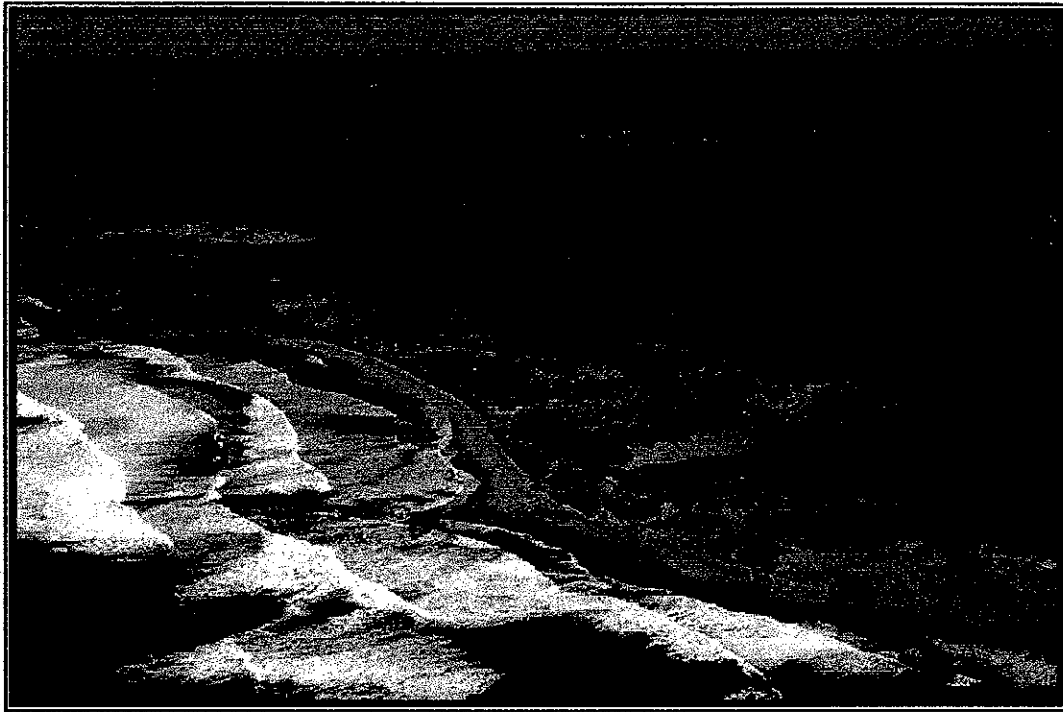


**MANAGEMENT PLAN
FOR THE
LEVY'S POINT COASTAL RESERVE**



Prepared for
Warrnambool City Council

1998

by



MANAGEMENT PLAN
FOR THE
LEVY'S POINT COASTAL RESERVE

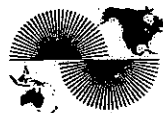
Prepared for:

Warrnambool City Council
1998

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EXECUTIVE SUMMARY

Study Area, Objectives and Management Context

Levy's Point Coastal Reserve includes the Crown Lands along 8 kilometres of the coastal strip extending between Thunder Point Coastal Reserve (just west of Warrnambool) and Belfast Coastal Reserve (just east of Port Fairy). The eastern portion of this reserve is managed by the City of Warrnambool and the western portion of the reserve is managed by the Moyne Shire Council, with both Council's acting as a Committee of Management on behalf of and in co-operation with the Department of Natural Resources and Environment (DNRE).

The purpose of the Levy's Point Management Plan is to provide a review of the existing conditions and key management issues of the reserve and to recommend specific management actions and general management principals to guide the future conservation, development and management of the Coastal Reserve. The management recommendations apply to the entire reserve. However, the focus of public activity and access to the reserve is primarily within the City of Warrnambool. As a result, the maps and plans presented in this report focus on the eastern portion of the reserve as the principal Study Area.

As the plan has been prepared on a limited budget, community consultation has not been a significant part of the process. However, DNRE and City of Warrnambool personnel have been consulted regarding the activities and requirements of current visitors to the area. However, the plan does complement the Moyne Coastal Area Study and the South Warrnambool Wetlands Landscape Management Plan, prepared by Scenic Spectrums Pty Ltd for Moyne Shire and the City of Warrnambool, respectively, during 1996. Both of these plans involved extensive community consultations regarding coastal management issues. In addition, both past and current coastal foreshore management plans have been prepared for the coastal areas within the City of Warrnambool, each requiring extensive community consultations.

The assistance and advice of Mr Bill Gill (Manager Planning and Engineering Operations at Warrnambool City Council), Mr Neil Martin (Land Use Planner at DNRE, Warrnambool) and Ms Wendy Haberetch (Coast Care Facilitator, DNRE, Warrnambool) has been received during the course of the preparation of the plan.

Report Structure

The plan is set out in four main sections, as follows:

- 1.0 Introduction
- 2.0 Existing Situation
- 3.0 Management Issues
- 4.0 Recommended Management Plan and Actions

Key Recommendations

Key recommendations of the plan include the following:

Management Status and Structure

- Levy's Point should maintain its Coastal Reserve Status. All management decisions should refer to and ensure compliance with the Victorian Coastal Management Act 1995 and the Crown Land (Reserves) Act, 1978.
- The Coastal Reserve should be jointly managed by the City of Warrnambool and the Shire of Moyne on behalf of the Department of Natural Resources and Environment (DNRE) via a Committee of Management which includes representation from DNRE (Warrnambool Office), both municipalities, the Victorian Coastal Council and at least six residents from the Warrnambool and Port Fairy communities, two of which may represent the community at large and four of which represent relevant special interest groups (ie. the local Aboriginal community, Landcare, the Historical Society, the Field Naturalists, Fishing Clubs, etc.).
- The managers of Levy's Point Coastal Reserve should investigate and consider the feasibility of managing the Reserve by a Regional Agreement with the Framlingham Aboriginal Co-operative and other appropriate local Aboriginal communities in a manner similar to that suggested by the Australian Local Government Association (ALGA).

Protection of Ecological Integrity and Quality of Natural Areas

- Extend the Coastal Protection Zone recommended by the LCC to the entire coastline of Levy's Point Coastal Reserve.
- Manage the reserve within the context of whole catchment management and best practice land management policies as per the Victorian Catchment and Land Protection Act 1994 and the Conservation, Forests and Lands Act, 1986.
- Further investigations should be carried out to establish the relative geologic, flora and fauna significance of the reserve to determine whether or not any areas should be managed in accordance with the Victorian Flora and Fauna Guarantee Act 1988, the Reference Areas Act 1978 or other State or Federal legislation.
- Coastal erosion must be kept under control and to a level similar to that associated with natural systems of the area.
- Educate reserve visitors about the causes and threats of erosion and encourage environmentally sensitive activities and use patterns.
- Regular patrols and management activities which improve the monitoring of the use of 2WD or 4WD vehicles, motorbikes, all-terrain vehicles, or horses off designated and permitted access tracks according to existing laws and regulations.
- Restrict and police damage to or removal of sand, flora or fauna from the reserve as per existing laws and regulations protecting these natural elements (eg. Flora and Fauna Guarantee Act, 1988 and the Extractive Industries Act 1966).

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- Discourage the dumping of refuse, pollutants, litter or other rubbish within the reserve through a combination of public information/warnings and appropriate fines for violations as per the legislation (eg. Litter Act 1987 and the Pollution of Waters by Oil and Noxious Substances Act 1986).

Protection of Sites and Areas of Cultural Heritage Significance

- Further identify and protect sites and areas of Aboriginal Cultural Heritage significance as per the Archaeological and Aboriginal Relics Act 1972.
- Further educate the public about and enforce protective regulations regarding heritage sites of pre-contact, contact and post-contact significance as per the Commonwealth Archaeological and Aboriginal Relics Act 1972, the Commonwealth Historic Shipwrecks Act 1981 and the Historic Buildings Act, 1981.
- In particular, educate the public about and enforce protective regulations regarding searches for the Mahogany Ship in Levy's Point Coastal Reserve and surrounding areas. Such searches require a permit and should be strictly managed.

Recreation, Tourism and Interpretive Facilities and Activities

- Manage the reserve as a Semi-Natural Visitor Opportunity Area with a focus on Natural/Cultural Interpretation, Fishing, 4WD Access, Carparks with Picnic Facilities, and Pack-in Pack-out Rubbish policies.
- Provide a Wetland Interpretation Point along Levy's Point Road near the end of the cut-off channel of the Merri River.
- A clear and inviting visitor signage system is required, indicating the location of all facilities, opportunities and tracks and informing the public of all relevant regulations couched in a positive environmentally educational manner. The location of key signage has been recommended.
- All carpark areas should be more clearly defined and fenced, adding additional picnic and visitor facilities as appropriate (refer to detailed recommendations).
- Continue to provide a small horse trailer and riding ring area at the present location and provide additional educational brochures discussing horse riding regulations and environmental impact minimisation methods.

Enhancement of the Warrnambool Stockfeeds Area

- Re-align the public road to south of the plant and consolidate the factory parking area, establish vegetative screening of the factory and install road safety caution signs at the factory entrance. Conduct periodic inspections of the factory to ensure that it is meeting all requirements of the Environmental Protection Authority's regulations and is not in violation of the Pollution of Waters by Oil and Noxious Substances Act, 1986.
- Do not renew the lease of this site in the future and encourage the business to find a more suitable alternative location as soon as possible. The factory is considered to be an incompatible use in conflict with the overall management objectives of Levy's Point Coastal Reserve.

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- Ensure that when the factory does cease operation that all buildings, structures and contaminants are removed from the site and that the entire site is properly rehabilitated.

Management of Adjacent Wetlands

The area between the coastal estuaries of the Merri River at Warrnambool and the Moyne River at Port Fairy comprises a highly significant barrier lagoon wetland system located inland from the coastal dunes.

- Further investigations and assessments should be made of the wetlands and barrier lagoon complex between the Merri River and the Moyne River with a view to nominating the area for Listing on the Register of the National Estate.
- In the interim, extend the LCC's recommendation for a Coastal Protection Zone to include all the wetlands from Killarney and Kelly Swamps to the Merri River. Fence these areas off to protect from grazing.
- Promote this area's ecotourism opportunities and consider the development of a Natural and Cultural Visitor Centre.
- The addition or widening of Levy's Point Coastal Reserve to include the land surrounding Kelly Swamp and the wetlands between Kelly Swamp and the Merri River, including Tararerer should be actively pursued through Section 173 agreements or other conservation agreements (ie. Land for Wildlife) or covenants with freehold land owners.
- Agriculture is considered to be an important and compatible adjacent land use activity within the coastal area and should be supported where possible, while encouraging improved agricultural and environmental management methods. Potential aquacultural land use activities are also of importance and should be supported given appropriate environmental investigations and safeguards.
- Residential development adjacent to Levy's Point Coastal Reserve should be discouraged through the City of Warrnambool's Planning Scheme and development controls.

