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Ravensthorpe District Draft Coastal Management Plan



**Department of Conservation and Environment
Perth, Western Australia**

**Bulletin 152
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Ravensthorpe District Draft Coastal Management Plan

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1. INTRODUCTION

1.1 BACKGROUND

In July 1976 the Environmental Protection Authority (EPA) published its Red Book "Conservation Reserves for Western Australia, Systems 1, 2, 3, 5".

Following the Cabinet endorsement of recommendation 3.10 - The South Coast, the Ravensthorpe South Coast Working Group was formed to provide advice to the EPA on the future control and management of Crown Lands along the coast of the Shire of Ravensthorpe.

The Ravensthorpe Working Group emphasized the present and anticipated high recreation use of the coast. It expressed the need for the Shire to undertake a greater role in reserve management particularly with respect to the provision of local recreation amenities and coastal protection measures.

The Ravensthorpe Working Group (1980) recommended the area west of Hopetoun be vested with the Ravensthorpe Shire Council, and that the Vacant Crown Land east of Hopetoun, in the area between the eastern boundary of Oldfield Location 335 and the western boundary of Reserve 7580, vest jointly in the Ravensthorpe Shire and the West Australian Wildlife Authority (WAWA). The Working Group Report was endorsed by the EPA in 1981, with the proviso that management plans be prepared for the subject lands.

Following discussions with the Ravensthorpe Shire, the Department of Fisheries and Wildlife and the Department of Lands and Surveys it was agreed that joint vesting of reserves was impractical for management purposes. The area south of Southern Ocean East Road extending to high water mark is now recommended as a reserve for the purpose of "Recreation" with vesting in the Shire of Ravensthorpe. The area north of Southern Ocean East Road is recommended for the purpose of "Conservation of Flora and Fauna" with vesting in the Western Australian Wildlife Authority.

The Shire of Ravensthorpe has received approval as part of the Australian Bi-Centennial Road Programme to construct an extension of Southern Ocean East Road between Thirteen Mile Beach and Mason Bay Road. This may result in some slight amendment of the above reserve boundaries in establishing the centreline survey of the new road.

1.2 LOCATION

The Shire of Ravensthorpe is located in the southwest of Australia between the centres of Albany and Esperance (Figure 1). This Management Plan focuses on the coastal district and includes the nearshore environment to roughly one kilometre inland depending on the boundary of the reserves proposed for vesting with the Shire (Figure 2). The area extends from the western boundary of the Fitzgerald National Park at longitude 120° 03'E to the western boundary of Reserve 7580 at longitude 120° 30'E. It deletes the Hopetoun townsite, situated at latitude 33° 57'S and longitude 120° 07'E, which is covered by a separate town planning scheme.

1.3 SUBJECT LANDS

The Ravensthorpe coastal district has been divided into three sections for the purpose of this report, namely;

- 1) the reserves west of Hopetoun townsite
- 2) Hopetoun townsite (reference to planning scheme)
- 3) vacant crown land extending from the eastern boundary of Hopetoun townsite to the western boundary of Reserve 7580 and south of the Southern Ocean East Road.

The current and proposed vesting of the reserves is summarised in Table 1.

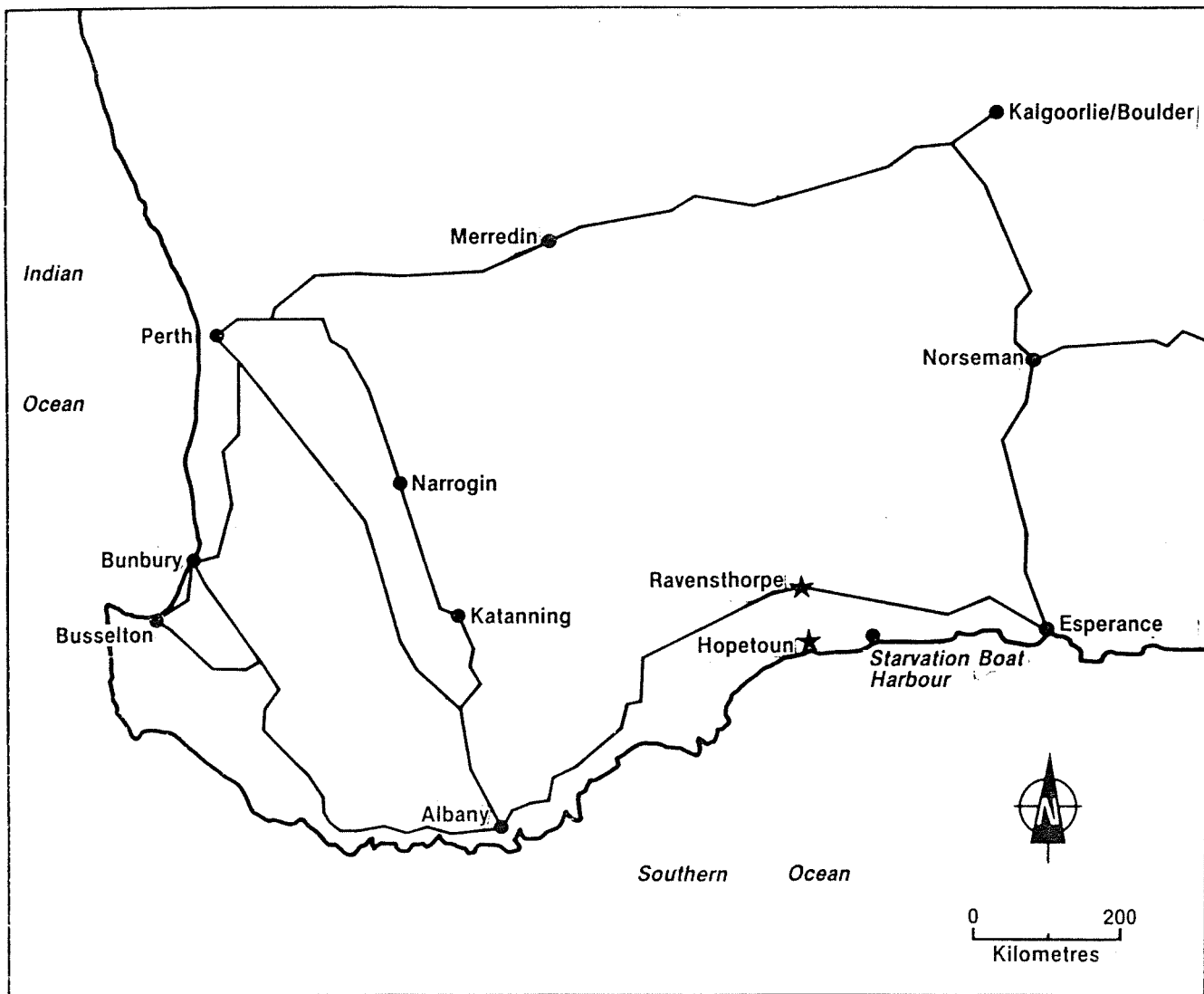


Figure 1. SOUTH-WEST WESTERN AUSTRALIA SHOWING THE LOCATION OF RAVENSTHORPE AND HOPETOUN.

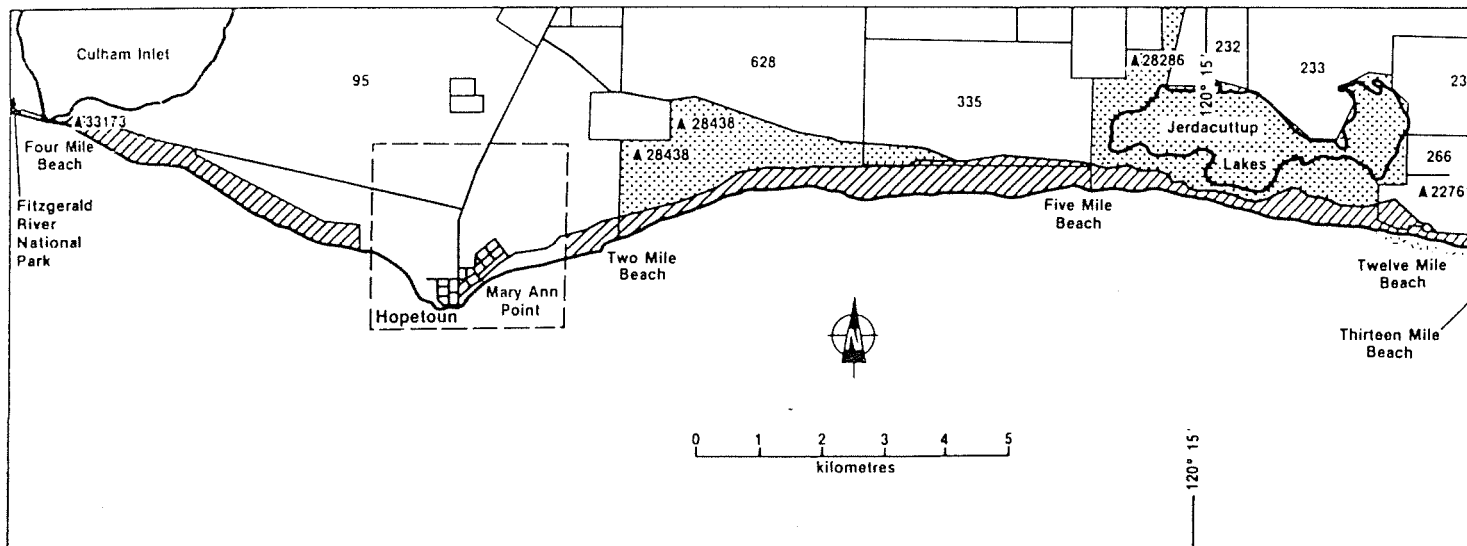
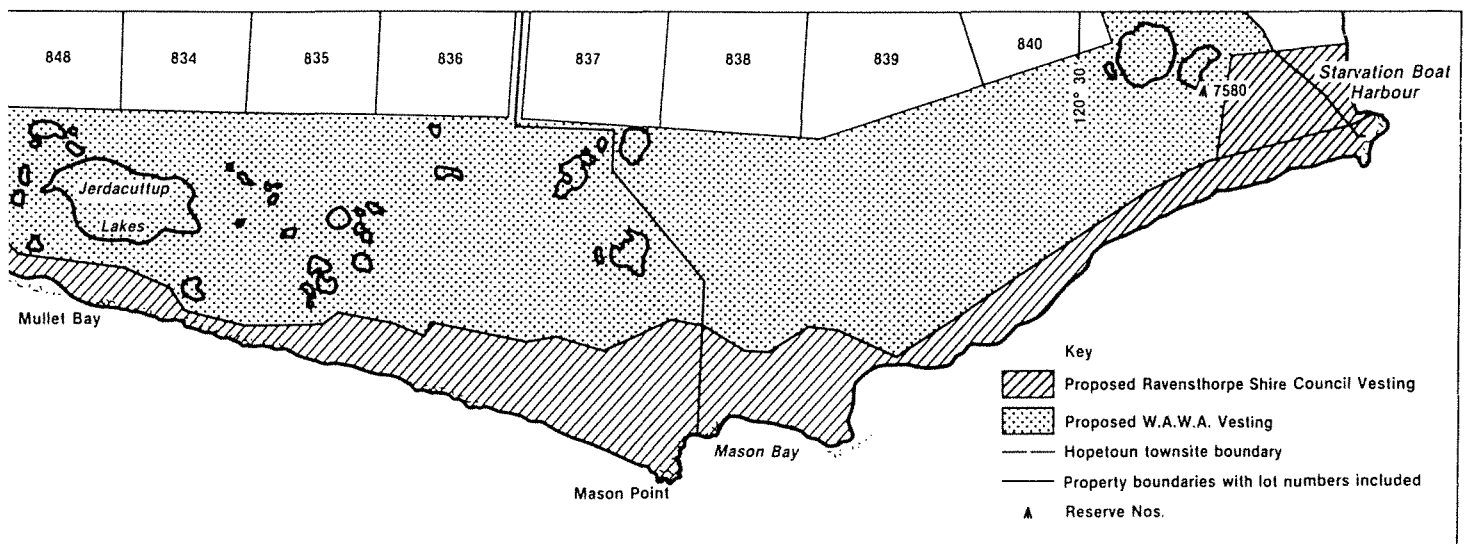


Figure 2. MAP INDICATING VESTITURE PROPOSALS FOR THE RAVENSTHORPE DISTRICT COAST.

