustica</i>	Barn Swallow	-
<b>Migratory Wetlands Species</b>		
<i>Actitis hypoleucos</i>	Common Sandpiper	-
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	-
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically endangered
<i>Glareola maldivarum</i>	Oriental Pratincole	-
<i>Limosa lapponica</i>	Bar-tailed Godwit	-
<i>Numenius madagascariensis</i>	Eastern Curlew	Critically endangered
<i>Tringa nebularia</i>	Common Greenshank	-

## 4.8 Heritage

A search of the Aboriginal Heritage Inquiry System found no registered sites for the Port of Derby. Similarly, no heritage sites were found to for the Port of Derby in a search of the State Heritage Office online register (InHerit).

The waters of King Sound, to the west of Port of Derby, are included in the West Kimberly National Heritage area, the boundary is located at the coastline, approximately at the western edge of the mangroves (Figure 6). This National Heritage area was gazetted in August 2011 under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and is administered by the Commonwealth Department of Agriculture, Water and the Environment. This listing provides protection for the National Heritage Values which include: geoheritage, biodiversity, indigenous, historic and aesthetic. Consequently, any action that is likely to have a significant impact on the National Heritage Values of a listed Heritage Area requires approval through the EPBC Act.

The Department of Agriculture, Water and the Environment has developed the *EPBC Act Draft Referral Guidelines for the West Kimberley National Heritage Place* to assist in determining the need for referral of a project. These guidelines include a map of the individual values of the West Kimberley National Heritage Place which shows that no values have been mapped in the area of King Sound adjacent to the proposed barge wharf. Furthermore, the guidelines define six Protection Level zones and a range of proposed activities. The West Kimberley National Heritage area adjacent to the proposed Derby Barge Facility has not been given a Protection Level and it may be assumed that this area of King Sound has a low sensitivity to disturbance of the National Heritage Values. If it is conservatively assumed that a Protection Level of 1 applies to this area, then the guidelines note that construction of a wharf and land clearance are activities with a low risk of having a significant impact and the project may not require referral under the EPBC Act.





Source: nationalmap.gov.au

**Figure 6 Boundary of West Kimberley National Heritage area (purple) and Lot 325 (yellow line) at the Port of Derby**

## 5. Stakeholder consultation

CMC has consulted with a range of Stakeholders regarding this project, including:

- Department of Transport
- Shire of Derby West Kimberley
- Winun Ngari Aboriginal Corporation
- Dambimangari Aboriginal Corporation
- Mount Gibson Iron
- Sheffield Resources
- Port Users including Cone Bay Fisheries
- Derby Chamber of Commerce

All stakeholders have been supportive of the proposed Derby barge loading facility and CMC has received formal letters of support from both the Winun Ngari Aboriginal Corporation and the Dambimangari Aboriginal Corporation (Appendix C). The Shire has indicated its support by granting a sub-lease to areas referred to as Sublease Area 1 and Sublease Area 2 which form a large portion of the land base development area for this proposal. Mt Gibson Iron are supportive of the proposal and recognise the value of separating the commercial activity and traffic from the popular public recreational boat ramp and fishing beach. Informal discussions have taken place with the Warbuton Group, and its design team. These discussions

suggest that the two projects could co-exist as each caters to a different market (the Derby Barge Facility is targeted towards supply of local inshore facilities and resource projects whereas Warburton's proposal is intended to address offshore and export markets).

Sheffield Resources are supportive of the project and Mount Gibson Iron (MGI) has negotiated a short-term sublease of a small portion of land within Sheffield Resources lease area. MGI have provided CMC access to this area improve the safety of CMC's present operations at the existing barge ramp by minimising the use of the public car-trailer parking area. However, this sublease arrangement will only continue until such time as the Sheffield Resources project proceeds.

## 6. Environmental impacts and management

A summary of the potential impacts and proposed management of the Derby Barge Facility for each of the Environmental Protection Authority's (EPA's) environmental factors and environmental objectives (Table 3) indicates that the proposed works may potentially impact on the following key environmental factors:

- Benthic communities and habitat
- Marine environmental quality
- Marine fauna

The potential impacts and proposed management measures for these factors are outlined below.

### 6.1 Benthic communities and habitat

The EPA's environmental objective for benthic communities and habitats is to protect benthic communities and habitats so that biological diversity and ecological integrity are maintained (EPA, 2016a).

The proposed Derby Barge Facility has a total footprint of 3.5 ha<sup>7</sup>, which includes cleared areas, areas bare of vegetation and mangroves. The location requires direct access to King Sound and has been chosen to be contiguous with the existing development envelop of the Port of Derby. A preliminary assessment of the vegetation coverage at the site suggests that approximately 50% of the total footprint consists of mangrove community which equates to a loss of 1.75 ha. The existing mangrove community coverage within the Derby Local Assessment Unit (LAU)<sup>8</sup> is 294 ha (Biota, 2011). Hence, the proposed Derby Barge Facility could result in the loss of approximately 0.6% of mangroves within this LAU. Furthermore, the existing mangrove community in King Sound is highly dynamic and several studies have suggested mangrove habitat may be increasing over time as sediment continues to accrete in King Sound (Paling, 1997; Wolanski and Spagnol, 2003, Shire of Derby/West Kimberley, 2017). Whilst the mangrove community provides benthic habitat for a variety of marine fauna species the small losses predicted are not considered to represent a significant risk to the ecological integrity and biological diversity of this benthic community and habitat.

Prior to undertaking the works a vegetation survey shall be completed to document the existing coverage and assess the loss of mangroves consistent with the EPA's technical guidance for the protection of benthic communities and habitats (EPA, 2016b). This vegetation survey shall be used to support an application to the Department for Water and Environmental Regulation for a Native Vegetation Clearing Permit. Weed control and management protocols shall be implemented during both construction and operation to prevent the spread of introduced species.

### 6.2 Marine environmental quality

The EPA's environmental objection for marine environmental quality is to maintain the quality of water, sediment and biota so that environmental values are protected (EPA, 2016c).

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<sup>7</sup> Based on concept design shown in Figure 5; further design review has widened the basin with from 60 m to 90 m and the footprint will therefore extend ~30 m northward into an area largely bare of vegetation

<sup>8</sup> The Derby Local Assessment Unit was defined by Biota (2011) and extends ~7 km north and ~4 km south of the proposed facility and covers an area of ~50 km<sup>2</sup>



The construction and operation of the Derby Barge Facility has the potential to impact on the marine environmental quality via the following activities:

- Hydrocarbon spill, or other waste discharge, during both construction and operation. This risk is considered low and inherent in all operating port facilities
- Generation of acid sulphate soils during construction
- Release of sediment contaminants during construction
- Leaching of contaminants from imported fill

Construction, and maintenance dredging, of the basin will result in turbidity generation. However, in the context of the extremely high ambient turbidity levels in King Sound it is considered that this will not have a significant environmental impact.

