

# **Meelup Regional Park**

## **Management Plan**



**Meelup Regional Park Management Committee**  
**July 2010**

### **INVITATION TO COMMENT**

The Meelup Regional Park Management Plan has been produced as required by the *Land Administration Act 1997*. Following internal review and approval by the Shire of Busselton Council, the plan will be released for public comment for a period of 4 weeks. Comments received will be incorporated into the Plan and a Final Management Plan will be provided to the Minister for Lands for approval.

Meelup Regional Park Management Committee  
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### **ACKNOWLEDGEMENTS**

This Plan has been produced with the assistance of the present Management Committee. The project was managed by Nik Sellheim and Chairman Don McDonald. Other members include Andrew Webb, Margaret Winchcombe, Councillor Don Hanran-Smith, Councillor Wesley Hartley, and Shirley Fisher. Past Committee members have been of great assistance, namely Brian Clay and Ron Glencross. Members of local associations and community representatives who have contributed include Bernie Masters, Margaret Campbell and Jackie Happ.

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### **DISCLAIMER**

The information contained in this report is solely for the use of the Meelup Regional Park Management Committee for the purpose for which it has been prepared. No representation is made or implied as being made for any third party.

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## A. INTRODUCTION

### 1 - Brief Overview

Meelup Regional Park is an A Class Reserve vested in the Shire of Busselton with the gazetted purpose of conservation and recreation. Subject to the *Land Administration Act 1997* and preceding Acts, a Management Plan is required to be in place for the Reserve to the satisfaction of the Minister for Lands.

Meelup covers an area of 572 ha and is located in the south-western corner of Western Australia, approximately 250 km south of Perth within the Shire of Busselton (see Figure 1). The Park extends along the coastline for 11.5 km from Dunsborough to Bunker Bay, on the western side of Geographe Bay, and the eastern side of the Leeuwin-Naturaliste Ridge. It has an undulating surface rising to 100

metres above sea level, with steep seasonal water courses and pockets of varying vegetation types.

The Park is managed by a Shire-appointed Committee: the Meelup Regional Park Management Committee (MRPMC, "The Committee"). This Management Plan has been prepared on instruction of the Committee, and adopts the style of Management Plans produced by the Department of Environment and Conservation (DEC) for Regional Parks elsewhere in the State, whose position in the management structure is illustrated by below.

The Plan will be finalised for presentation to the Busselton Shire Council and upon their direction it will be submitted to the Minister for Lands for approval.



Source: ANZECC 2000.

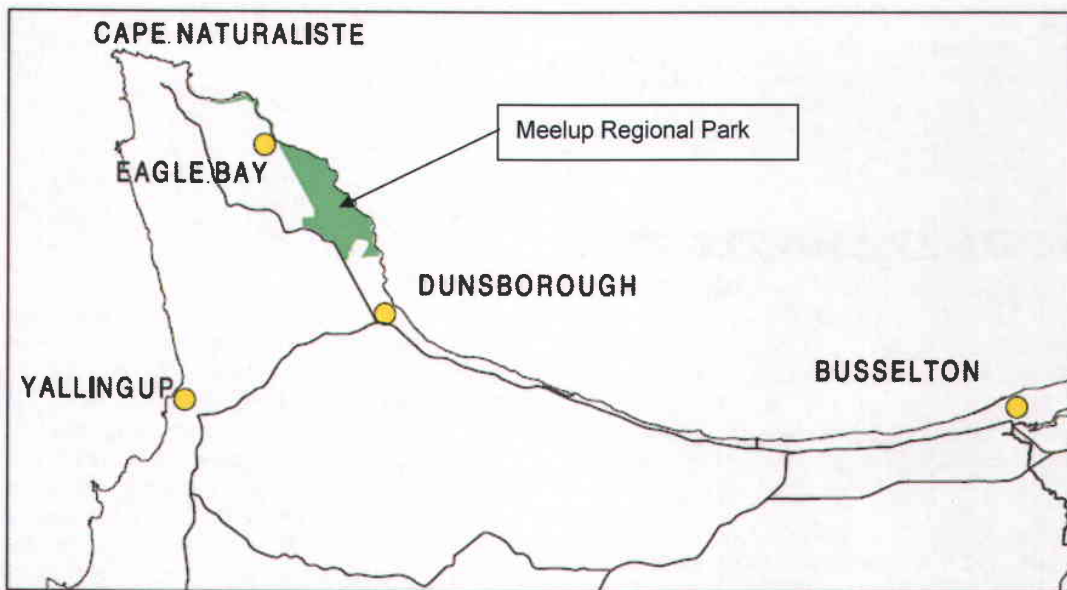


Figure 1 Locality Map

## 2 - Key Values

Meelup Regional Park is highly valued for its unique natural environment and conservation values, its outstanding landscape, its range of passive and creative recreational opportunities and its educational and research values for present and future generations.

### Natural Environment Values

The Park has a unique ecology, including the Meelup Granite threatened ecological community and high biodiversity, with rare and endangered species including some of the oldest plants in the world. For this reason the Park has high conservation significance and is arguably worthy of recognition in this regard on an international level.

The Park has high conservation value for fauna because of the high diversity of species present, the presence of rare and interesting species and the limited number of introduced species. Faunal habitats are well represented, due to the large size and generally good condition of the Park.

### Landscape Values

It has high aesthetic appeal, with views out over Geographe bay afforded by the steep topography, rocky outcrops and natural bushlands. The calm waters and outcrops

allow safe shore based fishing. Meelup is thought to mean "Place Of The Moon Rising", as it is possible to view of the moon rising over the water.

### Recreation Values

Meelup Regional Park is one of the primary coastal recreation areas in the South West. The north and east facing coastline is the central feature of Meelup Regional Park. This sheltered coastline, with trees and vegetation extending down to sandy coves is a popular walking, swimming and fishing area providing both local regional recreation opportunities. Its beaches are sheltered from prevailing winds and rocky outcrops extend into the bay.

### Education and Research Values

The unique geography, geology, high biodiversity and presence of rare and endangered plants and animals make Meelup an excellent site for research and a good subject for education. The largely unaltered natural environment provides research and educational opportunities for both current and future generations.

## 3 - Format of This Document

This document adopts the formats of management plans recently produced by the Department of Environment and Conservation

(DEC) for the Regional and National Parks managed by DEC. The document is divided into the following Sections

- **Part A – Introduction** – in which the key values of the Park and the context of the Plan are presented
- **Part B – Principal Directions and Purpose** – in which the legal, regulatory and planning context is introduced and management framework for the Park is outlined
- **Part C – Managing the Natural Environment** – in which the natural values are presented along with the threats to those values, and strategic and operational management requirements for their protection
- **Part D – Managing our Cultural Heritage** – which examines the cultural and historic values of the Park, and how they can be identified and preserved
- **Part E – Managing Visitor Use** – in which the acceptable recreational uses of the Park are prescribed and strategic and operational management requirements associated with mitigating the impacts of use are outlined
- **Part F – Managing Resource Use** – in which the acceptable extractive uses of the Park are prescribed and processes for the identification and mitigation the potential impacts of proposals are provided.
- **Part G – Involving the Community**– which outlines the mechanisms by which the community is involved in the management of the Park
- **Part H – Scientific and Research Use** – which outlines the scientific significance of the Park and describes the focus of future research priorities.

Each Part of the document outlines the guiding principles used in developing the Management

Plan. Topics start with a statement of objective for the section, followed by background information and finally a “management plan” in table format which provides both strategic and operational management guidance. Strategic management provides the overarching approach to be taken while operational management details more specific directives.

The document aims to be mostly generic, and provide the framework for decision making without stipulating specific ideas for developments (for example a new walk trail from ‘A’ to ‘B’). The report is aimed at management of the Park and does not seek to provide creative planning direction.

While Management Plans produced by DEC for other Regional Parks tend to be limited to more of a strategic nature, this plan also incorporates operational management directives. This is in accordance with the brief under which this document was prepared

#### 4 - Public Participation

Public participation is inherent in the management of Meelup which is by community based Committee.

Public consultation has been carried out as part of the preparation of this document, in order to gather information of the key values and issues facing the Park. A list of community representatives contacted is provided in Appendix E.

The draft management plan will be advertised and be made available for comment at libraries in Dunsborough and Busselton, as well as at the Shire Offices. A public presentation of the plan will also be held.

## B. PRINCIPAL MANAGEMENT DIRECTIONS

### 5 - Vision

#### **Objective**

***Provide a clear vision for the future of Meelup Regional Park***



#### **VISION STATEMENT**

**Manage the Park for conservation and environmental enhancement and allow recreation and other uses of the Park to occur to the extent that they do not impair the conservation values of the Park.**

#### **International Perspective**

The world conservation union IUCN has defined a series of six protected area management categories, based on primary management objectives. Meelup Regional Park most closely equates to CATEGORY II National Park – ie a protected area managed mainly for ecosystem protection and recreation<sup>1</sup>. Such areas are described as natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

#### **Western Australian Perspective**

<sup>1</sup> [http://www.unep-wcmc.org/protected\\_areas/categories/eng/ii.pdf](http://www.unep-wcmc.org/protected_areas/categories/eng/ii.pdf)

The Western Australian Department of Environment and Conservation (DEC) prepares management plans for regional and

national parks and has developed strategic goals for the management of Regional and National Parks. These are consistently presented in current Management Plans<sup>2</sup>; and have been largely adopted for Meelup Regional Park in this Plan.

#### **1993 Meelup Regional Park Management Plan**

In 1993 a Management Plan was produced for the Park which was subsequently ministerially endorsed. The 1993 Plan was used in the preparation of this Management Plan, providing general management goals and management objectives.

#### **2002 Draft Management Plan**

A draft management plan was developed in 2002 by members of the Management Committee and adopted by the Busselton Shire Council. The spirit of this document and information it contained has been incorporated into this Plan. The document was the culmination of much work and reflected the intimate understanding of Park held by the Committee. It has essentially served as the guiding document for management of the Park since 2002.

#### **STRATEGIC GOALS**

The overarching strategic management goals for the Park have been developed from the above sources, and are as follows:

#### **Conservation**

Protect rare and endangered species and ecological communities, conserve and enhance the Park's biota and natural

<sup>2</sup> <http://www.naturebase.net/content/view/104/801>



ecosystems as well as its physical, cultural and landscape resources. Perpetuate, in as natural a state as possible, representative examples of physiographic regions, biotic communities, genetic resources, and species, to provide ecological stability and diversity.

#### **Recreation**

Maintain a peaceful and tranquil environment and provide for and manage recreation, tourism and leisure in a manner that minimises conflict between visitors, and is consistent with other management objectives and Park values. Manage visitor use for inspirational, educational, cultural and recreational purposes at a level which will maintain the area in a natural or near natural state

#### **Commercial**

Allow for appropriate commercial uses within the Park and manage them in a manner that minimizes impact on other values and contributes to regional Park management costs.

#### **Research and Monitoring**

Scientific research is a highly important aspect of the Parks role. The goal is to seek a better understanding of the natural, cultural and social environments, and the impacts of visitor use and Park management.

#### **Community Relations**

Promote informed appreciation of the Park's natural environment, cultural values, recreation opportunities, safety issues and facilitate liaison with the community about its management.

#### **Integration of Management**

Develop and maintain integrated and coordinated management arrangements between the participating Park managers and government authorities.

### **6 - Legislative and Planning Framework**

#### **Land tenure and classification**

Meelup Regional Park was designated an "A" Class Reserve (21629) in early 1993 and vested in the Shire of Busselton. It was formed by amalgamation of six separate Shire Reserves.

Reservation is the setting aside of State land for a specified purpose, generally a public purpose in effect, the dedication of land to that purpose<sup>3</sup>. Meelup Regional Park is reserved for the purposes of conservation and recreation.

Once created, a reserve is usually placed under the care, control and management of a State government department, local government or incorporated community group by way of a Management Order registered. A Management Order under the *Land Administration Act 1997* (LAA) does not convey ownership of the land only as much control as is essential for the land's management. Vesting Orders under the Land Act 1933 automatically became Management Orders under the LAA.

The *Land Administration Act 1997* (LAA) is Western Australia's current legislation dealing with the disposition of State land. The LAA is administered by the Minister for Lands. In the case of Meelup, the Minister for Lands requires the management body to prepare a suitable management plan to the Minister's satisfaction in relation to reserved land. The Management Plan is designed to be a strategic document overarching subsidiary issue or site specific plans, action plans and work programmes.

The Parks and Reserves Act 1895 provides for the appointment of boards of management to control and administer reserves. This very old statute preceded the first Land Act 1898 and represents the States first legislation in relation to reserves management. The Local Government Act 1995 affords local governments powers under the Parks and Reserves Act 1895 in relation to reserves vested under the LAA, but otherwise the Parks and Reserves Act 1895 provisions are now rarely used.

National Parks are reserves vested in the WA Conservation Commission<sup>4</sup> and are managed under the *Conservation and Land Management Act (1984)* ("CALM Act"), and its

<sup>3</sup> <http://www.dpi.wa.gov.au/crownland/1791.asp>

<sup>4</sup> <http://www.conservation.wa.gov.au/>

associated Regulations and Policies. While not directly applicable to the management of reserves vested in Local Authorities, the CALM Act provides guidance on Western Australia's approach to governance of natural areas and management of the often conflicting purposes of conservation and recreation.

A summary of the legislation applicable to this plan is provided in Table 1.

### **Environmental Protection**

The Commonwealth Environmental Protection and Biodiversity Protection Act (1999) *EPBC Act* is applicable to Meelup due to the presence of listed endangered and threatened species, which are considered to be matters of National Environmental Significance (NES). However, Meelup itself is not listed as a protected area<sup>5</sup>

Under the EPBC Act, an action will require approval if the action has, will have, or is likely to have a significant impact on a species listed in any of the following categories<sup>6</sup>:

- extinct in the wild;
- critically endangered;
- endangered; or
- vulnerable.

Thus any action which has the potential to impact on the endangered and threatened species present in the Park is be subject to referral under the EPBC Act. Referrals are generally submitted by proponents, however any member of the public, or groups such as the Management Committee can also submit a referral if there is a perceived potential impact.

At a state level, the *Environmental Protection Act 1971* (WA) is the key legislation for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment. It provides a process for assessment of the environmental impact of development. Actions that have potential impacts are referred to the Environmental Protection Authority for assessment.

<sup>5</sup> [http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora#FLORA\\_CRITICALLY%20ENDANGERED](http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora#FLORA_CRITICALLY%20ENDANGERED)

<sup>6</sup> <http://www.environment.gov.au/epbc/publications/pubs/neg-guidelines.pdf>

In "A" class reserves such as the Park, development is generally not permitted, and any sanctioned activities or development is required to fall within the purpose of 'Conservation and Recreation'.

The *Wildlife Conservation Act 1950* (WA) provides for the conservation and protection of wildlife. All native species are protected, and threatened and endangered flora and fauna are specifically listed under the Act, and there is recourse to enforcement if these species are harmed.

The *Agricultural and Related Resources Protection Act 1976* (WA) places an obligation on landowners and managing bodies to act responsibly in relation to weeds and pest species.

### **Regulations for Daily Operations**

The *Local Government Act* and the Shire of Busselton Local Laws (previously called By-laws) provide the applicable regulations for daily operation of the Park. The Shire's Local Law relating to Reserves and Foreshores is provided in Appendix A.

These Local Laws are a collection of documents which are used in the enforcement of issues such as Reserves and Foreshore, parking, signage etc. Local Laws can be updated if required through due process under the *Local Government Act*, in which the Local Law is submitted to the Governor for approval.

**Table 1** Applicable legislation

<b>Commonwealth</b>	<i>Environmental Protection and Biodiversity Conservation Act 1999. (EPBC Act)</i>
<b>State</b>	<i>Land Administration Act 1997</i> <i>Parks and Reserves Act 1895</i> <i>Aboriginal Heritage Act (1972-1980)</i> <i>Environmental Protection Act 1971 (WA)</i> <i>Wildlife Conservation Act 1950 (WA)</i> <i>Agricultural and Related Resources Protection Act 1976 (WA)</i> <i>Conservation and Land Management Act (1984), Regulations and Policies</i> <i>Local Government Act (1960-82)</i>
<b>Local</b>	<i>Shire of Busselton Local Laws</i>

### **Policing**

Actions in the Park which are in conflict with Commonwealth and State laws could be subject to prosecution if legal action is initiated by an individual or organisation.

Since the Park is not vested in the Conservation Commission as National Parks are, the *Conservation and Land Management Act (1984)*, and Regulations and Policies is not the key legislation governing the Park. Specific species (declared rare flora) are, however, protected by that Act and the Wildlife Conservation Act 1950 (WA) and prosecution could result from any actions which cause harm to those species.

Shire Local Laws apply to the Park as they do to the rest of the Shire, and actions contravening Local Laws are subject to fines and enforcement measures.

The Management Plan, once ministerial approval has been obtained, may have some legal standing under the *Land Administration Act 1997*, however mechanisms for policing in relation to this are not clear.

It is in the interest of the Park to have legal recourse in relation to ensuring that the requirements of this Management Plan are adhered to. A possible mechanism for that may be to modify council Local Laws to cover compliance with the Ministerially Approved Management Plan. Alternatively – key elements of the plan could be incorporated into the relevant Local Laws for each issue.

### **Planning Framework**

State Planning Policy 6.1 Leeuwin-Naturaliste Ridge<sup>7</sup> is a gazetted planning document which clarifies the priority of conservation in decision making processes. The purpose of the policy is to provide the strategic planning framework for the area for the next 30 years by providing greater vision, guidance and certainty of land use.

Meelup Regional Park is allocated the status of “Conservation Reserve”, and as such is subject to Policy LUS 2.5 - Conservation Reserves (Existing and Proposed) which states:

*“Maintaining or enhancing the conservation and landscape values within existing and proposed Conservation Reserves will be the primary determinant in decision-making on proposals for land use, subdivision or development within these areas.”*

## **7 - Management Framework**

### **Objective**

***Provide a clear framework for the management and decision making in relation to the Park***

### **Meelup Regional Park Management Committee**

Following creation of the Park in 1993, the Busselton Shire Council formed the “Meelup Regional Park Management Committee” (The

<sup>7</sup> <http://www.wapc.wa.gov.au/Publications/157.aspx>

Committee) set up under Section 180 of the Local Government Act. Community members are obtained by advertising in the local press, and such persons are selected on the basis of their qualifications that they provide to the Committee. The Committee currently comprises of 8 community members, and 2 members of the Busselton Shire Council (elected members). A quorum is five members.

The Committee is required to follow protocols and procedures according to the same standing orders under which the Shire Council operate. An information booklet regarding the roles and responsibilities of Committees and appointments of the Shire of Busselton is provided on the Shire's website<sup>8</sup>.

The Committee's role according to the Instrument of Appointment and Delegation (see Appendix B) is to:

- To develop a strategic plan for the regional Park that ties into Council's Strategic Plan, to be endorsed by Council, and to annually review the five-year plan of capital and operating expenditure and income, to be endorsed by Council.
- Care for, control and manage all areas of Meelup Regional Park (except any areas specifically excluded by Council).

The 2002 Management Plan further lists the Committee's activities as follows:

- prepare and prioritise plans for Park management
- initiate conservation measures and seek to protect the Park from inappropriate use
- initiate and oversee the implementation of works within the Park
- seek external funding to add to the allocation from the Shire
- manage the budget for the Park
- liaise with government agencies, groups and individuals interested in the Park
- communicate to the wider community on Park issues and activities.

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8

<http://www.busselton.wa.gov.au/files/Committee%20Information%20Booklet%200807.pdf>

The Committee is responsible for the strategic and operational management of the Park. It is also the repository for a large body of knowledge about the Park and instigates research work required to management the Park to preserve the Parks values.

The Committee holds meetings monthly and the minutes from each meeting are published on the Shire website. Decisions made by the Committee other than on matters already delegated to the Committee via the approved Management Plan or other specific decisions of Council generally form the basis of Shire and Council decisions. However, as outlined in the Committee's Instrument of Appointment and Delegation (Appendix B), Committee recommendations are not binding on Council and must be endorsed by Council to take effect. In this way elected Council has final authority in accordance with the *Local Government Act (1960-82)*.

#### **Staffing**

The Committee currently employs an administration officer on a part time contract basis. Shire staff currently perform maintenance activities on roads, picnic areas and ablution facilities, including removal of rubbish, and other works requested by the Committee.

A part time environmental consultant has recently been contracted to provide technical and management support to the Committee. The consultant will assist in planning and research and oversee contractors engaged in maintenance and capital works.

#### **Shire of Busselton**

Within the Shire of Busselton, the Director of Community Infrastructure currently is responsible for the Park and has designated a liaison officer for the Committee.

#### **Potential Future Change of Management**

In January 2007, the CEO of the Shire of Busselton announced the intention to transfer management of the Park to the Department of Environment and Conservation (DEC) in accordance with the Conservation and Land Management Act 1984. This proposal has not yet been presented to the Shire Council. This

has created some uncertainty in terms of the Park's management and needs to be resolved. Further clarification and formalisation of the Committee's role in would be helpful in preventing conflict with the Shire.

**Role of the Management Plan**

Once the Management Plan has been ministerially endorsed, decisions in relation to the Park are required to be consistent with the Plan.

The Plan is to be used to provide direction, management and regulate activities in the Park. The plan is to guide what activities can and can and cannot occur and to strike a balance between conservation and recreation. Management decisions and / or recommendations by the Committee should be binding if the decision is based on the approved Management Plan.

