

Gnoorea (40 Mile) Foreshore Management Plan

Prepared for the Shire of Roebourne by Essential Environmental.
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Acknowledgement

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Section 1

Introduction



1. Introduction

The 40 mile beach area is in a remote part of the Shire of Roebourne (Figure 1). It is designated as a coastal recreation node in the Shire of Roebourne local planning scheme and local planning strategy (in development). It is currently heavily used by the community for fishing and camping and these largely uncontrolled and unmanaged activities have resulted in impacts on the important values of the area.

Gnoorea (40 Mile) is designated as a coastal recreational node in the Shire of Roebourne local planning scheme and local planning strategy (in development) and the *Shire of Roebourne Coastal Management Strategy* (draft, 2011).

There is a critical need to develop a local foreshore management plan which can guide the Shire and the community in terms of access, infrastructure and management to re-establish and protect the important cultural and environmental values of the coast, particularly in light of climate variability and the predicted future growth of the Karratha region.

A draft Coastal Management Plan for Gnoorea (40 Mile) was produced in 1998. The management recommendations from that plan have been reviewed for currency and adapted to support the strategic planning for the Shire which is currently occurring through the development of a local planning strategy, to deliver an outcome which is implementable and will address appropriate access and infrastructure, recommending management actions that support the sustainable use of the area by Shire residents and tourists, including separation of sensitive areas from camping and boating areas.

1.1 Purpose of this plan

The Gnoorea (40 Mile) foreshore management plan has been prepared to provide guidance for the management of the Gnoorea foreshore reserve at 40 Mile beach in the Shire of Roebourne. The foreshore area covered by this Plan is reserved for Conservation, Recreation and Natural Landscapes (see section 2.1) and is managed by the Shire of Roebourne.

The Gnoorea (40 Mile) foreshore management plan describes the environmental, cultural, recreational and resource values associated with the site, many of which are under threat from human activities on the coast. The Plan makes recommendations regarding the future management of impacts in order to maintain or enhance the identified values for the long term.

1.2 Implementation of the plan

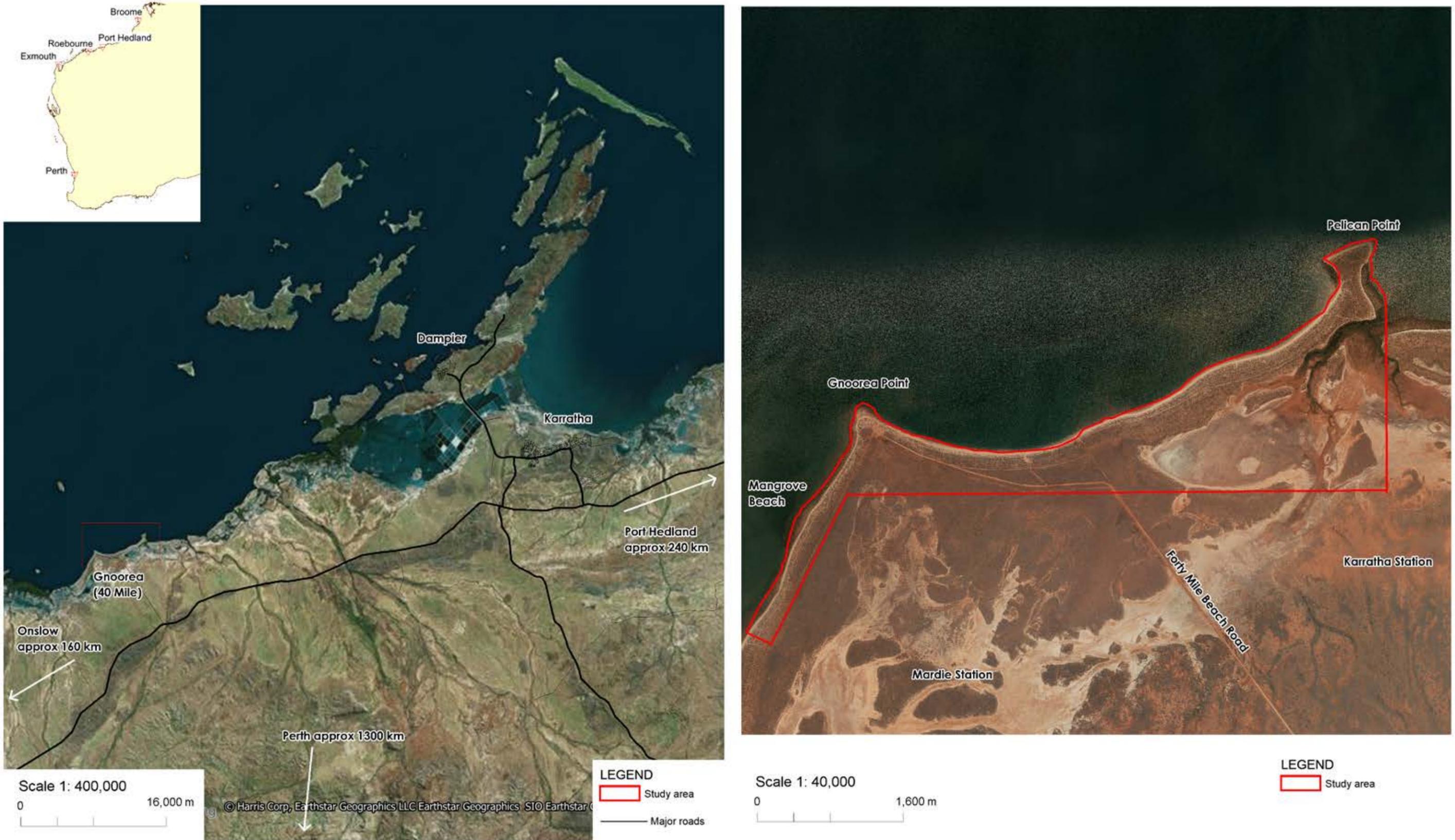
Specific recommendations for implementation are contained in section 3. It is recognised that further detailed work will be required, including detailed design and costing of infrastructure, to facilitate implementation in some instances.

No commitments have been made as yet regarding the implementation of this foreshore management plan. Its delivery will depend on the availability of resources and priorities identified by the Shire.

It is anticipated that implementation of the adopted foreshore management plan will require the formulation of partnerships and the identification of a variety of sources of funding. The lead agency for implementing this Plan will be the Shire of Roebourne.

Shire of Roebourne, Gnoorea foreshore management plan

Figure 1 - Site location and study area



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1.3 Context for management plan

The Pilbara climate and environment provides perfect conditions over a large part of the year for outdoor recreation, primarily associated with coastal areas. Activities such as fishing, boating, camping and off road driving are highly valued by the Pilbara community and visitors to the region.

Access to large parts of the Pilbara coastline is restricted, either by pastoral leases or remoteness and a lack of trafficable roads. Active management of most parts of the coast is also limited. The significant recent growth in the Pilbara population including temporary workers has resulted in large numbers of recreational users, vying for access to the coast, from both land and sea. This level of pressure is resulting in a number of impacts on the coastal environment and its values.

Gnoorea contains an existing campsite that provides for self-contained camping in a wilderness environment. During the winter months, the area is occupied by a significant number of caravans that camp for very long periods of time. The large numbers of visitors who recreate in a largely unmanaged environment pose a significant threat to the maintenance of the fragile coastal environment in the long term.

A management plan is therefore required to provide guidance for the Shire regarding the management of the Gnoorea reserve and the 40 Mile campsite. This plan will also scope the opportunity for diversification and joint management of the reserve with the region's traditional owners.

The overarching aims of the Gnoorea Foreshore Management Plan are to:

1. Contribute to the implementation of local and regional planning objectives and coastal strategies.
2. Consolidate community partnerships and build community capacity and ownership of the area including working with the area's traditional owners.
3. Foster the sustainable recreational and tourist use of the area through a plan that protects the environmental and cultural values of the area and identifies access arrangements and long term infrastructure needs.

1.4 Developing this plan

This foreshore management plan has been prepared on the basis of available information including the 1998 draft Gnoorea Coastal Management Plan (Astron, 1998), with input from key agencies and the community including the region's traditional owners, the Yaburara & Mardudhunera people.

The values, issues and recommendations are based on a review of the recommendations of Astron's 1998 draft Gnoorea Coastal Management Plan, as well as the outcomes of a community forum that was held in Karratha on Tuesday 9 April, 2013 at the Frank Butler Community Hall. The workshop was attended by over thirty people representing a range of community organisations and stakeholders, on the basis of an open invitation issued via the Shire website, Karratha's local newspaper (the Pilbara Echo) and a poster erected at the 40 Mile campground.

The draft Foreshore Management Plan was advertised for public comment from 11 September to 2 October 2013. Three submissions were received on the draft plan. All comments were considered and appropriate changes were made to the foreshore management plan in response to the comments received. It is noted that all comments were generally supportive of the recommendations of this foreshore management plan.

1.5 Planning and policy context

Key planning and policy context for 40 Mile is provided by the following documents. Key outcomes and implications are summarised where possible.

Pilbara Planning and Infrastructure Framework (WAPC, 2012)

The *Pilbara Planning and Infrastructure Framework* defines a strategic direction for the future development of the Pilbara region over the next 25 years. It seeks to ensure that development and change in the Pilbara is achieved in a way that improves people's lives and enhances the character and environment of the region.