Nonetheless, it is proposed that the following measures be undertaken to minimise risks to the marine environment arising from these works:

- Sediment sampling shall be undertaken prior to construction (in conjunction with a geotechnical survey required to inform the detailed design) to further assess the risk of generating acid sulfate soils and/or the release of contaminants during the construction works. Depending on the outcome of this sampling, an acid sulfate soil management plan and/or a site management plan may be prepared to ensure any risks are minimised or mitigated
- All imported fill and rock material shall be sourced from appropriately licenced facilities. Prior to the delivery of this material to site, the available information shall be reviewed, and sampling shall be completed if required, to demonstrate that this material is free of contaminants of concern
- All waste shall be managed appropriately during construction and all site personnel shall be briefed on waste management procedures
- During construction visual monitoring of water quality shall be undertaken which will include the use of field sketches and photography to document the extent of any visual plume
- Standard operating procedures will apply for all refuelling activities. During construction all marine-based plant shall be refuelled at the existing designated Port of Derby vessel fuelling facility. Where practicable, all land-based construction plant will not be refuelled on or adjacent to waterways
- Following construction, the refuelling facilities will be installed and operated consistent with the requirements of the Port of Derby and the Department of Transport's Fuel Dispensing to Vessels Guidelines
- All construction management measures shall be documented in a Construction Environmental Management Plan (CEMP)
- Wherever relevant and practicable, the operation of the Derby Barge Facility will be undertaken consistent with the Preliminary Port Environmental Management Plan which has recently been prepared to support the Thunderbird Mineral Sands project (MBS Environmental, 2017)

## 6.3 Marine fauna

The EPA's environmental objective for marine fauna is to protect marine fauna so that biological diversity and ecological integrity are maintained (EPA, 2016d).

Construction of the Derby Barge Facility has the potential to impact conservation significant marine fauna, in particular cetaceans which are sensitive to underwater noise. The Irrawaddy dolphin (*Orcaella brevirostris*) is a listed migratory species under the EPBC Act 1999 which has been observed in the vicinity of Derby Port (Section 4.7).

Installation of the sheet piling and piles within the basin of the Derby Barge Facility could cause significant underwater noise if impact driving methods are used. Impact pile driving, where the sheet/pile is driven into the ground using a hydraulic ram, causes an impulsive underwater noise which will vary in strength depending on the size, shape, length of the sheet/pile, weight and drop height of the hammer, seabed material and water depth (Department of Planning, Transport and Infrastructure, 2012).

Further geotechnical information shall be obtained to inform the detailed design and construction methods. However, this assessment of underwater noise impacts and proposed management assumes the use of impact driving methods. The energy propagation of underwater noise reduces logarithmically with distance from the source and the receiver. In addition to the direct path, underwater sound will also be reflected, absorbed, scattered and refracted from structures and the seabed and water surface. Noise may also be propagated through the air and seabed. Due to transmission losses arising within the Wharf basin and seabed it is anticipated that there will be a significant reduction in the underwater noise energy which propagates beyond the mouth of the basin. It is also expected that any marine mammals offshore of the basin will naturally exhibit avoidance behaviour which would avert the animal from approaching close enough to the pile driving operations to cause noise-induced hearing injury.

Nonetheless, to mitigate impacts from underwater noise generated by impact pile driving, particularly for any marine mammals which may be located within the basin prior to commencement of the operations, the following management actions will be implemented:

- Timing: All impact piling works will be undertaken during daylight hours
- Marine Mammal Observer (MMO): A dedicated, and suitably trained MMO, will be present during all impact piling activity.
- Pre-start survey: The MMO shall undertake a pre-start visual survey for 15 minutes to ensure no marine mammals are observed within the basin or adjacent waters prior to the commencement of piling works
- Soft-start procedure: At the commencement of pile driving the impacts will be gradually increased over a period of several minutes
- Stop work: If during the impact driving works marine mammals are observed within 500 m of the basin then all piling works will be suspended as soon and as safely possible. Impact piling may recommence, with soft-start procedure, immediately after the marine mammals have been observed to exit the Marina; or after 15 minutes have passed since last sighting of a marine mammal in the Marina.

Marine pests may be introduced via ballast water discharge and/or hull biofouling. Dredge plant and supply vessels are both considered high risk for the introduction of marine pests. To mitigate these risks the facility and vessels shall be operated consistent with the following guidelines:

- National System for the Prevention and Management of Marine Pests and Incursions
- Australian Ballast Water Management Requirements (version 7)
- National biofouling management guidelines

**Table 3 Summary of environmental factors, objectives and proposed management**

Theme	Environmental Factor	Environmental Objective	Potential Impact	Proposed Management	Likely Significance of Impact
Water	Benthic Communities and Habitats	To protect benthic communities and habitat so that biological diversity and ecological integrity are maintained	Loss of ~2.75 ha mangrove due to construction footprint	Vegetation mapping and native vegetation clearing permit application	Meets EPA's objective with applied management
	Coastal Processes	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected	No significant interruption to coastal processes anticipated. Minor sedimentation likely to occur within the harbour requiring occasional maintenance dredging	Occasional maintenance dredging	Meets EPA objective
	Marine Environmental Quality	To maintain the quality of water, sediment and biota so that environmental values are protected	Potential impacts on water quality from: <ul style="list-style-type: none"> <li>Hydrocarbon spill, or other waste discharge, during construction or operation</li> <li>Generation of acid sulphate soils during construction</li> <li>Release of sediment contaminants during construction</li> <li>Leaching of contaminants from imported fill</li> <li>Leaching of contaminants from imported fill material</li> </ul>	<ul style="list-style-type: none"> <li>Controlled refuelling of construction plant</li> <li>Standard operation procedures for refuelling</li> <li>Spill and waste management procedures and equipment on site</li> <li>Site inductions and waste management procedures</li> <li>Sediment sampling to inform site handling of any acid sulfate soil and/or contaminants if any identified</li> <li>Use only clean fill and rock materials</li> <li>Visual monitoring water quality during construction</li> <li>Operation of Barge Wharf consistent with port management plan</li> </ul>	Meets EPA's objective with applied management
	Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained	Potential noise impact associated with piling works	Management measures during impact-driving operations will include: pre-start survey, safety zones, marine mammal observer and soft start procedures. Marine pest management consistent with national guidelines.	Meets EPA's objective with applied management

Theme	Environmental Factor	Environmental Objective	Potential Impact	Proposed Management	Likely Significance of Impact
Land	Flora and Vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained	No terrestrial flora and vegetation will be impacted by the works	See management measures to protect benthic communities and habitats	Meets EPA objective
	Landforms	To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected	The project is not anticipated to impact landforms	No management required	Meets EPA objective
	Subterranean Fauna	To protect subterranean fauna so that biological diversity and ecological integrity are maintained	The project is not anticipated to impact subterranean fauna	No management required	Meets EPA objective
	Terrestrial Environmental Quality	To maintain the quality of land and soils so that environmental values are protected	The project is not anticipated to impact terrestrial environmental quality	The management measures adopted for marine environmental quality will also protect the EPA's terrestrial environmental quality objective	Meets EPA objective
	Terrestrial Fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained	The project footprint is located in the intertidal zone and is therefore not anticipated to impact terrestrial fauna	No management required	Meets EPA objective
Water	Inland Waters	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected	The project is located in the intertidal zone	Ensure any residual tidal flows are directed towards tidal creek to the north of the project area.	Meets EPA's objective
Air	Air Quality	To maintain air quality and minimise emissions so that environmental values are protected	The project is not anticipated to impact air quality	No management required	Meets EPA objective
People	Human Health	To protect human health from significant harm	The project is not anticipated to impact human health	No management required	Meets EPA objective
	Social Surrounds	To protect social surroundings from significant harm	Potential impact on port users during construction period arising from construction activities	Management measures will be documented in a Construction Environmental Management plan which shall include traffic, dust and noise management. Operations will be consistent with port operations plan	Meets EPA's objective

## 7. Construction environmental management plan

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Prior to undertaking the works a Construction Environmental management Plan (CEMP) shall be developed. The CEMP shall be prepared in conjunction with the construction contractor (yet to be appointed) and shall address the following elements:

- Acid sulfate soil management (if required)
- Contaminated sediment management (if required)
- Construction environmental monitoring
- Site inductions
- Waste management protocols
- Refuelling and hydrocarbon spill procedures
- Marine mammal management procedure for impact driving works
- Introduced marine pest management procedures
- Traffic management plan
- Dust management
- Noise management

Following construction, an Operation Environmental Management Plan shall be prepared for the facility consistent with the Preliminary Port Environmental Management Plan (MBS Environment, 2017).