**Management Framework Plan**

Issue	Management Strategy	Operational Management
Management of Park	Clarify and confirm role of the Committee and Shire of Busselton in management of the Park  As a minimum, ensure that Park management is consistent with Department of Environment and Conservation (DEC) Policies and Practices  Council endorsed Management Plan to regulate management and use of the Park	Reallocate some of the operational management activities from the Committee to a part time environmental consultant position.  Make decisions and manage the Park in accordance with Ministerially endorsed Management Plan  Amend Parks and Reserves Local Laws to ensure that the compliance with Management Plan is enforceable

**8 - Management Units and Zones**

**Objective**

*Provide for varying management and acceptable uses in different area of the Park*

**Management Units**

Identification of management units is an important part of planning for Parks. The objective is to adopt a management zoning system that protects conservation values, provides for appropriate recreation and other uses, and provides for efficient management of the Park.

The management units have been developed with consideration of

- the conservation significance of different parts of the Park,
- existing roads and access tracks,
- current dieback status and risk of infection,
- existing use and recreation values,

- need for rehabilitation,
- the amount and level of intended management intervention, and
- the level of access and facilities.

**Management Zones**

Management zones are a framework for protecting the Park by minimising existing and potential conflicts between uses and activities. They provide a broad guide to the uses and management activities which are appropriate in certain Park areas and indicate which management objectives have priority in a given area. A clear zoning scheme also helps to communicate management intentions to the public.

For consistency with other Regional Parks, this Plan adopts the categories used by DEC for Regional Parks, ie :

- Conservation and Protection
- Natural Environment Uses
- Recreation
- Sport and Recreation
- Special Use

Note that this Plan for Meelup Regional Park does not currently allocate any areas for “Sport and Recreation” or “Special Use”.

The different zones applied to Meelup are explained below.

**Conservation and Protection**

Areas zoned Conservation and Protection have particular conservation significance and are to be managed with particular care, with conservation being the top priority at all times. They are priority areas for weed and feral animal control and dieback management. Recreation is to be kept to a minimum and no new tracks are to be made in these areas.

**Natural Environment Uses**

These areas are also of high conservation significance, and protection of natural values is the highest priority for management, however appropriate nature-based recreational use is encouraged and catered for.

**Recreation**

Recreation areas are high use areas which experience the highest visitor numbers. At this stage only beach areas are allocated this zoning. Recreation areas have visitor facilities such as toilet facilities and are serviced by the Shire. Although recreation is the main use of these areas, preservation of the natural values of these areas is a high priority and is pivotal to their recreational appeal.

A management unit and zoning map has been produced (Figure 2). The rationale for unit boundaries, conservation value and management zone allocations are provided in Table 2, along with the recreational values and permitted uses. It is envisaged that the boundaries and zones may change in future management plans as knowledge and understanding of the Park’s management develops.

**Management Unit and Zoning Plan**

Issue	Management Strategy	Operational Management
Management Units and Zones	Allocate acceptable uses, access, and management in accordance with management unit categories adopted from DEC planning documents	Base decisions in relation to conservation, natural environment management, visitor and resource use on the basis of the stipulated units and zones.  Educate the public in regard to the zones and acceptable activities in each

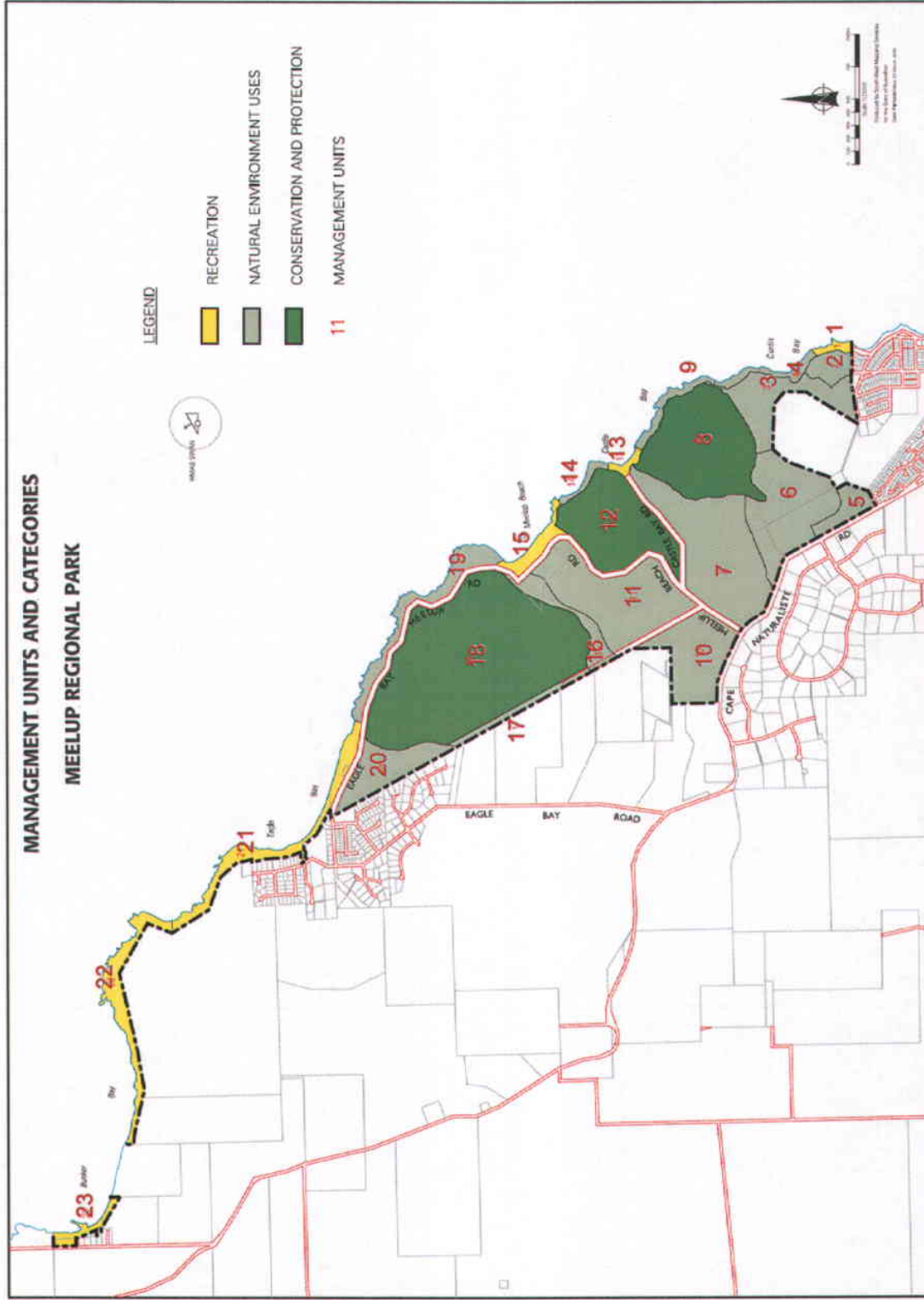


Figure 2 Management Unit Map

Table 2 Management Units and Zones

Unit #	Rationale for Boundary	Management Zone	Biological Conservation Value	Recreational values and permitted uses	Comments
1	Curtis Bay Beach adjacent to town.	Recreation	Moderate	Key Recreation Area	Proximity to town means areas experiences frequent use
2	Mapped Previously as vulnerable vegetation. Dieback free. Close to town therefore under pressure	Natural Environment Uses	High	Visual amenity only	Restrict access into area to reduce dieback
3	Old gravel pit / dieback infected	Natural Environment Uses	Moderate	Possible recreation area to be developed subject to priority being given to dieback control	Previously identified as recreation area but risk of dieback spread of concern Rehabilitation priority area.
4	Quenda habitat – peppermint groves.	Natural Environment Uses	High	Restricted access – walk path only	Priorities maintenance of habitat and feral animal control No dogs
5	DRF (orchid) habitat, good condition vegetation close to town so under pressure (bikes), exclude from gravel pit area, although marked as dieback infected may not all be so	Natural Environment Uses	High	Visual amenity only	restrict bike use
6	Old gravel pit / landfill dieback infected.	Natural Environment Uses	Moderate	Possible recreation area to be developed subject to priority being given to dieback control	Rehabilitation priority
7	Mosaic dieback infested drainage lines (Dolugup Brook) and uninfested ridges. Minimal track disturbance. DRF (orchid) near road.	Conservation and Protection	Moderate / High	Possible Future Managed Passive (cycle path?)	Small gravel pit area in need of rehabilitation
8	Large protectable dieback free area including TEC (Meelup granites)	Conservation and Protection	Very High	Restricted access only	Key management priority area. No vehicle access except for fire fighting purposes
9	Castle Bay Coast	Natural Environment Uses	High	Managed Passive Coastal Walk trail Fishing permitted	
10	Area west of Sheen Rd.	Natural	Moderate / High	No use identified	



Part C– Managing the Natural Environment

Unit #	Rationale for Boundary	Management Zone	Biological Conservation Value	Recreational values and permitted uses	Comments
	DRF (Orchids) present	Environment Uses			
11	North of Meelup Road Mosaic dieback infested drainage lines and uninfected ridges.	Natural Environment Uses	Moderate / High	Managed Passive Walk Tracks	Some erosion and old gravel pits
12	Area bounded by Castle Bay and Meelup Roads Contains TEC (Meelup granites) and Meelup Mallee	Conservation and Protection	Very High	Visual amenity only Restricted access	Priority for prevention of dieback
13	Castle Bay Beach	Recreation	Moderate	Managed Passive Coastal Walk trail Fishing permitted	Historical Significance.
14	Meelup – Castle Bay Coast	Natural Environment Uses	Moderate / High	Managed Passive Coastal Walk trail Fishing permitted	Trail well developed
15	Meelup Beach Marine Park Sanctuary Zone	Recreation	High	Key Recreation Area Swimming Picnics Visual Amenity No fishing	Cultural significance
16	Meelup Brook Drainage	Natural Environment Uses	High	Managed Passive Walk Tracks	Dieback and weeds Creek erosion
17	South-western boundary buffer	Natural Environment Uses	Moderate	Restricted access to prevent spread of dieback	Water Corporation Infrastructure
18	North of Meelup Brook Large protectable dieback free area containing the TEC – (Meelup granites)	Conservation and Protection	High	Restricted access – walk path only Visual amenity	Key management priority area. No vehicle access except for fire fighting purposes
19	Pt Piquet Coast (Marine Park: Eagle Bay Special Purpose – shore based activities)	Natural Environment Uses	Moderate / High	Surfing Fishing from shore permitted Walk Track Picnic areas	
20	Dieback infected area adjacent to Eagle Bay Town site south to Meelup Brook	Natural Environment Uses	Moderate	Managed Passive Walk Tracks	

Part C– Managing the Natural Environment

Unit #	Rationale for Boundary	Management Zone	Biological Conservation Value	Recreational values and permitted uses	Comments
21	Eagle Bay Beach	Recreation	Moderate	Key Recreation Area Swimming Picnics Visual Amenity Fishing Permitted	Dog Beach
22	Eagle Bay to Bunker Bay	Natural Environment Uses	Moderate	Managed Passive Walk Tracks	
23	Eagle Bay Beach	Recreation	Moderate	Key Recreation Area Swimming Picnics Visual Amenity Fishing Permitted	Development of new trails in progress

## C. MANAGING THE NATURAL ENVIRONMENT

### 9 - Guiding Principles for Conserving the Natural Environment

The West Australian Department of Environment and Conservation (DEC) prepares management plans for regional and national parks and has developed guiding principles for conserving the natural environment. The following have been adapted for application to Meelup Regional Park:

#### 1. Conservation and protection of the natural environment

Natural processes and biodiversity will be managed to maintain their inherent values. External impacts from human use, the surrounding urban area and management practices will be minimised in order to maintain the biodiversity of natural systems over the long-term.

#### 2. Park management priorities

The Park will be managed with conservation and environmental enhancement as its highest priority in accordance with State Planning Policy 6.1. Recreation and other uses will be allowed to occur to the extent that they do not impair the sustainability of the natural environment.

#### 3. Restoration of the natural environment

Restoration of the natural environment will be undertaken to maintain biodiversity, and protect and enhance natural systems. Areas with high conservation significance will be considered priorities for restoration.

#### 4. Features requiring special protection

Declared Rare Flora, Priority Flora species, Threatened Ecological Communities, Priority Fauna and other Specially Protected Fauna will be given priority for conservation and restoration.

#### 5. Consistency of management policies

The land managers involved in the Park will apply consistent and coordinated management policy.

#### 6. Recognition of cultural and social values

The Park will be managed in a way that delivers community benefits by maintaining

cultural traditions and attributes and by providing opportunities for recreation, education and research.

#### 8. Precautionary principle

If there are threats of serious or irreversible environmental damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

### 10 - Climate

The meteorological data for the area come from Cape Naturaliste, Busselton Jetty and Jarrahdale. The annual mean monthly temperatures for Cape Naturaliste range from 11.1°C to 16.3°C during winter and 17.2°C to 23.3°C in the summer.

The wind pattern is generally one of a typical sea breeze scenario in summer, and an increase in northerly winds in winter months. Due to its unusual orientation, the Park coastline is sheltered from the strong sea breezes which are experienced onshore in the rest of WA. Higher areas such as the gravel pit would be exposed to the breeze, which may provide relief from summer temperatures.

The mean annual rainfall for Cape Naturaliste is around 829 mm/yr. The annual evaporation rate for the nearest station for which the Bureau of Meteorology has data (Jarrahdale) is 1214mm/year.



## 11 - Geology, Landform and Soils

### Objective

*To protect and conserve geological features landforms and soils, and preserve the unique character of the Park's visual landscape*



The geology of the Park can be seen as the key to the unique character of the Park's visual landscape and biology.

The Dunsborough fault, at the northern end of Dunsborough township where the Park begins, is the dramatic point of transition between the flat coastal lands of the Perth Basin and the higher lands of the Leeuwin – Naturaliste Ridge. Resulting from these changes in geology and contour, there are equally dramatic changes in direction of coastline, ecology and local climate. These are the key attractions of the Dunsborough area and they are epitomised in Meelup Regional Park.

The Park lies on the eastern side of the Leeuwin – Naturaliste Ridge. The ridge consists of granite (Gneiss) outcrops, which dominate the higher areas. The Park is underlain by banded, granite rocks composed mainly of quartz, feldspar and dark green pyroxene. These rocks can be seen in some of the deeper drainage lines and along the wave-washed coastline. Overlying soils are shallow lateritic soils with mottled clay subsoil in upper areas, and sandy loam topsoil with sections of gravel and clay in the lower slopes.

Contour levels range from 100m to sea level with ridges running perpendicular to Leeuwin - Naturaliste Ridge (Figure 3). The higher ridge

areas are interspersed by valleys with varying soil types and vegetation complexes. The valleys have seasonal streams and lead down to the sheltered sandy beach areas.

The soil-Landscape systems of the Park (Tille and Lantzke, 1990) are:

**Cowaramup Uplands:** Lateritic plateau with sandy gravel, loamy gravel and grey sandy duplex. Jarrah-Marri forest is the principal vegetation on this system.

**Kilcarnup Dunes:** Coastal Dunes overlying limestone and rocky headlands with Calcareous deep sand, calcareous shallow sand and calcareous stony soil. Coastal scrub is the predominant vegetation on this system.

**Wilyabrup Valleys System:** Granitic valleys with loamy gravel, sandy gravel and loamy earth. Jarrah-Marri forest predominates on this system. These are shown in Figure 4.

### Threats

The main threats to the geology, landforms and soils of the Park are:

- Extraction - The Park is closed to exploration and mining activities under its Class "A" reserve status. Gravel extraction activities in the past have caused degradation
- Erosion - Erosion is the mechanical movement of the land surface by wind, rain, running water resulting in the wearing away of land or soil. Removal of vegetation by clearing, trampling by humans, animals or vehicles can result in erosion of soils. The key to prevention is the retention and rehabilitation of vegetation. This is particularly critical in foredune areas. Where dunes are vegetated defined access paths must be provided. No other developments should occur on foredunes.
- Contamination – soils can become contaminated by fuel and chemical spills, or dumping of waste materials
- Disease – the disease phytophthora dieback is soil borne



Figure 3 Topography and Surface water courses of Meelup Regional Park

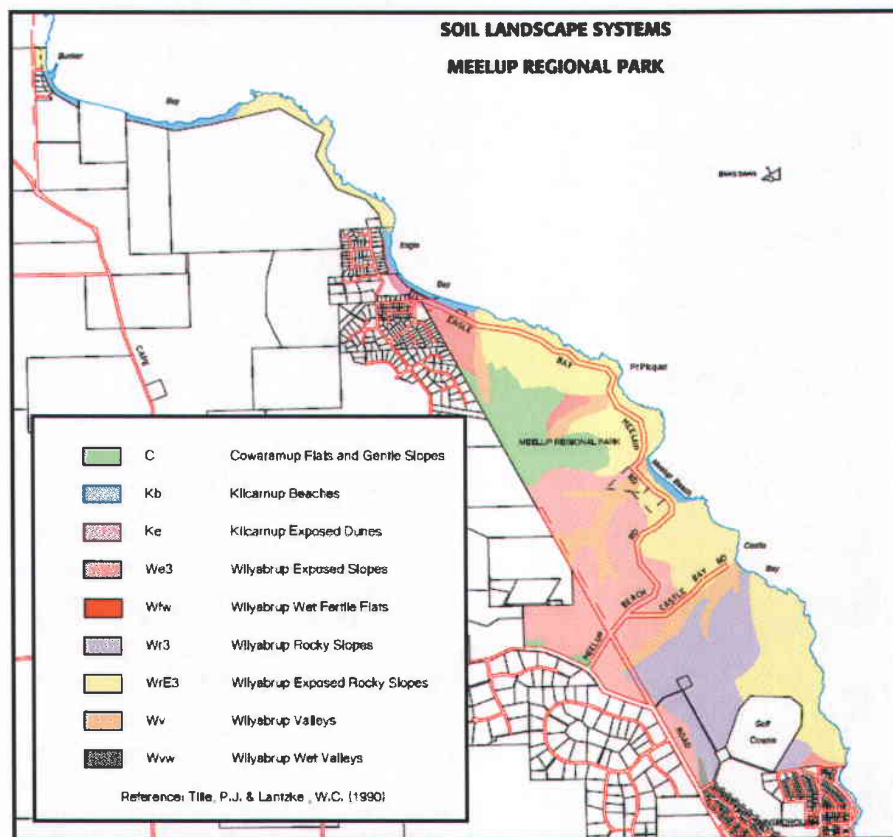


Figure 4 Soil Landscape of Meelup Regional Park

**Geology Landform and Soils Management Plan**

Issue	Management Strategy	Operational Management
<b>Landform Protection</b>	No extraction permitted Prevent erosion and rehabilitate eroded sites	No extraction of gravel and sand for building purposes Put signage in place if required Retain vegetation by <ul style="list-style-type: none"> <li>■ Restricting access to fragile areas</li> <li>■ Limit vehicle use and prohibiting off-road vehicle movements</li> <li>■ Restrict sporting activities to designated areas Minimise clearing</li> <li>■ Put signage in place if required</li> <li>■ Enforce Shire Local Laws and Management Plan</li> </ul> Revegetate eroded sites Prevent erosion during site or access development <ul style="list-style-type: none"> <li>■ Assess potential for erosion and plan to manage impacts</li> <li>■ No development on foredunes</li> <li>■ Provide adequate and effective drainage</li> </ul> Disposal areas for runoff should be away from foreshore rocky faces or existing tracks where gullying can occur.
<b>Soil protection</b>	Prevent fuel and chemical spills Prevent illegal dumping Ensure any materials imported are compatible with existing soils Prevent spread of soil born disease	No re-fuelling in Park Provision of appropriate rubbish collection equipment and services at recreation sites Put signage in place if required Use compatible materials in development and maintenance works, e.g. white sand instead of yellow sand Prevent movement of soil across Park

**12 - Water Resources**

**Objective**

*To protect and conserve existing surface and groundwater resources of the Park.*



**Surface Water**

The Park has three surface streams, Jingarmup Brook at Eagle Bay, and the Meelup and Dolugup Brooks which are all part of the Geographe Bay Catchment (Figure 3). These water resources are small and flow seasonally. Much of the wetland areas in the catchment have been cleared and modified by drainage. Therefore any areas which remain within bushland such as Meelup Regional Park have high conservation value.

The sections of Meelup and Dolugup Brooks within Meelup Regional Park were classified mostly as “pristine” in the 2006 assessment by GeoCatch as part of the River Action Plan for the Cape Naturaliste Streams. Jingarmup

Brook is shown as degraded (Cape to Cape Catchments Group 2006).

### Groundwater

The Groundwater is restricted to shallow aquifers because the bedrock (gneiss) is either outcropping or close to the ground surface in most parts of the Park. Springs and seeps are important habitats for rare or restricted species of invertebrate fauna and a water source for larger fauna, such as kangaroos and wallabies.

### Infrastructure

Water resources are required to support Park facilities and for fire management, see Sections 38 and 40 in Part F- Managing Resource Use. Careful assessment of the impact of using water resources is required. The use of roof and tank supplies is preferable to using spring or seep-water which maintains the biodiversity of the Park. The water supply pipeline for Bunker Bay provides the drinking water to Meelup Beach and is used for irrigation of the grassed areas. There is no water supply to any other recreation areas of the Park.

### Threats

Threats to the water resources of the Park include:

- Upstream water extraction / contamination. Land use and water use up stream has potential impacts on the stream flow and surface water quality in the Park. For example a large dam constructed in the adjacent winery has limited the water flow in Meelup Brook.
- Visitor access and associated degradation. Water courses are cool and shady places with distinctive vegetation. Visitors are attracted to walk along water courses, bringing the threat of damage to vegetation, erosion and spread of dieback and weeds. The foreshore provides important habitat for native animals and wetland vegetation helps to improve water quality.
- Extraction – in the past natural soaks and streams have been used for providing water to nearby residences
- Contamination – In addition to upstream contamination, there is the potential for contamination to occur within the Park
- Infrastructure development – supply of water to the Park has the potential to disturb vegetation and disposal has the potential to alter the local hydrology and impact on water quality.