Table 1 - The reserves and vacant Crown land which comprise the coastal strip between the Fitzgerald River National Park and Starvation Boat Harbour.

LOCATION	RESERVE	SIZE	PURPOSE	VESTITURE	
				CURRENT	PROPOSED
1. West of Hopetoun	33173(C)	173ha	Recreation	Unvested	R.S.C.
2. Hopetoun townsite environs	28280Pt	65ha	Park	Unvested	
	22810		Children's Play Ground	R.S.C.	
	22811	Camping	R.S.C.		
	35379	Recreation & Parkland	R.S.C.		
3. East of Hopetoun	V.C.L. -	East of townsite boundary to western boundary of Reserve 7580 and south of Southern Ocean East Road			R.S.C.

Reserve 7580 and surrounding lands to the east at Starvation Boat Harbour are the subject of a separate management plan. Refer to Department of Conservation and Environment Bulletin 151, February 1984.



2. NATURAL RESOURCES

2.1 CLIMATE

The coastal section enjoys a warm Mediterranean climate with an annual dry season of 5 to 6 months occurring between November and April. At Hopetoun the annual average rainfall recorded over 82 years is 502mm, with 51% falling between May and August. (Table 2)

Table 2 - Average rainfall figures recorded at Hopetoun for the period 1901-1983 (source: Bureau of Meteorology, Perth).

J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
18	21	29	41	61	64	60	59	53	46	29	21	502mm

The average January maximum temperature is about 30°C and the average July minimum is 18°C. Cool breezes and cloudy weather predominate for most of the year.

A general impression of dominant wind direction and intensity for the Ravensthorpe coastal district is best obtained from the four years of records for Starvation Boat Harbour provided by the Bureau of Meteorology, Perth.

Summer AM winds are mainly south westerlies which tend south, south east towards the end of the season. The prevailing PM winds are south easterlies often reaching 11 to 20 kilometres per hour. By April AM winds tend westerly but they are usually of low intensity. North westerly winds are experienced throughout the day for June/July with some gale force conditions. In August/ September AM winds tend westerly while PM winds are mainly south westerly with the main wind speed at 6 to 10 kilometres per hour. October/November sees a gradual return to the summer wind pattern.

2.2 GEOLOGY AND LANDFORMS by W.M. McArthur, Consultant Geologist.

Basement geology consists of Precambrian igneous and metamorphic rocks which are mostly obscured by consolidated and unconsolidated Quaternary aeolian materials. The major landforms are transgressive and parabolic dunes and stranded beach ridges.

2.2.1 Precambrian Succession

The Precambrian rocks include migmatites, often with banded structures, meta-sediments, and metamorphosed granitic rocks. The layers are steeply dipping and are mainly oriented NE to SW. Outcrops of these rocks may be seen along the shoreline around Hopetoun, at Mason Bay, and at Powell Point and Starvation Boat Harbour. (Thom, Lipple and Sanders 1977).

2.2.2 Quaternary (Pleistocene) Limestone

Along much of the coastal zone in the study area coastal limestone occurs as a low ridge roughly parallel to the present shoreline. This material probably Tamala Limestone (Playford), is of late Pleistocene age, has an important influence on the coastline. It has often cut off lakes and inlets thus altering the hydrology of the hinterland. It is apparently eroded by wave action and quickly forms an intertidal platform; these have formed at present sea level along much of the shoreline but may also be seen above present sea level as a raised bench and below sea level as arcs a few hundred metres offshore visible on air photos. These benches are important markers in late Pleistocene history.

2.2.3 Quaternary (Holocene) Sand Deposits

Most of the coast has a thin veneer of Holocene dune sand which originated on the beach and was transported inland by winds. They commonly overlie the coastal limestone. In most cases the transporting wind was from the south-west but some east-facing coasts have received sand from the south-east. The sands have accumulated in at least two phases of activity. The older, stabilised systems inland are often present as dune remnants and have a subdued topography.

The immediate coastline has a narrow zone of younger dunes which are steep, irregular, and show evidence of current wind modifications. The foredune is often much eroded and, in some cases has been breached allowing sand to be transported hundreds of metres inland.

In addition to the dunes some beaches are subtended by low parallel beach ridges which were stranded as the shoreline retreated. These are formed of the same materials as the dunes.

There are two other systems of dunes. The linear silicious dunes, aligned about NW to SE, belong to a system of continental dunes which occur across the southern margin of most of the Australian continent. They were probably formed in an arid period in early Holocene times. Finally there are the dunes which are associated with lakes and inlets. Often they work the former extent of the lakes as a curved lunette but are also seen as dunes which have originated in the lakes and blown towards the north-east.

2.3 VEGETATION

A vegetational succession can be observed on the coastal dunes. Species tolerant of windblast, salt spray and sand burial colonise the most seaward dunes and taller shrubs and trees inhabit the sheltered inter-dunal swales and stable dunes.

The low incipient foredune is colonised by Sea Rocket (*Cakile maritima*), Hairy Spinifex (*Spinifex hirsutus*), and *Euphorbia paralias* (Plate 1). The steep seaward facing slope of the high foredune varies from being very sparsely vegetated with *Scaevola crassifolia* in more exposed situations to thickly vegetated with the former species as well as Coast Daisy-bush (*Olearia axillaris*) and Coast Sword Sedge (*Lepidosperma gladiatum*). Foredune crests are commonly dominated by wind-pruned Rottneest Teatree (*Melaleuca lanceolata*) or low shrubs of *Scaevola crassifolia*, *Myoporum adscendens*, *Westringia dampieri* and *Acacia rostellifera*. The sheltered slope is characterised by Teatree and Coastal Moort (*Eucalyptus platypus* var *heterophylla*) (see Figure 3 and Plate 2).

The second dune is more diverse and the plant communities vary along the coastline. West of Hopetoun a closed woodland 5 to 10 metres high (see Figure 4) comprising Coastal Moort and Ridge-fruited Mallee (*Eucalyptus angulosa*) grown on the second dune and gradually grades into either a Silver Mallee (*Eucalyptus falcata*) dominated community or a low heath (including *Adenanthos cuneata*, *Melaleuca scabra* and *M. striata*) with emergent Tallarack (*E. tetragona*). A typical community of *Melaleuca nesophila* occurs on the high limestone ridge at the western limit of Reserve 33173.

East of Hopetoun a number of communities can be identified in the hind-dune region:

- (i) closed woodland (5 to 10 metres high) including Coastal Moort (*E. platypus* var. *heterophylla*), Ridge-fruited Mallee (*E. angulosa*) and in the vicinity of Jerdacuttup Lakes, Silver Mallet (*E. falcata*) and Swamp Yate (*E. occidentalis*).
- (ii) closed shrub (1 to 2 metre high) with *Acacia rostellifera*, or low mallee form *Eucalypts* and *Pomaderris myrtilloides*.
- (iii) low heath with emergent Tallarack (*E. tetragona*). Heath species include *Adenanthos cuneata*, *Melaleuca striata* and *Calothamnus quadrifidus*.
- (iv) low closed heath (approximately 1 metre high) characterised by species such as *Scaevola crassifolia*, *Spyridium globulosum*, *Westringia rigida*, *Olearia axillaris*, *Acacia cyclops* and *A. rostellifera*.



Plate 1 - A low incipient foredune colonised by the grass, Spinifex hirsutus, and the herb, Euphorbia paralias, has formed at the base of the high foredune at Twelve Mile Beach.



Plate 2 - Larger shrubs (Acacia rostellifera) and trees (Melaleuca lanceolata and Eucalyptus platypus) inhabit the sheltered region behind the high foredune.

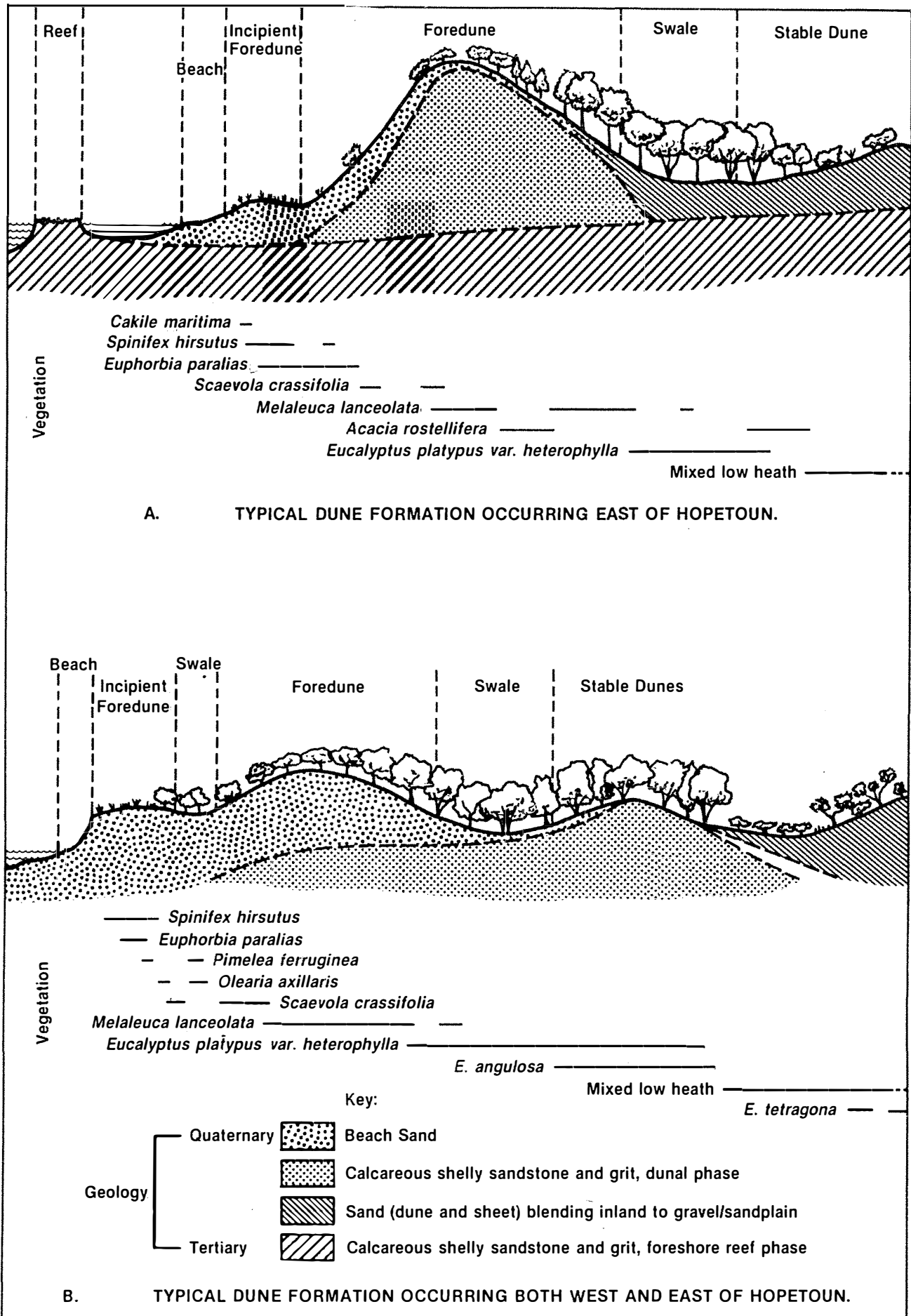


Figure 3. DIAGRAMMATIC REPRESENTATION OF THE COASTAL PLANT SUCCESSIONS AND GEOLOGICAL FORMATIONS OF THE RAVENSTHORPE SOUTH COAST.