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## Appendix A

### EPBC Protected Matters report



# 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.

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# 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>	43

## 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>	75
<a href="#">Whales and Other Cetaceans:</a>	11
<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>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	12
<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
Natural		
<a href="#">The West Kimberley</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 may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Erythrura gouldiae</a> Gouldian Finch [413]	Endangered	Species or species habitat may occur within area
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely 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="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Papasula abbotti</a> Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Polytelis alexandrae</a> Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<a href="#">Tyto novaehollandiae kimberli</a> Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area
Mammals		
<a href="#">Dasyurus hallucatus</a> Northern Quoll, Digul [Gogo-Yimidir], Wijingadda	Endangered	Species or species

Name	Status	Type of Presence
[Dambimangari], Wiminji [Martu] [331]		habitat may occur within area
<a href="#">Macroderma gigas</a> Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Macrotis lagotis</a> Greater Bilby [282]	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="#">Saccolaimus saccolaimus nudicluniatus</a> Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat may occur within area
<a href="#">Xeromys myoides</a> Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area

Reptiles		
<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 likely 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 likely to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Sharks		
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Glyphis garricki</a> Northern River Shark, New Guinea River Shark [82454]	Endangered	Breeding likely to occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
<a href="#">Pristis pristis</a> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within

Name	Threatened	Type of Presence
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		area  Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat may occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
<a href="#">Sternula albifrons</a> Little Tern [82849]		Species or species habitat may occur within area
Migratory Marine Species		
<a href="#">Anoxypristis cuspidata</a> Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">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 likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Crocodylus porosus</a> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely 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 likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding likely 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 may 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 may occur within area
<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="#">Orcaella heinsohni</a> Australian Snubfin    Dolphin [81322]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<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	Breeding known to occur within area
<a href="#">Pristis pristis</a> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely 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]		Foraging, feeding or related behaviour 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 likely to occur within area
Migratory Terrestrial Species		
<a href="#">Cecropis daurica</a> Red-rumped Swallow [80610]		Species or species habitat may occur within area
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat known to 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 known to occur within area
Migratory Wetlands Species		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area



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

Other Matters Protected by the EPBC Act

Commonwealth Land	[ <a href="#">Resource Information</a> ]
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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 - NORFORCE DEPOT - DERBY

Listed Marine Species	[ <a href="#">Resource Information</a> ]
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\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
<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="#">Anseranas semipalmata</a> Magpie Goose [978]		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="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
<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 known to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat may 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 may occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Hirundo daurica</a> Red-rumped Swallow [59480]		Species or species habitat may occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		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="#">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 known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Papasula abbotti</a> Abbott's Booby [59297]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Sterna albifrons</a> Little Tern [813]		Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Fish		
<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="#">Corythoichthys flavofasciatus</a> Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
<a href="#">Doryrhamphus excisus</a> Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		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="#">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 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

Name	Threatened	Type of Presence
<a href="#">Hippocampus spinosissimus</a> Hedgehog Seahorse [66239]		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
Mammals		
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat likely to occur within area
Reptiles		
<a href="#">Acalyptophis peronii</a> Horned Seasnake [1114]		Species or species habitat may occur within area
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Aipysurus duboisii</a> Dubois' Seasnake [1116]		Species or species habitat may occur within area
<a href="#">Aipysurus eydouxii</a> Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
<a href="#">Aipysurus laevis</a> Olive Seasnake [1120]		Species or species habitat may occur within area
<a href="#">Astrotia stokesii</a> Stokes' Seasnake [1122]		Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<a href="#">Crocodylus johnstoni</a> Freshwater Crocodile, Johnston's Crocodile, Johnston's River Crocodile [1773]		Species or species habitat may occur within area



Name	Threatened	Type of Presence
<a href="#">Crocodylus porosus</a> Salt-water Crocodile, Estuarine Crocodile [1774]	Endangered	Species or species habitat likely to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]		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="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
<a href="#">Hydrelaps darwiniensis</a> Black-ringed Seasnake [1100]		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="#">Lapemis hardwickii</a> Spine-bellied Seasnake [1113]	Vulnerable	Species or species habitat may occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]		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		
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]	Vulnerable	Species or species habitat may 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]		Species or species habitat known to occur within area
<a href="#">Orcaella brevirostris</a> Irrawaddy Dolphin [45]		Species or species habitat may occur within area

Name	Status	Type of Presence
<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]		Foraging, feeding or related behaviour 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 likely to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

## Extra Information

Invasive Species

[ [Resource Information](#) ]

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat may occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		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
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area

Name	Status	Type of Presence
Cylindropuntia spp. Prickly Pears [85131]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat may occur within area

# Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

# Coordinates

-17.29076 123.60879



# 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**

### **WA NatureMap database report**

# NatureMap Species Report

Created By Guest user on 26/06/2020

Current Names Only Yes  
Core Datasets Only Yes  
Method 'By Circle'  
Centre 123° 36' 34" E, 17° 17' 29" S  
Buffer 5km  
Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	437	3406
Priority 2	1	1
Priority 4	2	9
Protected under international agreement	26	225
Rare or likely to become extinct	9	56
<b>TOTAL</b>	<b>475</b>	<b>3697</b>