### Water Resources Management Plan

Issue	Management Strategy	Operational Management
Surface water flows	Maintain natural flow rates in surface water courses	Work with GeoCatch to protect catchments outside of Park
Groundwater levels	Maintain natural groundwater levels within the Park	No surface or groundwater extraction for use outside of Park Water used within the Park is only for community use Ensure that proposed developments within the Park have investigated water requirements, source, impacts and alternatives to drawing on Park supplies
Water quality	Ensure that surface and ground water quality is not adversely affected by activities in the Park and in neighbouring lands	Work with GeoCatch to protect catchments Control visitor activities Ensure discharge of wastewater is to deep leach drain away from groundwater discharge areas and streams No re-fuelling in Park Ensure that all contractors working in the Park have fuel and chemical spill response plans and

		equipment
Foreshore condition	Protect and improve foreshore condition	Limit visitor access to designated paths Rehabilitate degraded foreshore areas Control weeds in and adjacent to water courses
Infrastructure development	Use scheme water for Recreational facilities within the Park	Consider supply of water to other key recreation areas

### 13 - Native Plants and Plant Communities

#### Objective

**To protect and conserve native plants and plant communities with an emphasis on threatened and priority species.**

#### Vegetation



The vegetation of the Park was surveyed in 1986 by Keating and Trudgen. The data from this survey was entered into the Shire GIS database, and was used to create the vegetation map of the Park provided in Appendix C. Some of the species names

have been updated since the original work in 1986, and the map has been criticised as being overly detailed, however it is still the best available. A description of each community type is also provided, copied from the original report. The map shows that the Park has a diverse vegetation, with approximately 34 separate types ranging from heath along the coast and on inland flooded gum along creek lines.

A functional map of the principal vegetation communities in the Park according to faunal habitats was produced by Hart, Simpson and Associates in 1997, showing:

- Tree communities - ranging from low open woodland to open forest, the dominants of which mainly comprise one or more of *four species*: jarrah (*Eucalyptus marginata*), marri (*Eucalyptus* (or *Corymbia*) *calophylla*), sheoak (*Allocasuarina fraseriana*) and peppermint (*Agonis flexuosa*).
- Shrublands and heaths dominated by closed scrubs of *Hakea trifurcata*;

- Wetland vegetation which exists along seasonal watercourses and sumps / seeps within the Park

This map provides a simple overview of the visual characteristics of the Park's vegetation and has been reproduced here as Figure 5

Despite there being widespread dieback infection, the vegetation of the Park is generally in excellent to very good condition with much of the area considered to be in pristine condition.

The Threatened Ecological Community (TEC) "Meelup Granites" or "*Calothamnus graniticus* heaths on south west coastal granites" is recorded as occurring in seven locations in the Park, within the heath on granite areas shown in Figure 5. Its current category is "Vulnerable" meaning it is vulnerable to threatening processes and may move into higher threat category.

#### Flora



The Park contains well in the order of 340 species of vascular plants. The Cape Naturalise Herbarium has provided a list of the species recorded for the Park and this is provided in Appendix C.



A search was undertaken of the Department of Environment and Conservation Threatened (Declared Rare) Flora database, the Western Australian Herbarium Specimen database for priority species opportunistically collected in the area of interest and, the Department's Declared Rare and Priority Flora List (this list is searched using 'place names'. This list which may also be used as a species target list, contains species that are declared rare (Conservation Code R or X for those presumed to be extinct), poorly known (Conservation Codes 1, 2 or 3), or require monitoring (Conservation Code 4). Conditions of supply of the data do not permit publication of specific DRF locations, however it is permitted to show specific locations without identifying species. Locations are therefore shown in Figure 6.

In addition to the Meelup Mallee, which will be discussed below, *Caladenia caesarea* subsp. *Maritima* (Cape Spider Orchid) and *Caladenia viridescens* (Dunsborough Spider Orchid) are both listed as endangered under the EPBC Act. Any developments which have the potential to impact on these species need to be referred and obtain approval from the Commonwealth under the EPBC Act.

#### Meelup Mallee



One of the DRF found in the Park is the Meelup Mallee. This plant is Classified as Endangered under the EPBC Act

A broadsheet has been distributed regarding this species (Appendix C) and an extract from the text is provided below.

Commonly known as the Meelup mallee, *Eucalyptus phylacis* is a small mallee or tree to 5 m tall, with distinctive coarse, non-fibrous bark overlaying thick corky bark. Meelup mallee blooms in February and March, when masses of white flowers are produced in the axils of terminal leaves. The species is closely related to *Eucalyptus decipiens*, but differs in having smaller buds and fruit, broadly conical opercula (the cap on the bud) and in not having emarginate (a small notch at the leaf tip) juvenile leaves.

Meelup mallee was first collected in 1982, and named in 1992. Kings Park and Botanic Garden staff have undertaken research into the genetics of the species. During this research they discovered that the only known population is in fact a single plant (clone) which may be up to 3600 years old. Meelup mallee was ranked as Critically Endangered in 1995 but, through successful recovery actions, has since been re-ranked as Endangered.

A Meelup Mallee Recovery Plan has been produced by DEC and is available on the web (DCLM 2004). This plan states that the distance between the mallee ramets suggests that the plant is very old, possibly more than 6380 years, and as old as 6660 years. This indicates that it is potentially one of the oldest eucalypts on record.

The location of the Meelup Mallee has been intentionally not made public in order to protect the plant, however the success of the recovery plan suggests such secrecy may not be necessary in the future.

#### Threats

The threats to vegetation and flora of the Park are:

- Unplanned or poorly planned fire;
- weeds;
- feral and nuisance animals
- illegal gathering of souveniring
- diseases such as *Phytophthora dieback*
- importation of soil into the Park;
- human use and recreational activities
- urban interface issues and uncontrolled access by vehicles and pedestrians.

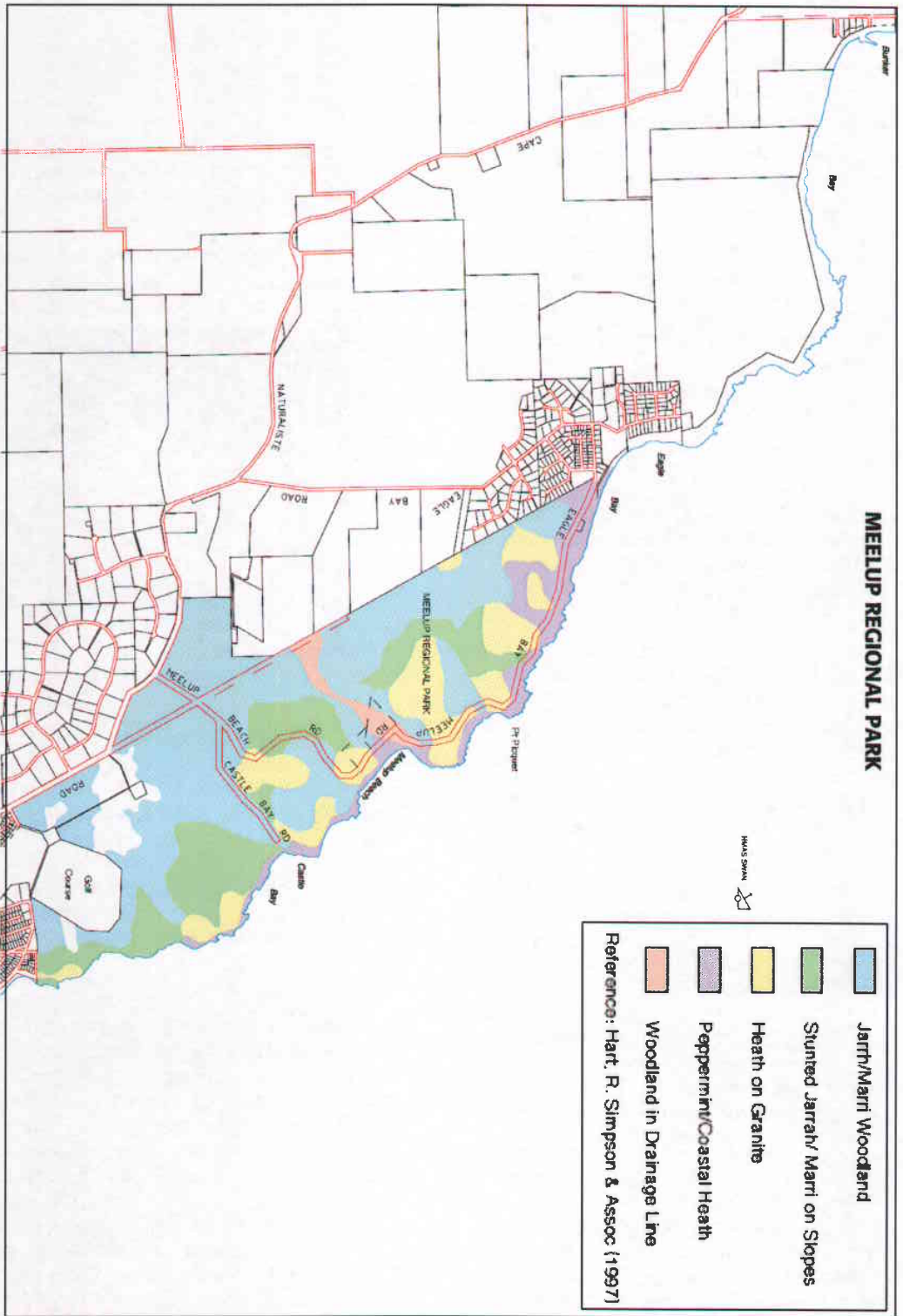


Figure 5 Vegetation communities in Meelup Regional Park

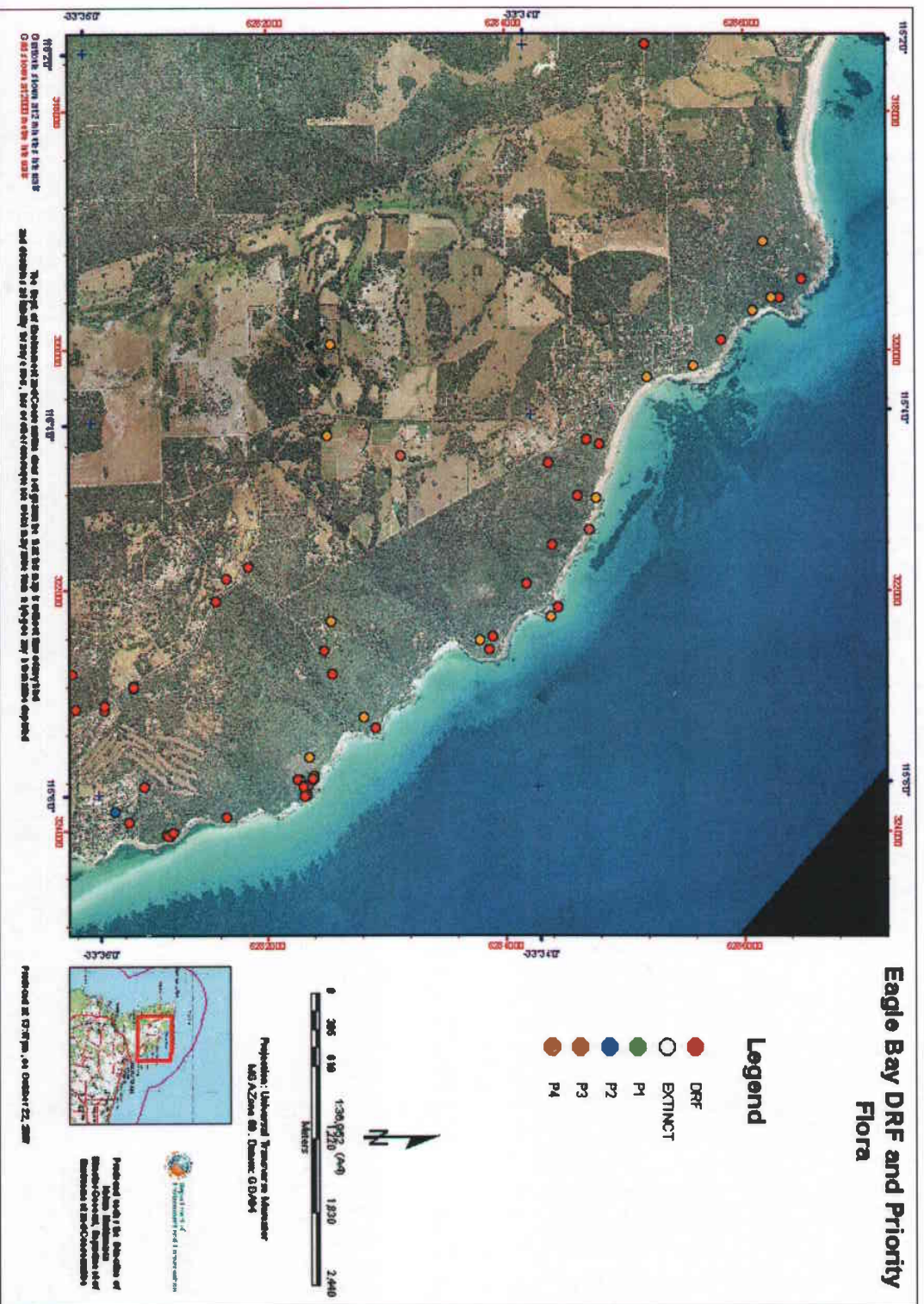


Figure 6 Generalised Location of DRF and Priority Flora in Meelup Regional Park

**Native Plants and Plant Community Management Plan**

Issue	Management Strategy	Operational Management
Conservation and Protection of Vegetation and TECs	Prioritise protection of <i>Calothamnus graniticus</i> heaths Maintain significant areas of all ecosystems that have vegetation in good condition Implement Fire Weed and Dieback Management Plan	No new tracks in <i>Calothamnus graniticus</i> heaths Careful planning of any new tracks in Park, particularly in Conservation and Protection Areas Continue feral animal exclusion monitoring research Monitor important vegetation communities Minimise damage to vegetation from constructing and maintaining facilities for visitor use and infrastructure
Protection of Rare, Endangered and Priority Flora	Prioritise protection of DRF and Priority Flora	Continue to locate threatened and priority flora species Develop DRF Develop identification resources for Park Managers
Meelup Mallee	Preserve Eucalyptus Phalacis Raise profile to promote public appreciation	Develop interpretive material Provide signage and control access

**14 - Native Animals**

**Objective:**

**To protect and conserve naturally-occurring fauna species in the Park, particularly threatened and priority species.**



**Species present in the Park**

The terrestrial fauna of the Park was surveyed during the period 1994 to 1997 (Hart, Simpson and Assoc., 1997). A fauna list for the Park is included in Appendix C. The study concluded that the Park has high conservation value for fauna because of the high diversity of fauna species present, the presence of rare and interesting species, the limited number of introduced species and the large size and generally good condition of the Park.

The total terrestrial fauna reported in the Park is nine frog species, 16 lizards, three snakes and eight native mammals as well as four introduced mammals. A further 11 species of reptiles and 5 species of native mammals have never been recorded but are expected to occur. The large population of Western Grey Kangaroos are the Park's most visible fauna, particularly adjacent to the golf course to which they are attracted by green grass and water sources.

The Park has important fauna habitat values because it is in a region which is seeing increasing urbanisation. Most of the fauna habitats are well represented in the Park and are in good condition except for minor disturbances and extensive dieback which may ultimately remove several important habitat features. Figure shows the major fauna habitats of the Park.

**Rare and Endangered Fauna**

A search of the Department of Conservation and Environment (DEC) Threatened and Priority Database was carried out. The results are summarised in Table 2 below along with additional conservation status and habitat information from the Naturebase website. As can be seen from the table, the rare and endangered fauna are mostly likely to be found in forests and woodlands and in wetlands and water courses.

**Range extensions**

In addition to the rare and endangered fauna, two species of reptiles are found in the Park outside of their normal range. These are:

- Southern Delma lizard (*Delma Australis*). - extension of range south by 212 km; and
- Dells ctenotus lizzard - (*Ctenotus delli*) range extension of 110.

directly (by chasing or killing animals) or indirectly by disease or scent

- Fire, through direct impact and loss of habitat
- Altered hydrology
- Inappropriate recreation

**Threats**

Major threats to the native fauna in the Park are:

- Loss of habitat through clearing or disease (such as dieback)
- Introduced animals, particularly foxes which threaten quenda and possum populations
- Domestic animals which have the potential to disturb native fauna either



**Table 3 Rare and Endangered Faunal species, Conservation status and Habitats**

Species	Conservation Status			Habitat
	WA Wildlife Conservation Act	2000 IUCN Red List	EPBC Act	
<i>Pseudocheirus occidentalis</i> Western Ringtail Possum	Schedule 1 Fauna that is rare or is likely to become extinct	Vulnerable	Threatened (Vulnerable)	Forest and dense woodlands Requires tree hollows and/or dense canopy for refuge and nesting. Preferred diet in coastal areas is peppermint trees.
<i>Isoodon obesulus fusciventer</i> Quenda or Southern Brown Bandicoot	Priority Four: Taxa in need of monitoring	Lower Risk (near threatened)	Not Listed	Dense understorey vegetation, particularly around swamps and along watercourses.
<i>Macropus irma</i> Western Brush Wallaby	Priority Four: Taxa in need of monitoring	Lower Risk (near threatened)	Not Listed	This species occurs in areas of forest and woodland supporting a dense shrub layer.
<i>Ninox connivens</i> Barking Owl (southwest pop)	Priority Two: Taxa with few, poorly known populations on conservation lands	Not Listed	Not Listed	Forest and woodland supporting a dense shrub layer

**Native Animals Management Plan**

Issue	Management Strategy	Operational Management
Maintenance of Habitats	Protect species as required under EPBC Act and WA Wildlife Conservation Act Prioritise conservation and protection of rare and endangered faunal habitats Implement Feral and problem animal Management Plan Implement Fire Management Plan Implement Weed, Dieback and Visitor Use management Plans	Referral of any developments that threaten possum habitat to Commonwealth as required by the EPBC Act. No additional tracks to be developed in Possum and Quenda Habitat Careful planning of any new tracks in Park, particularly in Conservation and Protection Areas Provision of breeding boxes? -Use fire control guidelines outlined in Fire Management Plan; e.g. burn small areas at one time to maintain a mosaic of different ages and vegetation structure.
Prevention of predation	Implement Pest and Problem Animal Management Plan	Continue annual baiting programme for rabbits and foxes and trapping for cats

**15 - Environmental Weeds**

**Objective**

*To minimise the impact of environmental weeds on the native plant and animal species in the Park*

**Definitions**



Environmental weeds have been defined as plants that establish themselves in natural ecosystems (marine, aquatic and terrestrial) and proceed to modify natural processes, usually adversely; resulting in the decline of the

communities they invade.

Weeds may originate from interstate or overseas and may or may not be declared under the Agriculture and Related Resources Protection Act 1976. The declaration imposes an obligation on all land owners to control declared plants on their properties. Guidance on the management of weeds is provided by the Environmental Weed Strategy for Western Australia (Department of Conservation and

Land Management 1999), and from the Department of Agriculture and Food website <sup>9</sup>

Some species of introduced plants occur within the Park which are not considered to be weeds. Exotic plants are primarily concentrated along access tracks or in disturbed areas.

Invasion by introduced plants is one of the more serious long-term threats to the integrity of the Park's native vegetation. The Meelup Regional Park was surveyed for weeds in 1998 (Dee, 1998). This report specifies annual and perennial weeds in the Park and locates them by GPS coordinates. Weeds in the occur mainly along creeks, along boundaries with pasture and coastline, and next to other cleared areas including tracks and trails.

**Declared weeds**

Declared weeds found in the Park include the following plants:

- Cape Tulip (*Homeria flaccida*),
- Arum Lily (*Zantedeschia aethiopica*),
- Apple of Sodom (*Solanum lineanum*),
- Bridal Creeper (*Asparagus asparagoides*),

<sup>9</sup> <http://www.agric.wa.gov.au/weeds.htm> ,and <http://www.weeds.org.au/>

- Doublegee (*Emex australis* and *Emex spinosa*) (annual)
- Nodding Thistle (*Carduus nutans* L)

**Non Declared Weeds**

Non-declared weeds include

- Watsonia (*Watsonia bulbifera*),
- Wavy Gladiolus (*Gladiolus undulata*),

- Castor Oil Plant (*Ricinus communis*),
- Black Flag (*Ferraria crispa*),
- Victorian Ti Tree (*Leptospermum laevigatum*) and
- Freesias (*hybrid Freesia* spp).
- Dolichos Pea (*Dipogon lignosus*)
- Stinkwort (*Dittrichia graveolens*). (Annual)

**Weed Management Plan**

Issue	Management Strategy	Operational Management
Eradicate or control existing weeds	<p>Manage environmental weeds in accordance with the Agriculture and Related Resources Protection Act 1976, and the Environmental Weed Strategy for Western Australia</p> <p>Prioritise area where weeds may impact on threatened species and communities</p> <p>Maintain significant areas of all ecosystems that have vegetation in good condition</p>	<p>Observe statutory and safety requirements with regard to weed control</p> <p>Prioritise eradication of declared weeds</p> <p>Develop identification resources for Park Managers</p> <p>Maintain liaison with the Agriculture Protection Board, adjacent landholders, local authorities and community regarding weed control</p> <p>Maintain up-to-date weed maps</p> <p>Encourage volunteer groups to conduct voluntary weed control in areas that are isolated and costly for contract works</p> <p>Carry out weed control programme consisting of:</p> <ul style="list-style-type: none"> <li>■ Inspection of known weed locations</li> <li>■ Employment of weed contractor each spring and late summer to spray winter and summer weeds respectively</li> <li>■ Assessment efficacy of spray programme and impact on native vegetation</li> </ul> <p>Ensure that chemicals used are not toxic to fauna likely to be present (eg frog-friendly glyphosphate)</p> <p>Initiate targeted weed control post fire</p>
Prevent new weeds from becoming established in the Park	Early identification and eradication of weeds	<p>Prevent illegal dumping of garden waste, erect signs if necessary</p> <p>Contractors bringing machinery into Park to have a weed management plan in place</p> <p>Ensure that rehabilitation materials are weed free and inspect before use</p> <p>Develop identification resources for Park Managers</p> <p>Limit visitor access to established paths</p> <p>Inspect annually for weeds in vulnerable habitats such as along creek-lines</p> <p>Record new weed outbreaks</p> <p>Physically remove without damage to native</p> <p>Use chemical means if necessary</p> <p>Follow up inspection and treatment if required</p> <p>Initiate targeted weed control post fire</p>

**16 - Feral and Problem Animals**

**Objective**

*To minimise the impact of feral and problem animals on native plant and animal species in the Park*

**Feral Animals**

The main species of feral animals present in the Park are rabbits and foxes, although cats and rats were also recorded during the 1994-97 survey. As a landowner, the Shire has responsibilities to control feral species. An annual program of baiting has been introduced using 1080 poisoned oats and eggs for rabbits and foxes respectively. Cat traps are regularly placed at locations where cats are sighted in the Park. Captured feral and unregistered cats are destroyed, whilst registered domestic cats are impounded by the Shire Council.