1.0 INTRODUCTION

1.1 Location

Levy's Point Coastal Reserve includes the Crown Lands along 8 kilometres of the coastal strip extending between Thunder Point Coastal Reserve (just west of Warrnambool) and Belfast Coastal Reserve (just east of Port Fairy). The eastern portion of this reserve is managed by the City of Warrnambool and the western portion of the reserve is managed by the Moyne Shire Council, with both Council's acting as a Committee of Management on behalf of and in co-operation with the Department of Natural Resources and Environment (DNRE).

The principal Study Area comprises approximately 180 hectares of land located 3km west of the City of Warrnambool, as shown in Figure 1. The coastal reserve is located partially within the City of Warrnambool and partially within the Shire of Moyne.

1.2 Management

The Coastal Reserve is Crown Land managed by the City of Warrnambool and the Shire of Moyne, with each Municipal Council acting as a Committee of Management on behalf of the Department of Natural Resources and Environment (DNRE).

The former Land Conservation Council (LCC) recommended through its Corangamite Area Final Recommendations (1978) that the Levy's Point and Kelly Swamp area be comprised of three Coastal Reserve Zones.

Zone I includes the coastal frontage land, swamps and dunes, except those areas specifically referred to under other zones. The land in this zone is to be used to:

- conserve the flora and fauna;
- maintain the stability of the dune formations;
- provide for low-intensity recreation activities such as walking and picnicking;
- protect areas of archaeological significance, especially the aboriginal shell midden and camp deposit sites.

In addition, the LCC recommend that no further roads parallel to the coast be built in this zone (within the Levy's Point study area).

Zone II includes the beach frontage and rock outcrop areas on the coastline and land within this zone is to be used to:

- provide for recreation activities such as swimming, fishing, boating, walking and picnicking;
- conserve fauna, particularly migratory beach wading birds;
- maintain the stability and scenic beauty of the coastline.

Zone VI includes the wetland area known as Kelly's Swamp. This land is to be used to:

- provide for existing drainage and flood mitigation;
- provide wildlife habitats consistent with (i) and (ii) above.

It was recommended that the land be managed in co-operation with the State River's and Water Supply Commission (or its current equivalent).

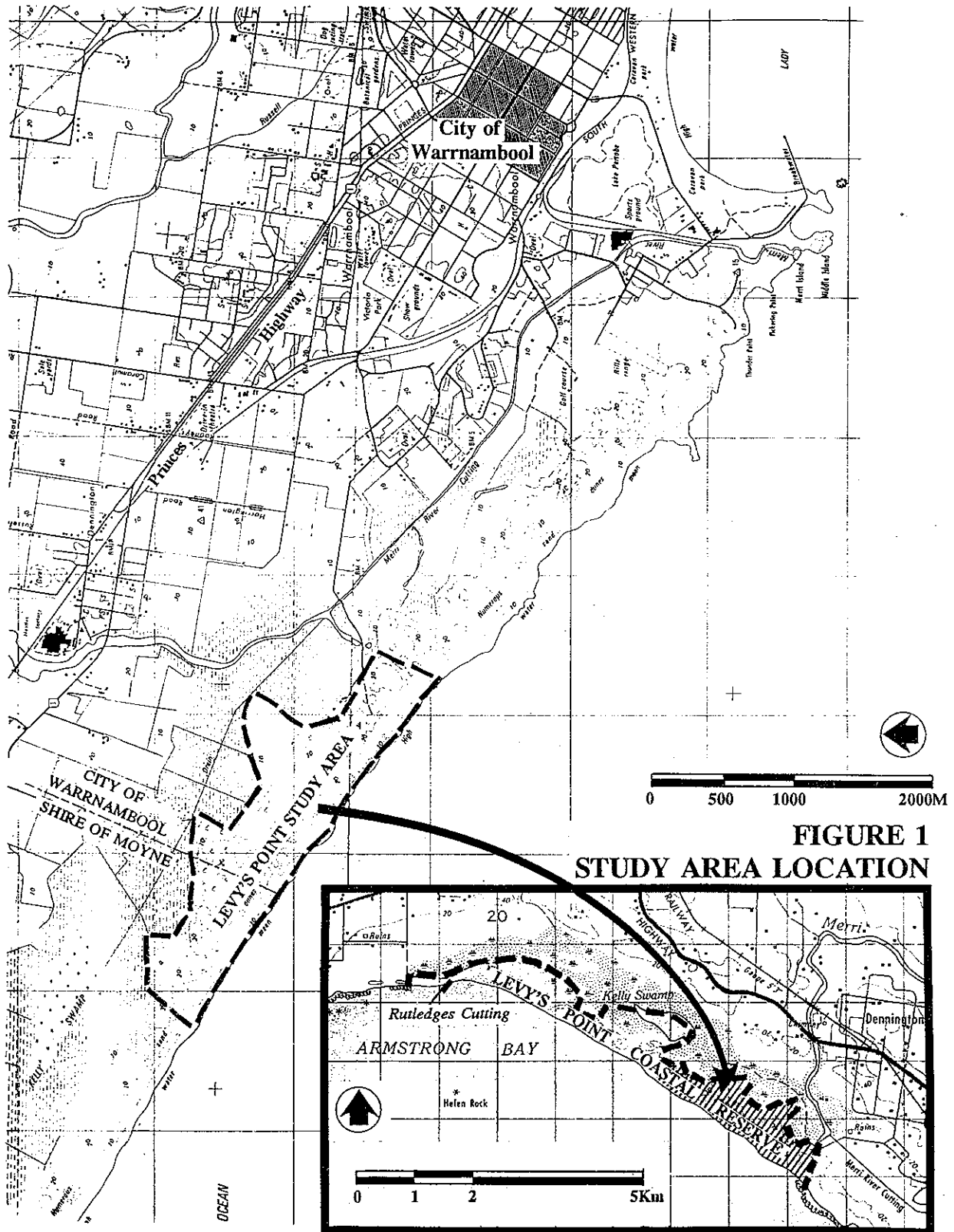


FIGURE 1
STUDY AREA LOCATION

In its more recent Final Recommendations for the Coastal and Marine Special Investigation, the LCC recommended that the eastern portion of Levy's Point Coastal Reserve, that area within the Shire of Moyne, be managed as a Coastal Protection Zone with the following objectives:

- " (i) *protect and conserve coastal landscapes, ecosystems and significant geological, geomorphological, historical and cultural features for public enjoyment and inspiration and for education and scientific study;*
- (ii) *ensure the protection and conservation of important aquatic and terrestrial fauna and flora;*
- (iii) *provide opportunities for recreation associated with the coast and related to enjoying and understanding natural and cultural values consistent with (i) and (ii) above;*

furthermore that

- (iv) *facilities for intensive use should not be located in this zone;*

and that their seaward boundary be the high-water mark "

The Land Conservation Council did not provide any recommendations for that portion of Levy's Point within the City of Warrnambool.

Recommendations to Moyne Shire Council by Scenic Spectrums Pty Ltd (1996) regarding the Moyne Shire Coastal Area Study encourage the extension of the LCC's Coastal Protection Zone to include all the wetlands and lower lying areas from Kelly Swamp to Killarney Swamp and to fence these areas off to protect them from grazing. The Moyne Shire Coastal Area Study also recommends that the wetlands from Kelly Swamp to Killarney Swamp and associated Coastal Reserves be considered for listing on the register of the National Estate and for possible zoning as a Coastal Park.

1.3 Study Objective

The City of Warrnambool has engaged Scenic Spectrums Pty Ltd to prepare a Management Plan for the Levy's Point Coastal Reserve. The Management Plan is to provide an assessment of existing conditions and management issues and recommend specific management actions and general management principles to guide the future conservation, development and management of the Coastal Reserve.

2.0 EXISTING SITUATION

The key existing conditions of the study area are illustrated in Figure 2.

2.1 Climate

The climate in the area is mild with warm, dry summers - mean daily maximum of 23.5 degrees Celsius - and cool wet winters - mean daily maximum of 13.8 degrees Celsius. The mean annual rainfall is 744 mm (Bureau of Meteorology 1988). Prevailing onshore winds with particularly strong southwesterlies and high energy wave action on the Southern Ocean have a significant influence on the area, causing periodic blowing of sand, inland salt sprays and considerable wave erosion and sand deposition along the coastline.

2.2 Geology and Geomorphology

The Study Area is comprised of a dune system which is derived from Quaternary aeolian and marine sediments. The site forms part of an extensive range of dunes which occur between Port Fairy and Warrnambool (Land Conservation Council, 1976).

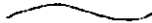


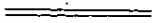
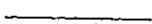
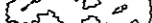

Receding sea levels since the Pleistocene have resulted in the sequential abandonment of dune ridges originally formed at the coastal front. In colder and drier climates during the glacial stages, sand was mobilised by strong wind action and heaped as dune ridges and sand sheets. Ground water moving through the dunes dissolved calcium carbonate which was later precipitated from the groundwater solution as a cement binding the grains and forming a coherent dune rock (Rosengren 1996).

Foredunes and transgressive dunes dominate the coastal terrain. Foredunes are accumulations of sand blown or flung to the back of the beach by wave splash. Grasses colonising the sand allow the dune to build in height. The form of the foredune is related to the growth rates and habit of coastal grass and shrubs ... The outer edge of foredunes may be cut by storm waves and the sand spread along the beach. Foredunes are aligned more-or-less parallel to the shoreline. Multiple, parallel rows of foredunes are an indication of coastline progradation but there is only a single terraced or ridged foredune along this coastal sector (Rosengren 1996).

Transgressive dunes have been blown inland and lie over earlier formed topography and may be classified according to the orientation of the ridges ... Elements of all the dune types described occur in the study area. The transgressive dunes are broadly in the form of overlapping parabolic dunes with an elongate axis oriented at right angles to the coastline. The dunes extend onto the floodplain of the Merri River and range in form from lobate precipitation ridges 30 metres high to broad, irregular ridges and sand sheets. The dunes have a variable cover of grass and scrub but include some deep elongate and circular blowouts with unvegetated sand surfaces and localised areas of blowing sand (Rosengren 1996).