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
<b>Rare or likely to become extinct</b>				
1.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
2.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
3.	25576 <i>Charadrius mongolus</i> (Lesser Sand Plover)		T	
4.	25336 <i>Chelonia mydas</i> (Green Turtle)		T	
5.	24473 <i>Falco hypoleucos</i> (Grey Falcon)		T	
6.	24180 <i>Macroderma gigas</i> (Ghost Bat)		T	
7.	24542 <i>Malurus coronatus</i> subsp. <i>coronatus</i> (Purple-crowned Fairy-wren (western))		T	
8.	24798 <i>Numenius madagascariensis</i> (Eastern Curlew)		T	
9.	48237 <i>Rostratula australis</i> (Australian Painted Snipe)		T	
<b>Protected under international agreement</b>				
10.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
11.	24334 <i>Apus pacificus</i> subsp. <i>pacificus</i> (Fork-tailed Swift, Pacific Swift)		IA	
12.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
13.	24780 <i>Calidris alba</i> (Sanderling)		IA	
14.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
15.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
16.	41332 <i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
17.	24792 <i>Gallinago megala</i> (Swinhoe's Snipe)		IA	
18.	24793 <i>Gallinago stenura</i> (Pin-tailed Snipe)		IA	
19.	47954 <i>Gelochelidon nilotica</i> (Gull-billed Tern)		IA	
20.	24481 <i>Glaucopis maldivarum</i> (Oriental Pratincole)		IA	
21.	25630 <i>Hirundo rustica</i> (Barn Swallow)		IA	
22.	48587 <i>Hydroprogne caspia</i> (Caspian Tern)		IA	
23.	30932 <i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
24.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	
25.	24799 <i>Numenius minutus</i> (Little Curlew, Little Whimbrel)		IA	
26.	25742 <i>Numenius phaeopus</i> (Whimbrel)		IA	
27.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
28.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
29.	24382 <i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
30.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
31.	48593 <i>Sternula albifrons</i> (Little Tern)		IA	
32.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
33.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
34.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
35.	41351 <i>Xenus cinereus</i> (Terek Sandpiper)		IA	
<b>Priority 2</b>				
36.	24178 <i>Hipposideros stenotis</i> (Northern Leaf-nosed bat)		P2	
<b>Priority 4</b>				
37.	24632 <i>Erythrura gouldiae</i> (Gouldian Finch)		P4	

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
38.	24803 <i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	
<b>Non-conservation taxon</b>				
39.	16979 <i>Abrus precatorius</i> subsp. <i>precatorius</i>			
40.	4901 <i>Abutilon otocarpum</i> (Desert Chinese Lantern)			
41.	13403 <i>Acacia colei</i>			
42.	3447 <i>Acacia monticola</i> (Gawar, Lilwardi)			
43.	3491 <i>Acacia platycarpa</i> (Pindan Wattle)			
44.	19641 <i>Acacia tumida</i> var. <i>tumida</i>			
45.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
46.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
47.	2645 <i>Achyranthes aspera</i> (Chaff Flower)			
48.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
49.	4995 <i>Adansonia gregorii</i> (Boab, Djungeri)			
50.	6486 <i>Aegialitis annulata</i> (Club Mangrove)			
51.	6478 <i>Aegiceras corniculatum</i> (River Mangrove)			
52.	25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar)			
53.	24300 <i>Aegotheles cristatus</i> subsp. <i>leucogaster</i> (Australian Owlet-nightjar)			
54.	2646 <i>Aerva javanica</i> (Kapok Bush)	Y		
55.	3680 <i>Aeschynomene indica</i> (Budda Pea)			
56.	2653 <i>Alternanthera pungens</i> (Khaki Weed)	Y		
57.	42372 <i>Amalosia rhombifer</i> (Zigzag velvet gecko)			
58.	<i>Amaurornis cinerea</i>			
59.	13700 <i>Amyema bifurcata</i>			
60.	2386 <i>Amyema thalassia</i>			
61.	24312 <i>Anas gracilis</i> (Grey Teal)			
62.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
63.	<i>Anodontiglanis dahli</i>			Y
64.	24317 <i>Anseranas semipalmata</i> (Magpie Goose, Pied Goose)			
65.	24719 <i>Aprosmictus erythropterus</i> (Red-winged Parrot)			
66.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
67.	25559 <i>Ardea intermedia</i> (Intermediate Egret)			
68.	41324 <i>Ardea modesta</i> (great egret, white egret)			
69.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
70.	24344 <i>Ardea sumatrana</i> (Great-billed Heron)			
71.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
72.	211 <i>Aristida hygrometrica</i> (Northern Kerosene Grass)			
73.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
74.	25567 <i>Artamus leucorhynchus</i> (White-breasted Woodswallow)			
75.	24354 <i>Artamus leucorhynchus</i> subsp. <i>leucopygialis</i> (White-breasted Woodswallow)			
76.	24355 <i>Artamus minor</i> (Little Woodswallow)			
77.	24356 <i>Artamus personatus</i> (Masked Woodswallow)			
78.	25320 <i>Aspidites melanocephalus</i> (Black-headed Python)			
79.	41725 <i>Asystasia gangetica</i> subsp. <i>gangetica</i>	Y		
80.	6828 <i>Avicennia marina</i> (White Mangrove)			
81.	24318 <i>Aythya australis</i> (Hardhead)			
82.	1743 <i>Batis argillicola</i>			
83.	12757 <i>Bauhinia cunninghamii</i>			
84.	<i>Bipolaris indica</i>			
85.	2772 <i>Boerhavia gardneri</i>			
86.	<i>Boleophthalmus caeruleomaculatus</i>			
87.	6605 <i>Bonamia linearis</i>			
88.	6606 <i>Bonamia media</i>			
89.	6608 <i>Bonamia pannosa</i>			
90.	13010 <i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>			
91.	25334 <i>Brachyuropis roperi</i> (Northern Shovel-nosed Snake)			
92.	5291 <i>Bruguiera exaristata</i> (Ribbed Mangrove)			
93.	7048 <i>Buchnera ramosissima</i> (Blackrod)			
94.	750 <i>Bulbostylis barbata</i>			
95.	24359 <i>Burhinus grallarius</i> (Bush Stone-curler)			
96.	47897 <i>Butorides striata</i> (Striated Heron, Mangrove Heron)			
97.	25713 <i>Cacatua galerita</i> (Sulphur-crested Cockatoo)			
98.	24726 <i>Cacatua roseicapilla</i> subsp. <i>roseicapilla</i> (Galah)			
99.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
100.	24728 <i>Cacatua sanguinea</i> subsp. <i>sanguinea</i> (Little Corella)			
101.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
102.	14925 <i>Calotropis gigantea</i>	Y		
103.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
104.	2976 <i>Capparis lasiantha</i> (Split Jack, Balqarda)			
105.	2982 <i>Capparis umbonata</i> (Wild Orange, Nanggalu)			
106.	6567 <i>Carissa lanceolata</i> (Conkerberry, Marnuwiji)			