**Problem Animals**

It is not known what the pre-settlement population of kangaroos is, however census studies by the Toby Inlet Catchment Group (Clay 2007) indicate that the number of animals should be around 0.05 to 0.1 per hectare. Human landuse including clearing of

the golf course appears to have contributed to an increase in the population to its current level of around 0.2 animals per ha in the region.

This increased abundance has the potential to adversely affect the biodiversity values of the Park. With an increase in the kangaroo population, vegetation within the reserve is overgrazed, habitat is destroyed, flora values are diminished and naturally occurring rehabilitation and plant succession is inhibited (DEC 2006)

Based on these considerations, a kangaroo management program may need to be implemented. However, more data specific to the Park is needed both on the optimal level and the present level of population. As the culling of kangaroos is a sensitive issue, a careful approach involving other interested parties would be essential.

The Shire has formed a Committee (including members from the Meelup Regional Park Management Committee and DEC) to investigate the need for and potential methods that can be used to control Kangaroo numbers in the region.

**Feral and Problem Animal Management Plan**

Issue	Management Strategy	Operational Management
Feral Animal Control	Implement a program to monitor feral animal populations with the aim of control" and, where possible, eradication of feral species	Continue annual baiting programme for rabbits and foxes and trapping programme for cats Seek co-operation of local landowners, and give notice of Shire's intentions prior to any feral animal control operations being conducted within the Park Advertise the presence of fox baits to prevent poisoning of domestic pets. Monitor feral animal populations to determine the effectiveness of control programs and their threat to native flora and fauna. Control rabbits to reduce grazing in areas undergoing natural regeneration
Kangaroo Control	Continue ongoing trials to determine the number of kangaroos can support without overgrazing	If Shire formed Committee determines that there is a need to reduce the numbers of kangaroos and avoid excessive grazing, cull animals in conjunction with the Shire, DEC and adjacent landowners.



## 17 - Disease

### Objective

**To identify and control the spread of plant diseases and to protect areas currently free of disease.**



### Phytophthora dieback

The issue of dieback poses a serious threat to the Park is a very high priority for Park management.

Phytophthora dieback, an oomycete or 'water mould', refers to the deadly plant disease caused by the pathogen *Phytophthora cinnamomi* and other related species such as *P. citricola*. Dieback can kill a wide range of plant species and massively reduce conservation values. The disease spreads slowly downhill through the soil, using water as a vector, and can be moved to new sites by transportation of soil.

Distribution of *P. cinnamomi* is widespread in the Park, especially in the area between the Dunsborough townsite and Meelup Beach Road. All creeklines in the Park are infected with *P. cinnamomi*. Figure 7 shows the extent of dieback in the Park in 2004.

The disease is considered to be a significant threat to the Park given the existing upland plant communities in the Park which contain a number of susceptible species, for example jarrah, banksias and grasstrees

Vulnerable plant families are Proteaceae, Myrtaceae, Epacridaceae, Dilleniaceae and Pappilionaceae. The impact of the disease on the significant vegetation communities and flora of the Park is poorly understood.

Detection of the disease is usually based on visual assessment of vegetation condition and presence of symptoms. A higher level of certainty is provided with analysis of soils to detect the pathogen, however sampling can fail to detect the pathogen in clearly infected areas. An area is said to be infected if either symptoms or pathogens are detected.

The Park was surveyed for Dieback in 1994 (Helyar, 1994) which showed that 28% of the Park is infected with *Phytophthora cinnamomi* and another 13% of the Park is at risk of infection by natural spread. Following boundary checks and survey work by DEC this figure has increased to at least 34%.

Some upland areas including the gravel pit are also infected. The presence of the disease is the major constraint governing the land use in these areas. Movement of visitors and especially vehicles from these areas to uninfected areas should ideally not be permitted, or at a minimum carefully managed and policed to prevent the carrying of infected soils from one location to the other.

A number of the management units are dieback free and prevention of infection of these areas is a very high priority. Access to these areas needs to be restricted and strict hygiene measures implemented. This is particularly important for Units 8 and 18, where fire breaks have been cleared along a ridge into dieback free bushland. Access track into these areas should have gates and signs at the transition between dieback infected and dieback free. The signs should provide information on the hygiene measures required.

It is important to note that despite a large proportion of the Park is classified being infected, these areas still have significant natural environment values which need to be preserved. Mapping tends to be conservative, and pockets of land within larger areas classified as infected remain free of symptoms and have vegetation in good condition.

The danger exists that areas classified as infected are perceived as not being worthy of protection, and biological and aesthetic values are compromised as a result.

**Armillaria luteobubalina**



Sixteen percent of the Park is infected with the fungus *Armillaria luteobubalina*. It is a species common to sclerophyll forests and can infect many woody plant species. This fungus becomes a serious killer in disturbed habitats, where it causes root rot; destroying the food and water transport systems of its host, and then living on the dead plant's tissue for many years. The symptoms of the fungus include the death of branches, yellowing of foliage, poor vigour and the darkening and rotting of the larger roots.

In natural ecosystems, because it is an endemic species, *Armillaria* is an integral part of ecosystem functioning and is not

detrimental. It is generally only a problem when changes or disturbances occur in that system. In natural (undisturbed or unchanged) ecosystems, attempting to control *Armillaria* by traditional means would create physical disturbance and may in fact make it worse (Richard Robinson, DEC Pers comm..)

*Armillaria* spreads through root to root contact with infected trees, especially old decayed stumps and roots. To prevent problems associated with this disease, it is important to limit the introduction of the fungus during rehabilitation of disturbed sites. Materials such as mulch used in rehabilitation should be examined for obvious signs of the fungus.

**Aerial Cankers**

Aerial cankers also pose a risk to vegetation in the Park. It has been identified as a major threat to the *Eucalyptus phylacis* (Meelup Mallee) population in which stem death is evident. Aerial cankers and other disease could be introduced into the Park via infected brush material or seedlings for revegetation

**Disease Management Plan**

Issue	Management Strategy	Operational Management
Phytophthora Dieback	<p>Make dieback management a top priority for Park management</p> <p>Manage Phytophthora dieback in accordance with Dieback Working Group Guidelines and Best practice guidelines for the management of <i>Phytophthora cinnamomi</i> (CALM 2004)</p> <p>Prevent spread of dieback into uninfected areas</p> <p>Prioritise protection of threatened and priority species and TECs</p> <p>Protect susceptible vegetation</p> <p>Educate Park users</p>	<p>No new tracks from infected to uninfected areas</p> <p>Protect significant uninfected areas, particularly Units 8,12 and 18 by preventing all recreational and any other unauthorised access.</p> <p>Restrict vehicle movement in Park:</p> <ul style="list-style-type: none"> <li>■ No vehicle movement off designated tracks</li> <li>■ Avoid puddles forming in tracks and vehicle movement through puddles</li> <li>■ Prevent or minimise vehicle movement on tracks moving from infected to uninfected areas, install gates where possible</li> <li>■ Minimise vehicle movement on tracks that are not hard and well drained</li> <li>■ Install signage at key transition locations (into units 8 and 18)</li> </ul> <p>Minimise movement of soils</p> <ul style="list-style-type: none"> <li>■ Schedule and earth moving activities for dry soil conditions,</li> <li>■ Minimise soil movement during fire break maintenance</li> <li>■ Exercise strict hygiene protocols in regard to vehicles, tools, equipment and footwear</li> <li>■ Use limestone to form walk trails</li> </ul>

		<ul style="list-style-type: none"> <li>■ Introduce dieback control measures on walking trails, e.g. foot cleaning stations.</li> <li>■ Provide boardwalks over dieback infected wet areas on walk trails, and limestone surfaces which are inhospitable to <i>Phytophthora cinnamomi</i>.</li> </ul> <p>Minimise waterborne transmission</p> <ul style="list-style-type: none"> <li>■ Do not alter natural drainage patterns</li> <li>■ Ensure vehicle tracks are well drained</li> <li>■ Avoid walking in Park when soils are wet and muddy</li> <li>■ Rehabilitate gravel pits to prevent erosion</li> </ul> <p>Only use materials in rehabilitation that are certified free of <i>Phytophthora cinnamomi</i>.</p> <p>Development in areas containing dieback need to assess the risk of dieback spread and adopt appropriate procedures such as access by sealed roads only</p> <p>Consider use of phosphite for protection of vulnerable species</p> <p>Carryout full dieback surveys every 10 years and border checks every 2 years</p>
<p><i>Armillaria luteobubalina</i> and aerial cankers</p>	<p>Prevent spread of <i>Armillaria</i> and aerial cankers into uninfected areas</p> <p>Protection of susceptible vegetation</p>	<p>No transport of organic material such as mulch into uninfected areas</p>

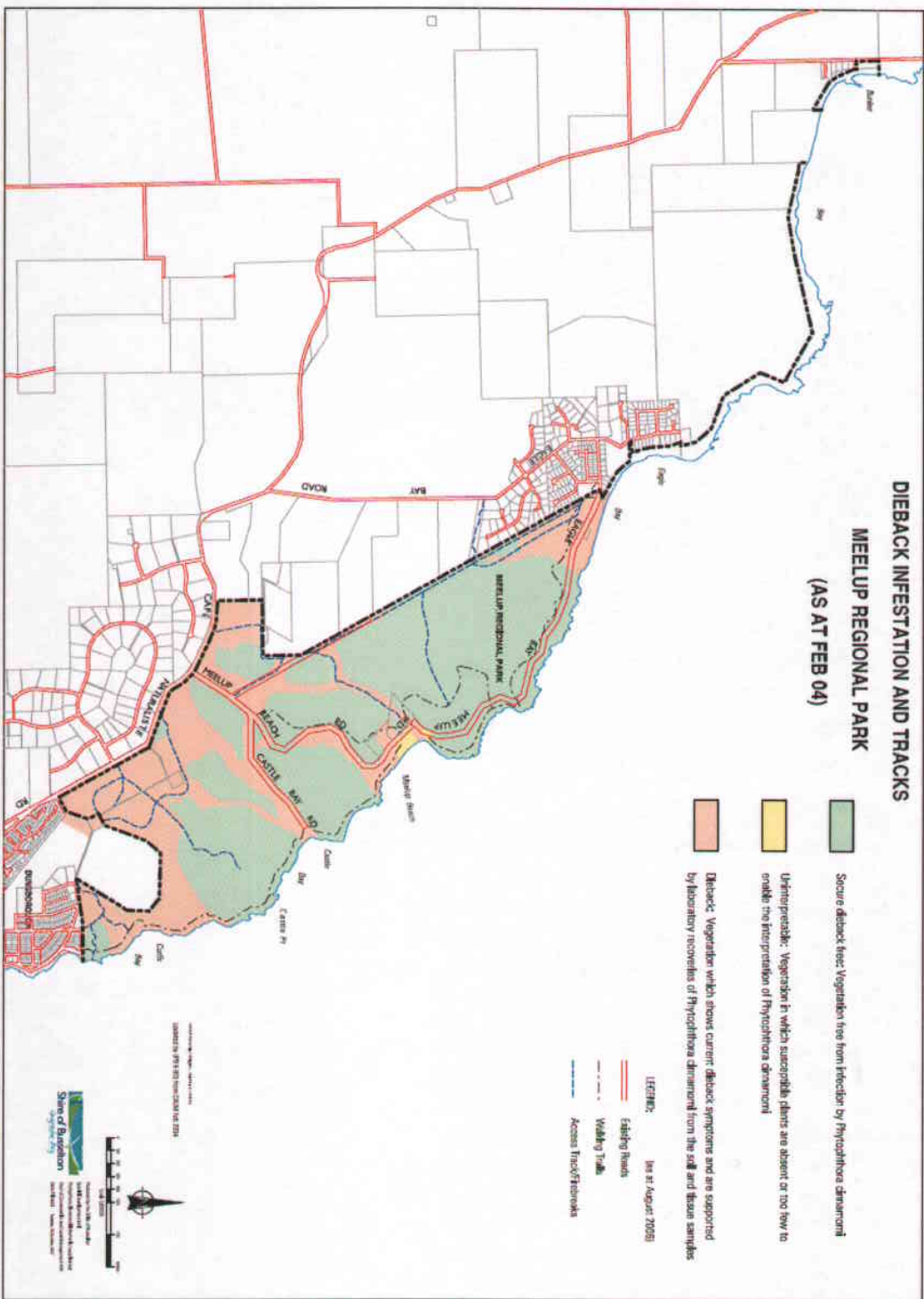


Figure 7 Phytophthora dieback and access routes into and within Meelup Regional Park

## 18 - Fire

### Objective

**To manage fire to protect and promote the conservation of biodiversity and natural values whilst also providing for the protection of human life and community assets**

Australian wildlife has adapted to the natural occurrence of fire, and some species even require it for reproduction, however fires which are either too hot or too frequent may have severe adverse impacts on the flora and fauna of the Park.

Wildfire in and around the Park also poses a risk to visitors, townsites, rural properties and recreation facilities. Peak use of the Park coincides with the summer high-risk period. The coastal towns of Dunsborough and Eagle Bay are located adjacent to the Park whilst semi-rural subdivisions occur at Meelup Hill and to the west at Eagle Bay and Bunker Bay.

Controlled burns have been carried out in sections of the Park adjacent to townsites. These buffer areas are burnt on a five year rotation. Wildfires have occurred, with the most significant being an escaped prescribed burn in 2005 which burnt out 230 ha of the southern portion of the Park.

A revised Fire Management Plan was completed in 2007, and should be referred to for details. The plan seeks to determine the appropriate size and timing of prescribed burns in order to protect the ecosystems of the Park. At present, responsibility for fire management in the Park rests with the Park's management Committee, the Shire of Busselton, local volunteer bushfire brigades in Dunsborough and Eagle Bay, FESA and DEC.

The management Committee has requested that the Shire Fire Officer take over responsibility for the specific timing and management of prescribed burns consistent with the overall programme and principles established by the fire management plan.

A map of the fire management units in Figure 8 and infrastructure is provided in Figure 9.

### Access

Access for the purposes of maintenance of firebreaks and fire fighting needs to be controlled, in order to reduce the potential for spread of *Phytophthora* dieback and weeds. Access to conservation and protection areas in particular needs to be minimised and managed.

Issue	Management Strategy	Operational Management
Conservation of biodiversity and natural values	Implement Fire Management Plan (Separate Document) Prescribed burning at intervals developed in consultation with DEC Prevention of Wildfire	Implement Fire Management Plan Internal low fuel buffers to protect high risk sites All areas except buffers burnt on a long rotation Maintain fire breaks in accordance with the dieback management plan Slash vegetation in preference to earthmoving in the maintenance of firebreaks Annual Inspection by Shire of Busselton accompanied by Committee representative Maintain fire suppression infrastructure No creation of new fire breaks without Committee endorsement New fire breaks to be created with minimal disturbance of soils and should follow the guidelines:

Part C– Managing the Natural Environment

		<ul style="list-style-type: none"> <li>■ Cutting and clearing of vegetation for track maintenance or widening should be completed prior to machine operations.</li> <li>■ Vegetation to be removed rather than pushed into adjoining areas.</li> <li>■ Where possible firebreak definition should commence about 10 metres from the intersection of public use tracks, and the intersection designed to minimise visual impact.</li> <li>■ Machinery use in dry conditions only</li> <li>■ Adherence to dieback hygiene protocols</li> </ul> <p>Plan to implement intensive weed control post-burning</p>
<p>Protect Human Life and Property</p>	<p>Work with local volunteer fire fighting brigades  Hazard reduction burns adjacent to residential areas  Prevention of Wildfire</p>	<p>Implement Fire Management Plan  Low fuel buffers on Park boundaries, especially adjacent to built-up areas  Annual Inspection by Shire of Busselton accompanied by Committee representative  Maintain fire suppression infrastructure</p>

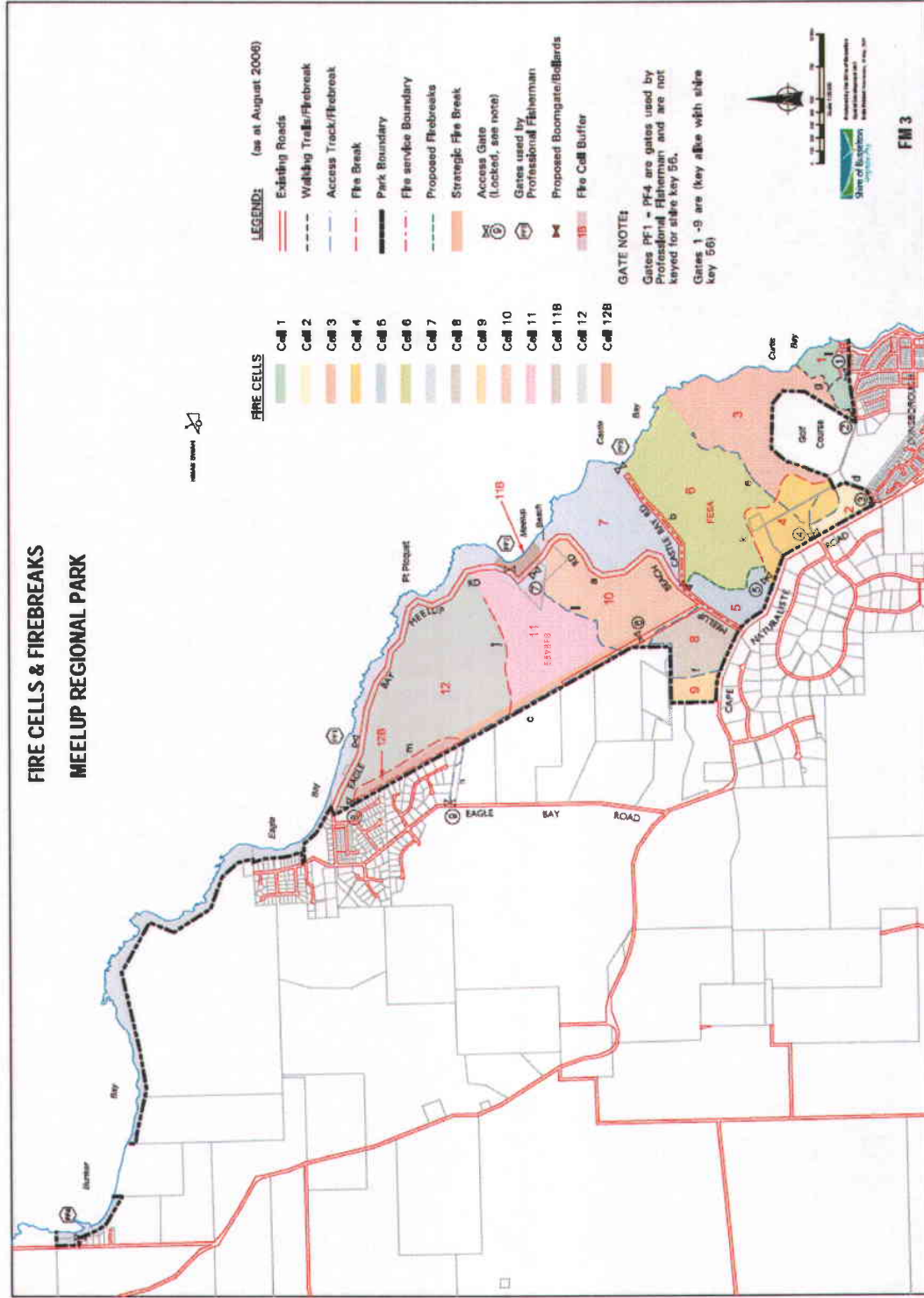


Figure 8 Fire Management Map

## 19 - Rehabilitation

### Objective

*The objective is to restore degraded areas of the Park to a condition resembling the natural environment.*



Areas in need of rehabilitation in the Park consist of disused gravel (borrow) pits, old fishing vehicle tracks and unplanned walk tracks.

Large disused gravel pits are situated in the southern end of the Park above Curtis Bay. These areas have been the focus of re-contouring and revegetation efforts to combat erosion and altered hydrological conditions. Some of the earlier rehabilitation works included exotic and eastern states species.

The old gravel pit areas have had top soils removed and rehabilitation requires build-up of suitable soils as well as re-planting with local species. The area is infected with dieback and rehabilitation is a priority to prevent watershed off the site and associated erosion and spread of infected soils.