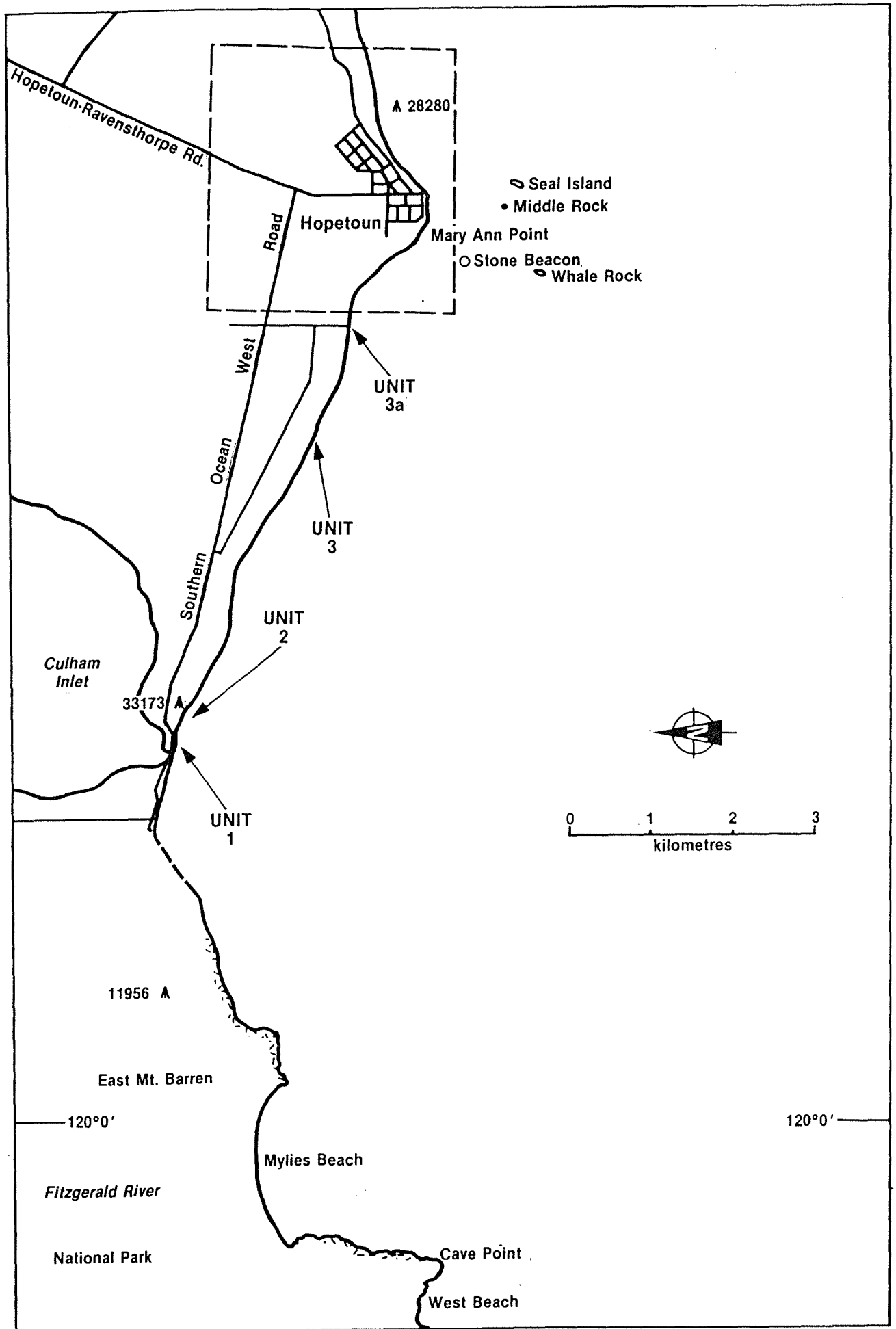


Figure 4. LOCATION OF MANAGEMENT UNITS 1-3, WEST OF HOPETOUN TOWNSITE.

In the more eastern section from Mason Bay to the western boundary of Reserve 7580, where the road alignment is further inland, the dense Eucalypt stands give way to thickets of Banksia including Scarlet Banksia (Banksia coccinea), Basters Banksia (Banksia baxteri) and Showy Banksia (Banksia speciosa). Also present are Chittick (Lambertia inermis), and stunted Christmas Trees (Nuytsia floribunda) which occur as thickets or as isolated emergents amongst closed heath.

2.4 WILDLIFE

A variety of birds can be observed along the coastal strip. Numerous nests of the White-browed Babbler (Pomatostomus superciliosus) can be found in sheltered regions behind the high foredune. Other species which feed extensively in the coastal strip but probably do not breed there include the New Holland Honeyeater (Phylidonyris novealandiae), White-browed Scrub Wren (Scricornis frontalis maculatus), Field Wren (Calamanthus fuliginosus), Weebill (Smicronis brevirostris), and Rock Parrot (Neophema petrophila).

Echidnas (Tachyglossus aculeatus) inhabit regions of consolidated sands or limestone. Other mammals which visit the area include the Western Grey Kangaroo (Macropus fuliginosus), foxes (Vulpes vulpes) and rabbits (Oryctolagus cuniculus). Feral cats are also common.

Lizards and skinks inhabit the region and snakes have been observed in the area, including the death adder (Acanthophis antarcticus) and tiger snake (Notechis scutatus).

The introduced snail Theba pisana is very common on calcareous sands, whereas the native terrestrial snail (Brothriembryon sp.) occurs infrequently.

3. PATTERN OF ACCESS AND HUMAN ACTIVITIES

Southern Ocean West Road which extends to the Fitzgerald River National Park provides conventional vehicle access to specific beaches west of Hopetoun. Fishing is the main activity along this section of the coast with some surfing near Culham Inlet. People's use of these beaches is increasing and clandestine camping needs to be controlled.

Southern Ocean East Road (gravel surface) currently terminates at Thirteen Mile Beach. Popular swimming spots have sheltered waters formed by offshore reefs and fishermen are active along the shore. Illegal camping does occur at some 'picnic' sites.

The access along the remainder of the coast is restricted to 4WD vehicles except for Mason Bay and Starvation Boat Harbour which have gravel road via Jerdacuttup to the north. A similar range of activities and attractive beaches is experienced with less numbers of people.

4. MANAGEMENT STRATEGY

4.1 AIMS

In broad terms the management aims for the Ravensthorpe coastal district are listed as follows:-

1. To maintain the fragile coastal ecosystem.
2. To effectively manage environmental problems peculiar to the south coast.
3. To preserve and promote the attractive recreational resource of the south coast.

4.2 OBJECTIVES

Achievable objectives are:-

1. To conserve the scenery, native plants and native animals.
2. To implement a bushfire hazard reduction policy and to suppress bushfires where necessary.
3. To provide and maintain selected recreation areas and facilities, and to confine access to such areas to prevent environmental damage.

4.3 OBJECTIVE IMPLEMENTATION

Management Objective 1:

Only uses that are compatible with the character of the reserves will be permitted, such as walking, sight-seeing, nature study, painting, photography, swimming, camping, fishing and boating. Horse-riding will be confined to selected tracks and beaches.

All types of motor vehicles will be confined to selected tracks. 4WD vehicles, beach buggies and trail bikes will not be excluded from the beach, however, they will be excluded from the sensitive dune systems where their use could initiate dunal blowouts.

All activities should be excluded that conflict with environmental conservation, or that inconvenience or are potentially harmful to other recreationists.

Management Objective 2:

Fire control will be in accord with the Western Australian Wildlife Authority's (WAWA) Policy on Fire in Nature Reserves, as adopted in 1975.

Firebreaks will be planned following consultation with the Fire Liaison Office, Fire Research, Bush Fires Board of W.A. and with WAWA where it controls adjoining lands.

A prescribed burning programme will be developed as necessary with the dual aims of reducing the fire hazard and regenerating the vegetation. Special attention will be given to recreation areas. Picnic fires will be permitted only in developed recreation areas, subject to the provisions of the Bush Fires Act.

The control of wild fires on Shire of Ravensthorpe vested Reserves will be the responsibility of local Brigades.

Assistance will be sought from the WAWA, Bush Fires Board and National Parks Authority as appropriate and available.

Management Objective 3:

Recreational facilities such as roads, sign posting, picnic areas, camp sites, fire places, boat ramps, toilets, garbage removal, water supplies, etc. will be provided by the Shire, with appropriate assistance from Government.

Maintenance of recreation areas will be undertaken by a Shire Ranger.

4.4 RAVENSTHORPE SHIRE POLICY FOR RECREATION AMENITIES

Five levels of management are delineated for coastal recreation areas which include the varying needs of both day-users and campers (Table 3). Camping is permitted in sites which are further than 16 kilometres from a designated Caravan Park. It should be noted that management aims and objectives apply equally to all levels of recreation amenity development.

Level	Description
1.	The amenities are planned for areas with a large aggregation of people.
2.	To be provided at popular areas with facilities for short term camping.
3.	Planned for low key overnight camping in defined areas.
4.	For isolated areas mainly inaccessible by conventional vehicles. Minimum management consistent with the stability of the coast at access points.
5.	Car park and beach path. Provided in close proximity to popular areas. Intended to relieve pressure on main beaches as necessary.

Note: The terms 'carpark' and 'beach path' or 'path' are used throughout the Plan text and refer to amenities that have to be fenced to manage people's activities.

Table 3 - Summary of facilities included within the five levels of management for recreation areas on the Ravensthorpe district coast.

FACILITY	MANAGEMENT LEVEL				
	1	2	3	4	5
Conventional Vehicle Access	+	+	+	.	+
Carpark	+	+	+	.	+
Beach Paths	+	+	+	.	+
Barbecues	+	+	+	-	.
Toilets	+	+	+	-	.
Showers	+	+	-	-	-
Tent Camping	+	+	+	+	-
Caravan Camping	+	+	.	-	-
Shops	+	-	-	-	-
Tavern-Hotel	+	-	-	-	-

+ = facility provided/use permitted

- = no facility/prohibited use

. = site specific recommendation

5. DETAILED MANAGEMENT PROPOSALS

For identification purposes specific management units have been numbered from west to east (Figure 2). Where relevant the local description has been added in parentheses. For the purpose of this Management Plan the coast has also been divided into three section (see 1.3 Subject Lands).

5.1 WEST OF HOPETOUN (Figure 4)

Extends from the Fitzgerald River National Park to Hopetoun townsite.

Unit 1 ("Surf Beach")

Surf beach is a wide sandy beach with a narrow zone of young dunes overlying coastal limestone. A raised bench of limestone occurs above the beach and an old shoreline is visible about 600 metres offshore. There is a low sand dune forming the bar to Culham Inlet.

The young dunes are very susceptible to erosion and management is currently required due to tracks damaging the sparse vegetation cover. Two vehicle tracks have been formed which lead from Southern Ocean West Road to the beach.