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107.	257 <i>Cenchrus biflorus</i> (Gallon's Curse)	Y		
108.	258 <i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
109.	41562 <i>Cenchrus pedicellatus</i> subsp. <i>unispiculus</i>	Y		
110.	25600 <i>Centropus phasianinus</i> (Pheasant Coucal)			
111.	30884 <i>Centropus phasianinus</i> subsp. <i>phasianinus</i> (Pheasant Coucal)			
112.	24181 <i>Chaerephon jobensis</i> (Greater Northern Freetail-bat, Northern Mastiff Bat)			
113.	20064 <i>Chamaecrista rotundifolia</i>	Y		
114.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
115.	24862 <i>Chelosania brunnea</i> (Chameleon Dragon)			
116.	24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
117.	24863 <i>Chlamydosaurus kingii</i> (Frill-necked Lizard)			
118.	266 <i>Chloris barbata</i> (Purpletop Chloris)	Y		
119.	267 <i>Chloris gayana</i> (Rhodes Grass)	Y		
120.	38768 <i>Chlorophyllum molybdites</i>			
121.	<i>Chroicocephalus novaehollandiae</i>			
122.	24433 <i>Chrysococcyx minutillus</i> subsp. <i>minutillus</i> (Little Bronze Cuckoo)			
123.	275 <i>Chrysopogon pallidus</i> (Ribbongrass)			
124.	24288 <i>Circus approximans</i> (Swamp Harrier)			
125.	24289 <i>Circus assimilis</i> (Spotted Harrier)			
126.	24565 <i>Cissomela pectoralis</i> (Banded Honeyeater)			
127.	25756 <i>Cisticola exilis</i> (Golden-headed Cisticola)			
128.	24835 <i>Cisticola exilis</i> subsp. <i>exilis</i> (Golden-headed Cisticola)			
129.	11886 <i>Cleome tetrandra</i> var. <i>tetrandra</i>			
130.	2988 <i>Cleome viscosa</i> (Tickweed, Tjinduwadhu)			
131.	5214 <i>Cochlospermum fraseri</i> (Kapok Bush, Malindjarr)			
132.	25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
133.	24399 <i>Columba livia</i> (Domestic Pigeon)	Y		
134.	24566 <i>Conopophila rufogularis</i> (Rufous-throated Honeyeater)			
135.	25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
136.	25569 <i>Coracina papuensis</i> (White-bellied Cuckoo-shrike, Little Cuckoo-shrike)			
137.	4861 <i>Corchorus olitorius</i> (Jute)	Y		
138.	18415 <i>Corchorus sidoides</i> subsp. <i>sidoides</i>			
139.	4865 <i>Corchorus tridens</i>			
140.	24416 <i>Corvus bennetti</i> (Little Crow)			
141.	25593 <i>Corvus orru</i> (Torresian Crow)			
142.	16788 <i>Corymbia bella</i>			
143.	14650 <i>Corymbia flavescens</i>			
144.	17089 <i>Corymbia greeniana</i>			
145.	17100 <i>Corymbia polycarpa</i>			
146.	17084 <i>Corymbia zygophylla</i>			
147.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
148.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
149.	25595 <i>Cracticus tibicen</i> (Australian Magpie)			
150.	25596 <i>Cracticus torquatus</i> (Grey Butcherbird)			
151.	19565 <i>Cressa australis</i>			
152.	39005 <i>Cribraria rufa</i>			
153.	<i>Crossopriza lyoni</i>			
154.	13466 <i>Crotalaria brevis</i>			
155.	18218 <i>Crotalaria mysorensis</i>			
156.	42383 <i>Cryptoblepharus metallicus</i>			
157.	30891 <i>Cryptoblepharus tythos</i>			
158.	12683 <i>Cryptostegia madagascariensis</i>	Y		
159.	25064 <i>Ctenotus pantherinus</i> subsp. <i>ocellifer</i> (Leopard Ctenotus)			
160.	25073 <i>Ctenotus saxatilis</i> (Rock Ctenotus)			
161.	25077 <i>Ctenotus serventyi</i>			
162.	84 <i>Cycas pruinosa</i> (Argyle Cycad)			
163.	25371 <i>Cyclorana australis</i> (Giant Frog)			
164.	280 <i>Cymbopogon bombycinus</i> (Silky Oilgrass)			
165.	<i>Cymbopogon citratus</i>			
166.	283 <i>Cynodon dactylon</i> (Couch)	Y		
167.	776 <i>Cyperus brevifolius</i> (Kyllinga Weed)	Y		
168.	777 <i>Cyperus bulbosus</i> (Bush Onion, Tjanmata)			
169.	781 <i>Cyperus compressus</i>	Y		
170.	784 <i>Cyperus conicus</i>			
171.	810 <i>Cyperus rotundus</i> (Nut Grass)	Y		
172.	814 <i>Cyperus squarrosus</i>			
173.	25547 <i>Dacelo leachii</i> (Blue-winged Kookaburra)			
174.	24304 <i>Dacelo leachii</i> subsp. <i>leachii</i> (Blue-winged Kookaburra)			
175.	290 <i>Dactyloctenium radulans</i> (Button Grass)			
176.	24605 <i>Daphoenositta chrysoptera</i> subsp. <i>leucoptera</i> (Varied Sittella, White-winged Sittella)			

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177.	10823	<i>Datura innoxia</i>	Y		
178.	42390	<i>Demansia angusticeps</i>			
179.	25294	<i>Demansia papuensis</i> (Great Black Whipsnake)			
180.	25295	<i>Demansia psammophis</i> subsp. <i>cupreiceps</i> (Yellow-faced Whipsnake)			
181.	24324	<i>Dendrocygna arcuata</i> (Wandering Whistling Duck, Chestnut Whistling Duck)			
182.	24325	<i>Dendrocygna eytoni</i> (Plumed Whistling Duck)			
183.	11407	<i>Dendrophthoe acacioides</i> subsp. <i>acacioides</i>			
184.	25607	<i>Dicaeum hirundinaceum</i> (Mistletoebird)			
185.	303	<i>Dichanthium fecundum</i> (Curly Bluegrass)			
186.	7166	<i>Dicliptera armata</i>			
187.	309	<i>Digitaria bicornis</i> (Finger Grass)			
188.	314	<i>Digitaria didactyla</i> (Queensland Blue Couch)	Y		
189.	24926	<i>Diplodactylus conspicillatus</i> (Fat-tailed Gecko)			
190.	24896	<i>Diporiphora pindan</i> (Pindan Dragon)			
191.		<i>Doryichthys deokhatoides</i> ?			Y
192.		<i>Egretta garzetta</i>			
193.		<i>Egretta novaehollandiae</i>			
194.		<i>Egretta picata</i>			
195.	14301	<i>Ehretia saligna</i> var. <i>saligna</i>			
196.		<i>Elanus axillaris</i>			
197.	353	<i>Eleusine indica</i> (Crowsfoot Grass)	Y		
198.	47937	<i>Elseymornis melanops</i> (Black-fronted Dotterel)			
199.		<i>Entomyzon cyanotis</i>			
200.		<i>Eolophus roseicapillus</i>			
201.	24653	<i>Eopsaltria pulverulenta</i> (Mangrove Robin)			
202.	25362	<i>Ephalophis greyae</i>			
203.	25578	<i>Ephippiorhynchus asiaticus</i> (Black-necked Stork)			
204.	24569	<i>Epthianura crocea</i> (Yellow Chat)			
205.	374	<i>Eragrostis cilianensis</i> (Stinkgrass)	Y		
206.	375	<i>Eragrostis cumingii</i> (Cuming's Love Grass)			
207.	15733	<i>Eragrostis fallax</i>			
208.	42404	<i>Eremiascincus isolepis</i>			
209.	7183	<i>Eremophila bignoniiflora</i> (Gooramurra)			
210.	403	<i>Eriachne benthamii</i> (Swamp Wanderrie)			
211.	404	<i>Eriachne ciliata</i> (Slender Wandarrie Grass)			
212.	414	<i>Eriachne obtusa</i> (Northern Wandarrie Grass)			
213.	24379	<i>Erythronys cinctus</i> (Red-kneed Dotterel)			
214.	47939	<i>Eudynamis orientalis</i> (Pacific Koel, Australian Koel)			
215.	24760	<i>Eulabeornis castaneiventris</i> subsp. <i>castaneiventris</i> (Chestnut Rail)			
216.	35303	<i>Euphorbia australis</i> var. <i>subtomentosa</i>			
217.	31375	<i>Euphorbia bifida</i>			
218.	42849	<i>Euphorbia hassallii</i>			
219.	4629	<i>Euphorbia hirta</i> (Asthma Plant)	Y		
220.	42871	<i>Euphorbia schultzii</i> var. <i>comans</i>			
221.	42872	<i>Euphorbia schultzii</i> var. <i>schultzii</i>			
222.	42879	<i>Euphorbia trigonosperma</i>			
223.	25591	<i>Eurystomus orientalis</i> (Dollarbird)			
224.	24415	<i>Eurystomus orientalis</i> subsp. <i>pacificus</i> (Dollarbird)			
225.	10886	<i>Excoecaria agallocha</i> (Milky Mangrove)			
226.	15126	<i>Excoecaria ovalis</i>			
227.	25621	<i>Falco berigora</i> (Brown Falcon)			
228.	24471	<i>Falco berigora</i> subsp. <i>berigora</i> (Brown Falcon)			
229.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
230.	25623	<i>Falco longipennis</i> (Australian Hobby)			
231.	24476	<i>Falco subniger</i> (Black Falcon)			
232.	31578	<i>Ficus aculeata</i> var. <i>indecora</i> (Ranji)			
233.	865	<i>Fimbristylis neilsonii</i>			
234.	12013	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i> (Dogwood, Guwal)			
235.	25327	<i>Fordonia leucobalia</i> (White-bellied Mangrove Snake)			
236.	25727	<i>Fulica atra</i> (Eurasian Coot)			
237.	24761	<i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
238.	24956	<i>Gehyra pilbara</i>			
239.	24401	<i>Geopelia cuneata</i> (Diamond Dove)			
240.	24402	<i>Geopelia humeralis</i> (Bar-shouldered Dove)			
241.	25585	<i>Geopelia striata</i> (Zebra Dove)			
242.	24403	<i>Geopelia striata</i> subsp. <i>placida</i> (Peaceful Dove)			
243.	25531	<i>Gerygone levigaster</i> (Mangrove Gerygone)			
244.	24273	<i>Gerygone levigaster</i> subsp. <i>levigaster</i> (Mangrove Gerygone)			
245.	24276	<i>Gerygone tenebrosa</i> (Dusky Gerygone)			
246.	2836	<i>Glinus oppositifolius</i>			