### Rehabilitation Management Plan

Issue	Management Strategy	Operational Management
Rehabilitate gravel pits	Restore natural structure, composition and density of native vegetation	<p>Prepare a detailed program of rehabilitation works to be carried out as part of the annual maintenance program.</p> <p>Actively involve community and other groups in rehabilitation programs.</p> <p>Ensure only local varieties of plants that occur in the Park are used in rehabilitation for brushing, planting and seeding</p> <p>Dieback resistant species need to be used in infected areas</p> <p>Ensure that any mulch and soils used are dieback and Armillaria free</p> <p>Consider removing exotic species and Eastern States species previously planted in the Park.</p> <p>Order stock from approved nurseries well in advance of requirement (6 – 12 months)</p> <p>Plan planting for mid to late winter</p> <p>Ensure that seed collection from the Park is authorised by the Committee and DEC.</p> <p>Provide protection from grazing following planting</p> <p>Plan to monitor and weed after planting</p>
Rehabilitate vehicle and walking tracks	Prevent access and restore vegetation	<p>Identify areas in need of rehabilitation</p> <p>Block access and provide signage if necessary</p> <p>Plan and execute planting as described above</p>



## D. MANAGING OUR CULTURAL HERITAGE

### 20 - Guiding Principles for Managing Cultural Heritage

The following guiding principles were sourced from approved Regional Park Management Plans from the DEC website, and have been adapted for Meelup Regional Park.

#### 1. Conservation and protection of cultural heritage

The Park will be managed in a way that delivers community benefits by maintaining cultural traditions and attributes. Heritage sites are to be preserved and maintained for their inherent cultural and social values. Impacts from human use and management practices will be minimised in order to maintain heritage values.

#### 2. Consistency of management policies

The managing agencies involved in the Park are to apply management actions that are consistent with appropriate legislation as well as State, national and international heritage conventions.

#### 3. Community involvement

The community is to be involved in managing sites of heritage value. Aboriginal people are especially encouraged to be involved and should be provided alternative consultation opportunities in the management of the Park.

#### 4. Research and Interpretation

Where appropriate, interpretive information is to be provided to enhance the community's understanding of, and appreciation for, heritage sites. The managing agencies should provide opportunities for, and support, further research into the Park's cultural heritage value.

#### 5. Restoration of cultural heritage

Where possible, heritage sites are to be restored to protect and maintain their value. Sites with high heritage significance will be considered priorities.

### 21 - Indigenous Cultural Heritage

#### Objective

*To identify, protect and appropriately manage sites with Aboriginal cultural heritage value within the Park.*



At the time of European settlement inhabitants of the area were Wardandi of the Noongar people. The Wardandi People are the traditional custodians of the land bounded by Capel to the Northeast, Augusta in the South and including the regions now known as Busselton, Yallingup and Margaret River<sup>10</sup>.

Meelup is an aboriginal word meaning place of the moon rising (Ecoscape 2005). It is known that aboriginal people camped above Meelup Beach, but otherwise little is known about the pre-european use of the area.

The Aboriginal Heritage Act (1972-1980) protects all Aboriginal sites and objects. The W.A. Museum must be informed if any Aboriginal site or object is located. There may be registered Aboriginal sites, within the Park. These could be artefact scatters, or similar. Because of the size of the Park and the denseness of vegetation no systematic survey has been undertaken. It is assumed there maybe sites yet undiscovered.

<sup>10</sup> <http://www.wardan.com.au/pages/people.html>

**Indigenous cultural Heritage Management Plan**

Issue	Management Strategy	Operational Management
Identify Aboriginal Cultural Values and Sites in the Park	Increase understanding of traditional use of Meelup	Consult with anthropologists and the local Wardandi community on Aboriginal history in the Park  Incorporate, in consultation with the Aboriginal community, information on Aboriginal history into visitor interpretation facilities.
Protect and Manage Values and Sites	Respect for traditional values Comply with Aboriginal Heritage Act (1972-1980)	Incorporate requirements of the Act before planning and development works are carried out  Report Aboriginal artefacts or other relevant findings to the Department of Aboriginal Sites, Western Australian Museum.

**22 - Non-Indigenous Cultural Heritage**

**Objective**

**To identify, protect and appropriately manage sites with European cultural heritage value within the Park.**

The Dutch in 1622 named the southern corner of the continent “Leeuwin’s Land” after their ship. In 1801 a French expedition under the command of Captain Nicholas Baudin visited Geographe Bay in the corvettes, Geographe and Naturaliste. The establishment of the Swan River Colony in 1829 eventually led to settlers moving to the Geographe Bay area.



The landing of Captain Nicholas Baudin at Eagle Bay in 1801 has been commemorated by the construction of a lookout in the form of a ship's bow overlooking the landing site of the Baudin Scientific Expedition.

Castle Bay was a favourite anchorage for whalers. Between 1845 and 1849 harpooned whales were brought ashore, cut up on the beach and the blubber boiled down for oil. A small fish processing factory operated in Eagle

Bay during the 1950's. The “whale lookout” shown on the trails map (Appendix D) has historical significance in this context, and quandong trees were seeded there at that time. The 2005 Ecoscape report refers to whalebone paving and whale rock and quandong trees. Otherwise, as the Western Australian Heritage Council advises “Nothing obvious remains from the historic use of the place for whaling activities”<sup>11</sup>.

For the past 150 years Meelup Beach and nearby embayments have been popular picnic and day-trip destinations for both local and regional residents. Camping at Meelup Beach was permitted until the 1970's. Historical themes listed in the Heritage Council of WA database include forestry, fishing and other maritime uses, sport, recreation and entertainment. Meelup is not listed on the National Heritage database<sup>12</sup>.

Although not in the Park, the wreck of the HMAS Swan is located offshore. It was a River Class Frigate Destroyer that was decommissioned in 1996 and given to the WA State Government.

Originally built in 1967, the Swan was most expensive warship ever to be built in Australia.

<sup>11</sup> <http://register.heritage.wa.gov.au/index.html>

<sup>12</sup> <http://www.environment.gov.au/heritage/national/>

After serving for 26 years and being decommissioned, the WA government decided to make her into a dive wreck and artificial reef.

**Non-Indigenous Cultural Heritage Management Plan**

<b>Issue</b>	<b>Management Strategy</b>	<b>Operational Management</b>
Identify European Historical Values and Sites in the Park	Increase understanding of historical use of Meelup	Consult with historical records and historians to develop and collate existing information on historic sites located in the Park.
Protect and Manage Values and Sites	Preserve historical values and sites of the Park	Incorporate, in consultation with historians, information on European history into visitor interpretation facilities; e.g. historical trails. Develop plans for the historical whaling site at Castle Bay and the nearby Whale Lookout. Develop displays and interpretative signs at historical sites

## E. MANAGING VISITOR USE

### 23 - Guiding Principles for Managing Visitor Use

The following guiding principles were sourced from approved Regional Park Management Plans from the DEC website<sup>13</sup>, and have been adapted for application to Meelup Regional Park.

#### 1. Preservation of the values of the land itself

Natural systems should be able to sustain the recreation that is occurring or proposed. The intensity and distribution of recreational activities may need to be controlled to maintain the amenity of the Park and the enjoyment of visitors. Recreation planning will seek to foster appreciation of the Park's natural value.

#### 2. Consistency of recreation with reserve purpose

Recreational activities must be compatible with the assigned purpose of reserve under the Land Administration Act 1997.

#### 3. Equity

A range of activities consistent with a reserve's purpose should be allowed in the Park. However, uses that impair other forms of acceptable use or jeopardise the safety of other visitors should be specifically managed, directed to more appropriate places or not permitted. Priority will be given to low impact activities and those that promote recreation or increase awareness, appreciation and understanding of the natural environment.

#### 4. Management

Activities and facilities must comply with the managing agencies' requirements. If effective management of recreational activities or facilities cannot be provided they should be restricted, relocated or removed from the Park.

#### 5. Recreation opportunities

A range of recreation opportunities should be provided for in a local and regional context thereby providing Park visitors with a choice of recreation activities and experiences. Facilities within the Park should compliment, rather than

compete with, those available outside the Park.

As discussed in Section 6, the overarching planning document for the area, the State Planning Policy 6.1 Leeuwin-Naturaliste Ridge<sup>14</sup> defines Meelup Regional Park as a "Conservation Reserve", and states that maintaining or enhancing the conservation and landscape values will be the primary determinant in decision-making on proposals for land use, subdivision or development within these areas.

### 24 - Visitor Activities and Use

#### Objective

*To encourage visitor use whilst ensuring that the level and type of visitor use is sustainable and minimises conflict with other Park visitors and values.*



Tourism in the Shires of Busselton and Augusta-Margaret River has grown rapidly in recent years. It is not known exactly how many people visit the Park each year, but Tourism WA estimate that over 2 million people visited the south-west in 2007<sup>15</sup>.

Meelup Park is regarded-as one of the-prime tourist assets in the region. It is valued for its scenery and safe sheltered beaches. It is a

<sup>13</sup> <http://www.naturebase.net/content/view/2283/1128/>

<sup>14</sup> <http://www.wapc.wa.gov.au/Publications/157.aspx>

<sup>15</sup>

[http://www.tourism.wa.gov.au/Research\\_and\\_Statistics/Regional\\_Research\\_And\\_Statistics/Pages/Regional\\_Research\\_And\\_Statistics.aspx](http://www.tourism.wa.gov.au/Research_and_Statistics/Regional_Research_And_Statistics/Pages/Regional_Research_And_Statistics.aspx)

popular destination for shore-based marine activities.

Not all recreational activities have to be accommodated within the Park. Key recreational activities currently occurring in the Park include:

- Sightseeing
- Walking
- Swimming
- Snorkelling
- Surfing
- Fishing
- Canoes and boat use
- Picnics

Good bathing conditions and fishing tend to be of an ephemeral nature. Crowds tend to be transient creating short peaks within the overall visitor pattern. Facilities have not been designed to fully cater for peak use.

A range of sites are provided in the Park from those with minimal facilities which simply guide visitors to avoid adverse impacts on the surrounding environment, to developed sites with facilities such as walk trails and barbecue areas. The Park is mainly used in day light hours, however it is also used in the evenings, particularly when the full moon is rising. Overnight camping is not permitted.

A number of recreational activities are mutually exclusive and have the potential to cause conflict with other users or the natural environment values of the Park. Examples include motor boat use close to shore in swimming areas, bike use on walk trails and unplanned tracks through bushland. Another example is the annual vintage hill climb car race during which time public roads in the Park are closed for the day.

A list of potential recreational activities is presented in Table 3. The table provides guidance on what opportunities exist and which activities are allowed and where based on the management category allocated. The terms used are as follows:

- **Encouraged:** positively enabled with provision of facilities and interpretive material

- **Permitted:** allowed for in management but not actively encouraged
- **Discouraged:** permitted but undesirable, with disincentives (such as the lack of provision of facilities) and signage requesting activities are not carried out if necessary
- **Not permitted:** Not allowed in terms of this management plan, local Local Laws or overarching legislation.



#### Walk Trails

A trails strategy has been developed and a number of walk trails have been completed and maintained within the Park as shown in Figure 3. Some are intended as short walks, with an accent on interpretation, and some are loops which may take several hours to complete. The strategy is included as Appendix D.

The strategy provides trails for different levels of ability, in accordance with Australian Standards. The tracks and trails consist of walking trails, plus service vehicle tracks and fire breaks. The Coastal Walkway provides a connection to the National Park at Cape Naturaliste and the Cape to Cape long distance Track.

#### Fishing

Fishing is a favourite activity in Meelup Regional Park due to the sheltered waters and easy access from rocky outcrops. In acknowledgement of this social value a special purpose (shore-based activities) zone was provided for within the Eagle Bay Sanctuary Zone in the Proposed Geographe Bay / Leeuwin-Naturaliste/ Hardy Inlet Indicative Management Plan (DEC 2006). The special purpose Zone does not extend to encompass Meelup Beach which is within the sanctuary zone and therefore fishing is not permitted in this area.

**Picnics and Barbeques**

Meelup Beach is a favourite picnic spot and gas barbeque facilities are provided. Picnic tables are also provided at Castle Bay and on the coast at locations along Eagle Bay Meelup Road. An additional picnic area was planned as part of the 2002 Master Plan for the Curtis bay gravel pit area.

Provision of bins is required in areas with formalised picnic and barbeque facilities. At other locations picnics are allowed but no bins are provided therefore encouraging the removal of rubbish by visitors themselves.

**Bikes**

At present there is no allowance for bike use in the Park except for on the public roads. Trail motor bikes are unlikely to ever be permitted.

Dual –use paths are unlikely to be developed because of the requirement to comply with Australian Standards. Paths would require re-

contouring of the land to achieve the required grades and lines of sight stipulated by the standards. This would have negative environmental and aesthetic impacts. In addition to the extensive clearing required, the paths would also create an additional faunal barrier in the Park and cause fragmentation of habitats.

Due to the grade requirements, paths would need to be located inland from the coast, and it is therefore unlikely that this would be as appealing to walkers as existing trails along the coast and in rocky, hilly areas.

There are no mountain bike trails at the present time, though these may be considered in the future. Management guidelines in relation to this issue are provided in the Visitor Access sections.

**Visitor Management Plan**

Issue	Management Strategy	Operational Management
Provision of recreation opportunities	Allocate areas for low level nature-based recreation.	Anticipate intensive peak-period recreational use at Meelup Beach recreation area Provide for activities in management zones in accordance with Table 1 Provide facilities within management zones in accordance with Table 1 Provide interpretation to enhance visitor experience
Prevention of negative impacts on Park Values	Define acceptable uses by management categories and units	Strictly control visitor access into Conservation and Protection Areas. Prevent access into Management Area 9 (Meelup Mallee Management Area) Monitor all recreation sites for negative impacts, such as soil erosion and vegetation destruction. Immediate measures should be taken to mitigate degradation

Part D – Managing Visitor Use

**Table 4** Recreational Use Management Table

Uses	Management Zones			
	Roads	Recreation (Meelup Beach)	Natural Environment Uses	Conservation and Protection
Sightseeing	Provide and maintain view points	Encouraged Moonrise over the water	Encouraged	Permitted
Camping	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Four Wheel and Off-road Driving	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Competitive sports	Permitted	Discouraged	Not Permitted	Not Permitted
Walking	Permitted	Encouraged	Encouraged	Permitted except in Unit 9 (Meelup Mallee area)
Swimming	N/A	Encouraged	Encouraged	N/A
Snorkelling	N/A	Encouraged	Encouraged	N/A
Fishing	N/A	Not Permitted south of Gannett Rock (Eagle Bay Marine Park Sanctuary Zone)	Permitted (Including Eagle Bay Special Purpose Zone)	N/A
Spear fishing	N/A	Not Permitted	Discouraged	N/A
Surfing	N/A	Discouraged	Permitted Encouraged at Pt Picquet and Rocky Point	N/A
Paddle craft	N/A	Encouraged	Encouraged	N/A
Wind / kite surfing	N/A	Discouraged	Not Permitted	N/A
Water Skiing	N/A	Not Permitted	Not Permitted	N/A
Sailing	N/A	Permitted offshore	Permitted offshore	N/A
Motor Boats	N/A	Permitted offshore	Permitted offshore	N/A
Whale watching	N/A	Encouraged	Encouraged	Permitted
Bird watching	N/A	Encouraged	Encouraged	Encouraged
Picnics	N/A	Encouraged	Permitted	Discouraged
Trail Bikes	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Road Bikes	Encouraged	Not Permitted except in car Park	Not Permitted	Not Permitted
Mountain Bikes	Encouraged	Not Permitted except in car Park	Not Permitted except on tracks designated for that purpose	Not Permitted
Horse Riding	Roads not suitable	Not Permitted	Not Permitted	Not Permitted
Car Racing	Permitted with licence	<b>Not Permitted</b>	N/A	Not Permitted
Rock climbing	Not Permitted	<b>Not Permitted</b>	Not Permitted	Not Permitted
Hangliding	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Collecting natural products	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Orienteering	N/A	Not Permitted	Not Permitted	Not Permitted
Nature Study	N/A	Encouraged	Encouraged	Encouraged

## 25 - Visitor Access

### **Objective**

***To provide opportunities for appreciation of the Park while at the same time preventing adverse impacts from uncontrolled access***

There are three main types of access roads and tracks within the Park:

- Sealed roads enabling public access by vehicles (maintained by the Shire).
- Trails of varying levels for pedestrian access, including disabled
- Tracks for management access; e.g. for fire control.

The roads and walk tracks are designed to maximise visitor enjoyment of the Park without detrimental effects on the Park environment. The trails strategy was discussed in the previous section and is provided in Appendix D. An alternative trail masterplan was produced by Ecoscape (2005). This Management Plan does not seek to present any specific development plan for access, but provides a framework for decision making in relation to this issue.

Existing walk paths into conservation and protection areas provide the opportunity to experience a feeling of "remoteness" within the Park. Trails within Natural Environment Use areas also provide for enjoyment of the natural values of the Park, but cater for a higher number of visitors and cater for a wider range of capabilities.

Figure 9 shows all the current recreational visitor and service access routes within the Park. The majority of walking in the Park is on the designated walking trails, however, firebreaks and access tracks are also used to some extent, especially by neighbourhood residents.

Visitor access to the management tracks should not be encouraged, but it is not feasible to prohibit bushwalkers from using the tracks. Any potential issues, such as the spread of dieback, resulting from pedestrian access needs to be assessed and managed. Any other old tracks that may be visible in aerial

photography that are not required for service access are to be blocked off and rehabilitated.

Defined car parks and other facilities have been constructed at the terminus of access roads. It is eventually planned to create an Interpretative Centre located adjacent to a major access road or at a key recreation node to provide information about the Park for visitors.

Road reserves bisect part of the Park and there are also a number of easements in the Park associated with water and power infrastructure. The road reserves are the responsibility of the Shire and access for the service providers is required but these areas need to be managed as an integral part of the Park, in cooperation with the Park Management Committee. Existing undeveloped road reserves need to be incorporated into the Park. The Ecoscape (2005) Interpretation plan makes the recommendation that the Meelup Beach - Eagle Bay road be closed at some point north of Meelup Beach to prevent the road being used as a thoroughfare by locals.

The use of bikes has been a controversial issue in the Park. There are no authorised bike tracks or dual use tracks in the Park at present. However, authorised bike tracks have been made in some areas, and cyclists are using the coastal walk trail, causing a hazard to walkers and damage to the trail.

In order to decide whether to allow some bike usage in the Park, and how to manage bike usage, the Committee and Shire need to consider:

- Protection of the Park's conservation values and, in particular, threatened species and communities.
- Managing erosion and the spread of dieback and other pathogens.
- Which user groups are to be accommodated? The preferences of mountain bike riders and general recreational or "tourist" riders and walkers (in the case of dual use tracks) are quite different in terms of the type of track and environmental impact.



As outlined in Section 6, Council Local Laws apply in the Park. The Local Law relating to Reserves and Foreshores (See Appendix A) stipulates that vehicles are not permitted except on roadways, driveways or parking areas. There has been some confusion, however because bikes are not listed specifically. However the Local Law states the “vehicle” has the same meaning as is given to that word in the Road Traffic Act as amended from time to time, and this is.

*(a) every conveyance, not being a train, vessel or aircraft, and every object capable of being propelled or drawn, on wheels or tracks, by any means; and*

*(b) where the context permits, an animal being driven or ridden;*

And as such bikes are clearly considered to be vehicles.

At present there are no bicycle or dual use paths in the Park, as discussed in Section 24. Unauthorised mountain bike paths have been created in the southern end of the Park. These need to either be formalised through careful planning or removed. The unlawful use of bikes in these areas contravenes council Local Laws (see Appendix A) and should be enforced. Prosecution could also result if any damage is done to DRF protected under the Wildlife Conservation Act.



Formalisation of mountain bike paths would need to be undertaken with due consideration of the requirements of this management plan. If the paths are to be used for commercial purposes (see Section 27) then proponents need to follow due process.

Vehicle access on to beaches within the Park is prohibited. The exception is access by licensed professional fishermen during the salmon season (late summer and autumn) to Castle Bay, Meelup Beach and Bunker Bay. This is determined on a case by case basis which recognises the limited time that professional fishermen require access. Contribution to maintenance of these access points may be sought from the fishermen.