Kelly Swamp, on the north-western edge of the Study Area, forms part of a larger wetland system or barrier swamp, extending from the South Warrnambool Wetlands near the outlet of the Merri River to Belfast Lough on the Moyne River near Port Fairy. Much of this wetland system is located on freehold land to the north of Levy's Point Coastal Reserve. *Flooding has been greatly reduced as a result of deepening and realignment of the river channel (Rosengren 1996).*

Legend

- Management Tracks (Closed to the Public) 
- 4WD Tracks 
- Sandy Beaches and Un-Vegetated Dunes 
- Sealed Road 
- 2WD Tracks 
- Coastal Heath/Scrub 
- Walking Tracks (Formal and Informal) 

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- Coastal Reserve Recommended to be Managed as a Semi-Developed Natural Visitor Opportunity Area with a Focus on Natural/Cultural Interpretation, Fishing, 4WD Access, Car Parks, Picnic Facilities, and Pack-In Pack-Out Rubbish Policies
 - Opportunity for a Natural Visitor Opportunity Area in Western Portion of Reserve if Vehicular Access is Closed

- Frequently Inundated Area
- Adjacent Wetlands and Merri River Floodplain on Private Lands about Coastal Reserve and Warrnambool Stockfeeds Plant.
 - Opportunity to Enhance Wetland Bird Habitats

- Horse Riding Ring
- Horse Riding Ring may be a Desirable Passive Use by Local Clubs
 - Potential Impact on Revegetated Areas and Potential Impact of Undesirable Plant Seed must be Considered

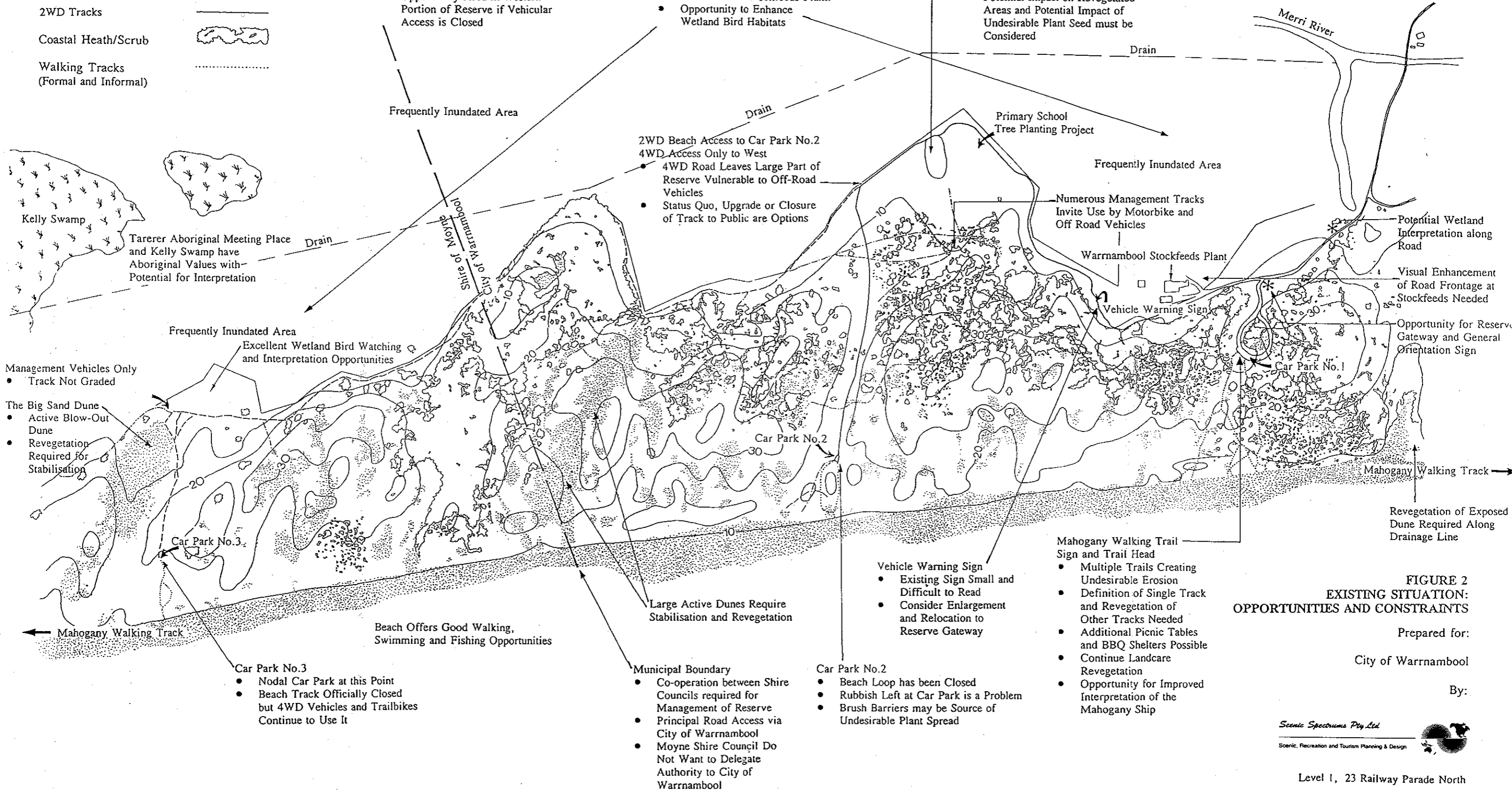


FIGURE 2
EXISTING SITUATION:
OPPORTUNITIES AND CONSTRAINTS

Prepared for:

City of Warrnambool

By:

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Scenic, Recreation and Tourism Planning & Design



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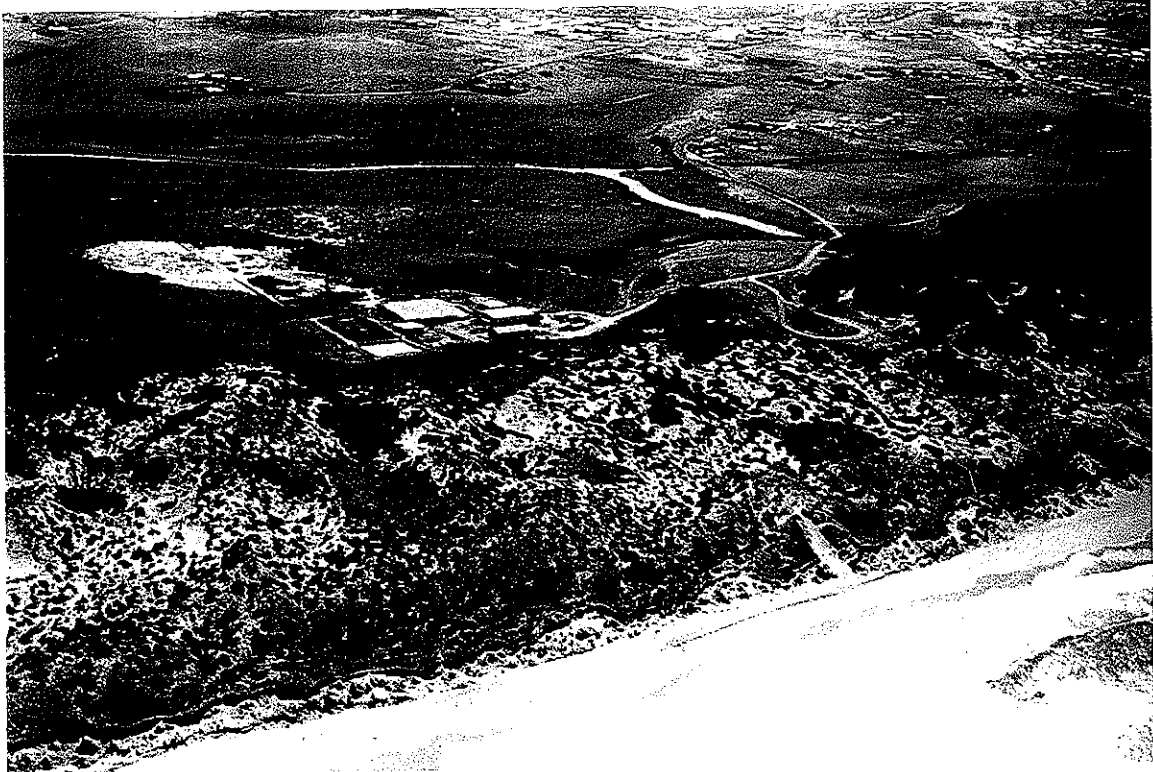


Photo 1 View of Levy's Point Coastal Reserve from the south showing Car Park No. 1 and the Warrnambool Stock Feeds Pty Ltd.

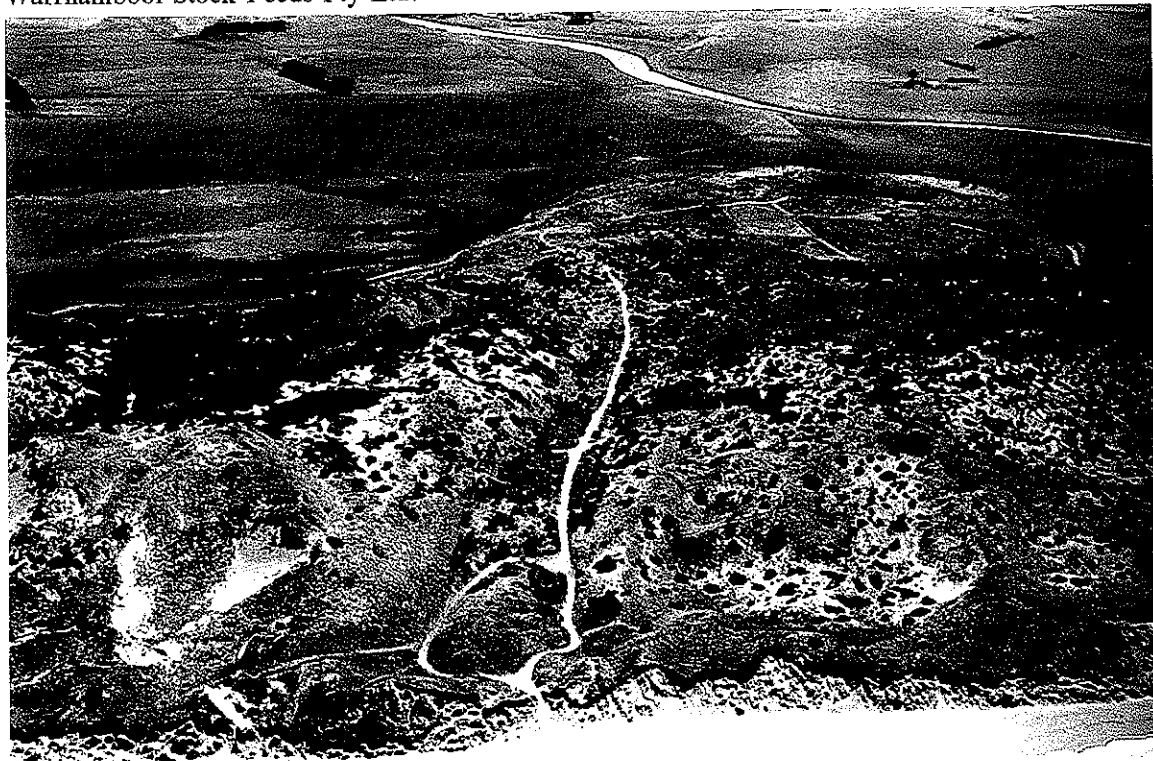


Photo 2 View of Levy's Point Coastal Reserve from the south showing Car Park No. 2 and the horse riding ring to the north-east.