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247.	<i>Glossamia aprion</i>			
248.	<i>Glossogobius giurus</i>			
249.	2677 <i>Gomphrena celosioides</i> (Gomphrena Weed)	Y		
250.	18257 <i>Gomphrena leptoclada</i> subsp. <i>leptoclada</i>			
251.	7490 <i>Goodenia armitiana</i>			
252.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
253.	19074 <i>Grevillea wickhamii</i> subsp. <i>macrodonta</i>			
254.	4868 <i>Grewia breviflora</i>			
255.	24484 <i>Grus rubicunda</i> (Brolga)			
256.	13748 <i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>			
257.	2129 <i>Hakea arborescens</i> (Common Hakea)			
258.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
259.	25541 <i>Haliastur indus</i> (Brahminy Kite)			
260.	24294 <i>Haliastur indus</i> subsp. <i>girrenera</i> (Brahminy Kite)			
261.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
262.	24297 <i>Hamirostra melanosternon</i> (Black-breasted Buzzard)			
263.	6706 <i>Heliotropium cunninghamii</i>			
264.	6714 <i>Heliotropium paniculatum</i>			
265.	24633 <i>Heteromunia pectoralis</i> (Pictorella Mannikin)			
266.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
267.	47965 <i>Hieraaetus morphnoides</i> (Little Eagle)			
268.	25734 <i>Himantopus himantopus</i> (Black-winged Stilt)			
269.	24491 <i>Hirundo neoxena</i> (Welcome Swallow)			
270.	5215 <i>Hybanthus aurantiacus</i>			
271.	25363 <i>Hydrelaps darwiniensis</i>			
272.	3980 <i>Indigofera linifolia</i>			
273.	3981 <i>Indigofera linnaei</i> (Birdsville Indigo)			
274.	3987 <i>Indigofera trita</i>			
275.	<i>Ipomoea alba</i>			Y
276.	6637 <i>Ipomoea polymorpha</i>			
277.	47973 <i>Irediparra gallinacea</i> (Comb-crested Jacana)			
278.	<i>Isopeda leishmanni</i>			
279.	4656 <i>Jatropha gossypifolia</i> (Bellyache Bush)	Y		
280.	7120 <i>Josephinia papillosa</i>			
281.	<i>Lates calcarifer</i>			
282.	<i>Lepturacanthus savala</i>			
283.	25139 <i>Lerista greeri</i>			
284.	18351 <i>Leucaena leucocephala</i> subsp. <i>leucocephala</i>	Y		
285.	25005 <i>Lialis burtonis</i>			
286.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
287.	25380 <i>Litoria caerulea</i> (Green Tree Frog)			
288.	6136 <i>Ludwigia perennis</i>			
289.	11809 <i>Lysiana spathulata</i> subsp. <i>spathulata</i>			
290.	24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
291.	4658 <i>Mallotus nesophilus</i>			
292.	25651 <i>Malurus lamberti</i> (Variegated Fairy-wren)			
293.	25653 <i>Malurus melanocephalus</i> (Red-backed Fairy-wren)			
294.	24550 <i>Malurus melanocephalus</i> subsp. <i>cruentatus</i> (Red-backed Fairy-wren)			
295.	24583 <i>Manorina flavigula</i> (Yellow-throated Miner)			
296.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
297.	9178 <i>Melaleuca alsophila</i>			
298.	5942 <i>Melaleuca nervosa</i> (Fibrebark)			
299.	24585 <i>Melithreptus albogularis</i> (White-throated Honeyeater)			
300.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
301.	25184 <i>Menetia greyii</i>			
302.	25185 <i>Menetia maini</i>			
303.	24598 <i>Merops ornatus</i> (Rainbow Bee-eater)			
304.	<i>Microcarbo melanoleucos</i>			
305.	24655 <i>Microeca fascians</i> subsp. <i>fascians</i> (Jacky Winter)			
306.	25694 <i>Microeca flavigaster</i> (Lemon-breasted Flycatcher)			
307.	25542 <i>Milvus migrans</i> (Black Kite)			
308.	24190 <i>Miniopterus schreibersii</i> subsp. <i>oriana</i> (Northern Bentwing-bat)			
309.	25545 <i>Mirafr javanica</i> (Horsfield's Bushlark, Singing Bushlark)			
310.	<i>Missulena occatoria</i>			
311.	7378 <i>Momordica balsamina</i> (Balsam Apple)	Y		
312.	25194 <i>Morethia ruficauda</i> subsp. <i>ruficauda</i>			
313.	1167 <i>Murdannia graminea</i> (Baniyu)			
314.	24223 <i>Mus musculus</i> (House Mouse)	Y		
315.	25609 <i>Myiagra alecto</i> (Shining Flycatcher)			
316.	25610 <i>Myiagra inquieta</i> (Restless Flycatcher)			