### Access Management Plan

Issue	Management Strategy	Operational Management
Visitor access to provide recreation opportunities	<p>Maintain existing vehicle access and parking facilities as per existing arrangements</p> <p>Any new access routes to be developed in accordance with natural environment management requirements</p> <p>Implement Trails Strategy</p>	<p>Shire to maintain roads and carparks</p> <p>Park Management Committee to maintain and upgrade walk tracks</p> <p>Install signage to direct vehicles and pedestrian if required in keeping with the interpretation plan for the Park.</p> <p>Provide raised timber viewing platforms at key vantage points</p> <p>Provide access opportunities for wheelchairs at some locations</p> <p>Consider development of mountain bike tracks and dual use paths in natural environmental use areas only. Bike tracks to be carefully planned to minimise:</p> <ul style="list-style-type: none"> <li>■ risk of erosion,</li> <li>■ spread of dieback,</li> <li>■ impact on rare and endangered flora, fauna and ecological communities;</li> <li>■ conflict with other users, and</li> </ul>

Part D – Managing Visitor Use

		<ul style="list-style-type: none"> <li>■ aesthetic impacts</li> </ul> <p>See Appendix D for details on planned walk trail works</p>
<p>Control of visitor access to prevent negative impacts on conservation values</p>	<p>Prevent unauthorised vehicle entry on management tracks</p> <p>Discourage access to core sensitive areas</p> <p>Educate regarding risks</p>	<p>Use gates to prevent vehicle access to fire breaks and management tracks.</p> <p>Allow professional fishing access and obtain a contribution towards the establishment and maintenance costs of tracks</p> <p>Block entry points and rehabilitate all disused vehicle and pedestrian tracks</p> <p>Provide clearly designated sealed and drained walk paths in natural environment use areas.</p> <p>Consider use of inhospitable plants to keep pedestrians on paths in high use areas.</p> <p>Prevent bicycle use on walk paths.</p> <p>No new tracks in Conservation and Protection areas or dune environments.</p> <p>New roads into dieback areas need to be sealed and access to surrounding bush strictly controlled. Road drainage to be retained on site. New roads and tracks should not diminish the visual landscape of the Park.</p> <p>Encourage walkers to stick to the path and adhere to minimal impact principles in conservation and protection areas.</p> <p>Provide signage at transition points for walk tracks passing from infected into dieback free areas. Consider cleaning station to prevent transfer of soils</p> <p>Use of tracks prone to pooling of water should be discouraged during wet conditions to prevent erosion and risk of spread of dieback</p> <p>Raised walkways should be installed over all waterways and wetland areas to prevent damage and prevent the spread of dieback</p> <p>Monitor for negative impacts: erosion, weeds, damage to vegetation, dieback</p>

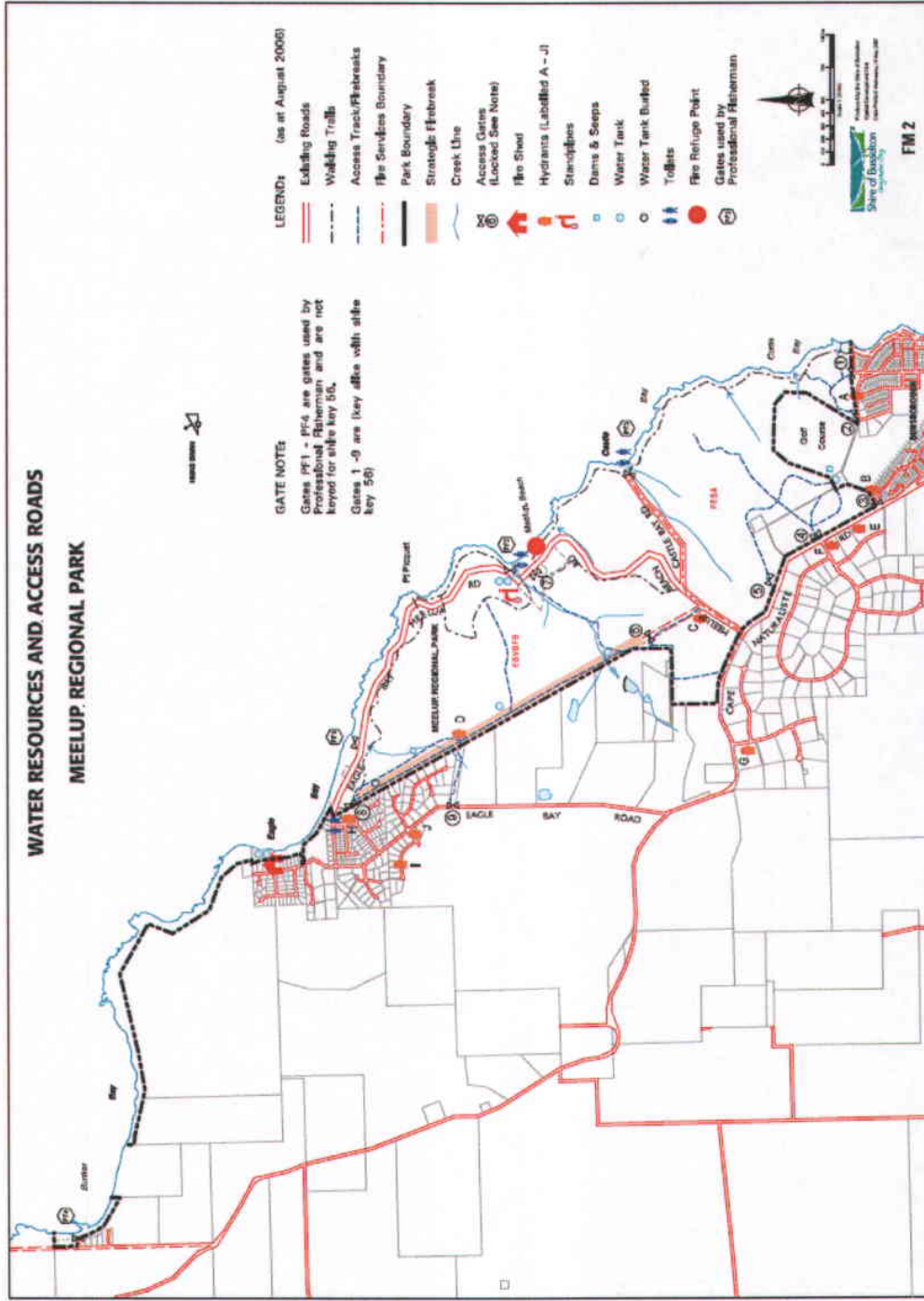


Figure 9 Public and Service Access to and within Meelup Regional Park. Note that Fire Service tracks are limited to for this purpose (and occasional other service vehicles) only

**26 - Visual Landscape**

**Objective**

*To maintain and enhance the natural and cultural visual landscape qualities of the Park.*



As outlined previously, an interpretation plan was produced for the Park following community consultation (Ecoscape 2005). The planning process highlighted that the unique natural character of the Park as the most valuable aspect of the Park to preserve.

Natural landscape is a pivotal value of the Park. Sense of place is dependent on maintaining a feeling of remoteness and undeveloped landscape. Vegetation is a key element in the natural landscape, in particular presence of trees close to the coast which is an unusual feature on the West Coast.

In terms of exposure to numbers of visitors, Meelup Beach and its surroundings provide the most common visual landscape experience.

The main broader look-out point is on Meelup Beach Road where a carpark has been constructed to allow visitors to stop and appreciate the view over the Park and Geograph Bay. Other view points are the whale lookout, sections of the walk track above Eagle Bay / Meelup Beach road, and in the gravel pit areas above Curtis Bay.

In addition to the Ecoscape Plan, creative interpretive ideas were recently developed by University of Western Australia Architecture students. Implementation of some of these ideas would undoubtedly add to the visual amenity of the Park

Signs, monuments and erected structures need to take the potential for impact on the visual landscape into consideration. Proposals for memorials, statues and other such structures need to be assessed under the development Proposal Management Plan (Section 37).

**Visual Landscape Management Plan**

Issue	Management Strategy	Operational Management
Retain natural landscape	Ensure any development in Park does not alter the natural landscape Maintain the natural ecology of the Park	Implement Development Proposal Management Plan Implement Fire, Dieback and Weed Management Plans
Provide opportunities for visitor appreciation of natural landscape	Maintain existing viewing locations Identify additional locations Enhance visitor experience of visual landscape	Shire to maintain roads and carparks Park Management Committee to develop plans for additional viewing locations, viewing infrastructure such as platforms and interpretive aids. Implement Information, Interpretation and Education Management Plan

**27 - Commercial Operations**

**Objective**

**To ensure that commercial concessions are consistent with this Plan, enhance visitor satisfaction and help offset Park management costs.**

Under section 18 of the Land Administration Act (1997) the approval of the Minister for Lands is required for the Shire of Busselton to grant leases and licenses for commercial operations in the Park after consultation with the Management Committee.

Department of Regional Development and Lands, Lands Division (RDL) input should be sought for commercial usage and development of the reserve to ensure that such proposals are consistent with the reserve purpose and to identify any proposals that may require alternative tenure.

The general "power to lease" clause is in the vesting order, with income from such leases to be dedicated to Park operations and maintenance, via a Trust Fund. At the present there are no leases in the Park. The Shire and the Management Committee are regularly approached with proposals for recreation –

based commercial operations in the Park, e.g. walking tours, canoe hire.

Permits are sometimes provided for events by the Shire after consultation with the Management Committee (see following sections).

The use of leases and licences in the Park provide a mechanism to bring private capital and management expertise into visitor services in natural areas and may lead to the development of facilities which probably would not have been developed otherwise. Appropriate concessions can generate income to help offset park management costs and can significantly enhance public access and enjoyment of the Park.

Concessions need to be carefully designed and managed, or they may detract from the conservation and landscape values of the Park. In DEC managed lands strict regulations and policies govern the allocation of leases and licences, involving advertisement of the opportunity, a competitive tendering process and approval from a number of state government departments is required.

**Commercial Operations Management Plan**

Issue	Management Strategy	Operational Management
Provide for commercial operations in the Park	RDL input be sought for commercial usage and development of the reserve to ensure that such proposals are consistent with the reserve purpose and to identify any proposals that may require alternative tenure.	<p>On receipt, promptly initiate assessment of proposals submitted and inform proponent of likely timelines.</p> <p>Provide the proponent with any relevant master and management plans and advise of assessment criteria.</p> <p>Conduct a competitive process for commercial operations initiated by the Committee or Shire</p> <p>Seek comment from other agencies if it is possible that the proposed operations may impact on things under their management (ie DEC with regard to DRF and TECs).</p> <p>Assess proposals according to criteria developed in a transparent manner.</p> <p>Leases to be issued in accordance with Shire of Busselton requirements.</p> <p>Lease and licence conditions need to reflect the requirements of this management plan and the proponents commitments.</p> <p>Develop a mechanism for lease and license fees to be made available for Park management.</p>

<p>Ensure operations do not conflict with Park Values</p>	<p>Assess proposals in relation to consistency with this Management Plan</p> <p>Ensure proposals meet environmental social and economic assessment criteria.</p> <p>Ensure proponents are understand the conservation priorities of the Park and are ethical operators.</p> <p>Granting of Leases and Licences subject to binding performance based conditions</p>	<p>Minimise commercial activity within coastal environments</p> <p>No commercial operations, clearing of vegetation or other negative impacts on conservation and protection areas.</p> <p>Minimal clearing of vegetation or other negative impacts in Natural Environment Uses Areas following approval from the Park Management Committee and the Shire of Busselton and DEC when in the vicinity of threatened flora or TECs.</p> <p>Assess proposals on the basis of the following criteria</p> <ul style="list-style-type: none"> <li>■ environmental, social and economic sustainability</li> <li>■ compatibility with existing users, and management objectives</li> <li>■ net increase in visitor satisfaction</li> <li>■ impact on visitor numbers</li> <li>■ plans for prevention and mitigation of potential impacts, including generation of rubbish and potential for littering</li> <li>■ educational / interpretive services included</li> <li>■ business and environmental ethics of proposal</li> <li>■ investigations of alternatives</li> <li>■ track record of proponent</li> <li>■ potential for economic benefit to Park</li> </ul> <p>Proponent to prepare an environmental management plan (including any environmental surveys as may be required) to the satisfaction of the Park Management Committee and the Shire of Busselton. The EMP and supporting investigation reports are to be made available to the general public</p> <p>Lease and licence conditions need to reflect the requirements of this management plan and the proponents commitments</p> <p>Annual auditing of compliance with conditions</p> <p>Proponent to provide a bond to cover closure and rehabilitation works</p>
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**28 - Events**

**Objective**

***To ensure that events taking place in the Park are consistent with this Plan, enhance visitor satisfaction and help offset Park management costs.***

Events differ from commercial operations in that they are of short duration and are often not for profit. Profit-making events need to address the requirements of Section 27.

There is demand for use of areas of the Park for community and special events. The appropriateness of community or special

events within the Park is assessed and permission is either granted or denied.

As outlined in Section 7, assessments in relation to the management of the Park are made in the first instance by the Park Management Committee. Decisions made by the Committee generally form the basis of Council decisions, but where there is disagreement, the elected Council has final authority in accordance with the *Local Government Act (1960-82)*. However, in the case where decisions are based specific requirements of this Management Plan, then the decision is binding under the *Land Administration Act 1997* via Ministerial endorsement of the Plan. Events should also comply with local Local Laws, in particular the Parks and Reserves Local Law (Appendix A).

In the case of other regional parks, DEC advise that management agencies should use the guiding principles established for managing sustainable resource use (Section 33) as a means of determining the appropriateness of proposed activities.

Gatherings requiring sole use of a site are generally not permitted, but if allowed then they require a booking. A concession arrangement may be required between the

event organiser and the managing agency for the right to use a site and to cover the operational and administrative costs incurred by the managing agency.

Many of the events which take place in the Park are in Shire-managed areas such as the grassed picnic areas. The vintage car race, the “Meelup hillclimb” takes place on the roads and parking areas. The Shire has an application process for providing approval for events. Weddings and other social gatherings are often held at Meelup Beach and these are permitted subject to conditions including non-exclusive use of the site.

Recently approval has been given by the Shire to hold a competitive event “the Anaconda” race in the Park in 2007. This was approved by Council overriding the Management Committee’s recommendations. Since the event is essentially a commercial operation, in the future proponents need to comply with Management Plan requirements in this regard, and specific Council approval is required in accordance with Section 4 of the Local Law relating to Reserves and Foreshore (see Appendix A).

**Event Management Plan**

Issue	Management Strategy	Operational Management
Provide for events to be held in the Park	Grant permission for not-for-profit events which meet planning and assessment guidelines and are in keeping with the approved Management Plan  Events held which generate profit (either directly or through indirect means such as commercial benefit through publicity or advertising) are to comply with Commercial Operations Management Plan requirements	On receipt, promptly initiate assessment of proposals by both Shire and Committee and inform proponent of likely timelines  Provide the proponent with any relevant master and management plans and advise of assessment criteria  Seek comment from other agencies if it is possible that the proposed operations may impact on things under their management (ie DEC with regard to DRF and TECs).  Assess proposals according to criteria developed in a transparent manner  Permission to be issued in accordance with Shire of Busselton requirements  Permit conditions need to reflect the requirements of this management plan and the proponents commitments

<p>Conflict of Events with Park Values</p>	<p>Disallow proposals which are inconsistent with this Management Plan</p> <p>Ensure proposals meet environmental and social and assessment criteria.</p> <p>Ensure proponents are understand the conservation priorities of the Park and are ethical operators.</p> <p>Granting of Leases and Licences subject to binding performance based conditions</p>	<p>No events to be held in conservation and protection areas.</p> <p>Minimisation of negative impacts in Natural Environment Uses Areas following approval from the Park Management Committee and the Shire of Busselton.</p> <p>Assess significant proposals on the basis of the following criteria</p> <ul style="list-style-type: none"> <li>■ potential environmental and social impacts</li> <li>■ compatibility with existing users, and management objectives</li> <li>■ net increase in visitor satisfaction</li> <li>■ impact on visitor numbers</li> <li>■ ability of organisers to control crowds</li> <li>■ plans for prevention and mitigation of potential impacts</li> <li>■ educational / interpretive services included</li> <li>■ environmental ethics of proposal</li> <li>■ investigations of alternatives</li> <li>■ track record of proponent</li> </ul> <p>Proponents of major events to prepare an environmental management plan (including dieback management) to the satisfaction of the Park Management Committee, the Shire of Busselton and DEC when in the vicinity of threatened flora or TECs.</p> <p>Proponent to provide a bond to cover closure and rehabilitation works if necessary</p>
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**29 - Visitor Safety Management Plan**

**Objective**

***To take all reasonable and practicable steps to ensure the safety of visitors in the Park.***

There is always an element of risk in outdoor recreation activities. It is the Park Management Committee and the Shire's responsibility to ensure that all reasonable and practical efforts will be taken to minimise the potential for injuries and misadventure to visitors. The Shire is ultimately legally responsible for ensuring visitor safety.

It is also important, however, that management of visitor risk is carried out in a manner that does not render the environment sterile or

unnecessarily diminish visitor use and enjoyment in the process.

Visitor safety can be promoted through control of visitor information and education about potential problems and risks. Visitor safety will also be an integral component in undertaking works program and capital developments within the Park. Recreation facilities and amenities for visitors will be developed and maintained to a standard compliant with relevant Australian Standards.

When managing risk, DEC is guided by Policy Statement No.53 - Visitor Risk Management (CALM, 1996). Relevant sections of this policy have been adopted here.



**Visitor Safety Management Plan**

Issue	Management Strategy	Operational Management
Visitor Safety	<p>Manage hazards to minimise the potential for injuries and misadventure to visitors</p> <p>Minimise risks to visitors through education</p> <p>Mitigate consequences of incidents</p>	<p>Ensure visitor facilities do not pose a risk to visitor safety</p> <p>Ensure built facilities meet relevant Design Standards and are maintained to a safe standard</p> <p>Ensure that trails and tracks do not expose visitors unduly to tripping, falling and drowning hazards</p> <p>Minimise the likelihood of conflict of activities causing accident or injury (eg prevent bike riders using walk trails).</p> <p>Provide visitor safety information on at least the following:</p> <ul style="list-style-type: none"> <li>■ Risk of falling and drowning in rocky coastal areas, particularly when swell is high</li> <li>■ Risk of falling in steep rocky areas</li> </ul> <p>Advise that visitors should remain on tracks and exercise caution in rocky and steep areas.</p> <p>Promote visitor compliance with codes of safe conduct for activities such as diving, snorkelling, canoeing, surfing</p> <p>Establish effective links with local Police, State Emergency Services and other relevant bodies in case of any incidents</p> <p>Provide emergency contact numbers at key visitor locations</p>

**30 - Signage**

**Objective**

*To provide signs to protect, control and educate visitors in a manner consistent with Park character*

Signs are a key way of controlling visitor impacts, maintaining Park values, minimising risks to visitor safety and increasing enjoyment of the Park through education and interpretation. Consistency of design can provide a coherent Park identity.

Signs need to be designed and located to provide messages in a consistent way and

without compromising the quality of the area in which they are sited.



**Signage Management Plan**

Issue	Management Strategy	Operational Management
Signage	<p>Use signage to enhance Park identity</p> <p>Employ control and educate</p>	<p>Include the Meelup Regional Park Logo on all signs</p> <p>Use signs to provide</p>

	visitors in the Park	<ul style="list-style-type: none"> <li>■ directional and orientation information,</li> <li>■ management information (eg removal of litter, keep to the tracks, do not pick wildflowers etc)</li> <li>■ visitor risk warning and emergency information</li> <li>■ and interpretive signs.</li> </ul> <p>Employ signs at the transition of infected to dieback free areas</p> <p>Adopt a standard design for signs and interpretive facilities throughout the Park.</p>
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**31 - Domestic Animals**

**Objective**

*To minimise the environmental and social impacts of pets animals in the Park.*

Domestic pets are generally not permitted in national or regional parks. This is to protect native fauna and the rights of other Park users. Pets can disturb wildlife and Park visitors and introduce disease. The smell of domestic pets can impede the activity of native fauna.

Other than guide dogs for the blind, or tracker dogs for search and rescue, pets will be excluded from the Park with the exception of dogs at Eagle Bay (as currently permitted).

Due to the Park's proximity to Dunsborough, some of the local population currently use the Park to exercise their dogs and would like to see an additional area designated for this purpose. Any decision in regard to this matter needs careful consideration.

Annual fox baiting is carried out as described in Section 16. It is required by Law to warn pet owners of potential poisoning risk.

**Domestic Animal Management Plan**

Issue	Management Strategy	Operational Management
Domestic Animals	Provide for dog exercise in designated areas	<p>Permit dogs at existing dog beach (Eagle Bay)</p> <p>Shire to provide bins and bags for collection and disposal of excrement</p> <p>Consider provision of additional designated area for dog exercise, based on:</p> <ul style="list-style-type: none"> <li>■ Potential impact on native fauna</li> <li>■ Current levels of visitor pressure</li> <li>■ Conflict with other Park users</li> </ul> <p>The presence of designated dog areas is not to impede the current feral animal control program</p>

**32 - Rubbish**

Rubbish in the Park is an ongoing concern. The main focus of rubbish management is educating the public of its negative impacts on conservation and aesthetic values; and encouraging Park visitors to take their rubbish home with them.

The Management Committee is assisted by its volunteer group in its regular efforts to remove rubbish from the Park. Rubbish in the Park is more significant following periods of peak use, i.e. public holidays, and in popular fishing locations.

**Rubbish Management Plan**

Issue	Management Strategy	Operational Management
Prevention of littering	Encourage visitors to remove own rubbish from Park	<p>No bins provided except in designated picnic areas</p> <p>Educate fishing community about the need to remove their rubbish from the Park. Use of signage if necessary</p> <p>Implement commercial operations management plan to reduce potential for on-site rubbish generation and littering</p> <p>Use event bonds to carry out clean-ups if necessary</p>
Rubbish removal	Continue existing arrangements	<p>Shire to empty existing bins</p> <p>Shire to maintain bins and upgrade as required</p> <p>Committee to encourage regular volunteer “clean-up” events</p>

## F. MANAGING RESOURCE USE

### 33 - Guiding Principles for Managing Resource Use

Guiding principles for managing sustainable resource use have been sourced from approved Regional Park Management Plans from the DEC website<sup>16</sup>, particularly that for Beeliar Regional Park (DEC 2006).

#### 1. Preservation of the values of the land itself

Land use should not compromise the natural and cultural values of the Park. Future developments should be of a character and arrangement that do not detract from the natural settings and landscape amenity. Through tendering and development assessment processes, proponents of significant developments within the Park will be required to assess the environmental impacts of the proposed commercial use.

#### 2. Consistency of land use with reserve purpose

Activities should be compatible with the assigned purpose of reserves within the Park and should be of service to Park visitors. Reserves within the Park will be afforded an appropriate purpose for the protection and enhancement of Park values under the *Land Administration Act 1997* (Table 1, page 11).

#### 3. Equity

Land use within the Park should be of a nature that promotes multiple use by Park visitors. Uses that impair other forms of acceptable use or jeopardise safety of other visitors should be specifically managed, directed to more appropriate places or not permitted.

#### 4. Open and competitive assignment process

State Supply Commission guidelines will be followed to ensure that opportunities for commercial concessions in the Park are assigned based on an open and competitive process.

#### 5. Leased or owned by the managing agencies

Commercial use of areas within the Park should be through either a lease or licence arrangement. Alternatively, the managing agencies may own and operate the facility or development.