The *Pilbara Planning and Infrastructure Framework* notes that the region is highly dependent on outdoor sporting and recreation activities and that due to the climate, water plays an important role in recreation facility provision. Recognised popular coastal activities include recreational fishing and diving facilitated by boat ramps in all the major coastal settlements. The popularity of coastal marine recreation is demonstrated by the Pilbara having some of the highest recreational boat ownership in Australia (WAPC, 2012).

Shire of Roebourne Town Planning Scheme No 8

Shire of Roebourne TPS No. 8 (2011) outlines the Shire of Roebourne's planning aims and intentions for the Shire of Roebourne municipal district. It also aims to control and guide land use and development within the district, as well as facilitating community input into planning. The development objectives for pastoral area, as defined in Part V of TPS No. 8, are:

- (i) Protect the environmental and recreational qualities of coastal areas, and ensure continued public access to key coastal recreational nodes such as Gnoorea and Cleaverville.
- (ii) Protect the key environmental features and natural landscapes within the Shire.

State Planning Policy 2.6: State Coastal Planning Policy (2013)

The purpose of the Policy is to provide guidance for decision-making within the coastal zone including managing development and land use change; establishment of foreshore reserves; and to protect, conserve and enhance coastal values. This policy recognises and responds to regional diversity in coastal types; requires that coastal hazard risk management and adaptation is appropriately planned for; and encourages innovative approaches to managing coastal hazard risk, and provides public ownership of coastal foreshore reserves.

The policy provides high order guidance for decision making on coastal planning matters and applies state wide. The objectives of this policy are to:

1. ensure that development and the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria;
2. ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities;
3. provide for public coastal foreshore reserves and access to them on the coast; and
4. protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance.

Policy measures include clauses relating to:

- Development and settlement;
- Water resources;
- Building height limits;
- Coastal hazard risk management and adaptation planning;
- Coastal protection works;
- Protection of public interests
- Identification of coastal foreshore reserves
- Preparation of coastal strategies and management plans, and
- the precautionary principle.

Shire of Roebourne Coastal Management Strategy Position Paper (Landvision, 2011)

The *Shire of Roebourne Coastal Management Strategy Position Paper* (Landvision, 2011) sets out the Shire's objectives for the management of its 350km length of coast. The position paper was prepared as an interim step, as a precursor to the development of a comprehensive and final Coastal Management Strategy.

It describes the coastal environments and characteristics; provides for the protection of natural coastal processes; and makes recommendations for the management of human impacts within a proposed coastal management framework. Though subject to review, the management framework is proposed to be implemented immediately to administer coastal management in accordance with the principles in the Position Paper.

The Position Paper identifies a series of projects that are recommended to be commenced immediately as interim measures prior to the preparation of Foreshore Management Plans for the designated recreational activity nodes Dampier Foreshore, Hearson Cove, Karratha Back Beach, Cleaverville, Wickham Back Beach, Point Samson/Sams Creek area and Cossack/Settlers Beach.

Gnoorea Coastal Management Plan (draft) 1998

The Gnoorea Coastal Management Plan, prepared for the Shire of Roebourne by Astron Environmental in 1998, provides a detailed understanding of the coastal environment and its use and management. Through the identification of management issues and development of management strategies and priorities, the Plan aimed to integrate public and industrial use with the natural environment in a sustainable manner.

The information in the Gnoorea Coastal Management Plan forms a significant basis for much of the environmental information in this report.

Section 2

Gnoorea Foreshore
- Characteristics



2. Gnoorea Foreshore - Characteristics

2.1 Location description

Named 40-Mile Beach since the establishment of Dampier, Gnoorea, the traditional Aboriginal name for the area covers an area of approximately 7 km², incorporating about 11 km of coastline between Pelican Point and an arbitrary location to the south-west of Gnoorea Point on Mangrove Beach (Figure 1). This strip of coastline varies from 300m in width to 3 km. It lies approximately 60 km south-southwest of Karratha by road, is southwest of Regnard Bay and east of Cape Preston.

The southern boundary of the reserve abuts the Mardie and Karratha pastoral stations. The Mardie Station pastoral lease is owned by CITIC-Pacific, a Hong Kong-based company, who bought the station in 2007. The Karratha pastoral station lease is owned by Rio Tinto Iron Ore.

40 Mile beach is accessed by an 11.7km gravel road between Mardie and Karratha Stations at the turn off to the Apache Devil Creek domestic gas plant.

2.1.1 Tenure

The area that is the subject of this management plan is reserved for Conservation, Recreation and Natural Landscapes in Shire of Roebourne Town Planning Scheme No 8 (Figure 2).

The foreshore reserve, Reserve No R46588, is owned by the State of WA. Management responsibility for the foreshore reserve rests with the Shire of Roebourne for the purposes of "Recreation & preservation of coastal environment".

2.1.2 Existing facilities and infrastructure

The 40 Mile nature-based campsite in the Gnoorea foreshore area provides for a self-contained, remote camping experience. Camping is currently permitted for a maximum on 3 months from May to September, and a maximum of 3 days in the off season. No fresh water is available and campers are instructed to bring in their own firewood for cooking fires.

The campsite is monitored by the Shire Ranger and there is a caretaker during camp season. Rubbish bins are emptied weekly. There are no toilet facilities on site however a sullage disposal point is available for lawful campers.

Signage on site outlines the conditions of camping. These are located near the central car park at the end of 40 Mile road. Shade shelters and seating has been provided by Apache Energy.

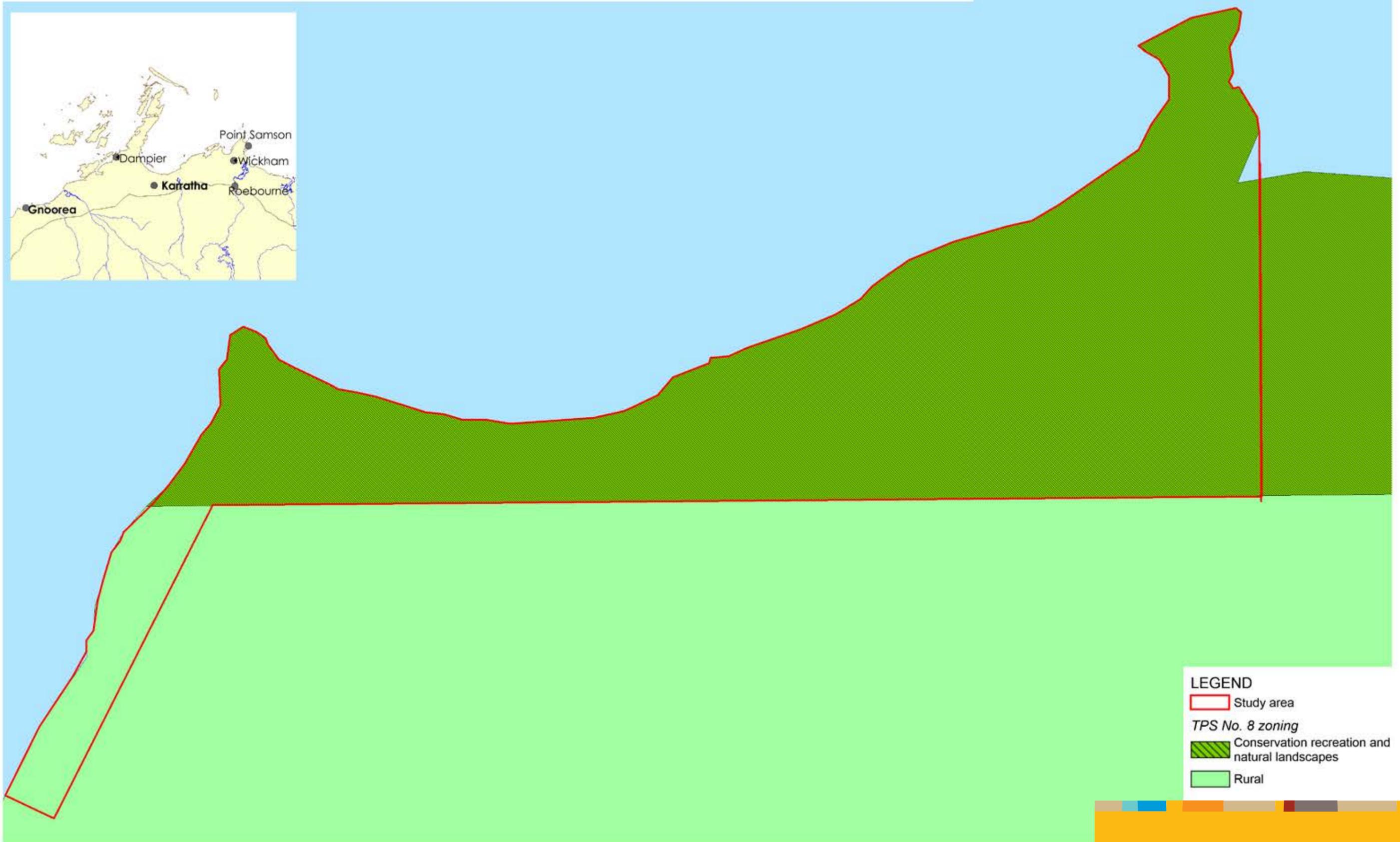
A number of tracks have been established along the dunes from Gnoorea Point to Pelican Point and down to the beach. Small boats are also launched from the beach.