Recommendations:

- . close the eastern access where sand blows across the road. Bulldoze sand back to the foredune, brush, fence and signpost;
- . at the western access provide angle parking for up to six vehicles and a beach path.

Unit 2 ("Four Mile Beach, Figure 5)

This area has been used for many years by fishermen and campers before road access was provided across Culham Inlet to the National Park. The area has maintained its popularity and shows evidence of increasing use as a base for fishing and illegal camping.

There is a narrow zone of steep young dunes which contain large blowouts initiated by people's access to the beach. The area is also degraded by 4WD tracks.

Recommendations:

- . construct a new car park and block off the existing degraded area from vehicles;
- . improve the path to the beach;
- . relocate the entrance to the car park approximately 15 metres to the west and thereby reduce the traffic hazard from a blind corner.

Unit 3 and 3a ("Moylans")

The foreshore contains a narrow zone of low young dunes and a steep older dune all overlying coastal limestone.

Preliminary investigations for access to the coast from the southern boundary of Oldfield Location 95 (Lot 2), indicates that two access points may be required.

This area is to be planned in conjunction with Council's proposed Town Planning Scheme No. 4 Southern Districts Zoning Scheme. Further consultation with the Department of Conservation and Environment will be required.

5.2 HOPETOUN TOWNSITE

A separate statement of management is to be prepared for the Hopetoun environs as, planning will be affected by current construction of the fishing industry facility at Mary Ann Point. On Public Works Department advice no planning is to take place until the environmental effect of the groyne construction is clear. Surveillance of the area will continue until feasible planning proposals can be made in conjunction with the Public Works Department, Department of Harbours and Marine and Department of Conservation and Environment.

5.3 EAST OF HOPETOUN TOWNSITE TO WESTERN BOUNDARY OF RESERVE 7580

Unit 4 ("Two Mile Beach", Figure 7)

This is a small beach protected from the south west by a headland making it a popular local swimming spot. There is a narrow zone of beach ridges and young dunes all overlying limestone. 'Gullies' have been initiated on the dune's seaward face by people's tracks.

Management has included upgrading the access road, enlarging and consolidating the parking area, a beach path and fencing the dunes. Toilets and garbage bins are provided. An unrestricted area with make-shift fireplaces and a series of dirt tracks occurs to the west of the upgraded area. This area probably received the parking overflow during peak visitor periods to Two Mile Beach.

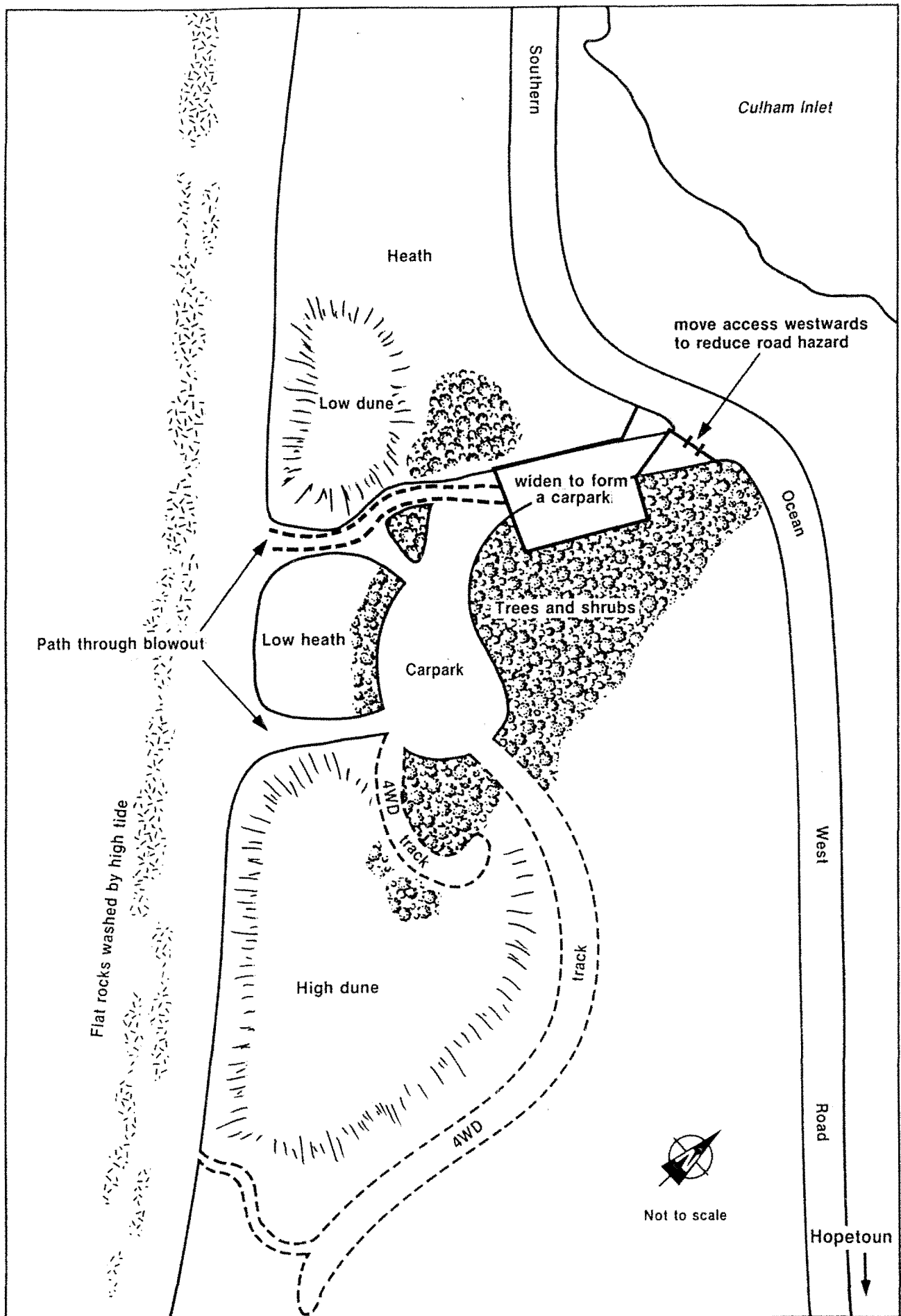


Figure 5. CONCEPT DIAGRAM OF MANAGEMENT RECOMMENDATIONS AT FOUR MILE BEACH.

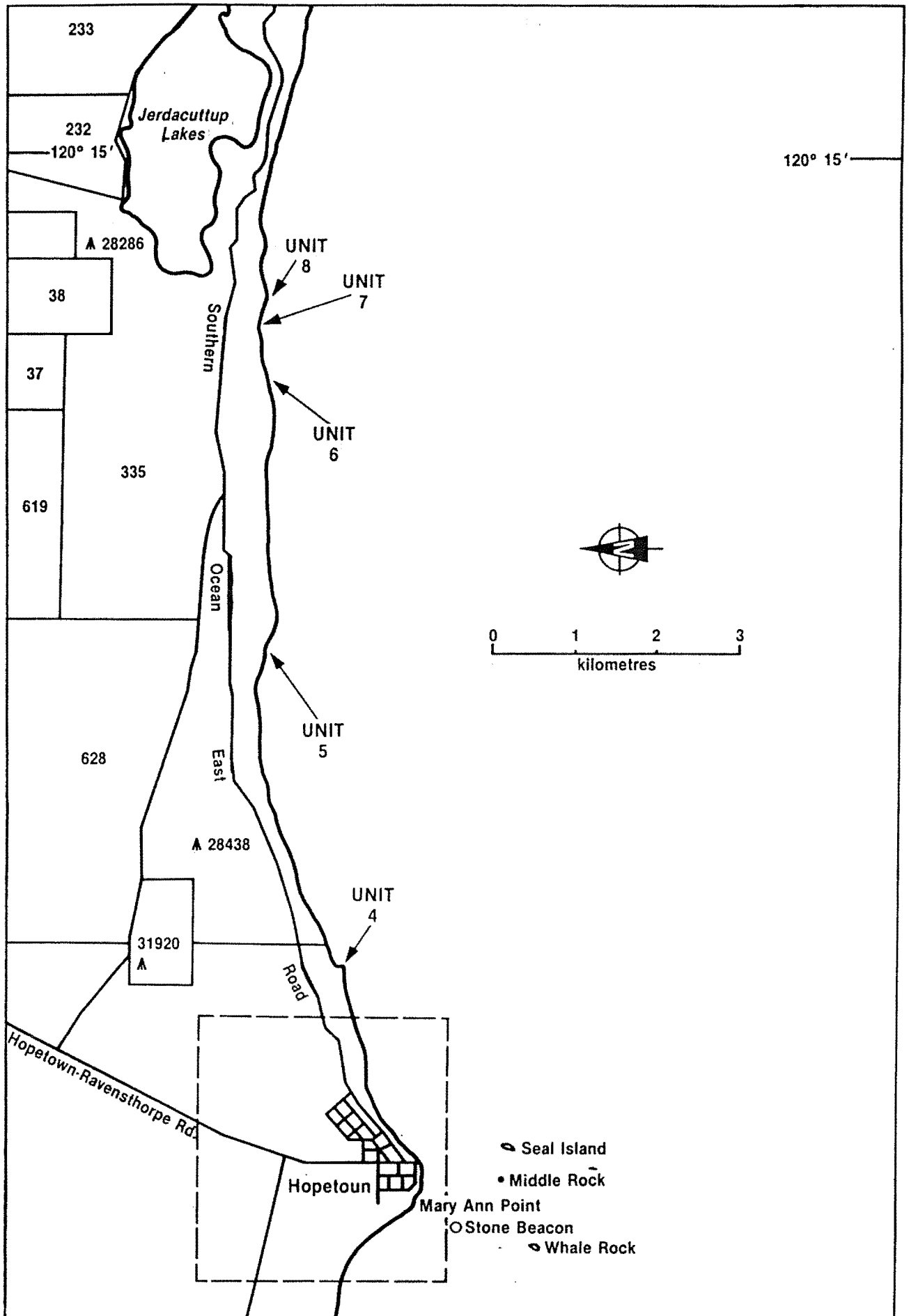


Figure 6. LOCATION OF MANAGEMENT UNITS 4-8, EAST OF HOPETOUN.