#### 6. Financial viability

Through the tendering process proponents of significant developments within the Park will be required to document the financial viability of the proposed commercial use. Any revenue generated by commercial concessions on land in the Park will be used to help meet the overall cost of managing the Park.

#### 7. Management compliance

Activities and facilities must comply with the requirements of the Committee and the Shire. If effective management of commercial facilities or activities cannot be provided they should be restricted to appropriate levels, relocated or removed from the Park.



<sup>16</sup> <http://www.naturebase.net/content/view/2283/1128/>

**34 - Traditional Hunting and Gathering**

**Objective**

**To ensure that traditional hunting and gathering activities that occur in the Park are sustainable and do not conflict with other Park values**

Recreational fishing is the most significant traditional hunting and gathering activity in the Park. As discussed in Section 26, the social importance of this activity has been recently recognised by the formulation a special purpose (shore-based activities) zone provided for within the Eagle Bay Sanctuary Zone in the Proposed Geographe Bay / Leeuwin-Naturaliste/ Hardy Inlet Indicative

Management Plan (DEC 2006). The special purpose Zone does not extend to encompass Meelup Beach which is within the sanctuary zone and therefore fishing is not permitted in this area.

No other hunting or gathering use of the Park has been identified. It is possible that wildflower picking, firewood collection or timber harvesting occurs in the Park.

The collection of seed for rehabilitation works requires the permission of the Management Committee, the Shire of Busselton and in some cases the DEC.

**Traditional Hunting and Gathering Management Plan**

Issue	Management Strategy	Operational Management
Recreational Fishing	Comply with Proposed Geographe Bay / Leeuwin-Naturaliste/ Hardy Inlet Indicative Management Plan (DEC 2006).	Fishing permitted in all areas except on Meelup beach between Gannet and Sail Rocks.
Other hunting and gathering	No other hunting and gathering permitted	No wildflower picking, firewood collection or timber harvesting Monitor for signs of such occurring Install signage if necessary No collection of seeds or cuttings without the written permission of the Management Committee and the Shire of Busselton Collection of seeds from threatened or priority flora requires approval from DEC. No removal of stones, pebbles, sand or earth

**35 - Commercial Fishing**

**Objective**

**To ensure that professional fishing that occurs in the Park is sustainable and does not conflict with other Park values**



The Park is used by shore-based professional fishermen for coastal access. The main target species are salmon and Roe's abalone. Salmon fishing occurs on the Parks beaches, but will not be permitted at Meelup once the Proposed Geographe Bay / Leeuwin-Naturaliste/ Hardy Inlet Indicative Management Plan (DEC 2006) is adopted. Abalone are taken from a number of areas.

Professional fishing for the western species of Australian salmon (*Arripis truttaceus*) is carried out in the Park as part of the South West Coast Salmon Managed Fishery Fishers target schools of migrating salmon as they move

west along the southern coastline of WA during the late summer and autumn. Fishing operations are conducted by teams of fishers setting beach seine nets using either rowboats or small jet-powered boats.

Professional fishermen currently use sheltered bays such as at Bunker, Castle, & Eagle Bay to anchor their boats.

There are a number of short access tracks that are maintained to allow fishers access to the beach. These are marked on Figure 9. Fishers pay contributions to establishment and maintenance of access tracks.

**Commercial Fishing Management Plan**

Issue	Management Strategy	Operational Management
Professional Fishing	Retain existing arrangements	Allow professional fishing access and obtain a contribution towards the establishment and maintenance costs of tracks  Keep gates locked at all times and ensure that use is only by permitted professional fishers in approved areas  Monitor impacts and advise both fishers and the WA Fisheries Department in writing if unacceptable impacts occur

**36 - Mineral and Petroleum Exploration and Production**

**Objective**

*The objective is to protect the Park’s values from exploration, mining and the extraction of basic raw materials.*

Significant deposits of industrial minerals including limestone; sand, marl and gravel occur within the Park. Park has submarginal deposits of heavy mineral sands and other minerals which are not economic at present. No petroleum exploration is reported for the Park.

Materials from the Park have in the past been used for road maintenance and construction purposes by the Shire, for work within and adjacent to the Park only. In the past quarrying was seen as a necessary part of managing the reserves, as frequently there were no other convenient sources of these materials. The scars from these activities are still apparent and rehabilitation has not succeeded in fully restoring the original ecology or natural values of the areas.

The Draft 2002 management plan states that in accordance with its “A Class Reserve”

status and current Government Policy on mining in Parks the Park is closed to exploration and mining activities.

The mining and the extraction of basic raw materials should follow a similar policy to the Beeliar Regional Park Management Plan (DEC 2006) which states:

“Applications for mining within regional parks will be processed under the Mining Act 1978. The State government’s environment policy includes a prohibition on mineral and petroleum exploration and mining in national parks and nature reserves.”

In processing applications, regional parks are recognised by the Department of Industry and Resources (DOIR) under the “Guidelines for Mineral Exploration and Mining within Conservation Reserves and Other Environmentally Sensitive Lands in Western Australia” (DME, 1998). Applications affecting the Park will also be subject to The Mineral Exploration and Development Memorandum of Understanding (MOU) between the EPA and DOIR (DME, 1995).

The MOU clarifies referral arrangements for mineral exploration and mining proposals to the EPA and CALM where these proposals occur within conservation reserves and other environmentally sensitive lands. Mineral exploration in national parks, ‘A’ Class nature reserves, and ‘A’ Class conservation parks (in

the southwest of Western Australia) is subject to the concurrence of the Minister for the Environment and the Minister for State Development. Approval for mining to occur in the Park is subject to EPA assessment. If mining is to occur in 'A' Class nature reserves and 'A' Class conservation parks it would require EPA assessment and Parliamentary consent.

Any proposal for mineral or petroleum exploration or production in Meelup Regional Park would also trigger the requirement for assessment under the Commonwealth EPBC Act (1999) due to the presence of listed endangered and threatened species, which are considered to be matters of National Environmental Significance (NES),

**Mineral and Petroleum Exploration and Production Management Plan**

Issue	Management Strategy	Operational Management
Mineral and Petroleum Exploration and Production	No exploration or production permitted	No removal of gravel or soils for works outside or within the Park If a proposal is developed for mineral or petroleum exploration or production then a case will need to be developed in opposition including public submissions to West Australian and the Commonwealth environmental authorities Ensure any such proposals are referred to the relevant authorities and gain appropriate approvals Mount a prevention campaign Implement Rehabilitation Management Plan

**37 - Development Proposals**

**Objective**

**To minimise the impact of developments on the Park.**

This section deals with development proposals both with and adjacent the Park. Commercial concessions for visitor services are covered in Section 27.

Increasing development pressure exists on land adjacent to the Park and potentially within the Park. At present, rural uses predominate near the Park, but large areas may be rezoned, under local Town Planning Schemes, for rural smallholdings. Many of these uses

have a direct impact on the Park and it is important at the subdivision and development stages, that the Committee has the opportunity to provide input to Shire on these proposals. It may be appropriate to negotiate for tracts of land with high conservation value to be added to the Park.

Developments within the Park include infrastructure and utilities works (Section 38), buildings, visitor amenities such as barbecues and tables, interpretive structures, viewing sites, monuments and memorials. Public roads, toilet facilities and formal carparks are managed by the Shire, while and other developments are managed by the Committee.

**Development Proposal Management Plan**

Issue	Management Strategy	Operational Management
Development Proposals within Park	Only allow developments which are consistent with Management Plan objectives Allow development only in certain areas within the Park Assess development proposals in relation to stringent sustainability criteria	No development permitted in Conservation and Protection Areas Assess proposals for other areas on the basis of the following criteria <ul style="list-style-type: none"> <li>Development to have net positive impact on the spread and management of <i>Phytophthora</i> dieback and other diseases to the satisfaction of the Committee</li> </ul>

	<p>Minimise impacts of developments on Park values</p>	<ul style="list-style-type: none"> <li>■ The likely impact of increased visitor use or unauthorised access to Conservation and Protection Areas must be taken into account</li> <li>■ Development should not lead to loss of natural values in natural environment uses areas</li> <li>■ Development should not increase risk to threatened, endangered or priority flora, vegetation communities or fauna</li> <li>■ Site development should intrude on the landscape as little as possible and materials should complement their surroundings</li> <li>■ Proponents to demonstrate past environmental stewardship performance and ethical business track record</li> <li>■ Proponents to prepare an Environmental Management Plan (EMP) to the satisfaction of the Park Management Committee, the Shire of Busselton and DEC</li> <li>■ The EMP is to include strategies for achieving the objectives of the Park Management Plan, including management of the natural environment, cultural heritage, and visitor use,</li> <li>■ Proposals are to address traffic management and parking,</li> <li>■ Developments are to incorporate ecotourism and sustainability principles in relation to water use, waste management and power generation</li> <li>■ Developments are to obtain ecotourism or environmental accreditation from approved suppliers</li> </ul> <p>Implement Commercial Operations Management Plan</p>
<p>Development Proposals adjacent to Park</p>	<p>Engage in approvals process as Stakeholder Assess proposals in the light the objectives of this management plan</p>	<p>Ensure Management Committee is cognisant of any development proposals adjacent to or likely to impact on the Park, including visual impact</p> <p>The Shire is to advise Committee of any proposed developments</p> <p>The Committee is to assess the risk to the Park, recommend to the Shire on the acceptability of proposal</p> <p>Implement mitigation strategies if required including:</p> <ul style="list-style-type: none"> <li>■ Prevention of unauthorised access and development of new tracks</li> <li>■ Ensure no drainage into Park</li> </ul>



		<ul style="list-style-type: none"> <li>■ Prevent introduction of weeds</li> <li>■ Prevent impacts from domestic animals</li> <li>■ Use of fencing and signage if necessary</li> </ul> <p>Assess potential for impact on natural noise and light conditions of the Park</p> <p>If satisfied that impacts are minimal or can be managed, ensure that approval is subject to appropriate conditions</p> <p>If development plans conflict with the values of the Park and do not appear to be manageable, the Committee should prepare submissions to the Shire and / or Council and seek public support to demonstrate opposition to the development proposal.</p> <p>If development plans have the potential to impact on threatened or endangered species protected under either the <i>EPBC Act</i> or the <i>Wildlife Conservation Act</i>, then a referral needs to be submitted to Commonwealth and / or State Environmental Protection Agencies. If this has not been done appropriately by the proponent, then it should be prepared and submitted by the Committee.</p>
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**38 - Utilities and Services**

**Objective**

*To ensure utilities and services operating in the Park do not conflict with Park Values*

**Existing Infrastructure**

There are a number of easements and utilities present in the Park. At the southern end there is an easement into the Park in which the

Water Corporation manages a storage facility for the supply of water to Dunsborough. On the western boundary (Management Unit 17) there is currently a water supply and sewerage system also managed by Water Corporation, however this is not within an easement annexed from the Park. Further development in this area is subject to compliance with the Management Plan for the Park.

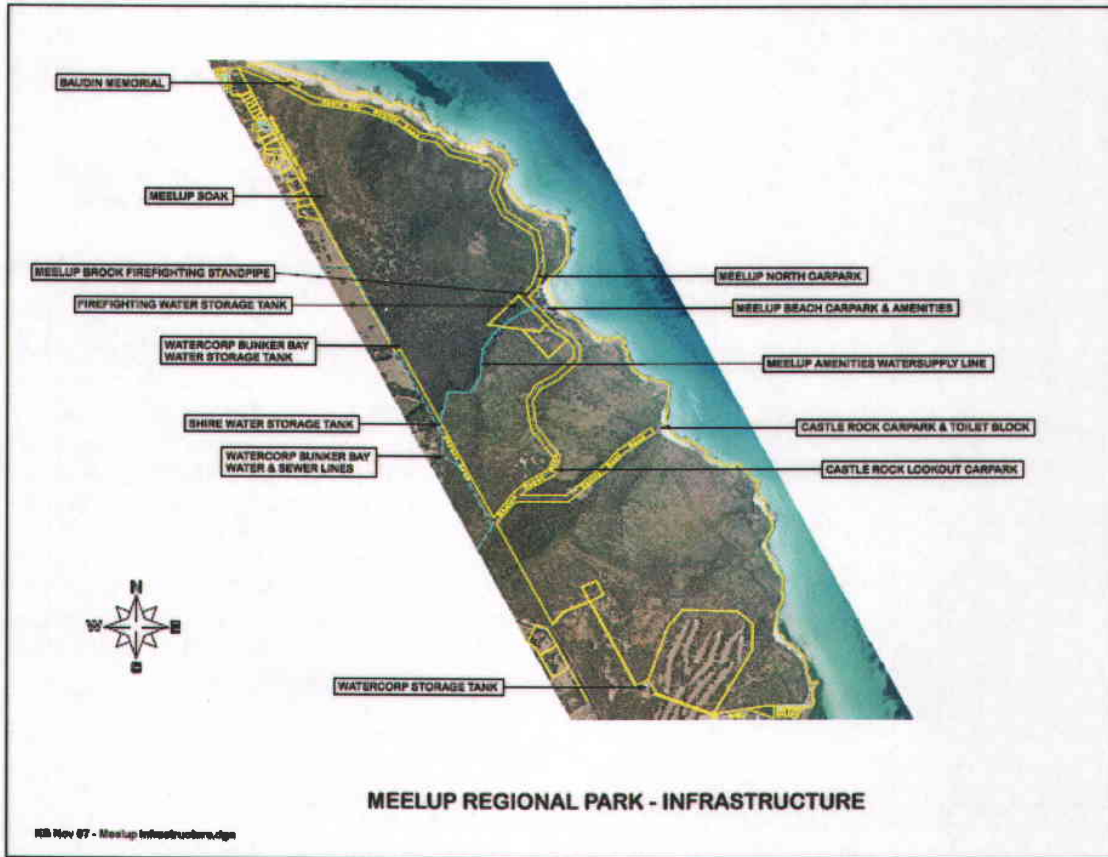


Figure 10 Map of Utilities and Service Infrastructure

**Utilities and Services Management Plan**

Issue	Management Strategy	Operational Management
Utilities and Services	<p>Ensure utility and service providers aware of and as far as possible abide by Park Management Plan for works within easements in Park</p> <p>New public infrastructure, other than to service the needs of the Park itself not to be permitted</p>	<p>Provide relevant utility and service providers with a copy of the Management Plan</p> <p>Utility and service providers and their contractors must at all times observe the requirements of the Committee and Shire in respect to preventing the spread of dieback and other pathogens.</p> <p>Development proposals by utility and service providers to be assessed according to the criteria presented in the Development Proposal Management Plan</p>

### 39 - Forest Produce

**Objective**

*The objective is to protect the Park's values from exploitation of forest produce in the Park*

Historical themes listed in the Heritage Council of WA database include forestry<sup>17</sup>. At present there are no forest produce industries present in the Park.

**Forrest Produce Management Plan**

Issue	Management Strategy	Operational Management
Forrest Produce Proposals	No forest produce industries to be permitted in the Park	N/A

### 40 - Water Extraction

**Objective**

*To protect and conserve existing surface and groundwater resources of the Park.*

Water supplies may be required in future to support other Park facilities. These will require careful assessment regarding the source and potential impacts on local hydrology. The use of roof and tank supplies is preferable to using spring or seep-water which maintains the biodiversity of the Park.

**Water Extraction Management Plan**

Issue	Management Strategy	Operational Management
Water Extraction	Minimise extraction of surface and groundwater	Implement water resources management plan All new developments to be reliant on rainwater or scheme water with off-site disposal

<sup>17</sup> <http://www.environment.gov.au/heritage/national/>

## G. INVOLVING THE COMMUNITY

### 41 - Guiding Principles for Community Involvement

#### 1. Community participation

The community will be encouraged to have input into the management of the Park. Public participation processes will have a clearly stated purpose and clearly identified scope. Participation is to be based on a shared understanding (with stakeholders) of objectives, responsibilities, behaviour and expected outcomes. The participatory process is to be objective, open, fair and carried out in a responsible and accountable manner. Participation will provide opportunities for input, representation and joint learning from all relevant stakeholders.

#### 2. Information exchange

Information regarding the planning and management of the Park will be exchanged between land managers and the community in an open and transparent manner in accordance with the Shire Council's Instrument of Appointment (under the Local Government Act). Data and information used in the decision making process will be available to stakeholders. Public participation processes will emphasise the sharing of information, joint learning and understanding.

#### 3. Outcomes and decision-making

The outcomes of public participation will form part of the decision-making process. Participants should be informed as to how their involvement affected the Park Management Committee and the Shire's decisions.

#### 4. Management objectives

The community will be encouraged to contribute to nature conservation and land management objectives, including those outlined in this Plan. This will help to build community awareness, understanding and commitment to these objectives.

#### 5. Education and interpretation

Education and interpretation will be aimed at giving visitors a 'take home' message that will create an awareness of issues affecting the Park and positively influence visitor behaviour. It will also provide information on the reasons behind management decisions and will convey the objectives of this Plan. Education and interpretation will encourage community involvement in and ownership of the Park.

### 42 - Information, Interpretation and Education

#### Objective

*To increase the community's awareness, appreciation and understanding of the Park's values, to gain support for management practices and to involve a wide range of public participation in the implementation of this Plan.*

An effective communication programme is essential to achieve the goals and objectives of the management of the Park. It informs the public of attractions, facilities and recreation opportunities available within the Park and provides an avenue to promote an appreciation, and greater understanding and enjoyment of the natural environment. Additionally, it fosters appropriate behaviour so that adverse impacts on the environment are minimised.

Currently, little information is publicly available on the Park and there is no established interpretive site. Some trails are sign posted and display boards showing location of trails are located at Meelup Beach and Forrest Street

In 2005, Ecoscape developed an Interpretation Plan based on a community workshop. It was reported that they received a clear message from the Community that the most highly valued quality of the place was the natural

beauty and the remote character. Ecoscape concluded that any interpretation strategy developed for Meelup Regional should have a very minimal physical and visual impact on the Park.

The interpretation plan developed the theme: “The forces that shape the land shape the environment.” The main point of which is that when the Earth’s continents were connected into the super-continent, Pangaea, Meelup was attached to Antarctica. It was the forces of the separation and the drifting of the continents that created:

1. The east-facing coastline.
2. The formation of the granite geology.
3. The soil types that determine the vegetation communities.
4. The plant communities that support a high diversity of fauna species.

5. The groundwater that is restricted to shallow aquifers.

An earlier proposal (described as a “Master Plan”) was developed by Halpern, Glick, Maunsell (HGM) in 2003 which consisted of an interpretive centre with a botanical theme, and additional recreational facilities. It was to be constructed in the old gravel pit area above Curtis Bay. Development of the proposal also involved considerable community consultation, but reached different conclusions from the Ecoscape study.

This Management Plan does not seek to provide specific direction in relation to interpretive centres or means of communicating information. Rather it provides a framework for ensuring that the information being communicated is appropriate, the community is involved as much as possible and that the interpretation and education process is consistent with Park values.

**Information, Interpretation and Education Management Plan**

Issue	Management Strategy	Operational Management
Information, interpretation and education content	Park Management Committee and Shire of Busselton to hold up to date and accurate information regarding the Park	Maintain a library and document register to ensure that data is current
Interpretation	Implement Interpretive Plan	Ensure all content is accurate Maximise community involvement in development of interpretive material
Education	Educate the local community and visitors regarding safety and the Park’s values	Educational Information to include: <ul style="list-style-type: none"> <li>■ Safety in the Park</li> <li>■ Natural Environment features and values</li> <li>■ Conservation and Protection Measures</li> <li>■ Threats and their management</li> <li>■ Responsible behaviour</li> <li>■ Recreation opportunities</li> <li>■ Restrictions to visitor access and activities</li> <li>■ Cultural heritage</li> <li>■ Community involvement opportunities</li> </ul> Work with community to identify educational opportunities Encourage educational opportunities for local residents and school children Encourage educational institutions and research groups to undertake studies within the Park

**43 - Community Involvement and Liaison**

**Objective**

*To provide the community and other organisations with the opportunity to be effectively involved in the planning and management of the Park.*



Community involvement with Meelup Regional Park is evident on a number of levels:

- The management of Meelup Regional Park by a Shire-appointed, community based

Committee provides a concrete opportunity for community involvement in the Park;

- A number of other voluntary activities also take place to assist with the upkeep of the Park, such as pruning, rehabilitation, talks and excursions for school children and rubbish collection carried out by the volunteers supervised by other organisations such as the Busselton Naturalists Club.
- As described in preceding sections various studies have also been carried out which have involved community consultation. As part of the development of this Management Plan, individuals, community groups and government stakeholders have been contacted. A copy of the draft report will be made available and the key issues will be presented in a community presentation. A list of community groups and individuals consulted as part of the formulation of this management plan is included as Appendix E
- Local primary schools currently participate in activities within the Park, such as tree planting and fauna surveys.

**Community and Liaison Management Plan**

Issue	Management Strategy	Operational Management
Community Involvement in Park Management	Park planning to Involve Community Liaison Community involvement in land care activities	Significant planning decisions to include community consultation methods such as: <ul style="list-style-type: none"> <li>■ Advertising and feature articles in local papers</li> <li>■ Displays at community centres and shopping centres</li> <li>■ Distribution of information leaflets</li> <li>■ Public meetings</li> <li>■ Distribution of documents to key community groups and stakeholders</li> <li>■ Display of documents in the public library and Shire offices</li> <li>■ Public comment called for and comments incorporated into planning process</li> </ul> Continue to carry out voluntary works aimed at community education, rehabilitation and ongoing maintenance such as pruning, trail repair and rubbish removal

## H. RESEARCH

### 44 - Scientific and Research Use

#### **Objective**

***To foster scientific and research that increases understanding of the Park and the environments whilst ensuring that the research does not conflict with Park Values***

The unique natural values of Meelup are of considerable scientific interest. The Park has unique geology, high biodiversity and a number of rare and endangered flora and fauna of intrinsic scientific significance. Of particular interest is the Meelup Mallee. The mallee has been studied by King's Park Botanical Gardens and the tree has been successfully reproduced using tissue culture techniques.