2.1.3 Climate

Summer in Gnoorea is very hot and occurs between November and April with temperatures generally above 30°C and occasionally over 40°C. Winters see temperatures between 20°C-30°C between the months of May and October (Astron Environmental, 1997). The annual evaporation rate in Gnoorea is considerably higher than the average rainfall.

Shire of Roebourne, Gnoorea foreshore management plan

Figure 2 - Town Planning Scheme No. 8



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Scale 1: 20,000

0 800 m

The 'wet season' occurs in summer bringing intense rainfall and flooding associated with cyclones and thunderstorms. The region is located in one of the most cyclone-prone areas of the world – in 1965, 1981 and 1984 six cyclones passed across the coast, with an average of zero to four cyclones passing the Gnoorea coast every year. Cyclones result in variable and erratic winds that influence tidal surges due to the dramatic falls in barometric pressure (Astron Environmental, 1997).

Tides in the vicinity of Gnoorea are semi-diurnal with a range between 5.0 m and 0.5 m. Gnoorea is somewhat protected from large tidal conditions; however, due to the outer reefs and off shore islands that protect its shores.

Cyclones and storm surge, while being episodic events, are capable of influencing inshore and offshore conditions dramatically with swell capable of penetrating past the offshore reef systems to impact directly on the shore.

Notwithstanding the severe destruction caused by cyclones, they are also critical for supplying up to 50% of average annual rainfall (Van Vreeswyk, 2004). However, the high intensity of cyclonic events, particularly after long periods of dry weather, often results in minimal retention of rainfall within the landscape due to high velocity run-off and dry, hydrophobic soils.

Recent work by the CSIRO and the Climate Commission (Steffen, 2011) suggests that temperature, rainfall and storm event patterns have significantly changed in Western Australia in recent decades, which has seen impacts on biodiversity, water resources and coastal infrastructure. More specifically, that average temperatures have increased, rainfall patterns have become more variable with a drying climate trend, and storm events have become more frequent and intense.

Following research conducted by the CSIRO and the Climate Commission, additional environmental pressures relating to climate change in Gnoorea are considered likely to be noticeable. These may include temperature increases; increasing frequency of significant rainfall events separated by more 'dry-days'; rainfall and temperature patterns that enable weeds and other more suited vegetation types to become established; sea level rise of up to 0.9m by 2110; and increased impacts from storm surge due to increased frequency of significant weather systems.

2.2 Environmental values

2.2.1 Landscape

The Gnoorea foreshore area is set on the edge of the sedimentary geological region known as the Carnarvon Basin, which is superimposed in coastal areas by Coastal Limestone (Astron Environmental; 1998). The natural environment of Gnoorea includes:

- Rocky headlands – Pelican Point and Gnoorea Point
- Coastal dunes – runs parallel to the coast between Pelican Point and Gnoorea Point
- Intertidal mudflats – western side of Gnoorea point and east and western sides of Pelican Point
- Exposed beach-rock and intertidal reef platforms – along the shoreline of Gnoorea and at both Gnoorea and Pelican Points.
- Coastal plains – immediately behind the dunes.
- Saline coastal flats – immediately behind Pelican Point (Astron Environmental, 1998).

2.2.2 Vegetation

Gnoorea is located on the Roebourne Plains, which lies within the Fortescue Botanical District. The vegetation in the area is predominately open grassy plains or mixed grass and spinifex with shrub steppe further inland on the granite plains. The coastal plains are vegetated with Acacia species over mixed hummock and tussock grasses. Low mangrove forests are found in the tidal creek areas (Astron Environmental, 1998).

Although a search of the Department of Environment and Conservation (DEC) 'NatureMap' web-based mapping tool suggests that only nine (9) species of plants and one algae (Chromista) exist in a 4 km radius of the Gnoorea area (Appendix 1), the Gnoorea Coastal Management Plan by Astron lists many more species. None of the species are listed as protected, rare or likely to become rare; however the importance of mangroves which act as nursery, feeding and breeding grounds for many species as well as acting as a buffer zone against wave action, thereby reducing erosion and storm surge damage to coastal areas, has been recognised by the Environmental Protection Authority in their *Guidance Statement No. 1 - Protection of tropical arid zone mangroves along the Pilbara coast*.

Vegetation at Gnoorea is significantly disturbed, primarily as a result of uncontrolled access and weeds. In 1997 80% of groundcover was overrun by Kapok and Buffel Grass, which have destroyed the habitat of native fauna. Infestation has spread along tracks and campsites and this is continuing through random access and camping (Astron Environmental, 1998).

2.2.3 Fauna

Due to the grassy vegetation of the area, the animal species in Gnoorea are primarily seabirds, attracted to the area by the mangroves and associated marine environment. Nearby offshore islands provide safe nesting and roosting sites while the mudflats attract wader species (Astron Environmental, 1997).

The DEC 'Nature Map' search also reported sixteen (16) species of birds in a 4 km radius of Gnoorea. The Curlew Sandpiper (*Calidris ferruginea*) has been listed as "rare or likely to become extinct", while three other species, the Grey-tailed Tattler (*Tringa brevipes*), and the Ruddy Turnstone (*Arenaria interpres* subsp. *interpres*) and its sub-specie are classed as "protected under international agreement".

A common inhabitant of Gnoorea is the Red Kangaroo, found by the edge of the water line, attracted by the shade of the mangroves in the heat of the day. This is unusual behaviour and has not been seen elsewhere in the vicinity (Astron Environmental, 1997).

The dune environment has a greater number of land animals than the coastal flats due to the better shade and food resources available. The beach and foredune swale on 40 Mile Beach adjacent to the Karratha/Mardie station boundary have been known to be used as a turtle rookery in the past (Astron Environmental, 1997).

The 1998 report by Astron Environmental recorded 95 bird species inhabited the Pilbara coast, 65 of which were known along the shores between the Exmouth Gulf and Dampier, wherein lies the study area. Among these birds, the White-breasted Sea Eagle has been named as a common inhabitant that roosts on that mangrove canopy. The 1997 fauna survey of Gnoorea conducted by Astron records that in the area there were 8 reptiles, 12 mammals (3 of which were feral) and 19 birds (Astron Environmental, 1997). Other animals recorded in the area are amphibians (2), invertebrate (14), mammals (5) and reptiles (13) – none of which have been classified with any conservation status. A list of these can be found in Appendix 1 (DEC Naturemap by Species group, [27 May 2013]).

2.3 Cultural values

2.3.1 Aboriginal heritage

For 30,000 years before European settlement, Aboriginal people inhabited the Pilbara coast. The Aboriginal people suffered greatly following European settlement in the 1860's. The ensuing massacres and epidemics, together with forced labour in the pastoral and pearling industries

significantly undermined the Aboriginal people's traditional culture and relationship with the land. Today, up to five language groups remain in the vicinity. These communities continue to live off the rich resources of the coast which comprise of fish, turtles, kangaroos, shellfish and a wide variety of native plants (Astron Environmental, 1997).

In 1996, a Native Title Claim was made by the local Yaburara and Mardudhunera people over land including Gnoorea. This claim has since been registered (WC 96/89) (National Native Title Tribunal, [2013]) but has yet to be formally determined.

There are two Aboriginal Heritage sites registered with the Department of Aboriginal Affairs in the 40-Mile Beach area. One site (Site 911) lies approximately 1.5 km off-shore north-east of Gnoorea Point, and contains scattered artefacts and midden. The other site (Site 912) lies in the eastern dunes along 40-Mile Beach. This is an open site where scattered artefacts, midden and grinding patches have been discovered (Figure 3).

Aboriginal burial sites have also been identified in the area and some, based on living memories, are said to be in the dunes of the Pilbara coast which could be close to the surface. The high incidence of dune movement could uncover these sites and other sites of archaeological and ethnographic significance (Astron Environmental, 1997).

With the coast along 40-Mile Beach continuing to be a place of livelihood and cultural significance for the local Aboriginal people, the changing coast and harvesting of its resources remains of particular interest to the Traditional Owners. Their culture requires that this land is protected from activities that have the potential to impact on its values. With this in mind, the Traditional Owners are keen to be involved in the ongoing management of this place and would like to share their culture with visitors, potentially establishing educational and vocational opportunities for their people. There is also a desire to incorporate youth education through involvement in traditional activities and site visits.

Any activities to be undertaken in response to this Foreshore Management Plan will be undertaken in partnership with the land's Traditional Owners.