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317.	25611 <i>Myiagra rubecula</i> (Leaden Flycatcher)			
318.	25612 <i>Myiagra ruficollis</i> (Broad-billed Flycatcher)			
319.	24450 <i>Myiagra ruficollis</i> subsp. <i>mimikae</i> (Broad-billed Flycatcher)			
320.	48013 <i>Myron resetai</i> (mangrove snake)			Y
321.	25666 <i>Myzomela erythrocephala</i> (Red-headed Honeyeater)			
322.	24590 <i>Myzomela erythrocephala</i> subsp. <i>erythrocephala</i> (Red-headed Honeyeater)			
323.	24639 <i>Neochmia ruficauda</i> subsp. <i>clarescens</i> (Star Finch)			
324.	3614 <i>Neptunia dimorphantha</i> (Sensitive Plant)			
325.	3617 <i>Neptunia monosperma</i>			
326.	<i>Netuma bilineata</i>			
327.	25747 <i>Ninox connivens</i> (Barking Owl)			
328.	25430 <i>Notaden nicholli</i> (Desert Spadefoot)			
329.	25564 <i>Nycticorax caledonicus</i> (Rufous Night Heron)			
330.	24742 <i>Nymphicus hollandicus</i> (Cockatiel)			
331.	6907 <i>Ocimum basilicum</i> (Basil)	Y		
332.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
333.	24138 <i>Onychogalea unguifera</i> (Northern Nailtail Wallaby, Karrabul)			
334.	<i>Orcaella brevirostris</i>			
335.	24608 <i>Oriolus sagittatus</i> (Olive-backed Oriole)			
336.	6005 <i>Osbornia octodonta</i> (Myrtle Mangrove)			
337.	<i>Oxyeleotris selheimi</i>			
338.	24620 <i>Pachycephala lanioides</i> (White-breasted Whistler)			
339.	25678 <i>Pachycephala melanura</i> (Mangrove Golden Whistler)			
340.	24621 <i>Pachycephala melanura</i> subsp. <i>melanura</i> (Mangrove Golden Whistler)			
341.	25680 <i>Pachycephala rufiventris</i> (Rufous Whistler)			
342.	24624 <i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
343.	503 <i>Panicum decompositum</i> (Native Millet, Kaltu-kaltu)			
344.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
345.	523 <i>Paspalidium rarum</i> (Rare Paspalidium)			
346.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
347.	24062 <i>Peponocephala electra</i> (Melon-headed Whale)			
348.	<i>Periophthalmus argentilineatus</i>			
349.	<i>Periophthalmus murdyi</i>			Y
350.	<i>Periophthalmus novaeguineensis</i>			
351.	48060 <i>Petrochelidon ariel</i> (Fairy Martin)			
352.	48061 <i>Petrochelidon nigricans</i> (Tree Martin)			
353.	24140 <i>Petrogale brachyotis</i> (Short-eared Rock-wallaby)			
354.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
355.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
356.	24411 <i>Phaps histrionica</i> (Flock Bronzewing, Flock Pigeon)			
357.	25667 <i>Philemon argenticeps</i> (Silver-crowned Friarbird)			
358.	25668 <i>Philemon citreogularis</i> (Little Friarbird)			
359.	24592 <i>Philemon citreogularis</i> subsp. <i>citreogularis</i> (Little Friarbird)			
360.	4673 <i>Phyllanthus amarus</i>	Y		
361.	14462 <i>Phyllanthus exilis</i>			
362.	20652 <i>Physalis angulata</i>	Y		
363.	24842 <i>Platalea regia</i> (Royal Spoonbill)			
364.	6491 <i>Plumbago zeylanica</i> (Native Plumbago)			
365.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
366.	24643 <i>Poephila acuticauda</i> (Long-tailed Finch)			
367.	24908 <i>Pogona minor</i> subsp. <i>mittelli</i> (Dwarf Bearded Dragon)			
368.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
369.	<i>Polys illepidus</i>			
370.	2903 <i>Polycarpaea longiflora</i>			
371.	25706 <i>Pomatostomus temporalis</i> (Grey-crowned Babbler)			
372.	24684 <i>Pomatostomus temporalis</i> subsp. <i>rubeculus</i> (Grey-crowned Babbler)			
373.	25731 <i>Porphyrio porphyrio</i> (Purple Swampphen)			
374.	2884 <i>Portulaca oleracea</i> (Purslane, Wakati)			
375.	2886 <i>Portulaca pilosa</i> (Djanggara)	Y		
376.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
377.	25732 <i>Porzana pusilla</i> (Baillon's Crane)			
378.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
379.	<i>Pristis zijsron</i> ?			Y
380.	3620 <i>Prosopis pallida</i> (Mesquite, Algaroba)	Y		
381.	42416 <i>Pseudonaja mengdeni</i> (Western Brown Snake)			
382.	<i>Psittuteles versicolor</i>			
383.	24172 <i>Pteropus alecto</i> (Black Flying-fox)			
384.	25725 <i>Ptilonorhynchus nuchalis</i> (Great Bowerbird)			
385.	42322 <i>Ptilotula flavescens</i> subsp. <i>flavescens</i> (Yellow-tinted Honeyeater)			
386.	2713 <i>Ptilotus corymbosus</i>			



Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
387.	2725 <i>Ptilotus fusiformis</i>			
388.	2761 <i>Ptilotus spicatus</i>			
389.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
390.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
391.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
392.	24457 <i>Rhipidura phasiana</i> (Mangrove Grey Fantail)			
393.	25616 <i>Rhipidura rufiventris</i> (Northern Fantail)			
394.	30434 <i>Salsola australis</i>			
395.	<i>Scartelaos histophorus</i>			
396.	11650 <i>Sclerolaena bicornis</i> var. <i>bicornis</i> (Goathead Burr)			
397.	2616 <i>Sclerolaena glabra</i>			
398.	<i>Scolopendra morsitans</i>			
399.	24438 <i>Scythrops novaehollandiae</i> subsp. <i>novaehollandiae</i> (Channel-billed Cuckoo)			
400.	604 <i>Sehima nervosum</i> (Whitegrass)			
401.	<i>Selenotoca multifasciata</i>			
402.	12303 <i>Senna costata</i>			
403.	12309 <i>Senna glutinosa</i> subsp. <i>pruinosa</i>			
404.	17855 <i>Senna obtusifolia</i>	Y		
405.	4196 <i>Sesbania cannabina</i> (Sesbania Pea)			
406.	4198 <i>Sesbania formosa</i> (White Dragon Tree)			
407.	2818 <i>Sesuvium portulacastrum</i>			
408.	18150 <i>Sida rohlenae</i> subsp. <i>occidentalis</i>			
409.	25305 <i>Simoselaps anomalus</i> (Desert Banded Snake)			
410.	30948 <i>Smicromis brevirostris</i> (Weebill)			
411.	7001 <i>Solanum dioicum</i> (Gillu)			
412.	28347 <i>Spermacoce occidentalis</i>			
413.	48108 <i>Sphecotheres vieilloti</i> (Australasian Figbird)			
414.	<i>Spinasteron mjobergi</i>			
415.	628 <i>Sporobolus actinocladius</i> (Ray Grass, Katoora)			
416.	635 <i>Sporobolus virginicus</i> (Marine Couch)			
417.	24482 <i>Stiltia isabella</i> (Australian Pratincole)			
418.	7103 <i>Striga curviflora</i>			
419.	12492 <i>Striga squamigera</i>			
420.	4214 <i>Stylosanthes humilis</i> (Townsville Stylo)	Y		
421.	12354 <i>Stylosanthes scabra</i>	Y		
422.	2638 <i>Suaeda arbusculoides</i>			
423.	25307 <i>Suta punctata</i> (Spotted Snake)			
424.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
425.	<i>Taenioides mordax?</i>			Y
426.	30872 <i>Taeniopygia bichenovii</i> (Double-barred Finch)			
427.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
428.	24175 <i>Taphozous georgianus</i> (Common Sheath-tailed Bat)			
429.	33236 <i>Tecticornia halocnemoides</i> (Shrubby Samphire)			
430.	33356 <i>Tecticornia indica</i> subsp. <i>indica</i>			
431.	33357 <i>Tecticornia indica</i> subsp. <i>julacea</i>			
432.	33318 <i>Tecticornia indica</i> subsp. <i>leiostachya</i> (Samphire)			
433.	33296 <i>Tecticornia pergranulata</i>			
434.	2642 <i>Tecticornia verrucosa</i>			
435.	4272 <i>Tephrosia leptoclada</i>			
436.	15949 <i>Tephrosia</i> sp. <i>D Kimberley Flora</i> (R.D. Royce 1848)			
437.	672 <i>Themeda avenacea</i> (Native Oatgrass)			
438.	13362 <i>Themeda quadrivalvis</i> (Grader grass)	Y		
439.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
440.	25202 <i>Tiliqua multifasciata</i> (Central Blue-tongue)			
441.	25208 <i>Tiliqua scincoides</i> subsp. <i>intermedia</i>			
442.	2942 <i>Tinospora smilacina</i> (Snakevine, Oondala)			
443.	25548 <i>Todiramphus chloris</i> (Collared Kingfisher)			
444.	42351 <i>Todiramphus pyrrhopygius</i> (Red-backed Kingfisher)			
445.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
446.	24309 <i>Todiramphus sanctus</i> subsp. <i>sanctus</i> (Sacred Kingfisher)			
447.	44261 <i>Trianthema oxycalyptum</i> var. <i>oxycalyptum</i>			
448.	44362 <i>Trianthema triquetrum</i>			
449.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
450.	4368 <i>Tribulopsis angustifolia</i>			
451.	4380 <i>Tribulus occidentalis</i> (Perennial Caltrop)			
452.	<i>Trichiurus</i> sp.			
453.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
454.	24754 <i>Trichoglossus haematodus</i> subsp. <i>rubritorquis</i> (Red-collared Lorikeet)			
455.	13131 <i>Triodia epactia</i>			
456.	696 <i>Triodia pungens</i> (Soft Spinifex)			

Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
457.	4878 <i>Triumfetta johnstonii</i>			
458.	4881 <i>Triumfetta plumigera</i>			
459.	25446 <i>Uperoleia talpa</i> (Ratcheting Toadlet)			
460.	717 <i>Urochloa piligera</i>			
461.	10865 <i>Urochloa subquadripa</i>			
462.	<i>Urodacus hoplurus</i>			
463.	29528 <i>Vachellia suberosa</i> (Corkybark Wattle)			
464.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
465.	24384 <i>Vanellus miles</i> subsp. <i>miles</i> (Masked Lapwing)			
466.	25210 <i>Varanus brevicauda</i> (Short-tailed Pygmy Monitor)			
467.	25526 <i>Varanus tristis</i> (Racehorse Monitor)			
468.	7663 <i>Velleia panduriformis</i> (Cabbage Poison)			
469.	6661 <i>Xenostegia tridentata</i>			
470.	729 <i>Xerochloa barbata</i> (Rice Grass)			
471.	730 <i>Xerochloa imberbis</i> (Rice Grass)			
472.	4523 <i>Xylocarpus moluccensis</i>			
473.	4847 <i>Ziziphus mauritiana</i> (Zornia)	Y		
474.	4327 <i>Zornia chaetophora</i>			
475.	24857 <i>Zosterops luteus</i> (Yellow White-eye)			

**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 datasource, only records from that datasource are used to determine if a species is restricted to the query area.



## **Appendix C**

### **Letters of Support**



WINUN NGARI ABORIGINAL CORPORATION  
PO BOX 500  
DERBY WA 6728  
Telephone: 08 9191 1877  
Fax: 08 9191 1964  
Email: [susan.murphy@winunngari.org.au](mailto:susan.murphy@winunngari.org.au)  
ABN: 17 643 250 585

25<sup>th</sup> November 2014

Mr Harold Tracey  
Managing Director  
H&M Tracey

Dear Harold,

**Letter of Support for Derby Wharf proposal**

I write to provide support to you in your proposal to the Shire of Derby West Kimberley in relation to the Derby Wharf.

We at Winun Ngari see that the development of the region has real and tangible links to the improvement of the lives of indigenous people in the area. The realisation of projects like yours, which deliver a diversity of employment opportunities, is supported by the board and the Winun Ngari organisation as a whole.

On a personal note I commend you for your ongoing support of the West Kimberley community and look forward to continuing the good working relationship between Winun Ngari and H&M Tracey.

Should you required additional information as to our support please do not hesitate to contact me.

Kindest Regards

A handwritten signature in dark ink, appearing to be "MA", is located above the printed name of Maxine Armstrong.

Maxine Armstrong  
Chairperson  
Winun Ngari Aboriginal Corporation



# dambimangari

A b o r i g i n a l C o r p o r a t i o n

Lot 256, Loch Street, Derby WA 6728

PO Box 648, Derby WA 6728

Phone: (08) 9191 2383

Fax: (08) 9191 2502

ABN: 48 508 877 524

ICN: 4691

Email: dambimangari@bigpond.com

25<sup>th</sup> November 2014

Mr Harold Tracey  
Managing Director  
H&M Tracey Construction Pty Ltd

&

Mr Dean Kemp  
Managing Director  
CMC Marine Pty Ltd

Dear Harold and Dean,

## **Letter of Support for Derby Wharf Expression of Interest Proposal**

I write to express support for CMC Marine (CMC) and H&M Tracey Construction (H&M) submission for the Shire of Derby West Kimberley Expression of Interest - Derby Wharf Infrastructure and Logistics.

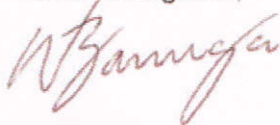
The Dambimangari Aboriginal Corporation (DAC) are the Traditional Owners for the Dambimangari determination area which includes mainland locations, islands, reef systems and intertidal zones. The DAC has a strong established working relationship with both CMC and H&M. Collectively CMC and H&M have provided communities within the DAC with construction, maintenance and logistic support for a number of years.

As a locally based corporation, we understand the importance the Derby Wharf has to the region, and also believe in its potential moving forward. In developing such strategic assets, it is important that local businesses and corporations are given every opportunity to have ownership and involvement.

The Supply and Transhipment Barge Facility proposal put forward by CMC and H&M is not only innovative but provides a real growth opportunity for Derby and surrounding communities. The Dambimangari Aboriginal Corporation completely supports the CMC and H&M proposal and looks forward to our ongoing working relationship.

Should you have any questions please do not hesitate to contact me.

Kindest Regards,





Teal Solutions Pty Ltd | ABN 90 611 081 531  
[tealsolutions.com.au](http://tealsolutions.com.au)