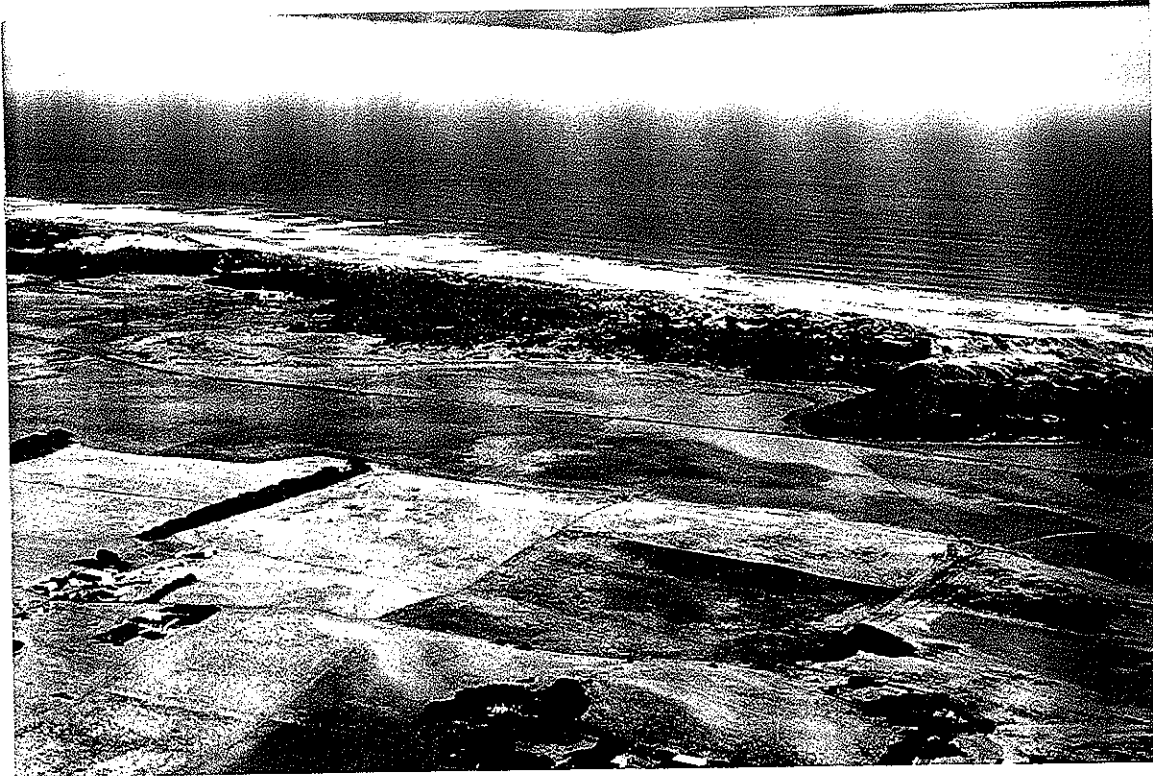


Photo 3 View of Levy's Point Coastal Reserve from the north showing adjoining freehold agricultural land, the Warrnambool Stock Feeds Pty Ltd and the area between Car Park No.1 and Car Park No.2.

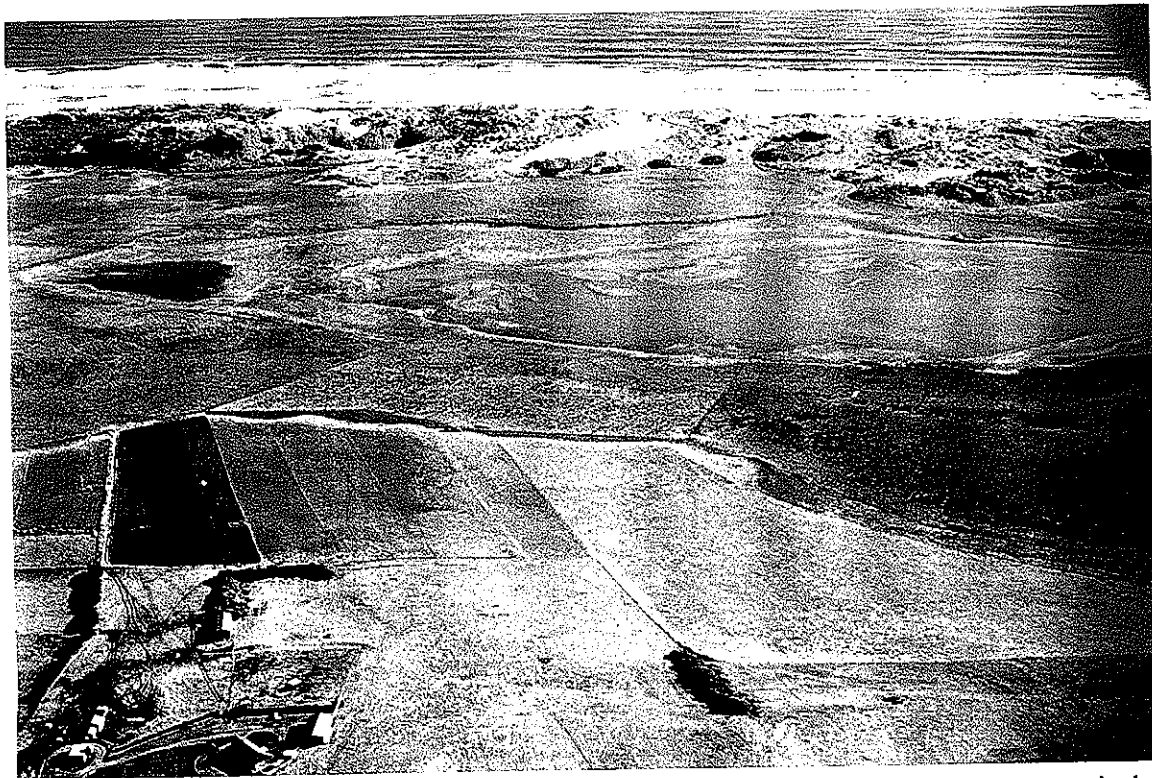


Photo 4 View of Levy's Point Coastal Reserve from the north showing the wetland system, including Kelly's Swamp, and the area between Car Park No. 2 and Car Park No. 3.

2.3 Flora and Fauna Habitats

Major habitat types have been defined and mapped by the Land Conservation Council (1993) in its Marine Coastal Special Investigation. These habitats are primarily defined by tidal level, substrate type, exposure, and dominant flora. Three of Victoria's fourteen coastal habitat categories are found within this Study Area of Levy's Point Coastal Reserve. These are:

- Intertidal Sandy Beaches;
- Stable, Well-Vegetated Dunes; and
- Active, Sparsely-Vegetated Dunes.

These habitat types have been presented by the LCC as subjective classifications for descriptive purposes only. Each of these habitat types are described in detail by the LCC in Chapter 4 - Biology of the Marine and Coastal Special Investigation: Descriptive Report (LCC, 1993), and the reader is referred to that report for specifics. A brief description of each of these habitats is provided below, based on the information from the LCC's report.

As well as this description, information relating to specific species that may be found in each of these habitat types has been provided. A vegetation analysis was not carried out for the present study, however, information obtained from a study of the South Warrnambool Wetlands, to the east of Levy's Point Coastal Reserve, is relevant to the present site. Information contained in that report on the Flora and Fauna of the proposed site for the Warrnambool Golf Course extension (Botanicus and University of Ballarat, 1996) has also been included.

Of particular significance is the potential re-establishment of Orange Bellied Parrot habitat where grazing has ceased in areas in and around salt marsh environments located outside the Study Area but within and immediately adjacent to Levy's Point Coastal Reserve. These parrots are listed on the Flora and Fauna Guarantee Act and have been recorded at Rutledges Cutting and Kelly Swamp.

Intertidal Sandy Beaches

Beach sands accumulate as a result of sedimentation by wave and currents in the shore zone and are often characterised by unstable coarse sediment due to their exposure to the high energy waves of the Southern Ocean. Calcareous (shelly) beach sands are of a biogenic origin and occur predominantly throughout the study area (as opposed to quartzose sands or granitic origin).

These coarser sands support few organisms and a diminished array of flora species. The coarser the sand, the lower the population density of invertebrates living in the substrate. These species consist mainly of amphipods and isopods in the swash zone and the bivalve pipi in the lower intertidal zone. Polychaetes can occur in the lower edge of the intertidal zone. These fauna species are also joined by tenebrionid beetles, sand hoppers and kelp flies in feeding in organic matter washed up on the beaches, primarily drift algae.

The LCC (1993) indicate that the sandy beaches provide roost sites for cormorants, pelicans, gulls, and plovers, and feeding and roosting sites for a diversity of migratory waders such as double-banded plover, eastern curlew, curlew sandpiper, terek sandpiper, red-necked stint, rudy turnstone, red knot, great knot and sanderling. The forest raven also often forages along beaches. The red-capped and hooded plover are two resident waders of the sandy beaches. Hooded plover are listed as a threatened species under the Flora and Fauna Guarantee Act. A survey conducted during May of 1998 recorded 25 hooded plovers on the beach within Levy's Point Coastal Reserve.



Photo 5 Prevailing onshore winds and high energy waves have had a significant influence on the area, including considerable wave erosion and sand deposition along the coastline. This photo was taken looking south-east along Levey's Point Beach.

Stable Well-Vegetated Dunes

Stable well-vegetated dunes are common behind sandy beaches throughout the coastline west of Warrnambool, in particular along Armstrong and Port Fairy Bays.

The vegetation on sand dunes reflects a gradual succession from pioneer colonising species on foredunes, through shrub species, to a dense dune scrub. Lessened exposure to winds and salt spray and changes in soil chemistry (including reduced salinity and calcium levels and a build-up of organic matter) with increased distance inland brings about this primary succession of vegetation communities and eventually results in secondary succession, with parabolic dunes supporting younger soils and dune scrub. As older parallel dune systems in heathland and woodlands become destabilised, secondary succession with parabolic dunes supporting younger soils and dune scrub vegetation occurs.

As the LCC (1993) describe, this plant succession begins on coastal dunes with strand plants, such as beach rocket and coast saltscrub, become established. Foredunes support herbaceous species (mainly grasses) such as hairy spinifex, marram grass¹, and sea wheatgrass¹. Shrubs subsequently replacing these species include coast wattle, white correa, coast everlasting, coast beard-heath, common boobialla (*Myoporum insulare*), common bush, seaberry saltbush (*Rhagzadolia candolleana*) and the sedges knobby club-sedge (*Isolepis nodosa*) and the coast sword-sedge (*Leptosperma gladiatum*).

¹ Non-indigenous species.

Marram grass¹ has been used widely in the past to stabilise sand dunes. Although marram grass is effective as a stabiliser, the species has become naturalised in coastal Victoria and is spreading on sandy coastlines throughout the State. Marram grass¹ alters dune morphology by characteristically building taller dunes than hairy spinifex and can act as a sand filter, reducing the sand supply to dunefields further inland. It has also largely replaced coast fescue (*Austrofestuca littoralis*), a grass once characteristic of sandy coasts but now increasingly rare. Marram grass¹ is now regarded as an environmental weed of coastal dunes.

Removal of Marram grass¹ is not advocated because of its role in soil stabilisation. It will always be present to some extent in the coastal vegetation but it is anticipated that indigenous species will colonise or be planted in Marram grass¹ Grassland which will greatly reduce the significance of Marram grass¹ as a structural vegetation dominant.