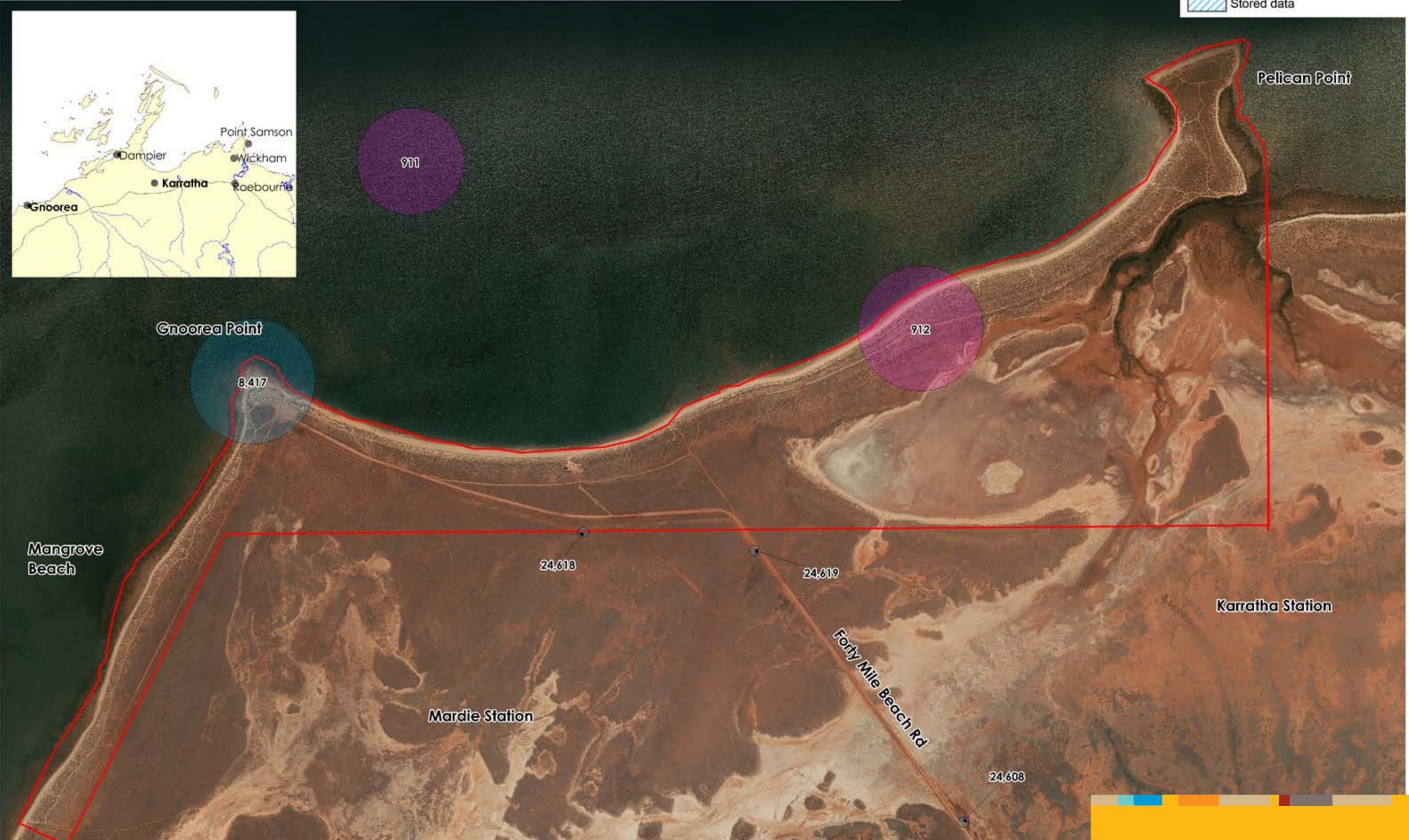
Out of respect for the cultural significance of the area to the local people, the Shire of Roebourne has pledged to consult and involve Aboriginal people with regards to developments in the area, particularly where it involves land disturbances in the dunes, as this could result in the unearthing of human remains (Astron Environmental, 1997).

Shire of Roebourne, Gnoorea foreshore management plan

Figure 3 - Aboriginal heritage

LEGEND

- Study area
- Aboriginal heritage sites - status**
- Registered sites
- Stored data



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Scale 1: 20,000

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2.4 Recreational values

40 Mile beach is a very popular destination for Karratha residents and visitors, including the “Grey nomads”, who stay for anywhere between two days and three months. It is easily accessible from the North West Coastal Highway, and provides a “bush camp” destination for those travelling up and down the coast.

The recreational values of Gnoorea are extensive. They are a direct result of the Pilbara coastal environment, which provides perfect conditions, particularly in the winter, for nature-based recreational activities. Key activities include:

- camping
- four wheel driving and off-road vehicles
- fishing
- boating
- snorkelling, diving and swimming
- day-trips/picnicking

These activities; however, can result in significant impacts on the cultural and environmental values of the area – the very values that are the foundation for the favoured recreational pursuits.

2.4.1 Camping

Camping results in the greatest level of impact. Although the Shire appoints a caretaker for the camp ground during the designated camping season between May and September, there is limited control of the number of caravans that occupy the area. Anecdotal evidence suggests that there can be over 100 caravans located in the dunes behind 40 Mile Beach and extending along Mangrove Beach. The sandy foredunes are easily impacted by vehicle and foot traffic and this results in a loss of vegetation and the proliferation of weeds, and decreases the stability of the dune.

Although campers are attracted to the wilderness setting of the camp site, the lack of facilities results in some poor behaviours from campers. This includes inappropriate and random disposal of rubbish and human wastes, lighting uncontrolled fires, cutting fences to the neighbouring pastoral station in search of water and even the slaughter of cattle. The lack of a toilet is a significant issue for day-trippers.

2.4.2 Four wheel driving and off-road vehicles

The use of Gnoorea by four-wheel drives and off-road vehicles has resulted in a number of issues, most notable the destruction of vegetation and dunes, as well as impacts on the beach from vehicle tracks. Additionally, the steep sand dunes near the Karrath/Mardie boundary pose a challenge for access to Pelican Point and 40-Mile Beach for some visitors. The result in some cases is to enter Mardie Station by destroying sections of the fenceline, which in turn has resulted in the station owner losing stock (Astron Environmental, 1997).



Plate 1: Camping in the dunes above Mangrove Beach

2.4.3 Fishing

Gnoorea is a very popular fishing destination and in particular, Pelican Point as its relatively deep water is accessible directly off the headland. Oysters are also common and easily found along the water's edge.

The search for the perfect spot has; however, resulted in the creation of tracks over the fragile dune systems along 40 Mile Beach and Mangrove Beach. Discarded fishing gear also creates a hazard for local fauna. In addition, uncontrolled fires pose a significant risk to the surrounding area, as well as a biohazard from wood brought in from other areas.

Long-time visitors have reported a decline in fish, crab and coral numbers. Overfishing including stocking of freezers prior to leaving the campsite and illegal removal of coral for aquariums have been reported. In addition, use of nets, which often catch desirable as well as undesirable fish and cause damage to the benthos, has been seen along this section of the coast (Astron Environmental, 1997).

2.4.4 Boating

The associated pollution and physical impact of launching boats and boating in general have resulted in degradation of the benthic and pelagic fauna and flora of 40-Mile Beach (Astron Environmental, 1997).

A pipeline launching ramp at Gnoorea Point, available to the public for 11 months of the year, provides a comfortable location to launch a boat and a safe parking place for vehicles and their trailers. This helps reduce the associated damage to vegetation and dunes that comes with boat launching off the beach. However, boat launching along Mangrove Beach and at a mangrove opening south of Pelican Point, which are still used, has resulted in degradation and erosion due to difficult driving conditions in these areas.

2.4.5 Water Sports

The best and safest swimming, snorkelling and diving off 40-Mile Beach occurs at Middle reef, immediately offshore from the coast. The immediate coast only offers swimming at high tide. This popular activity causes impact to reef fauna and coral in the area, though these have not been quantified (Astron Environmental, 1997).

2.4.6 Day-tripping

Day-trips and picnics are a popular and relatively low-impact activity at Gnoorea. The lack of toilet facilities poses the greatest problem for day trippers and the surrounding environment. It has also been noted by the community that the occupation of the majority of the campsite by caravans significantly impacts on the ability of day-trippers to find a place to picnic. This is also exacerbated by the use of the existing shelters by the long-term campers.

2.5 Resource values

An old, disused quarry site, once mined for sand by the Department of Main Roads, provides campers and caravans a site to stay. It is also an access point to the beach. The site has a few Tamarisk trees providing limited shelter, but is largely unvegetated and consists of loose sediment and bare banks which from wind erosion. The site, like other campsites in 40-Mile Beach, has issues with waste disposal, dune erosion and trampling of vegetation (Astron Environmental, 1997).

Part of the site has been used previously by a resource company to enable the launching of a pipeline offshore. This has resulted in the construction of ramp that now provides a safe and stable boat launching ramp for visitors to Gnoorea.

An exploration tenement over two graticules located between Forty Mile Beach Rd and Pelican Point is currently held by Hanson Construction Materials. This tenement's rental status ends on 26th June 2014. The Exploration Licence is yet to be received from the Shire for comment.

The Shire does not support mining activity that could adversely affect recreation or conservation values associated with coastal recreation nodes. Decisions relating to mining activity on Crown land will be made by the Minister for Mines and Petroleum, not local government. If exploration licences are granted, then the Shire would expect the Minister for Mines and Petroleum to impose conditions that minimise disruption to the recreational use of the area. The Shire will object to any subsequent mining lease applications unless it can be demonstrated that:

- the impact of mining on recreation and conservation values is acceptable;
- Aboriginal Heritage and Native Title approvals have been obtained; and
- there will be long-term benefits for the area as a result of the mining.

Recognition must also be made of the values associated with the pastoral stations that abut the foreshore reserve. These stations make a significant contribution to the agricultural productivity of the Pilbara region. Unfortunately, the pastoral stations have been affected by campers behaving inappropriately and both stations have reported issues such as damage to fences, trespassing involving loss of stock and water, uncontrolled fires and rubbish dumping.



Plate 2: Pastoral stations abut the Gnoorea foreshore reserve

Section 3

Managing Recreation



3. Managing Recreation

3.1 Issues

The key impacts on the values of Gnoorea result from human use and recreation. These impacts arise mostly from camp sites, uncontrolled access, rubbish and litter, fires and weeds. Other impacts include over fishing and damage by boating.