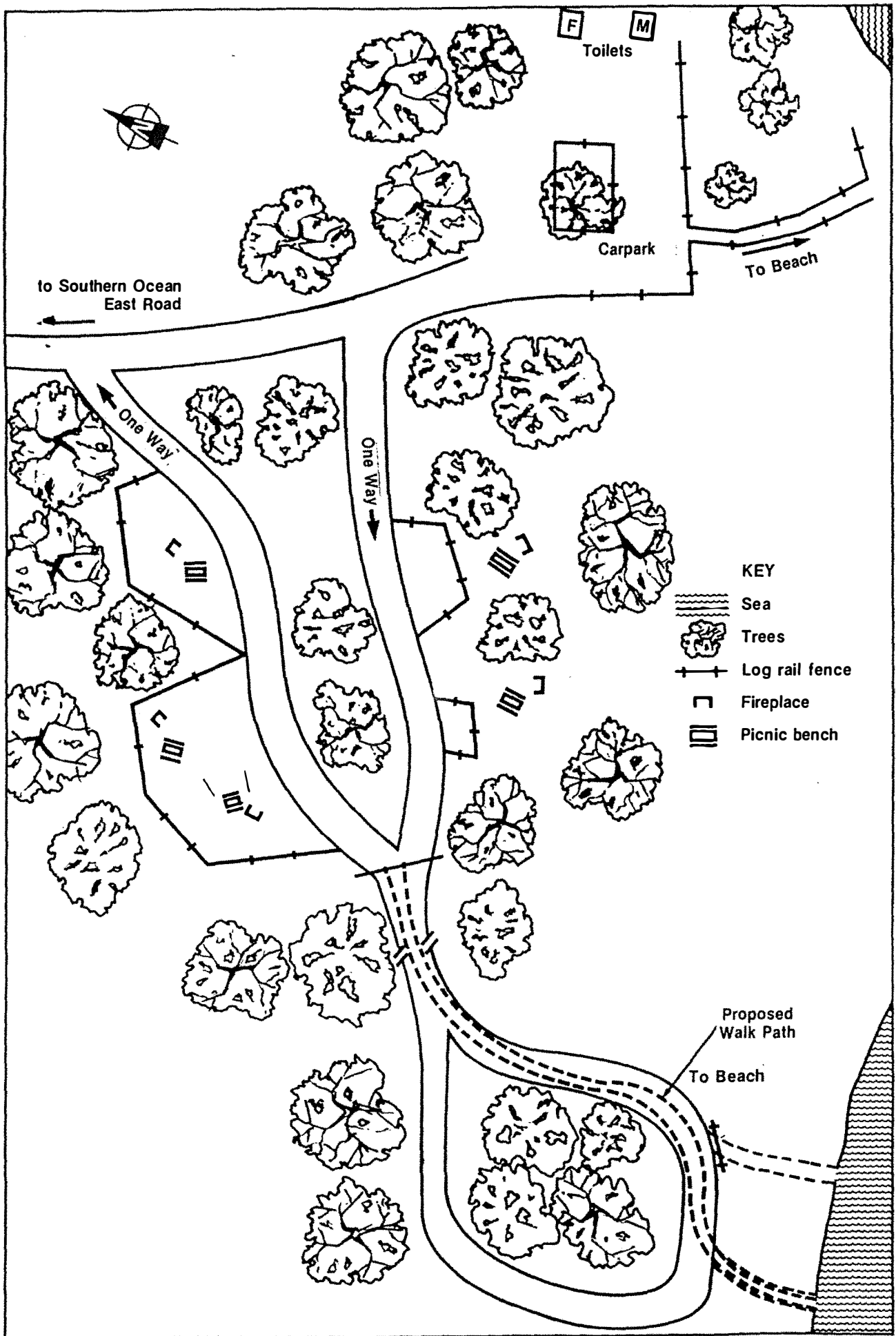


Figure 7. CONCEPT OF MANAGEMENT RECOMMENDATIONS AT TWO MILE BEACH.

Recommendations:

- . establish a picnic area at the overflow parking location;
- . block the 4WD track leading west and downgrade to a beach path;
- . provide steps on the steep beach path slope and block all other tracks.

Unit 5 ("Look-out")

The site has a very steep foredune on the seaward side of a limestone ridge. Current management includes provision of a carpark and a rubbish bin. A 4WD track is situated immediately to the east of the carpark; the track branches with one trail leading along the ridge, the other trail leads to the beach.

Future management includes a beach path leading from the western end of the carpark. The 4WD track will be closed.

Unit 6 ("Look-out 3")

Contains a zone of unstable young dunes with a steep slope to the beach. Current management includes parking space for three vehicles. There is an unfenced path to the beach. Use of the area will remain low key.

Unit 7 ("Five Mile Beach", Plates 3 and 4)

An offshore intertidal platform forms a sheltered and popular swimming area. Current management includes a carpark and a beach path. The path leads through the base of a dune blowout which appears to be active. The coast is unstable, the steep seaward facing slope of the foredune is often bare and deeply eroded, there is no incipient foredune. Exposed limestone shows high sea level and low sea level benches along the beach.

Recommendations:

- . provide steps over the steep slope of the beach path;
- . brush the slopes of the blowout beside the path;
- . provide a toilet facility.

Unit 8 ("Look-out 4")

This look-out is located 0.5 kilometres east of Five Mile Beach. Current management includes provision of a carpark. There is no plan to provide beach access. The steep dune and limestone ridge topography is similar to Unit 7 however, there is no sheltered swimming beach.

Unit 9 ("Six Mile Track")

Here there is a narrow zone of steep eroded dunes separated from the limestone ridge by a depression. A high sea level bench is exposed. The rocky shore attracts fishermen only. Management is still required due to the three tracks leading from a small carpark.

Recommendations:

- . close two of the tracks to the beach and provide one path;
- . undertake further planning of this area as required.

Unit 10 ("Creeping dunes")

A massive sand blowout is threatening encroachment on to Southern Ocean East Road (Plate 5). The road in this area runs very close to the Jerdacuttup Lakes. A series of active blowouts with a south-westerly orientation extend for approximately 400 metres along the foredune which reaches about 25 metres high. Landward the blowouts unite to

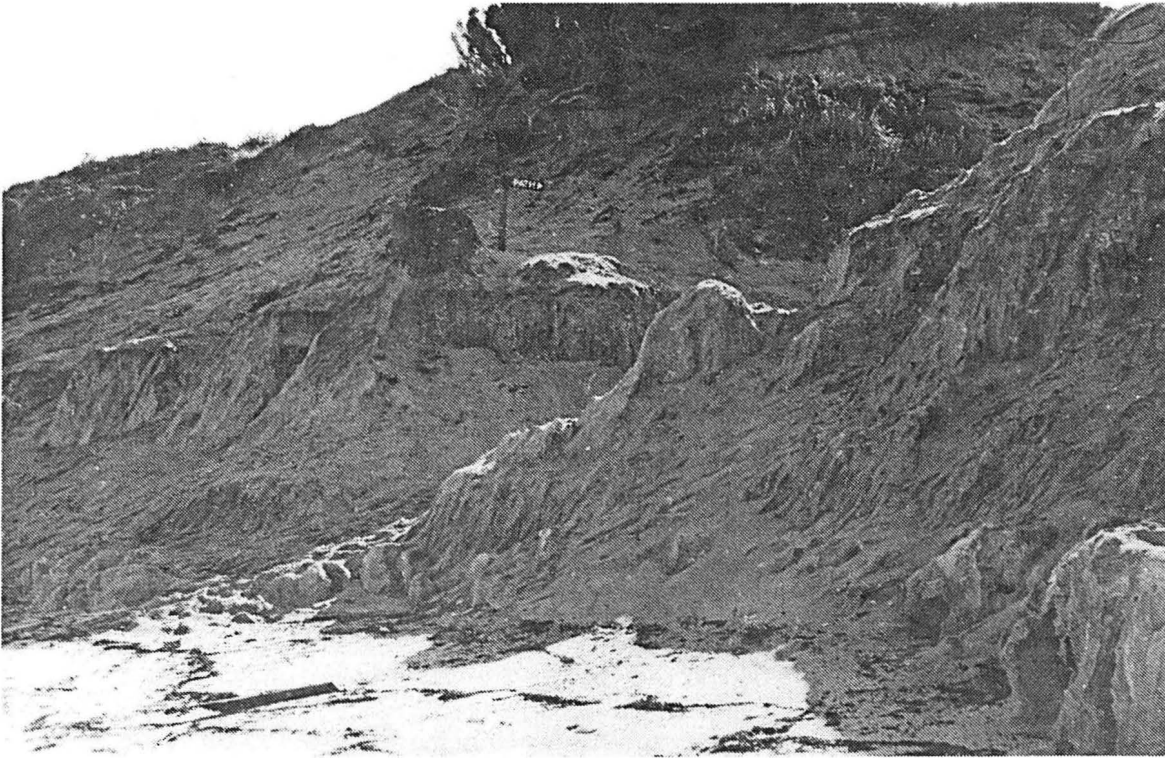


Plate 3 The seaward facing slope of the foredune at Five Mile Beach is deeply eroded. Steps will help make access easier.

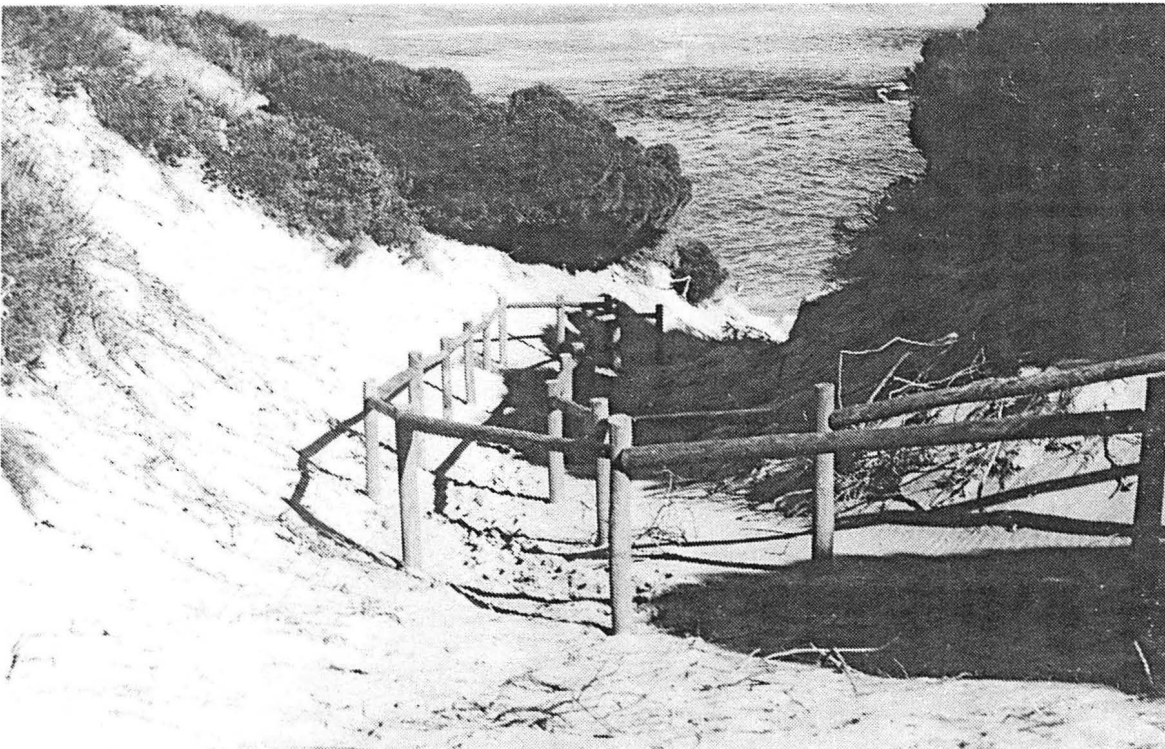


Plate 4 The path to Five Mile Beach leads through the base of a blowout which appears to be active. Brushing the slopes to the vegetation line will help to prevent further winds scour and exposure of plant roots.

form two major slip faces which are approaching the road. The toe of the western-most slip face is already 0 to 2 metres from the road, and the toe of the eastern-most slip face is 13 metres from the road (there is a walking track which leads up the edge of this slip face and down the throat of the blowout to the beach).

At the seaward base of the western section of the blowouts a much eroded incipient foredune with a 3 metre erosion scarp is present. To the east the incipient foredune is absent.

The throats of the blowouts have formed approximately 12 to 15 metres above the beach. Management of these blowouts will be expensive, due to the area which needs to be stabilised to prevent further blowout activity, and difficult, due to the steepness of the dunes. The work will need to be done in stages as money becomes available. At present the region of highest priority is the two blowouts to the west which combine to form the steep slip face which is only a couple of metres from the road.