Reference to plant species found in vegetated dune communities in the nearby South Warrnambool Wetlands may give some indication of the plant species that may be found at Levey's Point.

Plants found by Ecology Australia Pty Ltd in nearby Marram grass¹ Grasslands at the South Warrnambool Wetlands (Scenic Spectrums Pty Ltd and Ecology Australia Pty Ltd, 1996) include:

SHRUBS

| | |
|---|-------------------|
| <i>Leucopogon parviflorus</i> | Coast Beard-heath |
| <i>Olearia axillaris</i> | Coast Daisy-bush |
| <i>Rhagodia candollenana</i> ssp. <i>candoll.</i> | Seaberry Saltbush |

DICOT HERBS

| | |
|-------------------------------|------------------------------|
| <i>Acaena novae-zelandiae</i> | Bidgee-widgee |
| <i>Actites megalocarpa</i> | Coast Sow-thistle |
| <i>Carpobrotus indicus</i> | Karkalla |
| <i>Senecio elegans</i> | Sweet Melilot |
| <i>Sonchus oleraceus</i> | Purple Groundsel Sow-thistle |

SUB SHRUB

| | |
|-------------------------------|---------------|
| <i>Tetragonia implexicoma</i> | Bower Spinach |
|-------------------------------|---------------|

GRAMINOIDS

| | |
|------------------------|-------------------|
| <i>Isolepis nodosa</i> | Knobby Club-sedge |
|------------------------|-------------------|

GRASSES

| | |
|--|---------------------|
| <i>Ammophila arenaria</i> | Marram Grass |
| <i>Lagurus ovatus</i> | Hare's Tail |
| <i>Poa poiiformis</i> var. <i>poiiformis</i> | Coast Tussock-grass |

Dune scrub, which is similar to the Coastal Limestone Shrubland described in the South Warrnambool Wetlands Study (Scenic Spectrums Pty Ltd and Ecology Australia Pty Ltd, 1996), develops further inland and is dominated by moonah, coast beard heath and coast wattle in western Victoria. The natural western range limit of coast tea-tree is not known with certainty but is considered to fall between Torquay and Cape Otway. Thus, where coast tea-tree has been planted west of Cape Otway, it now forms an exotic vegetation type. In some cases, the seed source has been derived from tea-tree brush-matting used by conservation agencies and others in the past for soil erosion control.

¹ Non-indigenous species.

Coastal shrubland on limestone (aeolianite) is restricted and discontinuous in Victoria, mostly west from Point Nepean (Barson and Calder 1976). While most component plant species occur on a wide range of soil types in coastal environments, some species (e.g. Coast Candles, *Stackhousia spathulata*) are restricted to lime-rich soils and would therefore not occur in Levy's Point Coastal Reserve.

Plants found by Ecology Australia Pty Ltd in the nearby Coastal Limestone Shrubland at South Warrnambool Wetlands (Scenic Spectrums Pty Ltd and Ecology Australia Pty Ltd, 1996) include:

SHRUBS

| | |
|---|-------------------|
| <i>Acacia sophorae</i> | Coast Wattle |
| <i>Leucopogon parviflorus</i> | Coast Beard-heath |
| <i>Rhagidia candolleana</i> ssp. <i>candoll.</i> | Seaberry Saltbush |
| <i>Pimelea serpyllifolia</i> ssp. <i>serpyll.</i> | Thyme Rice-flower |

DICOT HERBS

| | |
|--|-----------------|
| <i>Sonchus soleraceus</i> | Sow-thistle |
| <i>Carpobrotus rossi</i> | Karkalla |
| <i>Apium prostratum</i> ssp. <i>prostratum</i> | Sea Celery |
| <i>Daucus glochidiatus</i> | Austral Carrot |
| <i>Dichondra repens</i> | Kidney-weed |
| <i>Senecio spathulatus</i> | Coast Groundsel |

SUB SHRUBS

| | |
|-------------------------------|-----------------|
| <i>Threlkeldia diffusa</i> | Coast Bonefruit |
| <i>Tetragonia implexicoma</i> | Bower Spinach |
| <i>Leucopyta brownii</i> | Cushion Bush |

GRAMINOIDS

| | |
|------------------------|-------------------|
| <i>Isolepis nodosa</i> | Knobby Club-sedge |
|------------------------|-------------------|

Other plants found by Botanicus Pty Ltd and the University of Ballarat 1996 to the west of Thunder Point include *Leptospermum laevigatum* (Coast Tea-tree), *Exocarpus styrticola* (Coast Ballart), *Parietaria debilis* (Shade Pellitory) and *Didymodon torquatus* (Moss).

The coastal shrubland in the Warrnambool hinterland has a history of stock grazing (Heathcote and Maroske 1996) and rabbit grazing, and it has been significantly degraded. The exotic snail, *Theba pisana* is also abundant. With these and other disturbances it is likely that a suit of plant species (e.g. Drooping Sheoke, *Allocasurina verticillata*) have been eliminated. Weeds are abundant. Weeds identified by Botanicus Pty Ltd and the University of Ballarat 1996 include *Hypochoeris radicata* (Cat's Ear), *Plantago coronopus* (Buck's-horn Plantain), *Trifolium* sp. (Clover) and *Leontodon taraxacoides* (Hairy Hawkbit).

Dune scrub is also highly susceptible to weed invasion, and intact examples are now rare near settled areas.

Foredune habitats provide a sandy environment grading from exposed sparsely vegetated areas near the coast to dense shrubland further inland. Dune scrub is similar in vegetation structure to the scrubland found on calcarenite and non-calcarenite cliff tops; fauna assemblages in all these habitats are therefore similar. Stable vegetated dunes provide breeding habitats for some species of seabird. The white-footed dunnart and swamp antechinus may be found in the foredune areas.

¹ Non-indigenous species.

Other mammals typical of the dune scrub areas include: bush rat, brown antechinus, swamp rat, black rat¹, housemouse¹, and swamp wallaby. The canopy layer is foraged by the eastern pygmy possum and common ringtail possum.

Breeding colonies of white-faced storm-petrels, short-tailed shearwaters, Australian pelican, and little penguin are located on stable dune vegetation. This habitat is also used for nesting sites by the little penguin and silver gull. Calamanthus may visit the fore-dune areas.

Dune scrub habitats are also utilised by the brown thornbill, white-browed scrubwren, superb fairy-wren, silvereye, beautiful firetail, and the New Holland, singing, white-eared, and yellow-faced honeyeaters. The rufous bristlebird prefers coastal dune vegetation and the pink robin may also over winter there.

Reptile species in stable dune habitats include White's, four-toed, garden, gras, metallic, three-lined skinks, and common, and blotched blue-tongued lizards, and lowland copperhead. The stripped worm-lizard, a rare species, is also found in this habitat type, along with the occasional garden skink.

No amphibian species are typical of this habitat type.



Photo 6 Marram grass and coastal scrub vegetation communities have stabilised the sand dunes near Car Park No. 3

¹ Non-indigenous species.



Photo 7 Coastal scrub vegetation along the road to Car Park No. 2

Active Sparsely-Vegetated Dunes

Active, sparsely-vegetated sand dunes occur in Levy's Point Coastal Reserve, in the areas of sparsely vegetated or eroding foredunes.

According to the LCC (1993) plants associated with this open habitat are the coast saltbush (*Atriplex cinerea*) and hairy spinifex (*Spinifex sericeus*) and the introduced species marram grass¹ (*Ammophila arenaria*), beach rocket* (*Cakile maritima*), and sea wheat grass¹ (*Thinopyrum junceum*) These species are prevented from attaining higher levels of cover due to the on-going processes of erosion and deposition.

A gradual progression from pioneer colonising species on foredunes through shrub species, to a dense dune scrub further inland is developed by dunal vegetation. Where the vegetation may become destabilised, aeolian (wind-blown) sand can move en masse inland to form blowouts.

Once such active dunes are initiated, such active dunefields may become extensive and as mobile dunes, can cover all vegetation types in their way, including woodlands and swamps, before eventual vegetation recovery. The more extensive dunefields pre-date the arrival of Europeans and were recorded by early surveyor's.

The LCC (1993) also indicate that fauna of the Active Dune environments is primarily limited to birds with specific foraging, roosting and breeding requirements. Breeding terns and oystercatchers both lay their eggs within shallow depressions in the sand, shell debris, shingle or gravel. Colonial breeding sites for the Caspian and crested terns is restricted to this habitat type.

¹Non-indigenous species.



Photo 8 Sparsley vegetated foredunes at the beach access point from Car Park No. 2.



Photo 9 Part of the active, sparsley vegetated Big Dune, looking along the track to Car Park No. 3.

2.4 Aboriginal Cultural Heritage

The *Dhauaurd wurrung* language group lived along and used the coast in this area for thousands of years prior to European settlement. The Levy's Point Coastal Reserve was no doubt frequented by Aboriginal inhabitants prior to that time for a period of up to 40,000 years.

Aboriginal Affairs Victoria (Victorian Archaeological Survey) indicate that a band of at least 200-300 metres wide and sometimes extending up to 1 km inland from the high water mark in this area is highly likely to contain sites of high Aboriginal Cultural significance.

Aboriginal midden material is known to exist in the palaeosoils of Thunder Point, just to the east of Levy's Point. A number of large midden sites also exist within the Levy's Point dune system and along the edge of the wetland areas. Some of these have been exposed by erosion and some are purported to contain evidence of mollusc and shellfish species that no longer exist in the adjacent ocean area (eg. cockles from sandy bottom and reef species such as abalone). In addition, the midden sites are frequently associated with burial sites of Aboriginal ancestors, increasing the cultural and spiritual value of the sites. In order to protect these sites from possible disturbance or destruction, a detailed description of their content and locations is not presented as part of this report.

Nearby Levy's Point at Kelly's Swamp and at an area of high ground to the west of that wetland is the site of a former Aboriginal Meeting Place known as Tarerer. This was a place where the Aboriginal people of different clans could meet periodically to conduct tribal and intertribal ceremonies or negotiate tribal disputes without fear of reprisals. There is a current interest by local Aboriginal communities in re-establishing Tarerer and to provide some interpretation of it's significance.

No formal archaeological or cultural heritage assessments have been possible within the scope of this study, however, discussions with Ivan Cousins (pers. comm., 1996) of the Guditymara Aboriginal Co-op indicates that the local Aboriginal Community may have an interest in being involved in any future interpretation and management of Levy's Point Coastal Reserve.

2.5 Post-Contact History

Little is known about the early Post-European Contact history of Levy's Point Coastal Reserve. In conjunction with the settlement of the Port Fairy District from the 1830s onward, the adjacent Killarney area was largely settled by immigrants of Celtic and Irish origins who cleared the coastal vegetation and established farms in the area.

The study area is also one of the sites where the legendary Mahogany Ship was reportedly located. Reported sightings of the Mahogany Ship in the sand dunes of the Armstrong Bay area were recorded between the 1830s and the 1890s. Some historians believe the ship may have been Portuguese caravel that went missing in the early 1500s. If so, it's rediscovery could rewrite Australian history, proving that the Portuguese Captain Christopher Mendoca visited Victoria's coastline 250 years prior to Captain James Cook laying claim to the continent for England.