3.1.1 Camp sites

Campsites have been formed in the vegetation on the shallow dune ridges along both Mangrove Beach and 40 Mile Beach. This has resulted in the crushing of native plants and erosion of the dune. The number of campsites has proliferated in the past few years and now extends along the length of both beaches, suggesting the loss of a significant proportion of the vegetation.

3.1.2 Access

Access is largely unmanaged. Although many visitors use the existing tracks, new tracks are easily created by individuals trying to get access to other areas. This includes damage to fences along the boundary of the pastoral stations by people aiming to re-join the North West Coastal Highway to the north or south.

The dune crest along 40 Mile Beach and Mangrove Beach is being severely impacted by vehicle parking and backing up into the dunes in an effort to turn around in small spaces. This is posing a significant threat to the stability of the dune system.



Although partially protected, the mangroves are also showing signs of disturbance to rhizomes and the faunal community.

Given the dunes and the mangroves provide very sensitive and valuable nesting, roosting and feeding places for birds, reptiles and kangaroos in the area, it is believed that limiting some of the tracks without eliminating access, could help preserve a great portion of the native vegetation and fauna of the area (Astron Environmental, 1997). It is therefore recommended that beach access along Mangrove Beach is closed.

3.1.3 Rubbish and litter

Although bins are provided at the camp ground, which are emptied by the Shire on a weekly basis, the dumping of rubbish and littering are an ongoing problem. Rubbish left behind by long-term campers causes a significant problem for the Shire. Large items such as washing machines are regularly left behind.

Although sullage is provided, there are no toilet facilities. Disposal of human wastes and grey water still occurs at random points throughout the dune system. This activity may also represent a health risk.

3.1.4 Fires

Temporary fire pits have been built by campers and visitors. On occasion, fires have been lit and left unattended and have resulted in wildfires which can destroy large areas of vegetation. Disturbance of dune vegetation has also occurred by the gathering of wood for campfires from the natural vegetation.

Fires are not permitted to be lit without the permission of the Shire. An exception is made for cooking, however.



Plate 3: Uncontrolled access results in many damaging vehicle tracks

3.1.5 Weeds

Disturbance of the vegetation from location of camp sites or from vehicle access provides the opportunity for the colonisation and spread of weeds. The extent of Buffel Grass and Kapok is increasing.

In addition, Mardie station has one of the most significant stands of Mesquite – a Weed of National Significance. Although this is being actively controlled by the Station Manager, there is a risk of transmitting this weed into the foreshore area by campers using it for fire wood.

Plate 4: Weed infestation of Buffel Grass and Kapok



3.1.6 Fishing, boating and water sports

Although these activities are extremely popular past-times at Gnoorea, fishing, boating and water sports can impact substantially on the environmental values of the area. This includes degradation of the environment where boat launching occurs as well as the possibility of pollution of marine waters by fuels and other pollutants.

A decline in fish stocks and crab numbers has been reported by long-time visitors at Gnoorea, and this has been attributed to the degree of fishing activity that occurs during camping season. Disturbance to turtle nesting and other faunal activities may also occur as result of gaining access to the water by boats.

3.2 Recommendations

The following recommendations are made on the basis of a review of the recommendations in the 1998 *Gnoorea Coastal Management Plan* (Astron, 1998) in light of new information provided by key stakeholders and the community. The recommendations have been made in order to achieve the following objectives:

- Protect, maintain and where possible, enhance the environmental and cultural values of the site which underpin the enjoyment and usage of Gnoorea by Traditional Owners, residents and visitors.
- Maintain the “bush camp” style of the camp ground and provide minimal infrastructure that is able to be maintained by the Shire.
- Manage impacts through improved delineation of tracks, conservation and recreational areas, supported by appropriate signage.

It is recognised that further detailed work will be required, including detailed design and costing of infrastructure, to facilitate implementation in some instances.

3.2.1 Formalise campsite area, usage and facilities

There is a strong desire to maintain the “bush camp” style of the camp ground in which users must be self-sufficient in terms of power, water and shower facilities. Although this style of camping is associated with limited administration, there is still a need for regular supervision and management to adequately maintain the rubbish bins, the sullage pits, access, fence lines and signage. Accordingly, a governance model needs to be proposed that does not result in a resource drain on the Shire. The following recommendations are proposed.

Management of camp ground

During the designated camping season, the Shire arranges for a caretaker to supervise the camp site. Although no wage is paid to the caretaker, their living expenses are covered through the collection of camping fees, which also pay for some of the Shire management expenses associated with Rubbish collection.

Some contributions have also been made by Apache Corporation, in the form of the construction of shelters and assistance with the sullage maintenance.

It is recognised that the current fee structure and management arrangements do not provide a solid economic basis for improved management at the site. It is recommended, therefore, that joint management of Gnoorea is established between the Shire and the Traditional Owners. A review of camp fees and management costs should be undertaken to develop an economically sound model that is self-sustaining. The fee structure should be reflective of the level of services provided and the duration of stay.

Consideration should be given to the establishment of a designated location for cultural business. This may involve the erection of a permanent shelter that contains signage and materials describing the area's history and cultural and natural values. This could form the basis for a cultural tourism and educational business that caters for visitors and residents of the area including aboriginal children.

The opportunity also exists to incorporate environmental and cultural education materials and/or programs into the camp management structure. These should be consistent with the "Leave No Trace" principles and work in with the existing programs being delivered by the Department of Environment and Conservation and Department of Fisheries.



Engaging traditional owners is important. Bevan Wally (above) expressed a particular interest in future plans for this section of coast.



Plate 5: Joint management of the area should be established with the Traditional Owners and other stakeholders including the Station Managers

Define boundaries of camping area

The current spread of camping sites along the length of 40 Mile Beach and Mangrove Beach is resulting in significant damage to the vegetation and dunes. In addition, the large population that resides in the area for a large period of time is also putting pressure on the area's fish and crab stocks. There is need, therefore, to limit the number of camp sites to a more manageable number.

It is proposed that camping is to be permitted at Gnoorea Point, extending 500m to the west along Mangrove Beach and 300m to the east along 40 Mile Beach. Camping will also be permitted at the quarry site, however the use of the fenceline site is to be restricted to day-trippers only. No camping is to be allowed outside this area, including at Pelican Point.

In order to cater for the different types of visitors, there is also a need to define bays for long term, short stay and day usage. The following regime is proposed.

- 43 bays for long term use
- 33 bays for short stay (3 nights)
- 4 designated car parks for day use only

Currently campers are permitted to stay for a period of up to three months. It has been suggested that this length of stay is too long to provide adequate opportunity for the number of visitors who would be attracted to the campground as it would "get booked out" very easily. In order to increase the level of access for visitors, it is suggested that the length of "long term" stay be restricted to six weeks or less. This will also require an increased level of management and supervision from the campsite manager and a monitored booking system.

Each camp site should be formally defined through use of bollards, rocks or signs as appropriate. Recommended locations for camp sites are depicted on Figures 4 to 8.

Provide limited additional facilities

Although 2 shade shelters have been constructed at Gnoorea Point, additional shade is required at the Quarry site and Fenceline car park. It is recommended that 2 additional shelters are provided at the Quarry site, and a single shelter at the Fenceline site (Figure 6 and 7).

Barbeque/Fire pits should be formally constructed at all locations, in proximity to the shade shelters. These fire pits should enable cooking through the incorporation of non-removable hot plates. Firewood will also need to be supplied; however, there will be an expectation that some firewood is to be brought in by campers.

A number of bins are already provided at Gnoorea Point. Additional bins are required at the proposed car parks at the Quarry and Fenceline sites and Pelican Point.

Due to the high degree of fishing that occurs, it is recommended that a fish cleaning table is provided at Pelican Point (Figure 8). Some maintenance may also be required to the fish cleaning table at Gnoorea Point.

Consideration should also be given to the provision of dry system toilets at Gnoorea Point and the Quarry site. These should be located near the day-trip car parks to cater for those without toilet facilities. It is recognised that the toilets will also be used by campers, and accordingly, four toilets should be provided at Gnoorea Point and two at the Quarry site.

Plate 6: Existing shelter at Gnoorea Point



Signage

In order to educate the visitors to the site, additional signage is recommended. This includes signs that designate usage of camp bays and assists in the management of access. Other signage which should be considered includes:

- Interpretive signage regarding traditional owners and cultural and environmental values
- Signage on sustainable fishing, safety, fire management, and site operations including sullage
- Signage on pastoral station operations to generate respect and control access.
- Signage regarding rubbish collection and use of bins. It may also be useful to inform visitors that the Shire of Roebourne 7 Mile Waste Facility is located approximately 10km from Karratha on the Karratha to Dampier Road.

Plate 7: Existing signage



3.2.2 Access

Access to Gnoorea Point is provided by Forty Mile Beach Road. This is a well-defined and maintained gravel road.

Access to Mangrove beach is provided primarily by a track constructed along the pipeline fabrication corridor. Although this track is the preferred method of accessing Mangrove Beach, another track is located along the dune ridge. This track provides access to the camp sites along Mangrove Beach. No access is recommended to be permitted between this track and Mangrove Beach, and no 4WD access is recommended between the mangroves and the dunes along the beach. Fencing or more natural barriers should be installed to deter random vehicle and pedestrian access to the dune system.

Access is permitted to Mangrove Beach at the southern end of the track (Figure 1) and this should be formalised with fencing and hardstand to prevent the track entrance from widening further and signage erected to provide information. Vehicle access along Mangrove Beach to Cape Preston may continue but foredune damage and other effects should be regularly monitored (Astron, 1998).