Recommendations:

- build a 2 metre high sand trapping fence across the throats of the two blowouts. The fence should extend approximately 20 metres either side of the throats where tree roots are starting to be exposed (Plate 6);
- brush the base and sides of the blowout to the vegetation line, as well as the steep foredune slopes above the incipient foredune. As an alternative to brushing, old fishing nets or commercially available netting material could be used. Treatment of the area will be undertaken in consultation with the Department of Agriculture, Soil Conservation Service.

Unit 11 ("Castle Rock Beach")

An offshore platform forms a sheltered bench making this a pleasant recreation area which has 4WD access. There is a very narrow zone of young dunes along the coast and a limestone ridge eroded on its seaward side to form a low scarp.

Recommendations:

- maintain the 4WD track and consider upgrading it in the future;
- provide a beach path;
- rebuild a small dune to protect access from the west and south west.

Unit 12 ("Twelve Mile Beach")

This is a small beach with sheltered swimming provided by an offshore reef. A steep narrow dune backs the beach.

Current management includes a gravel road leading to a carpark with a beach path. Toilets and garbage bins are provided.

The section of the path which leads down the dune slope to the beach is very steep, but it is not eroded significantly.

A makeshift fireplace has been made in the shelter of the teatrees (Malaleuca lanceolata) and the trees have been chopped for firewood.

Recommendations:

- relocate the toilets to a more secluded area;
- build a fireplace and provide firewood;
- extend the post and rail fence to the east of the path entrance to prevent 4WD vehicles from parking in the picnic site under the trees;
- build steps over the beach path's steep slope.

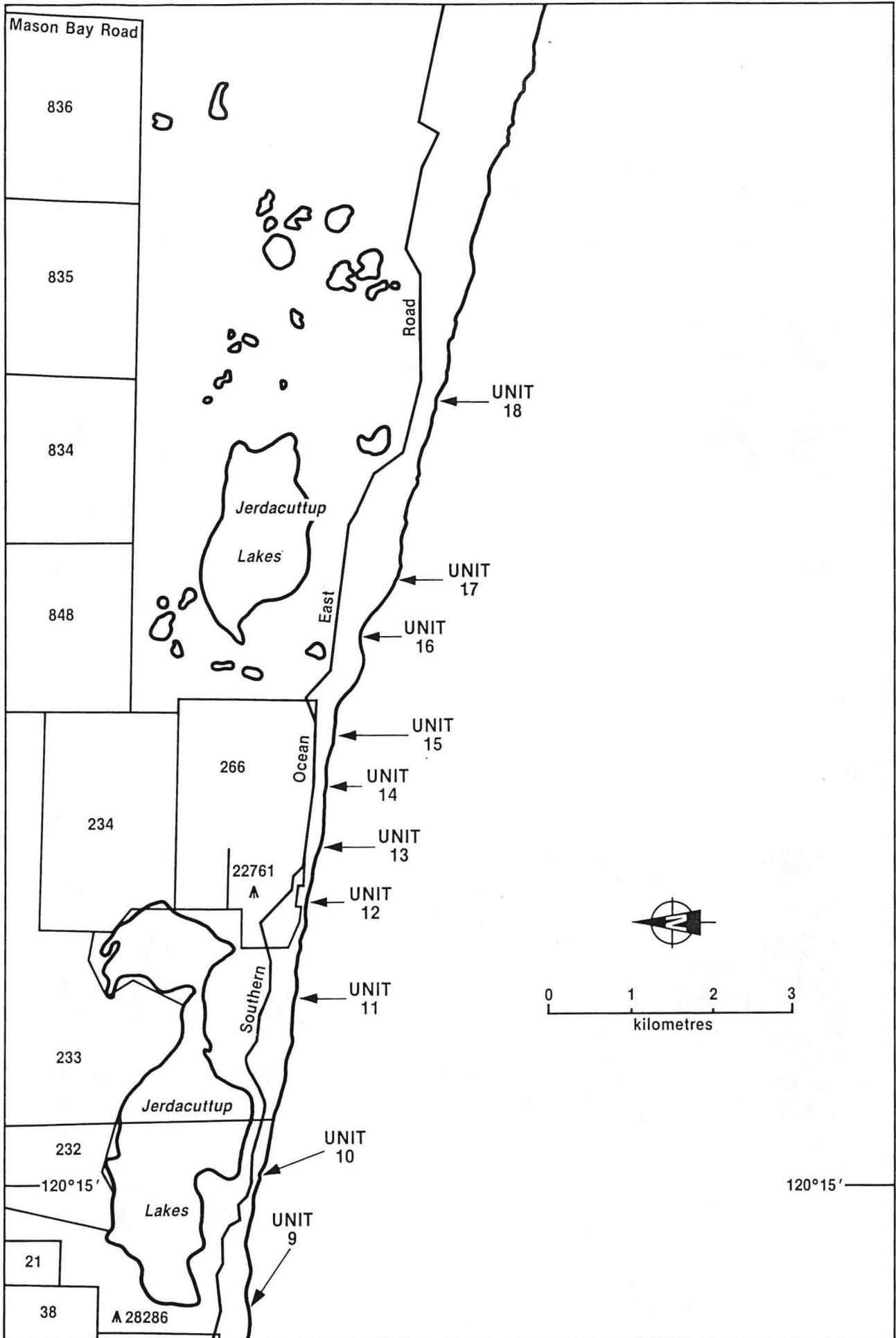


Figure 8. LOCATION OF MANAGEMENT UNITS 9-18, EAST OF HOPETOUN.



Plate 5 - The toe of the slip face of the western most blowout is threatening encroachment on to Southern Ocean East Road.



Plate 6 - Plant roots have been exposed in the base and sides of the blowout. A sandtrapping fence at the throat of the blowout and brushing will help to prevent further sand movement.

Unit 13 ("Twelve Mile Beach", 0.5km east of Unit 12)

Current management includes a partially fenced parking area and a beach path. The steep seaward slope means that erosion of the path will probably occur. Trees in the vicinity of the parking area have been chopped for firewood.

Recommendations:

- build steps over the beach path's steep slope and stabilise sand where necessary;
- the area may be a suitable site for upgrading in the future depending on the amount of use it receives. The hind dune slopes gradually and there is space between the teatrees for picnic facilities. This would include tables, benches, barbecues, supplied wood and toilets.

Unit 14 ("Thirteen Mile Beach", Figure 9)

The beach has an offshore reef. The foredunes' seaward slope is very steep with a 6 metre drop making access difficult. The hind dune area provides an attractive picnic and camping site shaded by teatrees (Melaleuca lanceolata).

Recommendations:

- retain as a low key picnic and tent camping area;
- provide a beach path on the eastern track and close the degrading western track;
- provide a staircase on the path down the steep erosion scarp.

NOTE: Access to management units 15 to 21 is limited to 4WD vehicles. There is currently low key use of this section of coast and a lower level of management input is proposed.

The proposal for upgrading the road between Thirteen Mile Beach and Mason Bay for conventional vehicles will be complemented by more detailed management planning for these units.

Unit 15 ("Fourteen Mile Beach")

The offshore reef favours fishing activities. Access to the beach is difficult due to the long, steep dune face which will require soil stabilisation treatment. The area behind the dune is wooded with Coastal Moort and would provide a suitable facility site when required.

Unit 16 ("Mullet Bay")

This is a small curved bay sheltered by an offshore reef and favoured for swimming. There is limited fishing from the beach. The coastal dunes are large and steep with outcropping limestone at approximately the 5 metres height. There is a long track to the beach of moderate grade except at the beginning which requires steps. In the lee of the dunes there is an attractive picnic and camping area sheltered by Coastal Moort. Some management is required to regulate people's activities if user numbers increase.

Unit 17 ("east of Mullet Bay")

A limestone reef forms the beach which is backed by a narrow steep dune showing some erosion. Beach access is for fishing purposes with some camping in the lee of the dune ridge. The site only attracts a few people and management will remain 'low key'.

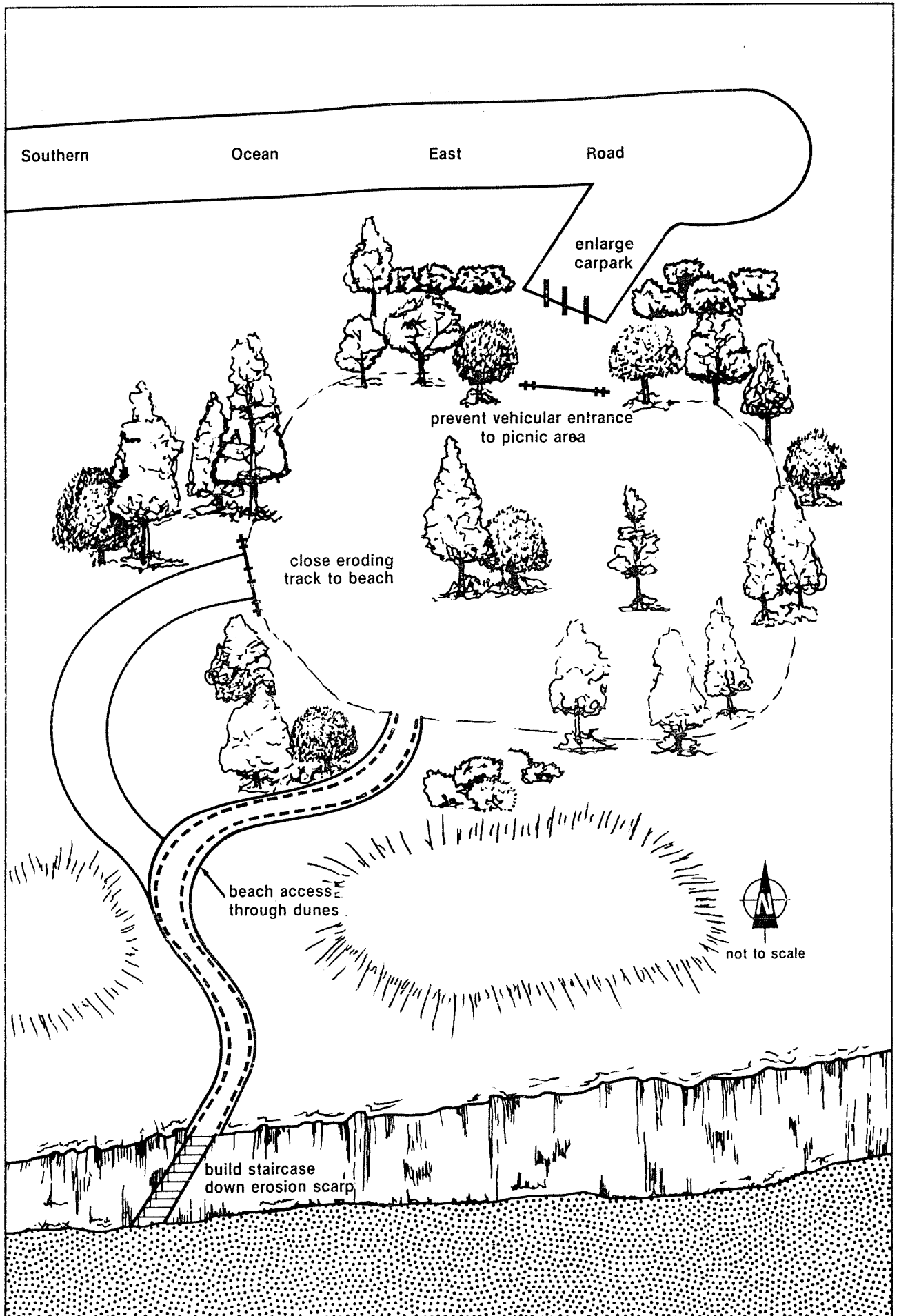


Figure 9. CONCEPT DIAGRAM OF MANAGEMENT RECOMMENDATIONS AT THIRTEEN MILE BEACH.