Renewed interest in the Mahogany Ship mystery in recent years has led to serious searches in hope of receiving large rewards offered, but the ship has yet to be found in the dynamically shifting sand dunes of the area.

2.6 Recreation Use

There are no visitor numbers available for Levy's Point Coastal Reserve. However, it appears that it has a relatively low to moderate usage mainly by picnickers, fishermen and casual beach-goers. Due to the study area's proximity to Warrnambool, it is also used by groups of younger users for surfing, get-togethers and parties, and it is predicted that recreational usage will increase in the reserve over the next five to ten years given its proximity to the City of Warrnambool.

The network of roads and tracks are used by people on trail bikes as well as 4WD vehicles. Horse riding occurs in the area with an informal horse trailer parking area evident off the road just to the east of the road to Car Park No. 2. The Mahogany Walking Track, which has been established along the coast between Warrnambool and Port Fairy, runs through the study area. An additional trailhead to the Mahogany Walking Track is located at the Levy's Point Car Park (Car Park No. 1). Bird watching and off-shore scuba diving are among the potential activities in this area. Fishermen, 4WD enthusiasts and motorbike riders appear to be the principal users of the far western part of the reserve in the vicinity of the road to Carpark No. 3.

The Moyne Shire Coastal Area Study (Scenic Spectrums Pty Ltd) recommended that the Levy's Point Coastal Reserve be managed as a Semi-Developed Natural Visitor Opportunity Area (refer to Table 1) within a Recreation Opportunity Spectrum (ROS) context and that the recreational focus should be on natural/cultural interpretation, fishing, 4WD access, carpark and picnic facilities and a pack-in pack-out rubbish policy.

2.7 Visual Resource

Applying the Victorian Visual Management System (VMS) developed and used by the Department of Natural Resources and Environment (DNRE), Levey's Point is located within the Coastline Landscape Character Type (LCT). Levy's Point would be classified overall as having High Scenic Quality, displaying:

- Irregular coastal edges associated with wide sandy beaches;
- Large sand dune ridges of distinctive form which become focal points;
- Strongly defined patterns associated with combinations of tea-tree scrub and dune vegetation;
- Windshaped, gnarled or dwarfed specimen stands of vegetation which create unusual form, colour and texture in comparison to surrounding terrain.

In addition to the above features within the reserve, extensive wetlands and open brackish water features on properties adjacent to Levy Point Coastal Reserve's northern boundary provide a visually diverse inland edge of High Scenic Quality. The numerous waterfowl and seasonal wader species associated with these wetlands further enhance the scenic interest of the area.

Public viewpoints and travel routes have been assessed using the VMS criteria for estimating of the number of user's during peak periods and the relative degree of concern those users may have for scenic values.

The Levy's Point Road is classified as having a Moderate Public Sensitivity Level along the 2WD sections up to Carpark No. 2 and as having a Moderate Public Sensitivity Level along the 4WD sections through to Carpark No. 3, primarily due to predicted increased recreational use. The Mahogany Walking Track is considered as of State Significance and as having a Moderate Public Sensitivity Level. All of the areas visible from these travel routes and use areas are viewed within 500m and these viewsheds are classified as the Foreground Distance Zone.

The combination of High Scenic Quality and Foreground viewsheds seen from Level 2 viewpoints of Moderate Public Sensitivity resulting in the assignment Landscape Management Zone A to the entire coastal reserve.

The Zone A areas have an Inevident Alteration Visual Quality Objective (VQO), which requires that management alterations should range from being visually not evident to temporarily apparent. When evident, the period of impact (contrast) should not exceed one year. The recommended alteration level is low, least receptive to change.

Existing landscape alterations in the reserve include the 2WD and 4WD tracks, numerous 4WD and motorbike tracks and the Stockfeeds Pty Ltd factory located along the principal access road to Car Park No. 2. These visual alterations vary from Apparent to Dominant Landscape Alteration, exceeding the desirable Visual Quality Objective. Those requiring rehabilitation include the area around the Stockfeeds Pty Ltd factory and all vehicular tracks not to be maintained as public or management access tracks.

*Levy's Point Coastal Reserve
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TABLE 1 VISITOR OPPORTUNITY AREA (ROS CLASS) DESCRIPTIONS

| VISITOR OPPORTUNITY AREAS | | | | |
|--|---|--|--|---|
| | Natural | Semi-developed Natural | Developed Natural | Urban Beach |
| Physical Setting Description | Predominantly Natural Coast with little to no evidence of disturbance. Access modes include informal walking tracks by land and natural beach landings (no ramps or piers). | Predominantly natural Coastal Environment with some evidence of human development in selected and limited locations. Access modes include formal and informal walking tracks, but with no motorised vehicles within the land areas. Sealed and unsealed roads are generally within 1/2 km, but are not within this VOA. | Predominantly a Semi-Natural Coastal environment with obvious evidence of human development in selected locations, but with roads, services and facilities designed for low visual/environmental impacts. Access modes include motorised vehicles and bicycles on sealed and unsealed roads and walking tracks, and boat ramps, but no piers or marinas. | Predominantly an Urban Beach Coastal environment with dominant evidence of human development throughout the area. Motorised vehicular access by land and boat ramp/port and marina access easily available within the immediate area. Carparks within easy walking distance of most parts of the coastal zone. |
| Social Setting Description | Good opportunity for isolation and solitude. Visitors must be very self-reliant. Very few if any support services or facilities provided. | Moderate opportunities for isolation and solitude. Moderate degree of self-reliance required, but basic visitor services and facilities are provided for interpretation, public safety and resource protection. | Limited opportunities for isolation and solitude. Low degree of self-reliance required. Visitor services and facilities provided at level that satisfies most requirements for moderate levels of comfort and convenience, including occasional toilet facilities, but no food outlets or rubbish disposal bins. | Very few if any opportunities for isolation and solitude. Low degree of self-reliance required. Visitor services and facilities easily available, providing a high degree of comfort and convenience, including multiple toilet facilities, change rooms, food outlets and rubbish disposal bins. |
| Managerial Setting Description | On-site regimentation and controls present, but subtle. Motorised use is not permitted via land access routes. National Park-type regulations apply. Environmentally Sustainable Development principles to apply to any recreational facility siting and design. Minimal signage. | On-site regimentation and controls are noticeable, but harmonise with the natural environment. National Park-type regulations apply. Moderate levels of signage may be required for use and safety regulations. Some self-regulation by freehold land owners within this zone will be required, along with enforcement by both the Shire of Moyne and DNRE. | On-site regimentation, signage and controls are obvious, but harmonise with the natural environment. National Park-type regulations apply. | On-site regimentation, signage and controls predominate the area, not always in harmony with the natural environment. |
| Recreation Experience Description | High probability of experiencing isolation from the sights and sounds of people most of the time. Moderate to High degree of challenge and risk. Low to very low inter-party encounters and contacts. Very high appreciation of natural values. Primitive to semi-primitive experience. | Moderate probability of experiencing isolation from the sights and sounds of people during the early morning, late afternoon and evening hours. Opportunity for a high degree of interaction with the natural environment. Moderate degrees of challenge and risk associated with the environment. Moderate to high appreciation of natural values. Semi-primitive to semi-developed experience. | Low to moderate probability of experiencing isolation from the sights and sounds of people most of the time, but moderate probability for experiencing isolation during the early morning, late afternoon and evening hours. Opportunity for a moderate degree of interaction with the natural environment. Low degrees of challenge and risk. Moderate to high appreciation of natural values. Semi-developed experience. | Low to very low probability of experiencing isolation from the sights and sounds of people most of the time. Low opportunity for interaction with the natural environment, other than within the surf and intertidal zones of the water. Low degrees of challenge and risk. Low to moderate appreciation of natural values. Greater degree of appreciation for historic and cultural values. Developed, urban experience. |



Photo 10 The informal horse trailer parking and meeting area is located in the northern section of the study area, between Car Park No. 1 and Car Park No. 2.



Photo 11 The Mahogany walking track trailhead at Car Park No. 1.



Photo 12 Levy's Beach access from Car Park No. 2.



Photo 13 Car Park No. 1 at present.



Photo 14 Large active dunes west of the road to Carpark No. 2 require stabilisation.



Photo 15 Existing pine fingerboard signs in the reserve appear dated and need replacement.



Photo 16 Picnic Area at Car Park No.1



Photo 17 Local Primary Schools Tree Planting Project.



Photo 18 Wetlands located north of the Coastal Reserve and the Levy's Point Road with the Warrnambool Stock Feeds plant visible in the middleground to the southwest.



Photo 19 Warrnambool Stock Feeds Pty Ltd plant located along the Coastal Reserve access road. Vegetative screening and realignment of the road may be needed in the short term for this use, which is relatively incompatible with a Coastal Reserve.

3.0 MANAGEMENT ISSUES

The key management issues at Levy's Point Coastal Reserve include:

1. Management Status, Responsibilities and Authority
 - Responsible Management Authorities and Stakeholders (Environment Conservation Council, Department of Natural Resources and Environment - DNRE, Warrnambool City Council, Moyne Shire Council, Victorian Coastal Council (Western Region), Aboriginal Affairs Victoria, Office of Planning and Heritage, Landcare, Local Fishing Clubs, Local Horse Riding Clubs, Local 4WD Clubs, Warrnambool Field Naturalist Club, and Adjacent Land Owners/Lease Holders)
 - Sources of Management Funding (DNRE, Coast Action Grants, environmental grants, special fund raising activities by user/special interest groups, User Fees, Local Government budget allocations).
2. Protection of the Ecological Integrity and Quality of Natural Areas from a number of threats, including:
 - Plant damage and prevention of regeneration resulting from Unrestricted Pedestrian, Horse and Vehicular Access;
 - Erosion of Sand Dunes also due to Unrestricted Pedestrian, Horse and Vehicular Access;
 - Invasive and noxious plants and environmental weeds;
 - Feral and Noxious Animals (fox, dogs, cats, rats, other vermin);
 - Dumping of rubbish which contains very serious garden-escape plants and introduces harmful exotic invertebrates);
 - Littering which has a serious visual impact, notably around the No. 2 Car Park area.
3. Protection of Cultural Heritage Sites and Areas, including:
 - Aboriginal Sites of Significance;
 - The Mahogany Ship Storey and archaeological digs associated with the ship.
4. Recreation/Tourism and Interpretive Activities, Access and Infrastructure:
 - Needs for Vehicular Access/Parking and Appropriate Siting/Design;
 - Needs for Defined Walking Tracks and Appropriate Siting/Design;
 - Needs for a Signage System, providing clear Directional, Management and Environmental/Cultural Interpretive Information;
 - Interpretation Themes (Ecological/Cultural/Historic/Social); and
 - Potential Conflicting Recreational Activities (eg. Horse Riding, Motor Biking, 4WDs, Fishing, Picnicking, and Walking in Specific Areas).
5. Planning Controls on Adjacent Properties in terms of:
 - Land Use Controls on the adjacent agricultural land uses and on the Warrnambool Stockfeeds Pty Ltd.