Similar to Mangrove beach, a track exists along the dune at Gnoorea Point which provides access to the campsites at the western end of 40 Mile beach. All other tracks through the dunes should be closed and rehabilitated (Figure 4).

Access to the Quarry and Fenceline sites is provided by a track which links all sites, or from Forty Mile Beach Road. Although these sites provide access to the beach, it is recommended that fenced pedestrian access is also provided to address pedestrian safety. Some form of traction for walkers such as crushed limestone may need to be provided over the foredune.

Access to Pelican Point is provided by a track from the Fenceline site. This track runs along the dune ridge and is stable and firm. It is one vehicle width wide and is contained by the steepness of the dunes it travels over. Nearer to the mangroves the track is further contained by a limestone ledge and mudflats. This track is very scenic providing views over the embayment, mangroves and coastal plains.

Additional tracks have been established over the dunes, linking this track with the beach. It is recommended that all tracks over the 40 Mile Beach dune are closed and rehabilitated. This is largely in response to the need to protect the registered Aboriginal Heritage site as well as to address the significant impact that results from vehicle access over the soft dunal sands. Access to the beach may be provided at Pelican Point. Fencing and hardstand may be necessary to prevent the track from widening.

Access to the eastern part of Pelican Point should be provided by a walk trail. Signage should also be erected explaining the system of paths and that the track is only a single lane wide.

Continued access through Mardie Station or on the track to Cape Preston should not be permitted. The informal track which leads off the North West Coastal Highway into Gnoorea should also be bollarded to prevent further use. This and all tracks leading away from Gnoorea should be cross bollarded at 50m intervals over a distance of 200 m and appropriate signs posted to deter use. The bollards can then be removed after vegetation has re-established over the tracks. Access south from the boundary along the beach can be tolerated, provided foredune damage is prevented and the situation regularly reviewed (Astron, 1998).

3.2.3 Revegetate degraded areas

The vegetation across Gnoorea is significantly degraded by uncontrolled access and weeds including Buffel Grass and Kapok. There is a need to undertake weed management activities in all areas surrounding the camp ground in an effort to re-establish native vegetation.

Dune rehabilitation should be undertaken in disturbed areas, in particular at the beach access point. The dune ridge track to the east and west of the site should be closed and rehabilitated. Dune conservation should be adopted for the remainder of the dunes to preserve the natural system.

Plate 8: Damage occurs to fences



3.3 Implementation

The recommendations of the Foreshore Management plan are to be undertaken by the Shire of Roebourne in partnership with the Traditional Owners, with assistance from the community and other stakeholders. Priority actions are summarised in table 1.

Any ground disturbing works will also require Aboriginal Heritage Surveys and Section 18 Applications where necessary to meet with the requirements of the *Aboriginal Heritage Act (1972)*. Aboriginal Heritage Monitoring may also be required during the undertaking of the ground disturbing works if heritage sites are identified. Cultural Heritage Management Plans should be produced after the Survey work has been completed and all the Aboriginal sites have been located.

Although the actions listed in Table 1 are recommended as priorities for implementation, this Foreshore Management Plan contains a number of other recommendations which are also suggested to improve the management of the Gnoorea Foreshore. It is also recognised that further detailed work will be required, including detailed design and costing of infrastructure, to facilitate implementation in some instances. As such, all information in this plan should be considered as part of future management and/or investment in the region.

3.4 Monitoring and review

It is recommended that the implementation of this Foreshore Management Plan is audited annually and outstanding actions incorporated into the shire's asset management program.

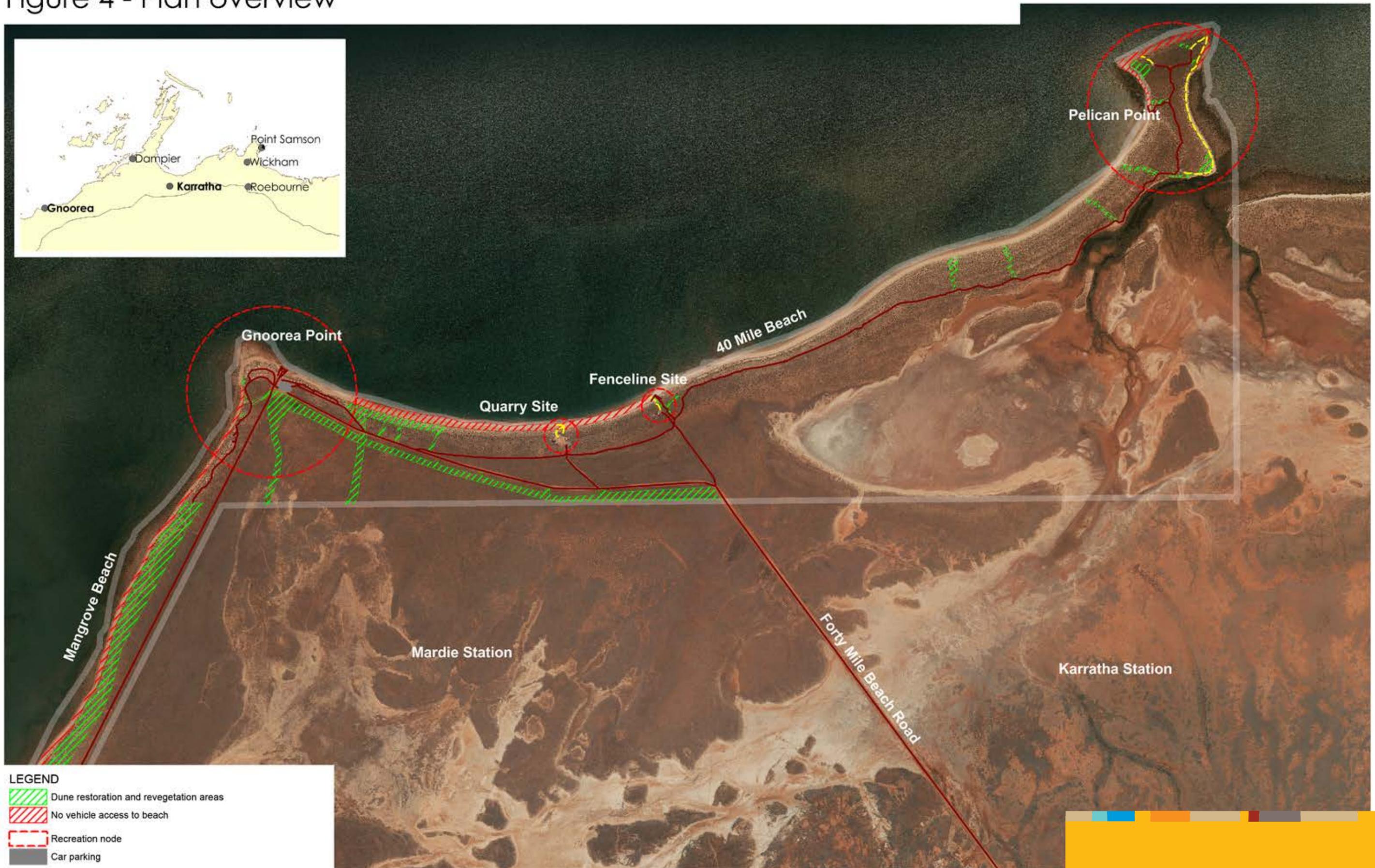
The effectiveness of the Foreshore Management Plan should be reviewed in 5 years and updated as required.

Table 1: Priority actions for implementation

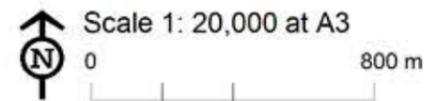
Recommendation	Location	Priority
Delineate camping areas and provide for short and long term stays. Camping is to be restricted outside these areas	Gnoorea Point, Quarry site	Highest
Develop a business case for operation and management of the Gnoorea campsite	Gnoorea Point, Quarry site	High
Provide car parks and designated areas for day usage	Gnoorea Point, Fenceline, Pelican Point	High
Provide additional shelters	Gnoorea Point, Quarry, Fenceline and Pelican Point	Medium
Construct fire pits for cooking	Gnoorea Point, Quarry and Pelican Point	Medium
Provide appropriate signage to control access and activities	Everywhere	Medium
Incorporate Aboriginal culture and business opportunities	Gnoorea Point	High
Provide dry composting toilets	Gnoorea Point (4) and Quarry site (2)	High
Provide formal access for 4WD onto the beach including fencing and hardstand	Pelican Point, south Mangrove Beach	Medium
Provide separate pedestrian access to the beach	Quarry, Fenceline and Pelican Point	High
Establish nature-based walk trail and signage	Eastern edge of Pelican Point	Low
Close and bollard undesirable tracks	40 Mile Beach, Mangrove beach and all access points into the Pastoral stations	High
Rehabilitate dunes and closed tracks	40 Mile Beach, Mangrove beach and all access points into the Pastoral stations	Medium
Undertake weed management	Gnoorea Point, 40 Mile Beach and Mangrove Beach foredunes	Low
Incorporate environmental and cultural education material and programs	Gnoorea Point and Quarry camp sites	Low

Shire of Roebourne - Gnoorea (40 Mile) foreshore management plan

Figure 4 - Plan overview



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Shire of Roebourne - Gnoorea (40 Mile) foreshore management plan