Unit 18 ("Tuckeys Hole/Abalone Track")

The coast is rocky with deep water inshore only suited for fishing activities. Vehicles currently park on the limestone 'cliff'. The beach access track is stabilised by a rock base. There are no trees or a suitable site for facilities. Management will primarily consider vehicle parking.

Unit 19 ("Dune blowout near Mason Point")

There will be no beach access through this extensive system of young unstable dunes and blowouts. The toes of the blowouts are influenced by the south-westerly winds and some soil stabilisation measures may need to be considered in future to prevent sand being blown towards Mason Road.

Unit 20 and 21 (Mason Point and Mason Bay)

This section of the coast is serviced by a gravel road providing conventional vehicle access from the South Coast Highway situated to the north. It contains a popular recreation and camping site therefore, a detailed consideration of resources and management is given.

5.3.1 Unit 20 and 21 Resources

Geology

Metamorphosed granitic rocks outcrop at Mason Point. A system of high, steep young dunes shows some instability. Mason Bay has a wide sandy beach backed by a foredune and some outcropping limestone.

Aspect

The Point is exposed to winds with a southerly component. Mason Bay is largely protected from rough seas by fringing reef which results in the development of a stable beach.

Vegetation

The Point is mainly colonised by coastal heath which is tolerant of windblast. The low shrubs which grow on more sheltered sites are Scaevola crassifolia, Myoporum abscondens and Acacia rostellifera.

The foreshore along the Bay is mainly colonised with hairy spinifex (Spinifex hirsutus) sea rocket (Cakile maritima), Euphorbia paralias and pigface. There are a variety of grasses and weeds growing where soil has been disturbed by people's activities. The area is dominated by mature Melaleucas. The plateau supports coastal shrubs especially Acacia rostellifera. The ridges are typically covered by prostrated coastal heath.

Wildlife

Mason Point is a prime fishing site for salmon, groper, skippy and whiting. Small boat fishing is popular from the bay.

Water

A potable water supply has not been developed. A survey will be undertaken to assess groundwater supplies for expansion of the site's facilities. Judging from experience in this coastal district it is unlikely that reasonable quantities of water would be found.

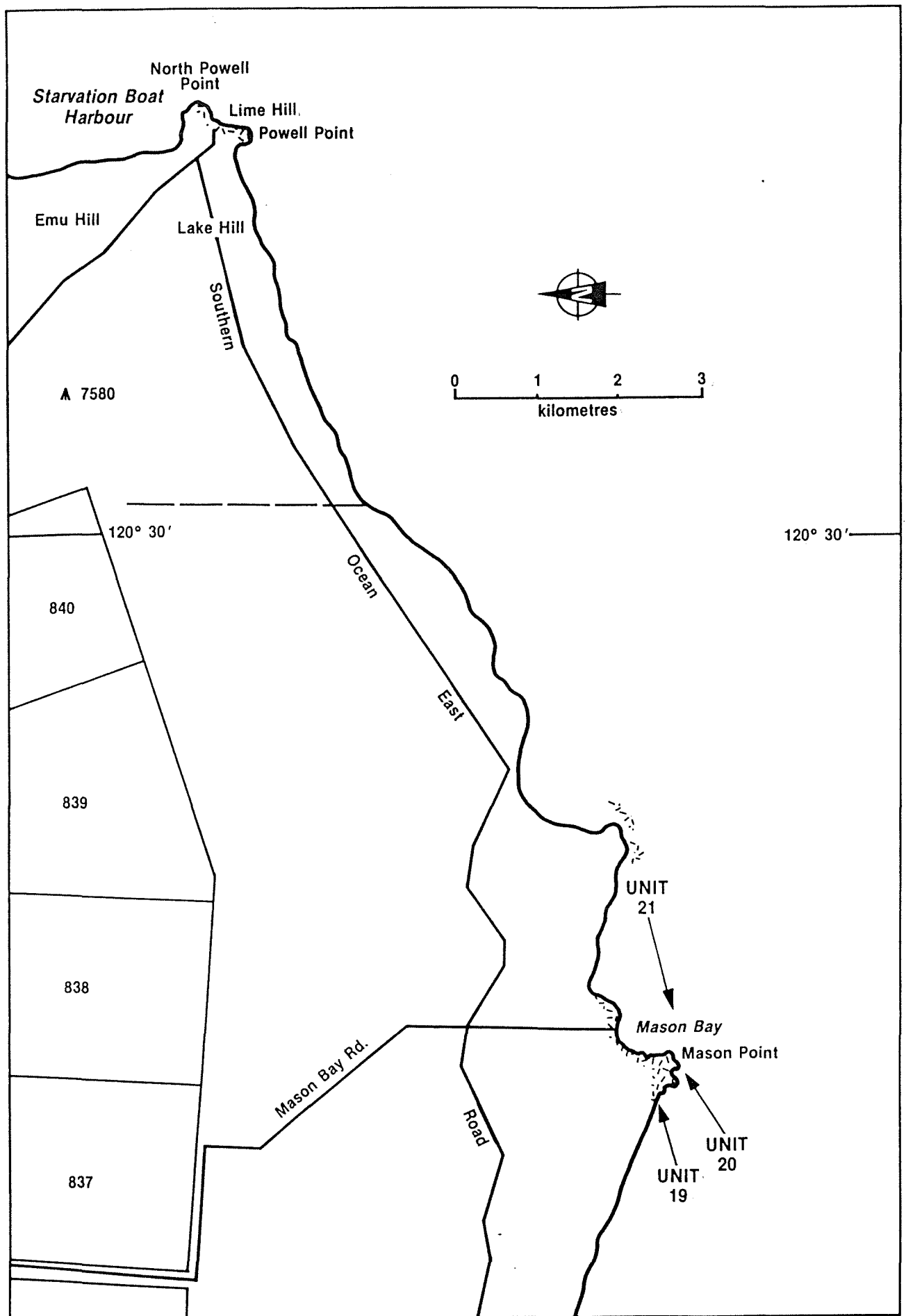


Figure 10. LOCATION OF MANAGEMENT UNITS 19-21 MASON BAY AREA.

5.3.2 Existing Facilities

There is a gravel road to Mason Point and people tend to park near favoured fishing sites. One carpark has been provided to date.

The foreshore at Mason Bay is a popular camping spot and people are spreading further along it causing damage to the Malaleucas. A track approximately 100 metres in length runs along the foreshore. There is a boat launching facility and carpark. Boat navigation through the reef must be skillfully undertaken. Pan toilets, rubbish bins and wood are provided for campers.

5.3.3 Assessment of Management Needs

Future Land Use Pressure

It is reasonable to assume a slow increase in visitor numbers influenced by the availability of campsites. Further spinoffs will occur as facilities are provided. The proposed construction of a gravel road between Thirteen Mile Beach and Mason Bay should also add to use pressure.

Sensitive/Robust Areas

Mason Point is unattractive for camping as there is little shade from trees or 'safe' water for children swimming.

Tall trees provide shelter along the foreshore making Mason Bay an attractive campsite. The plateau is more exposed to wind and requires careful management.

Management Priorities

The Ravensthorpe Shire's policy for recreation amenities designates Mason Bay for level 2 development thereby providing for short term camping. Less facilities will be provided than at Starvation Boat Harbour where there is more space for development (See DCE Bulletin 151).

The areas where people's camping activities are currently causing damage to the environment will be given management priority.

5.3.4 Management Planning

The management goals and objectives outlined in section 4 of this Report apply equally to all classes of recreation amenity development along this coast.

5.3.5 Detailed Management Proposals

Unit 20 (Mason Point)

The Point will receive minimum management consistent with the stability of access points currently used by fishermen. Camping and picnic activities will be directed to the established facility at Mason Bay.

Recommendations: (See Figure 11)

- construct a small carpark for 3 to 4 cars at site A;
- fence the existing carpark (Site B) and provide a beach path.

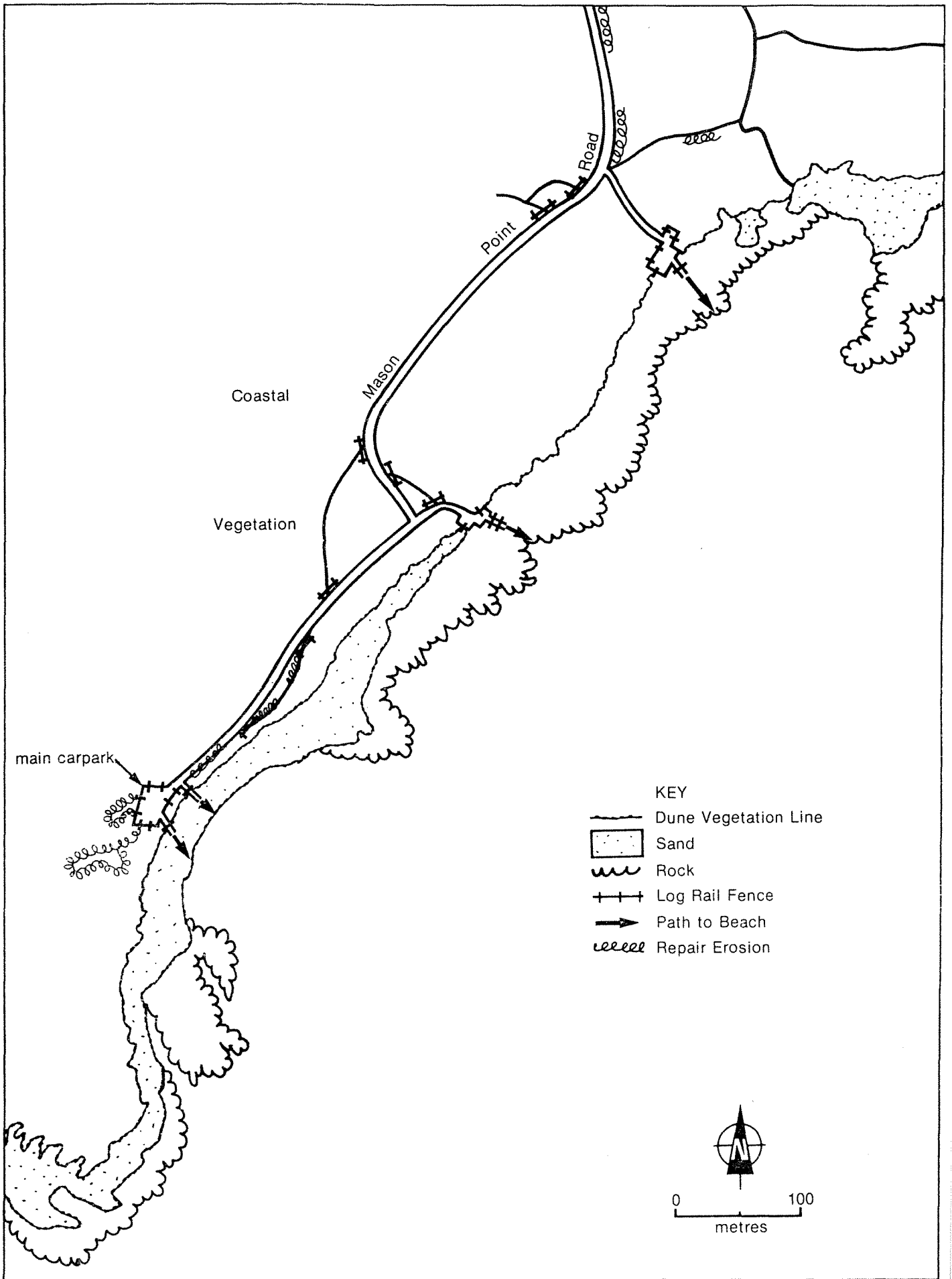


Figure 11. UNIT 20 MASON POINT MANAGEMENT RECOMMENDATIONS

Unit 21 (Mason Bay)

Currently management is required to control tracks and thereby protect the foreshore vegetation and to discourage people chopping down trees for firewood and camping space.