4.0 RECOMMENDED MANAGEMENT PLAN AND ACTIONS

The Recommended Management Plan is presented in Figure 3. This plan features the protection, enhancement and interpretation of Levy's Point Coastal Reserve.

4.1 Management Status and Structure

In terms of the management status and structure of Levy's Point, it is recommended that:

- Levy's Point maintain its Coastal Reserve Status.
- That it be jointly managed by the City of Warrnambool and the Shire of Moyne on behalf of the Department of Natural Resources and Environment (DNRE) via a Committee of Management which includes representation from DNRE (Warrnambool Office), both municipalities, the Victorian Coastal Council and at least six residents from the Warrnambool and Port Fairy communities, two of which may represent the community at large and four of which represent relevant special interest groups (ie. the local Aboriginal community, Landcare, the Historical Society, the Field Naturalists, Fishing Clubs, etc.).
- That the Managers of Levy's Point Coastal Reserve investigate and consider the feasibility of managing the Reserve by a Regional Agreement with the Framlingham Aboriginal Co-operative and other appropriate local Aboriginal communities in a manner similar to that suggested by the Australian Local Government Association (ALGA) in co-operation with the Aboriginal and Torres Strait Islanders Commission (ATSIC) and the National Native Title Tribunal (NNTT) in the publication titled *Working Out Agreements with Indigenous Australians: A New Direction for Local Councils* (May, 1998).
- If a Committee of Management involving the two municipalities cannot be formed, then it is recommended that annual management co-ordination meetings be held between DNRE, the City of Warrnambool and the Shire of Moyne.
- Refer to and ensure compliance with the Victorian Coastal Management Act 1995 and the Crown Land (Reserves) Act, 1978.

4.2 Protection of Ecological Integrity and Quality of Natural Areas

- Extend the Coastal Protection Zone recommended by the LCC to the entire coastline of Levy's Point Coastal Reserve, including the following objectives:
 - (i) protect and conserve coastal landscapes, ecosystems and significant geological, geomorphological, historical and cultural features for public enjoyment and inspiration and for education and scientific study;
 - (ii) ensure the protection and conservation of important aquatic and terrestrial fauna and flora;
 - (iii) provide opportunities for recreation associated with the coast and related to enjoying and understanding natural and cultural values consistent with (i) and (ii) above;
 - (iv) facilities for intensive use should not be located in this zone;

The seaward boundary of this Coastal Protection Zone should be the high-water mark.

Levy's Point Coastal Reserve
City of Warrnambool
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Legend

- Management Tracks (Closed to the Public)
- 4WD Tracks
- Sandy Beaches and Un-Vegetated Dunes
- Sealed Road
- 2WD Tracks
- Coastal Heath/Scrub
- Walking Tracks (Formal and Informal)
- Track Closure and Rehabilitation

- Committee of Management**
- Consider Formation of a Committee of Management with Joint Representation of Warrnambool City Council and Moyne Shire Council
 - If a Joint Committee is Not Possible, Arrange for Annual Co-ordination Meetings between the Two Councils and DNRE

- Semi-Natural Visitor Opportunity Area**
- Coastal Reserve Recommended to be Managed as a Semi-Developed Natural Visitor Opportunity Area with a Focus on Natural/Cultural Interpretation, Fishing, 4WD Access, Car Parks, Picnic Facilities, and Pack-In Pack-Out Rubbish Policies
 - Opportunity for a Natural Visitor Opportunity Area in Western Portion of Reserve if Vehicular Access is Closed

- Wetland Management of Private Lands**
- DNRE and Committees of Management Should Involve Local Land Owners in Land for Wildlife and Section 173 Agreements to Conserve and Enhance Wetland Vegetation, Water Flows and Fauna Habitats

- Horse Riding Ring**
- Continue to Provide Small Horse Trailer Parking Area
 - Revegetate Remainder of Disturbed Area
 - Horse Riding on Mahogany Ship Track to be Controlled by Committee of Management
 - Horse Riding Elsewhere Requires a Permit Granted only with DRNE Approval

- Beach Access and 4WD Access**
- Improve Directional and Vehicle Signage

- Management Tracks**
- Close and Rehabilitate All Unrequired Management Tracks

- Wetland Interpretation and Bird Observation Facility**
- Construct a New 4WD Track, Small Parking Area and Interpretation Signage

- Big Dune**
- Priority Revegetation and Dune Stabilisation Area
 - Use Only Locally Indigenous Plant Species

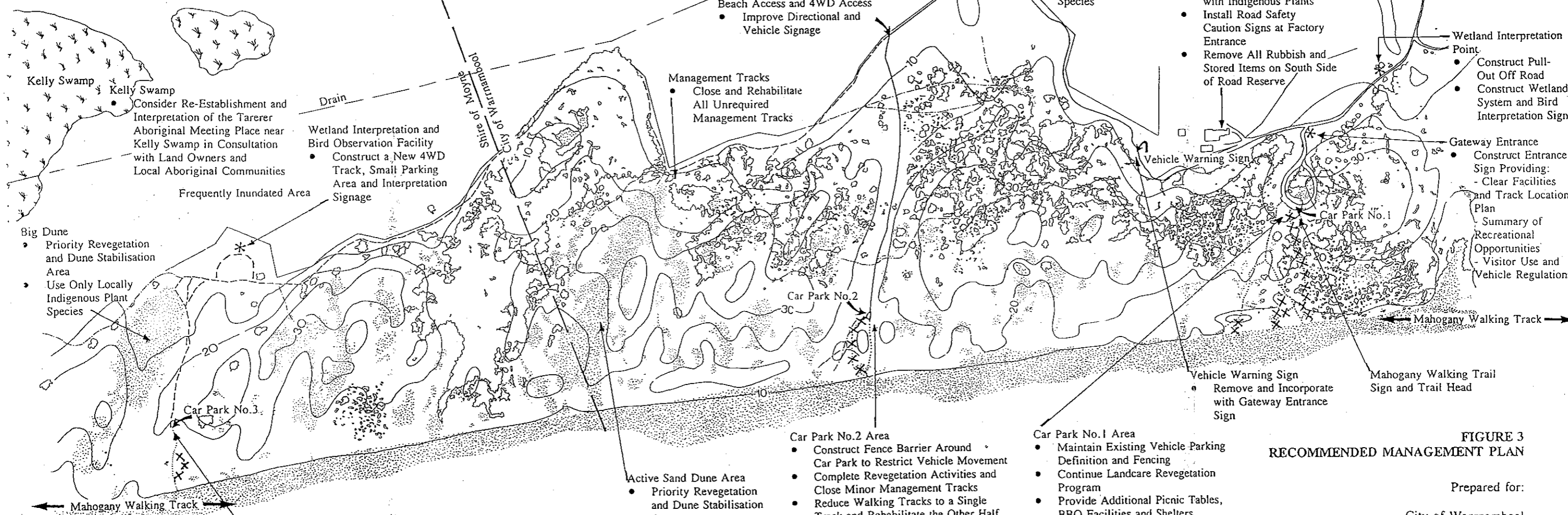
- Active Sand Dune Area**
- Priority Revegetation and Dune Stabilisation Area
 - Use Only Locally Indigenous Plant Species

- Car Park No.2 Area**
- Construct Fence Barrier Around Car Park to Restrict Vehicle Movement
 - Complete Revegetation Activities and Close Minor Management Tracks
 - Reduce Walking Tracks to a Single Track and Rehabilitate the Other Half of the Loop
 - Consider Provision of Emergency Vehicle Track along Remaining Walking Track

- Car Park No.1 Area**
- Maintain Existing Vehicle Parking Definition and Fencing
 - Continue Landcare Revegetation Program
 - Provide Additional Picnic Tables, BBQ Facilities and Shelters
 - Up-date all Directional Signage
 - Construct a Mahogany Ship and Walking Track Interpretation Sign
 - Consider Possible Provision of Toilet Facilities
 - Close and Rehabilitate Excess Walking Tracks to Beach (as shown)
 - Provide Flora and Fauna Interpretation Signage Along Beach Tracks

- Car Park No.3**
- Construct Fence Barrier Around Car Park to Restrict Vehicle Movement
 - Maintain Single Walking Track to the Beach
 - Close and Rehabilitate Excess Track Loop

Levy's Point Coastal Reserve



Typical Redgum Stand Alone Interpretation Sign

FIGURE 3
RECOMMENDED MANAGEMENT PLAN

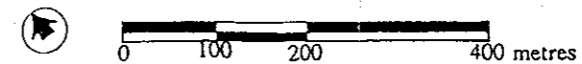
Prepared for:

City of Warrnambool

By:

Scenic Spectrums Pty Ltd
Scenic, Recreation and Tourism Planning & Design

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Scale 1: 4,000

- Manage the reserve within the context of whole catchment management and best practice land management policies as per the Victorian Catchment and Land Protection Act 1994 and the Conservation, Forests and Lands Act, 1986.
- Further investigations should be carried out to establish the relative geologic, flora and fauna significance of the reserve to determine whether or not any areas should be managed in accordance with the Victorian Flora and Fauna Guarantee Act 1988, the Reference Areas Act 1978 or other State or Federal legislation;
- Coastal erosion must be kept under control and to a level similar to that associated with natural systems of the area;
- Manageable causes of erosion must be strictly controlled through:
 - a. Erection and maintenance of livestock control fences along the reserve boundary to ensure that domestic livestock from adjacent private properties are excluded from grazing and trampling indigenous vegetation cover in the reserve;
 - b. Control of vehicles, horses and pedestrians within the reserve and restriction of their movement to designated tracks, carparks and visitor use areas, including:
 - i. Construction of a barrier fence around Carpark Nos. 2 and 3 to restrict vehicular movement;
 - ii. Restrict walking tracks to a single track to the beach and rehabilitate/revegetate the other half of the walking tracks to the beach from Carparks No. 2 and No. 3;
 - iii. Close and rehabilitate excess walking tracks to the beach from Carpark No. 1 as indicated in Figure 3.
 - iv. Close and rehabilitate all unrequired management tracks and undesignated recreational tracks, in particular those located on or near the Big Dune, on or near the active sand dunes furthest west in the City of Warrnambool, laterally off the road to Carpark No. 2 and south of the horse-riding ring.
 - v. Designation of 2WD tracks to Carpark Nos. 1 and 2 only and a 4WD Track to Carpark No. 3.
 - c. Educate reserve visitors about the causes and threats of erosion and encourage environmentally sensitive activities and use patterns.
 - d. Regular patrols and management activities which improve the monitoring of the use of 2WD or 4WD vehicles, motorbikes, all-terrain vehicles, or horses off designated and permitted access tracks according to existing laws and regulations (eg. Land Conservation - Vehicle Control - Act, 1972 and a system of Penalty Infringement Notices - PINS - that can be issued as on-the-spot fines for day to day breaches of the act).