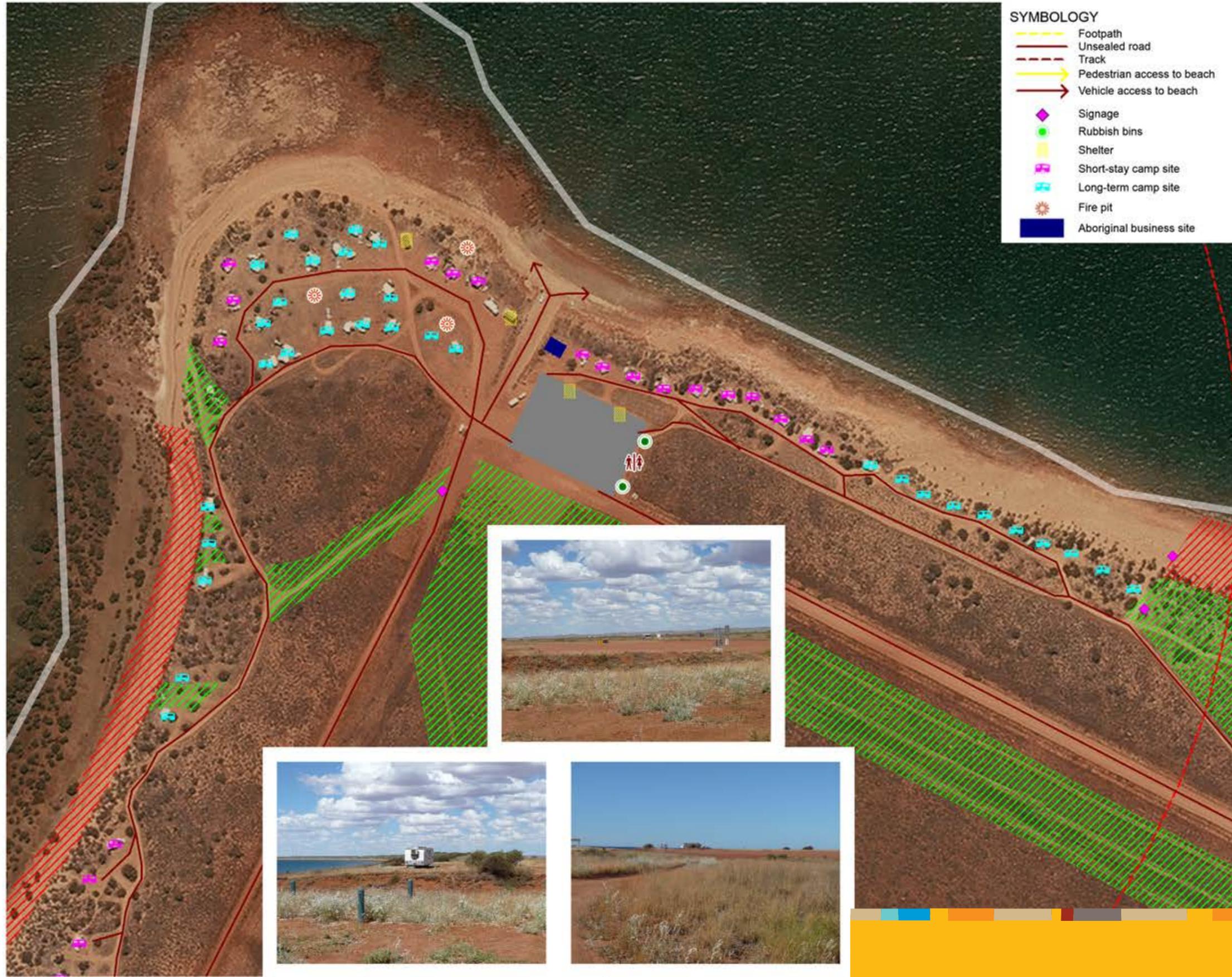
Figure 5 - Node 1: Gnoorea Point



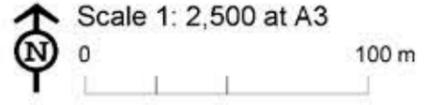
- NOTES:**
- Maximum allowable camping:
 - 20 sites along northern shore (10 long-term, 10 short-stay)
 - 24 sites at headland (17 long-term, 7 short-stay)
 - 20 sites along western shore (10 long-term, 10 short-stay)
 - Retain existing shelters and car parking.
 - Construct 3 additional shelters and 3 fire pits.
 - Close road to Mangrove beach and undertake dune restoration and revegetation.
 - Provide signage indicating restrictions to vehicle access.



- LEGEND**
- Dune restoration and revegetation areas
 - Vehicle access to beach
 - Recreation node
 - Car parking



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Shire of Roebourne - Gnoorea (40 Mile) foreshore management plan

Figure 6 - Node 2: Quarry site



SYMBOLY

- Footpath
- Unsealed road
- Pedestrian access to beach
- Vehicle access to beach
- Signage
- Rubbish bins
- Shelter
- Toilet facilities
- Short-stay camp site
- Long-term camp site
- Fire pit

NOTES:

1. Maximum allowable camping:
- 11 sites (5 long-term, 6 short-stay)
2. Construct Toilet block, 2 shelters and 1 fire pit.
3. Provide signage indicating no vehicular access to beach.
4. Provide dedicated pedestrian access to beach

LEGEND

- Dune restoration and revegetation areas
- No vehicle access to beach
- Recreation node
- Car parking

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Scale 1: 1,000
0 40 m

Scale 1: 20,000 at A3
0 800 m

Shire of Roebourne - Gnoorea (40 Mile) foreshore management plan

Figure 7 - Node 3: Fenceline site



SYMBOLOLOGY

- Footpath
- Unsealed road
- Pedestrian access to beach
- Vehicle access to beach
- Signage
- Rubbish bins
- Shelter
- Toilet facilities
- Short-stay camp site
- Long-term camp site
- Fire pit

- NOTES:**
1. Provide signage indicating 'no camping'.
 2. Construct shelter.
 3. Provide signage indicating no vehicular access to beach.
 4. Provide dedicated pedestrian access to beach
 5. Undertake dune restoration and revegetation

LEGEND

- Dune restoration and revegetation areas
- No vehicle access to beach
- Recreation node
- Car parking

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Scale 1: 1,000

Scale 1: 20,000 at A3

Shire of Roebourne - Gnoorea (40 Mile) foreshore management plan

Figure 8 - Node 4: Pelican Point



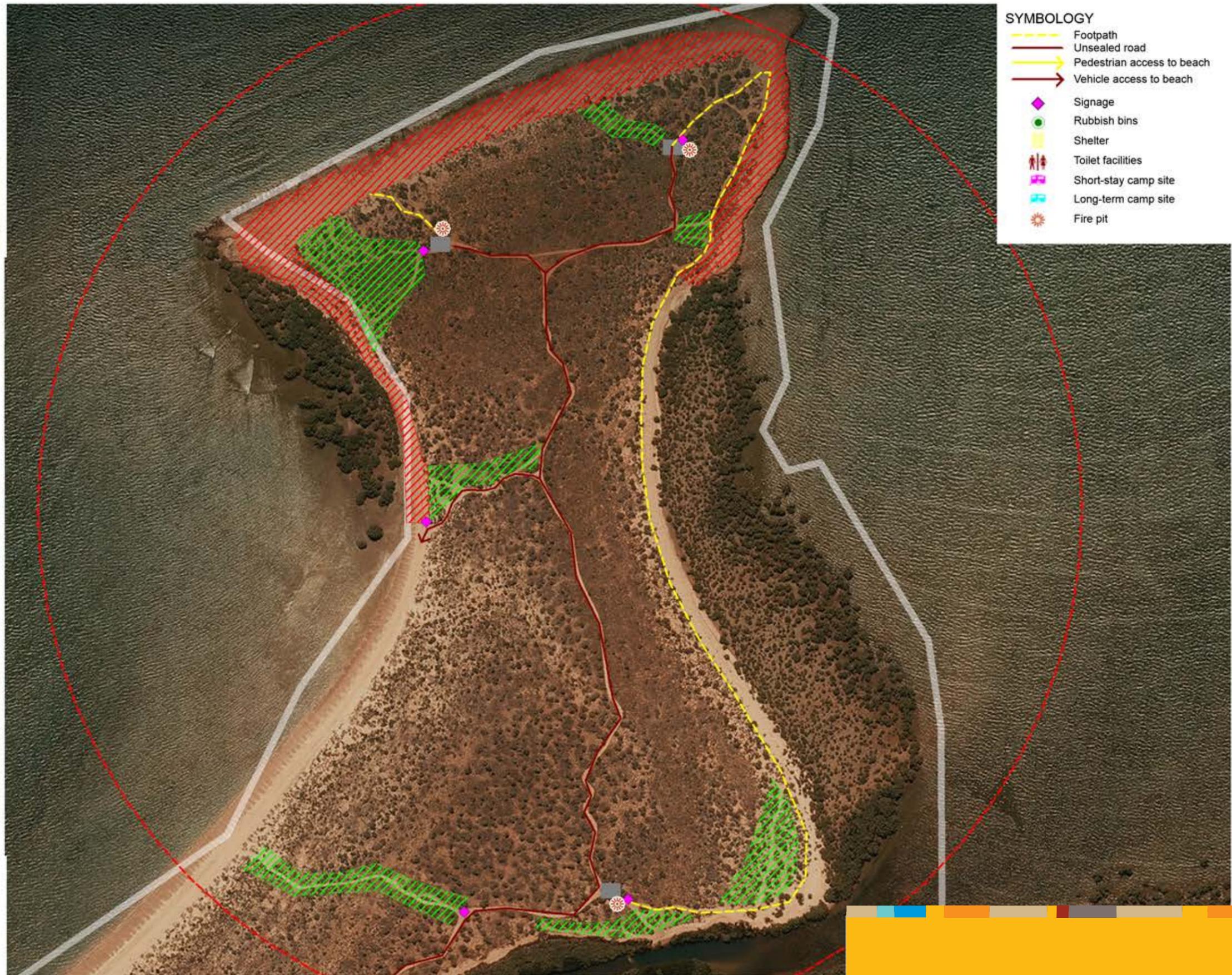
NOTES:

1. Establish nature based walk trail and signage.
2. Construct limited car parking and fire pits at three locations.
3. Close all except 1 vehicle accessway to beach and undertake dune restoration and revegetation.
4. Provide signage indicating restrictions to vehicle access.