In the future management will need to control the use of the limited foreshore space. It is intended to retain this area for people and day picnic activities. An alternative carpark and caravan/camping facility will be established on the plateau area.

Mason Bay has a limited carrying capacity with respect to the available space and desire to retain its attractiveness with low key development. Management will be staged related to the provision of alternative facilities.

Recommendations: (See Figure 12)

In stages:

1. block both ends of the existing vehicle track along the foreshore in order to prevent the spread of camping and damage to vegetation;
2. define 3 beach paths, and fence along the top of the dune;
3. provide a small carpark on the plateau (west side of road) for boats with trailers;
4. plan and landscape the caravan park/camping facility keeping maximum vegetation. Commence planting Malaleucas and Acacias as soon as possible. The proposed gravel road to Starvation Boat Harbour will run along the northern side of the ridge which forms a boundary to the caravan park;
5. once facilities are established in the new caravan/camping area prevent camping on the foreshore ie. dayuse/picnics only;
6. establish two carparks at either end of the existing foreshore track.

The proposed management programme will be staged over 5 years and re-assessed when necessary.

6. IMPLEMENTATION

6.1 STAFFING AND MANAGEMENT OPERATIONS

The Shire of Ravensthorpe currently maintains the roads, and disposes of garbage along the coastal district. To date, the vacant Crown land has not been vested in the Shire, but the Shire has taken the management initiative to control parking both for lookouts with attractive views and near beach recreation sites in order to prevent further degradation of coastal areas.

Hopetoun is continuing to grow as a popular holiday venue, especially with the building of the fishing industry facilities. As the coastal area develops and use increases, a more sophisticated level of management will be required. When funds are available, the Shire intends to appoint a Ranger to assist in the management of this coastal district.

The Ranger will undertake the following:

1. Patrol and Public Education

During school holiday periods, the Ranger will be required to patrol the district to observe and report upon public use of the area and to control undesirable activities by visitors. The Ranger would have an important role in informing people about the management aims along the coast and in maintaining good relations between the public and Council.

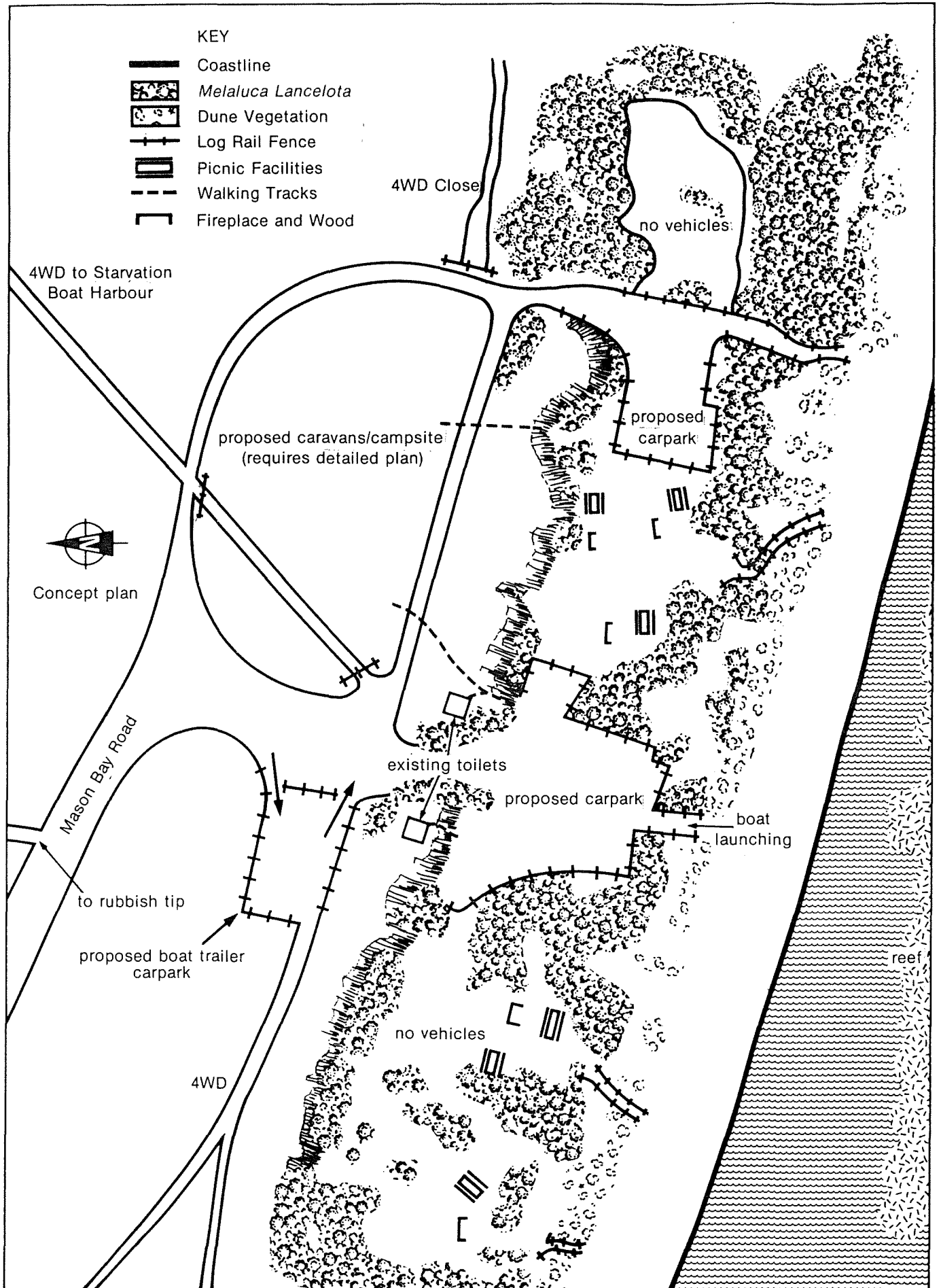


Figure 12. UNIT 21 CONCEPT PLAN FOR MANAGEMENT AT MASON BAY WHICH WOULD REQUIRE SEVERAL STAGES FOR IMPLEMENTATION.

2.- Tourist Management

The Ranger will have responsibility for directing campers to appropriate facilities, controlling illegal camping, fires and unauthorised off-road vehicle operation.

3. Garbage and Litter Control

During holiday periods, garbage and toilet cleaning operations need to be undertaken on a regular basis. At other times, these activities would be carried out as needed.

4. Development Maintenance

If the Ranger is employed on a full-time basis he/she will undertake a variety of minor development and maintenance works during non-holiday periods. These could include small soil conservation and beach management projects, vermin and noxious weed control, and the erection and maintenance of signs and fences.

6.2 FUNDING AND PRIORITY WORKS

Council will approach the Department of Tourism and the Department of Conservation and Environment for funding and technical assistance in the provision of amenities, car parks and beach paths. The Management Plan outlines the location and design details for proposed picnic and camping facilities along the coast. However, the timing or staging of development will be largely determined by demand requirements.

7. SUMMARY

Table 4 - Summary of management consideration and proposals for the Ravensthorpe District Coast.

LOCATION	UNIT	FRINGING REEF	MANAGEMENT CONSIDERATIONS	CURRENT MANAGEMENT LEVEL*	PROPOSED MANAGEMENT LEVEL*
1. WEST OF HOPETOUN					
"Surf Beach"	1	NO	Active blowout - sand encroachment onto road. Sparse vegetation.	5	5
"Four Mile Beach"	2	PART	Dune degradation. Proliferation of tracks in hind dune area. Illegal camping. Indiscriminate use of fires.	4	5
"Moylans"	3 3a	NO	Access to area difficult. Proposed development of freehold land above Reserve could create a demand for access.	5	5
2. HOPETOUN TOWNSITE			Management subject to effect of groyne under construction.		
3. EAST OF HOPETOUN, VACANT CROWN LAND			- RAVENSTHORPE SHIRE VESTING		
"Two Mile Beach"	4	PART	Previous problems have been overcome by provision of carpark and beach path. Picnic facilities planned for adjacent area.	5	5
"Look-out 2"	5	YES	Carpark to have beach path. 4WD tracks to be closed.	5	5
"Look-out 3"	6		Small carpark provided.	5	5
"Five Mile Beach"	7	YES	Previous problems have been over-come by provision of car park and beach path. Steps needed on steep section of path.	5	5
"Look-out 4"	8		Fenced carpark; no future management intended.	5	5

Table 4 - Summary of management consideration and proposals for the Ravensthorpe District Coast. (cont'd)

LOCATION	UNIT	FRINGING REEF	MANAGEMENT CONSIDERATIONS	CURRENT MANAGEMENT LEVEL*	PROPOSED MANAGEMENT LEVEL*
4. "Six Mile Track"	9	YES	Three tracks to beach off short access. Parking problems. Rationalisation of tracks. Fishing only.	5	5
"Creeping Dunes"	10	NO	Blowout created mobile dune. Dune is currently threatening Southern Ocean East Road in two places. Important as the road is in close proximity to the Jerdacuttup Lakes system.	4	Close access.
"Castle Rock Beach"	11	YES	Access from Southern Ocean East Road requires rationalisation. Camping has caused some degradation in hind-dune area. Access to beach is by foot for last 100m.	4	4
"Twelve Mile Beach"	12	YES	Access to beach down steep dune required. Present management includes car park and beach path. Toilets need relocating.	5	5
	13	YES	Larger and more popular than Unit 12. Present management includes carpark and beach path. First location outside Statutory limit from Hopetoun Caravan Park. Toilets need to be provided if low key camping is encouraged.	3	3
"Thirteen Mile Beach"	14	PART	Favoured for picnics and low key camping. Vehicle parking needs to be delineated. Beach path requires management including staircase on erosion scarp.	4	4
"Fourteen Mile Beach"	15	PART	4WD access only-fishing and camping. Steep track to beach.	4	4
"Mullet Bay"	16	YES	Access difficult to bay. Hind-dune area excellent for camping. Access to beach needs planning.	4	4
"East of Mullet Bay"	17	YES	4WD access only - fishing and camping.	4	4

Table 4 - Summary of management consideration and proposals for the Ravensthorpe District Coast. (cont'd)

LOCATION	UNIT	FRINGING REEF	MANAGEMENT CONSIDERATIONS	CURRENT MANAGEMENT LEVEL*	PROPOSED MANAGEMENT LEVEL*
"Tuckeys Hole"/ "Abalone Track"	18	YES	4WD access only - fishing. Rocky shore	4	4
"Mason Point" Dune Blowout	19	NO	Some 50 hectares of un- vegetated dunes which are very hard and consol- idated.	Nil	Nil
"Mason Point"	20	YES	Access provided for fishing only. Area not conducive to family oriented activity.	4	4
"Mason Bay"	21	YES	Management of camping is priority. Enlargement of area and greater traffic control required. Extensive local knowledge required for launching and retrieving boats.	2	2

* Ravensthorpe Shire policy for Recreation amenities (Section 4.4)

8. ACKNOWLEDGEMENTS

Mr J Lawrence and Mr K Williams have assisted in the preparation of this management plan on behalf of the Ravensthorpe Shire Council. Mr W McArthur has acted as a consultant geologist and provided information throughout the plan text. The list of birds and animals found in the Ravensthorpe coastal strip was compiled by Mr A Chapman.