- Areas of Significant Erosion should be rehabilitated and revegetated only with locally indigenous plants (or with sterile rye or other grasses that will not create an on-going weed problem) at the earliest possible time. These areas include:
 - a. Big Dune (west of the 4WD track to Carpark No. 3);
 - b. The active sand dune area between the tracks to Carpark No. 2 and Carpark No. 3;
 - c. Close and rehabilitate the excess loop track near Carpark No. 3;
 - d. Close and rehabilitate all unrequired management tracks;
 - e. Complete revegetation activities and close the minor management tracts near Carpark No. 2;
 - f. Revegetate disturbed areas near the Horse Riding Ring;
 - g. Continue tree planting with appropriate species at the Primary School Tree Planting site east of the Horse Riding Ring;
 - h. Continue the Landcare Revegetation Program in the area of Carpark No 1.
- Refer to the Coastal Erosion Control Guidelines (former Department of Conservation, Forests and Lands, 1985) available through DNRE.
- Do not use marram grass as a dune stabilising plant. It is an environmental weed which alters dune morphology by building taller dunes, acts as a sand filter reducing the sand supply to dunes further inland, and crowds out the indigenous coast fescue (*Austrofestuca littoralis*).
- Restrict and police damage to or removal of sand, flora or fauna from the reserve as per existing laws and regulations protecting these natural elements (eg. Flora and Fauna Guarantee Act, 1988 and the Extractive Industries Act 1966).
- Discourage the dumping of refuse, pollutants, litter or other rubbish within the reserve through a combination of public information/warnings and appropriate fines for violations as per the legislation (eg. Litter Act 1987 and the Pollution of Waters by Oil and Noxious Substances Act 1986).

4.3 Protection of Sites and Areas of Cultural Heritage Significance

- Further identify and protect sites and areas of Aboriginal Cultural Heritage significance as per the Archaeological and Aboriginal Relics Act 1972.
- Further educate the public about and enforce protective regulations regarding heritage sites of pre-contact, contact and post-contact significance as per the Commonwealth Archaeological and Aboriginal Relics Act 1972, the Commonwealth Historic Shipwrecks Act 1981 and the Historic Buildings Act, 1981.
- In particular, educate the public about and enforce protective regulations regarding searches for the Mahogany Ship in Levy's Point Coastal Reserve and surrounding areas. A permit from DNRE supported by the Committee of Management is required by all searchers and they must abide by the conditions of these permits regarding the conduct and location of their search, site rehabilitation methods, bonds, etcetera. Such searches are strictly managed.

4.4 Recreation, Tourism and Interpretive Facilities and Activities

- Manage the reserve as a Semi-Natural Visitor Opportunity Area with a focus on Natural/Cultural Interpretation, Fishing, 4WD Access, Carparks with Picnic Facilities, and Pack-in Pack-out Rubbish policies.
- Provide a Wetland Interpretation Point along Levy's Point Road near the end of the cut-off channel of the Merri River. This would involve the construction of a pull out off the road and the construction of an interpretation sign focusing on wetland ecosystems and water bird interpretation.
- Construct a Gateway Entrance Sign, possibly in conjunction with a pull-out bay near the junction of the Levy's Point Road and the road to Carpark No. 1. The signage should provide a clear facilities and track location plan, a summary of recreational opportunities and an easy to read listing of visitor use and vehicle regulations containing clear warnings about potential fines as appropriate. This sign should be inviting to visitors and help them to decide where they will go and what they will do. It should also leave no room for public ignorance about regulations, although this aspect should be couched in an educational, positive manner rather than in a negative context.
- Carpark Area No. 1:
 - a. Maintain existing vehicle parking area definition and fencing.
 - b. Provide additional picnic tables, bbq facilities and shelters.
 - c. Provide toilet facilities in an environmentally suitable location.
 - d. Up-date all directional signage, converting existing pine fingerboard signs to the heavier hardwood timber style of signage currently used by DNRE at Thunder Point and Pickering Point, with etched metal or plastic insert text faces (refer to sketch on Figure 3).
 - e. Construct a Mahogany Ship and Walking Track interpretation sign at the trailhead (this may involve a series of signs or a display shelter that provides a fuller account of the fascinating Mahogany Ship story, along with information about permit requirements for any searches for the ship).
 - f. Provide additional educational signage at the picnic area with a focus on coastal and dune ecology and the importance of sensitivity in visitor's use of the area.
 - g. Provide a series of flora and fauna interpretation signs along the designated tracks to the beach.
- Carpark Area No. 2:
 - a. Rationalise tracks as recommended in 4.2 above.
 - b. Consider provision of an Emergency Vehicle Track along the remaining walking track to the beach.
- Carpark Area No. 3 - Rationalise tracks as recommended in 4.2 above.
- Construct wetland interpretation signage with a bird observation facility (viewing platform or deck) just east of the Big Dune and near the northern reserve fence (refer to Figure 3). This

location could be considered as a trailhead point for a potential walking track or boardwalk to Kelly Swamp if that area is ever developed further as part of a Coastal Park, a National Estate Site or as part of an ecotourism centre, as recommended in the Moyne Shire Coastal Area Study (Scenic Spectrums Pty Ltd, 1996). Other interpretive signs at this location should provide educational material about coastal dune ecosystems and the need for visitors to remain on designated tracks.

- Improve the directional and vehicle use signage at the junction of the road to Carpark No. 2 and the entrance to the 4WD track.
- Horse Riding Ring:
 - a. Continue to provide a small horse trailer and riding ring area at the present location.
 - b. Provide an educational brochure to permit holders discussing horse riding regulations at the reserve and ways to minimise the environmental impact of horse use in the reserve (eg. types of feeds permitted in relation to weed infestation, places where horses can be tethered, designated tracks, etc.).
 - c. Provide information signs at this location indicating horse riding regulations and the key ways to minimise environmental impact.
- Remove the vehicle warning sign just west of the Warrnambool Stockfeeds Area and incorporate with the proposed Gateway Entrance Sign.

4.5 Enhancement of the Warrnambool Stockfeeds Area

- Re-align the public road to south of the plant and consolidate the factory parking area (refer to sketch on Figure 3).
- Establish vegetative screening of factory with locally indigenous plant species (refer to sketch on Figure 3).
- Install road safety caution signs at the factory entrance to reduce potential of traffic accidents involving recreational visitors and trucks from the factory.
- Conduct periodic inspections of the factory to ensure that it is meeting all requirements of the Environmental Protection Authority's regulations and is not in violation of the Pollution of Waters by Oil and Noxious Substances Act, 1986.
- Do not renew the lease of this site in the future and encourage the business to find a more suitable alternative location as soon as possible. The factory is considered to be an incompatible use in conflict with the overall management objectives of Levy's Point Coastal Reserve.
- Ensure that when the factory does cease operation that all buildings, structures and contaminants are removed from the site and that the entire site is properly rehabilitated.

4.6 Management of Adjacent Wetlands

The area between the coastal estuaries of the Merri River at Warrnambool and the Moyne River at Port Fairy comprises a highly significant barrier lagoon wetland system located inland from the coastal dunes. This complex, although significantly altered and partially drained for agricultural purposes, includes Belfast Lough (and Port Fairy Drain), Killarney Swamp, Rutledges Cutting, Kelly Swamp and the South Warrnambool Wetlands (Scenic Spectrums Pty Ltd, 1996b). Belfast Lough is a site of Regional to Local Geologic Significance, representing a large shallow estuarine lagoon. It is also an area which has been assessed as a site of State Fauna Significance in relation to its habitat for the rare and endangered Orange-bellied Parrot (Carr, W. and Kinhill Planners Pty Ltd, 1979). Port Fairy Drain, in association with Belfast Lough is a Fauna Site of Regional to Local Significance as a rich molluscan fossil site.

Rutledges Cutting is a 90 ha site of State Fauna and Local Flora Significance, exhibiting stable sand dune and salt marsh habitats where Orange-bellied Parrots have been consistently recorded and which is a breeding site for Crested Terns and Silver Gulls. The sandfly rise at the salt-water swamp of Rutledges Cutting is important to migratory waders and there are a high number of Hooded Plovers in the area.

Kelly Swamp is of Regional to Local Geological Significance as a remnant of a larger back barrier swamp/lagoon. In combination with Armstrong Bay, Kelly Swamp, Rutledge Cutting and Killarney Swamp form a wetland sedge/herbland complex in association with adjacent dune scrub and coastal tussock grassland vegetation types that are depleted in Victoria and form habitats of Regional Flora and Fauna Significance.

Thunder Point, the South Warrnambool Wetlands and Lake Pertobe are areas of Regional to Local Geologic Significance, displaying limestone cliffs with palaeosoils and sediments reflecting sea level changes. South Warrnambool Wetlands is also noted as an area of Regional Flora and Fauna Significance, involving five vegetation communities/sub-communities, Orange-bellied Parrot habitat and habitat for at least five migratory bird species listed on the JAMBA and/or CAMBA agreements between Australia and Japan.

Aside from its biophysical significance, this entire barrier lagoon complex is an area of Aboriginal Heritage Significance, with numerous Aboriginal shell middens, artefacts, and sacred burial sites of the Kirrae Wuurong Tribe and other Aboriginal clans who visited the area annually as a Meeting Place. This area of Aboriginal cultural significance is on the National Estate Register. These sites are protected from public display, mapping and disturbance by the Archaeological and Aboriginal Relics Act of 1972.

Cultural and historic significance is also attributed to this area in relation to the Mahogany Ship, the post-contact Gaelic cultural settlement of the area, and the local historic significance of Rutledges Cutting, the South Warrnambool Fishing Village and the former Warrnambool Flour Mill.

In light of the significance of the wetland and barrier lagoon areas located adjacent to Levy's Point Coastal Reserve, and in line with previous recommendations made in the Moyne Shire Coastal Area Study, the following recommendations are made:

- Further investigations and assessments should be made of the wetlands and barrier lagoon complex between the Merri River and the Moyne River with a view to nominating the area for Listing on the Register of the National Estate.

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- If National Estate status is conferred, the area should be managed as a Coastal Park, probably incorporating Levy's Point and Thunder Point Coastal Reserves.
- In the interim, extend the LCC's recommendation for a Coastal Protection Zone to include all the wetlands from Killarney and Kelly Swamps to the Merri River. Fence these areas off to protect from grazing.
- Promote this area's ecotourism opportunities and consider the development of a Natural and Cultural Visitor Centre.
- The addition or widening of Levy's Point Coastal Reserve to include the land surrounding Kelly Swamp and the wetlands between Kelly Swamp and the Merri River should be actively pursued through Section 173 agreements or other conservation agreements (ie. Land for Wildlife) or covenants with freehold land owners.
- Agriculture is considered to be an important and compatible adjacent land use activity within the coastal area and should be supported where possible while encouraging improved agricultural and environmental management methods. Potential aquacultural land use activities are also of importance and should be supported given appropriate environmental investigations and safeguards.
- Residential development adjacent to Levy's Point Coastal Reserve should be discouraged through the City of Warrnambool's Planning Scheme and development controls.

5.0 REFERENCES

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