LEGEND

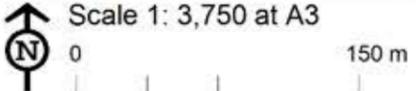
- Dune restoration and revegetation areas
- No vehicle access to beach
- Recreation node
- Car parking



SYMBOLOLOGY

	Footpath
	Unsealed road
	Pedestrian access to beach
	Vehicle access to beach
	Signage
	Rubbish bins
	Shelter
	Toilet facilities
	Short-stay camp site
	Long-term camp site
	Fire pit

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Appendix 1

Flora and Fauna
Search Reports



Printed by Guest user on 27/5/2013

Query details : Current Names Only=Yes; Core Datasets Only=Yes; Method='By Circle'
Centre=116°22' 18" E,20°50' 30" S; Buffer=4km;



NatureMap Species Report

Created By Guest user on 27/05/2013

Current Names Only Yes
 Core Datasets Only Yes
 Method 'By Circle'
 Centre 116°22' 18" E,20°50' 30" S
 Buffer 4km
 Group By Conservation Status

Conservation Status	Species	Records
Rare or likely to become extinct	1	1
Protected under international agreement	3	4
Non-conservation taxon	56	140
TOTAL	60	145

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
Protected under international agreement				
2.	25736 <i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
3.	24778 <i>Arenaria interpres</i> subsp. <i>interpres</i> (Ruddy Turnstone)		IA	
4.	24803 <i>Tringa brevipes</i> (Grey-tailed Tattler)		IA	
Non-conservation taxon				
5.	26442 <i>Acetabularia calyculus</i>			
6.	-11968 <i>Aname mellosa</i>			
7.	26507 <i>Boergesenia forbesii</i>			
8.	25017 <i>Carlia triacantha</i>			
9.	-11998 <i>Cavisternum clavatum</i>			
10.	24377 <i>Charadrius ruficapillus</i> (Red-capped Plover)			
11.	-11564 <i>Copidognathus meridianus</i>			
12.	-13273 <i>Cormocephalus turneri</i>			
13.	25701 <i>Coturnix ypsilophora</i> (Brown Quail)			
14.	24876 <i>Ctenophorus isolepis</i> subsp. <i>isolepis</i> (Crested Dragon, Military Dragon)			
15.	25045 <i>Ctenotus helenae</i>			
16.	25077 <i>Ctenotus serventyi</i>			
17.	777 <i>Cyperus bulbosus</i> (Bush Onion, Tjanmata)			
18.	24091 <i>Dasykaluta rosamondae</i> (Little Red Kaluta)			
19.	26769 <i>Dictyosphaeria cavernosa</i>			
20.	24926 <i>Diplodactylus conspicillatus</i> (Fat-tailed Gecko)			
21.	25622 <i>Falco cenchroides</i> (Australian Kestrel)			
22.	24959 <i>Gehyra variegata</i>			
23.	7526 <i>Goodenia microptera</i>			
24.	25627 <i>Haematopus fuliginosus</i> (Sooty Oystercatcher)			
25.	25541 <i>Haliastur indus</i> (Brahminy Kite)			
26.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
27.	26949 <i>Hydroclathrus clathratus</i>			
28.	25125 <i>Lerista bipes</i>			
29.	30928 <i>Lerista clara</i>			
30.	-13092 <i>Litarachna curtialpis</i>			Y
31.	-11728 <i>Litarachna denhami</i>			Y
32.	30933 <i>Lucasium stenodactylum</i>			
33.	25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren)			
34.	25184 <i>Menetia greyii</i>			
35.	25422 <i>Neobatrachus aquilonius</i> (Northern Burrowing Frog)			
36.	24969 <i>Nephrurus levis</i> subsp. <i>pilbarensis</i>			
37.	25430 <i>Notaden nichollsi</i> (Desert Spadefoot)			
38.	24224 <i>Notomys alexis</i> (Spinifex Hopping-mouse)			
39.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
40.	-12603 <i>Pilbarascutigera incola</i>			

NatureMap is a collaborative project of the Department of Environment and Conservation, Western Australia, and the Western Australian Museum.



Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
41.	-12708 <i>Pontarachne dampierensis</i>			Y
42.	-12817 <i>Pontarachne minuta</i>			Y
43.	24234 <i>Pseudomys delicatulus</i> (Delicate Mouse)			
44.	24237 <i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
45.	8192 <i>Pterocaulon sphacelatum</i> (Apple Bush)			
46.	11240 <i>Rhagodia preissii</i> subsp. <i>obovata</i>			
47.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
48.	-13150 <i>Rhombognathus delicatulus</i>			
49.	-13149 <i>Rhombognathus levigatus</i>			
50.	-12863 <i>Rhombognathus petraeus</i>			Y
51.	-11642 <i>Rhombognathus scutulatus</i>			
52.	7608 <i>Scaevola cunninghamii</i>			
53.	-13288 <i>Simaetha knowlesi</i>			
54.	24116 <i>Sminthopsis macroura</i> (Stripe-faced Dunnart)			
55.	24946 <i>Strophurus strophurus</i>			
56.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
57.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
58.	27349 <i>Udotea flabellum</i>			
59.	25212 <i>Varanus eremius</i> (Pygmy Desert Monitor)			
60.	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

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



Australian Government

Department of Sustainability, Environment,
Water, Population and Communities

EPBC Act Protected Matters Report

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

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

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

Report created: 27/05/13 13:47:35

[Summary](#)

[Details](#)

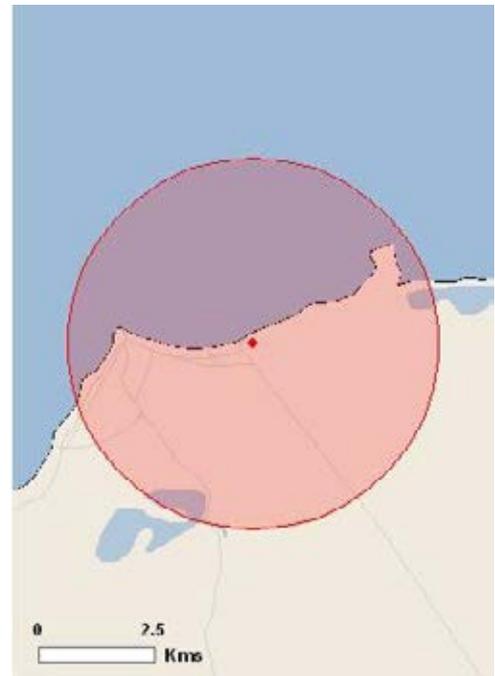
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

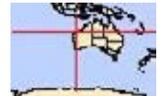
[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

[Buffer: 4.0Km](#)



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	15
Listed Migratory Species:	22

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 and the heritage values of a place on the Register of the National Estate.

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.

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	59
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

Place on the RNE:	2
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	6
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus		
Blue Whale [36]	Endangered	Species or species habitat may occur within area
Dasyurus hallucatus		
Northern Quoll [331]	Endangered	Species or species habitat likely to occur within area
Macrotis lagotis		
Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Notoryctes caurinus		
Karkarratul, Northern Marsupial Mole [295]	Endangered	Species or species habitat likely to occur within area
Rhinonictes aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Aipysurus apraefrontalis		
Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known

Name	Status	Type of Presence
		to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Sharks		
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area

Name	Threatened	Type of Presence area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Fish		
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area

Name	Threatened	Type of Presence area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Solenostomus paegnius Rough-snout Ghost Pipefish [68425]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species

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

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

Extra Information

Places on the RNE		[Resource Information]
Name	State	Status
Natural		
Coastal Margin Cape Preston to Cape Keraudren	WA	Indicative Place
Dampier Archipelago Marine Areas	WA	Indicative Place

Invasive Species

[Resource Information]

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

Name	Status	Type of Presence
Mammals		
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris		
Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Prosopis spp.		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area

Coordinates

-20.8419 116.3719

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

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:

- [Department of Environment, Climate Change and Water, New South Wales](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment and Natural Resources, South Australia](#)
- [Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [Environmental and Resource Management, Queensland](#)
- [Department of Environment and Conservation, Western Australia](#)
- [Department of the Environment, Climate Change, Energy and Water](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
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- [Australian Museum](#)
- [SA Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
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- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
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- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [State Forests of NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- Other groups and individuals

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

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

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Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Shire of Roebourne

Lot 1083 Welcome Road
PO Box 219
Karratha WA 6714
(08) 9186 8555
sor@roebourne.wa.gov.au