High priority research issues are those with the potential to cause environmental degradation of the Park and loss of conservation values. In particular the threat of *Phytophthora* dieback and other plant pathogens is still poorly understood.

A long running research project has been carried out in the Park to assess the effects of overgrazing by the Western Grey Kangaroo (*Macropus fuliginosus*) on plant associations and plant diversity (Clay and Webb 2006). Increased numbers of the kangaroos are associated with current land management practises and the presence of irrigated areas and surface water.



The enclosure experiments (ie areas from which Kangaroos are excluded) showed that overgrazing has a negative impact on native plant diversity and abundance.

A herbarium collection has also been developed by Don Carter and Hazel Cole for the Toby Inlet Catchment Group which

provides an invaluable record of the plant species present in Meelup. Replicate specimens have been sent to the WA Herbarium, but there is a need for a local repository for collection.

There is considerable scope for research into the Park in order to gain a better understanding of the natural and cultural environment and the impacts of management activities and visitor use on conservation values. A number of studies and potential research topics have been identified, including:

- Identification of flow networks of shallow aquifers and their relationship with seeps and springs
- Detailed surveys to record the distribution, abundance and other details of flora and fauna
- Maintain a register of fauna by regular survey and review of fauna numbers
- Continue research into the impact and spread of the *Phytophthora* dieback disease on flora and vegetation associations within the Park, particularly the threatened and priority species and coastal heath community. Further identification of disease indicator species is required.
- Investigate reintroducing threatened species
- Assess the efficiency of specific control programs (e.g. weeds) and any effect these controls have on non-target species.
- A Time of Seeding study of plant species to determine more ecologically valid fire frequencies

- A study of *Xanthorrhoea pressii* (grass trees) to determine fire history
- Research visitor use, including experience and perceptions, and forecast future recreational demands.
- Research and document indigenous and non-indigenous cultural history in the area
- Carry out archaeological survey

**Scientific and Research Use Management Plan**

Issue	Management Strategy	Operational Management
Increase understanding of Park	Instigate and support research projects in the Park	Identify knowledge gaps and appropriate research bodies. Encourage Universities and other research groups to undertake relevant investigations and monitoring programs within the Park Allow for funding of studies in annual budget. Ensure outcomes of research are finalised, provided to the Committee and the Shire and presented to the community
Minimise negative impacts of research	Research potentially detrimental to Park Values not permitted Ensure that researchers are aware of and abide by Park Management Plan Objectives	Assess proposals in relation to objectives of the management plan, in particular the development proposal criteria Provide a copy of Management Plan to researchers and gain commitment to carry out research according to the requirements of the Plan



## **I. TERM OF THE PLAN**

This plan is to be reviewed in 5 years from the time of finalisation.

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- <http://www.wapc.wa.gov.au/Publications/157.aspx>
- <http://fungimap.rbq.vic.gov.au/fsp/sp012.html>

## APPENDICES

- Appendix A Shire of Busselton Reserves and Foreshores Local Law
- Appendix B Instrument of Appointment and Delegation
- Appendix C Flora and Fauna supporting data
- Appendix D Trails Strategy
- Appendix E Community consultation contacts

## **APPENDIX A**

### **Shire of Busselton Reserves and Foreshores Local Law**

**LOCAL GOVERNMENT ACT 1960**

**The Municipality of the Shire of Busselton**

**BYLAW RELATING TO RESERVES AND FORESHORES**

In pursuance of the powers conferred upon it by the abovementioned Act, and of all other powers enabling it, the Council of the abovementioned Municipality hereby records having resolved on 28 August 1985 to make and submit for confirmation by the Governor the following bylaw:

1. In this bylaw unless the context otherwise requires:
  - "Act" means the Local Government Act 1960 (as amended or re-enacted);
  - "Authorized Officer" means an Officer of the Council who is authorized by the Council to serve notices under sections 669C and 669D of the Local Government Act 1960 (as amended);
  - "Council" means the Council of the Municipality of the Shire of Busselton;
  - "Foreshore" means all the land in the Shire of Busselton which lies between the low water mark and the high water mark of the Indian Ocean;
  - "Owner" in relation to a vehicle means the person who is the holder of the requisite vehicle licence under the Road Traffic Act 1974 in respect of that vehicle or, if the vehicle is not licensed under the Act, the person who owns the vehicle or is entitled to its possession;
  - "Professional Fisherman" means a person permitted to take fish from the ocean for sale under the provisions of the Fisheries Act 1905-1975 (as amended);
  - "Reserve" means parklands, squares, reserve, beaches and other lands included in the Shire of Busselton and set apart for the use and enjoyment of the inhabitants of the Shire and includes parks and other lands acquired for public purposes, and vested in or under the control, or management of the Shire of Busselton;
  - "Vehicle" has the same meaning as is given to that word in the Road Traffic Act as amended from time to time, but includes trail bikes, beach buggies and other recreational vehicles licensed or unlicensed.
  
2. On a reserve or foreshore a person shall not:
  - (a) commit or cause a nuisance;
  - (b) be in a state of intoxication;
  - (c) behave in a disorderly manner, create or take part in a disturbance, used foul or indecent language or commit any act of indecency;
  - (d) undertake any activity deemed illegal by any other statute.
  
3. On a reserve or a foreshore a person other than a Shire employee executing his/her normal duties, shall not:
  - (a) throw or discharge any stone, arrow, bullet or other missile;
  - (b) climb over or upon a fence or gate;
  - (c) unlock or fasten a gate, unless authorised by the Council to do so;
  - (d) enter any dressing or training room, or use any locker therein unless authorised by the Council to do so;
  - (e) destroy, damage, injure or cause harm to any bird or animal;
  - (f) damage or injure any plant, lawn, flower, shrub or tree;
  - (g) cut or damage any soil or turf;
  - (h) climb any tree;
  - (i) deposit or leave any rubbish, refuse, offal, paper, bottles, broken glass, china or litter of any kind whatsoever except in a receptacle provided for the purpose.
  
4. Except as provided in Clause 4(A) hereof a person other than an employee of the Council executing his/her normal duties shall not without the consent of the Council:
  - (a) drive or ride or bring any vehicle onto a reserve or foreshore or permit any person to drive or ride or bring any vehicle onto a reserve or foreshore except on or over such parts of the

- (b) reserve or foreshore as are set aside as roads or driveways or vehicle parking areas:
- (c) park or stand any vehicle on a reserve except in an area set aside for that purpose.
- (c) park or stand a vehicle on a foreshore except in the course of launching or recovering a boat on a boat ramp set aside by the Council for the launching or recovering of boats.

The provisions of Clause 4 shall not apply to a physically impaired person using a wheelchair or motorised wheelchair.

- 4A(1) Subject to Bylaw 4A(2) and (3) hereof a professional fisherman shall not drive or ride or bring or permit any person to drive or ride or bring any vehicle onto a reserve or foreshore unless:
- ( i ) the professional fisherman is the holder of a permit issued by the Council for the use of the vehicle on a reserve or foreshore;
  - ( ii ) the vehicle is being driven by the permit holder or by a person authorised by the permit holder;
  - (iii) the vehicle has displayed on each side in black lettering, being not less than 100 millimetres high and 25 millimetres wide, on a yellow background, the professional fisherman's licensed fishing boat number;
  - ( iv ) the vehicle is being driven at a speed not exceeding 30 kilometres per hour;
  - ( v ) the vehicle is driven on or over such parts of the reserve or foreshore set aside as roads or driveways for the use of professional fishermen and the Council may erect a notice to the effect that the roads or driveways are for the use of professional fishermen only.
- 4A(2) (a) A professional fisherman or a person authorised by clause 4A (1)(ii) shall not drive or ride or bring any vehicle or permit any person to drive or ride or bring any vehicle within five metres of a primary dune on any reserve or foreshore;
- (b) a professional fisherman or a person authorised by clause 4A (1)(ii) shall not drive or ride or bring any vehicle or permit any person to drive or ride or bring any vehicle onto any reserve or foreshore between the area east of a line due north of the eastern side of the Newtown Beach Road road reserve and west of a line due north of the western side of the Groyne Road road reserve such north lines to be taken from the termination point of both Newtown Beach Road and Groyne Road nearest to the foreshore.
- 4A(3) (a) a professional fisherman or a person authorised by clause 4A (1)(ii) shall not drive or park any vehicle on a reserve or foreshore unless such vehicle is used directly in conjunction with the fishing activity being conducted at the time the vehicle is in use and the vehicle is required to be driven used or occupied at that time for that fishing activity;
- (b) if any vehicle is not parked pursuant to Bylaw 4A (3)(a) then it must be parked on an area set aside for vehicle parking as designated by the Council.
5. On a foreshore a person shall not:
- (a) sell, expose for sale or invite any offer to buy any goods, wares, food, refreshments, fruit or other merchandise or things (whether of the like kind as the foregoing or not) except in an area set apart for the purpose by the Council and then only with the prior consent of the Council;
  - (b) Hire, expose for hire or invite any offer to take on hire any vehicle, boat or other vessel or thing (whether of the kind as the foregoing or not) except in an area set apart for the purpose by the Council and then only with the prior consent of the Council.
6. On a reserve a person shall not without the consent of the Council:
- (a) sell, expose for sale or invite any offer to buy any goods, wares, food, refreshments, fruit or other merchandise or things;
  - (b) play or practice at golf or strike a golf ball except on an area set aside for the purpose;
  - (c) take part in a procession or demonstration;
  - (d) organise, address or participate in a political meeting or rally;
  - (e) use or install a loud speaker or amplifier;

- (f) distribute or exhibit any printed or written pamphlet, hand bill, placard or notice in any manner whatsoever;
  - (g) stamp, pencil, affix, construct or erect or cause to be stamped, stencilled, affixed, constructed or erected any signboard, hoarding, placard, hand bill, notice, advertisement or document whatsoever;
  - (h) light a fire other than in a fire place provided for the purpose,
  - (i) camp, lodge or tarry overnight, or frequent for the purpose of camping, lodging or tarrying overnight;
  - (j) erect a tent or any other temporary cover for the purpose of entertainment or for the display of any merchandise.
7. On a reserve a person shall not practice or play in or at any game in such a way as to cause inconvenience or annoyance to any other person.
8. (a) In this clause reference to an "animal" does not include a dog;
- (b) the Council may set aside a reserve or foreshore or portion of a reserve or foreshore as an area upon which a person may ride or drive an animal or into which a person may bring an animal;
- (c) a person shall not ride or drive or bring an animal onto any reserve or foreshore or any part thereof that has not been set aside for that purpose pursuant to subclause (b) of this clause;
- (d) A person shall not ride, drive, train or race any animal on any part of a reserve or foreshore set aside under subclause (b) of this clause in a manner so as to create or become a nuisance.
9. (a) The Council may set aside a reserve or portion of a reserve as an area on which persons may fly mechanically operated model aeroplanes and the Council may define or limit the hours and days during which such model aeroplanes may be flown;
- (b) a person shall not fly a mechanically operated model aeroplane on a reserve or portion of a reserve that has not been set aside pursuant to subclause (a) of this clause or at a time or on a day defined or limited by the Council under subclause (a) of this clause.
10. (a) The Council may set aside a reserve or portion of a reserve as a children's playground;
- (b) The Council may limit the ages of persons who are permitted to use a playground set aside under subclause (a) of this clause and may erect a notice to that effect on the playground;
- (c) a person over the age specified in a notice erected on a playground set aside under subclause (a) of this clause, other than a person having the charge of a child or children in that playground, shall not enter or use that playground, or interfere with the use of it by a child or children.
11. A person found in a state of intoxication on a reserve or behaving in a disorderly manner, or creating or taking part in a disturbance, or using foul or indecent language, or committing an act of indecency thereon may be forthwith removed from the reserve by a member of the Police Force.
12. A person found undertaking in any activity deemed illegal by any other statute within a reserve, may be forthwith removed from the reserve by any member of the Police Force.
13. A person who does not do a thing which by or under these bylaws he/she is required or directed to do and a person who does a thing which by or under this bylaw is prohibited from doing, commits an offence.
14. A person who commits an offence against this bylaw is liable on conviction, to a maximum penalty of \$500.00 and in the case of the holder of a permit issued under Clause 4A(1) hereof to cancellation of the permit.\*
15. The modified penalty for an offence against clauses 4(a) or 4(b) or 4(c) or 4(A)(1) or 4(A)(2) or 4(A)(3) of this bylaw if dealt with under section 669D of the act is \$80.00.
16. (a) A notice served under subsection (2) of the section 669C of the Act in respect of an offence against this bylaw shall be in or to effect of Form 1 of the schedule of this bylaw;

- (b) an infringement notice served under section 669D of the act in respect of an offence against this bylaw shall be in or to the effect of Form 2 of the Schedule of this bylaw;
- (c) a notice sent under subsection (5) of section 669D of the Act withdrawing an infringement notice served under that section in respect of an offence against this bylaw shall be in or to the effect of Form 3 of the Schedule of the bylaw.



## **APPENDIX B**

### **Instrument of Appointment and Delegation**

## 2.2 MEELUP REGIONAL PARK MANAGEMENT COMMITTEE

- \* Constituted by Council on 12 December, 2007.
- \* Membership requirements updated by Council on 11 June, 2008.
- \* Delegation reviewed by Council on 25 June, 2008.

### Instrument of Appointment & Delegation

#### 1. Introduction

The Council of the Shire of Busselton (hereinafter called the "Council") hereby establishes a committee under the powers given in Section 5.8, 5.9(2)(c) and 5.17(1)(c) of the Local Government Act 1995, such committee to be known as the Meelup Regional Park Management Committee (hereinafter called the "Committee").

The Council appoints to the Committee those persons whose names appear in section 4.0 below. Membership of the Committee shall, unless otherwise specified, be for a term ceasing on 17 October, 2009, after which time the Council may appoint members for a further term.

The Committee shall act for and on behalf of Council in accordance with provisions of the Local Government Act 1995, local laws and policies of the Shire of Busselton and this Instrument.

#### 2.0 Name

The name of the Committee shall be the Meelup Regional Park Management Committee.

#### 3.0 Objectives

3.1 To develop a strategic plan for the regional park that ties into Council's Strategic Plan, to be endorsed by Council, and to annually review the five-year plan of capital and operating expenditure and income, to be endorsed by Council.

3.2 Care for, control and manage all areas of Meelup Regional Park (except any areas specifically excluded by Council).

#### 4.0 Membership

2 Elected Members shall be appointed to the Committee.

6 Community Members shall be appointed to the Committee.

Deputy Members may be appointed as required.

Other persons (or representatives of organisations) may participate in meetings of the Committee (or any sub committees the Committee may establish) as determined by an ordinary majority of the Committee.

Such persons will not be entitled to vote on any matter brought before the Committee.

Elected Members – Cr Don Hanran-Smith and Cr David Binks.

Community Members – Don McDonald, John Winchcombe, Nik Selheim, Shirley Fisher and Andrew Webb, 1 vacancy.

Deputy Members - John Slee and Jill Moyes.

#### 5.0 Presiding Member

The Committee shall appoint a Presiding Member and Deputy Presiding Member to conduct its business. The Presiding Member shall ensure that minutes of the proceedings are kept and that business is conducted in accordance with the Shire of Busselton Standing Orders Local Law.

#### 6.0 Meetings

The Committee shall meet at least six times annually, and shall report to Council on a bi-monthly basis as a minimum.

6.1 Notice of meetings shall be given to members at least 3 days prior to each meeting.

6.2 If any member is absent from 3 consecutive meetings without leave of the Committee, they shall forfeit their position on such Committee. The Council shall be informed, who will appoint a replacement for the balance of the Committee's term of appointment.

6.3 The Presiding Member shall ensure that detailed minutes of all meetings are kept in accordance with the format identified in the Shire of Busselton Standing Orders local law and shall, not later than 10 days after each meeting, provide Council with a copy of such minutes.

6.4 All members of the Committee shall have one vote. If the vote of the members present is equally divided, the person presiding can cast a second vote.

#### 7.0 Quorum

Quorum for a meeting shall be at least 50% of the number of offices, whether vacant or not. A decision of the Committee does not have effect unless it has been made by a simple majority.

#### 8.0 Delegated Powers

The Meelup Regional Park Management Committee is delegated authority to:

Exercise the powers and discharge the duties of the local government under Section 3.54(1) of the Local Government Act 1995 as they relate specifically to Meelup Regional Park, in accordance with the Shire's Strategic Plan, Park's management plan and Council's budget, with the exceptions that:

- a) normal maintenance and servicing (eg. building maintenance and operations, maintenance of grassed areas and surrounds, rubbish removal, etc) of the coastal foreshore recreation areas at the localities of Eagle Bay, Meelup Beach and Castle Rock are to be undertaken by the Shire; and
- b) all law enforcement (eg bush fire control, litter control, etc) is to be exercised by the Shire's Ranger and Fire Services.

#### 9.0 Conditions

9.1 The committee is required to submit a draft budget of income and expenditure for the ensuing financial year in April of each year and it shall have due regard to the actual budget adopted by Council.

9.2 All monies received by the committee shall be so received on behalf of Council and shall be managed in accordance with Local Government Accounting Regulations and AAS27.

9.3 All procurements to be made using Council's current purchasing procedures.

#### 10.0 Termination of Committee

Termination of the Committee shall be:

- a) In accordance with the Local Government Act 1995; and
- b) At the direction of Council, not exceeding 17 October, 2009.

#### 11.0 Amendment to the Instrument of Appointment and Delegation

This document may be altered at any time by the Council on the recommendation of the Committee, or after giving 14 days notice to the Committee.

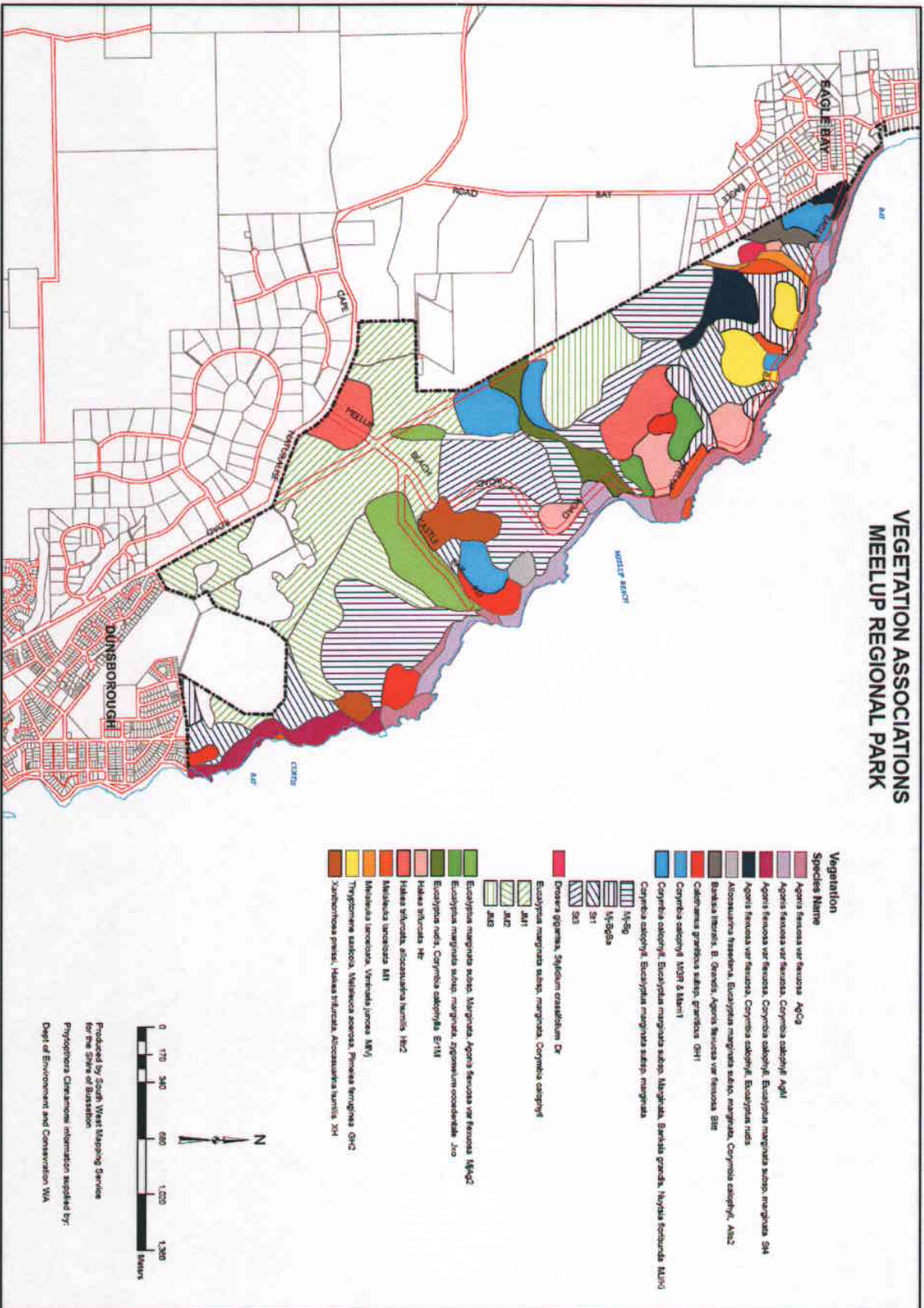
#### 12.0 Committee Recommendations/Decisions

Committee recommendations shall not be binding on Council and must be endorsed by Council to take effect. Decisions made under delegated authority shall not be binding on Council if such decisions are in conflict with the delegated powers.

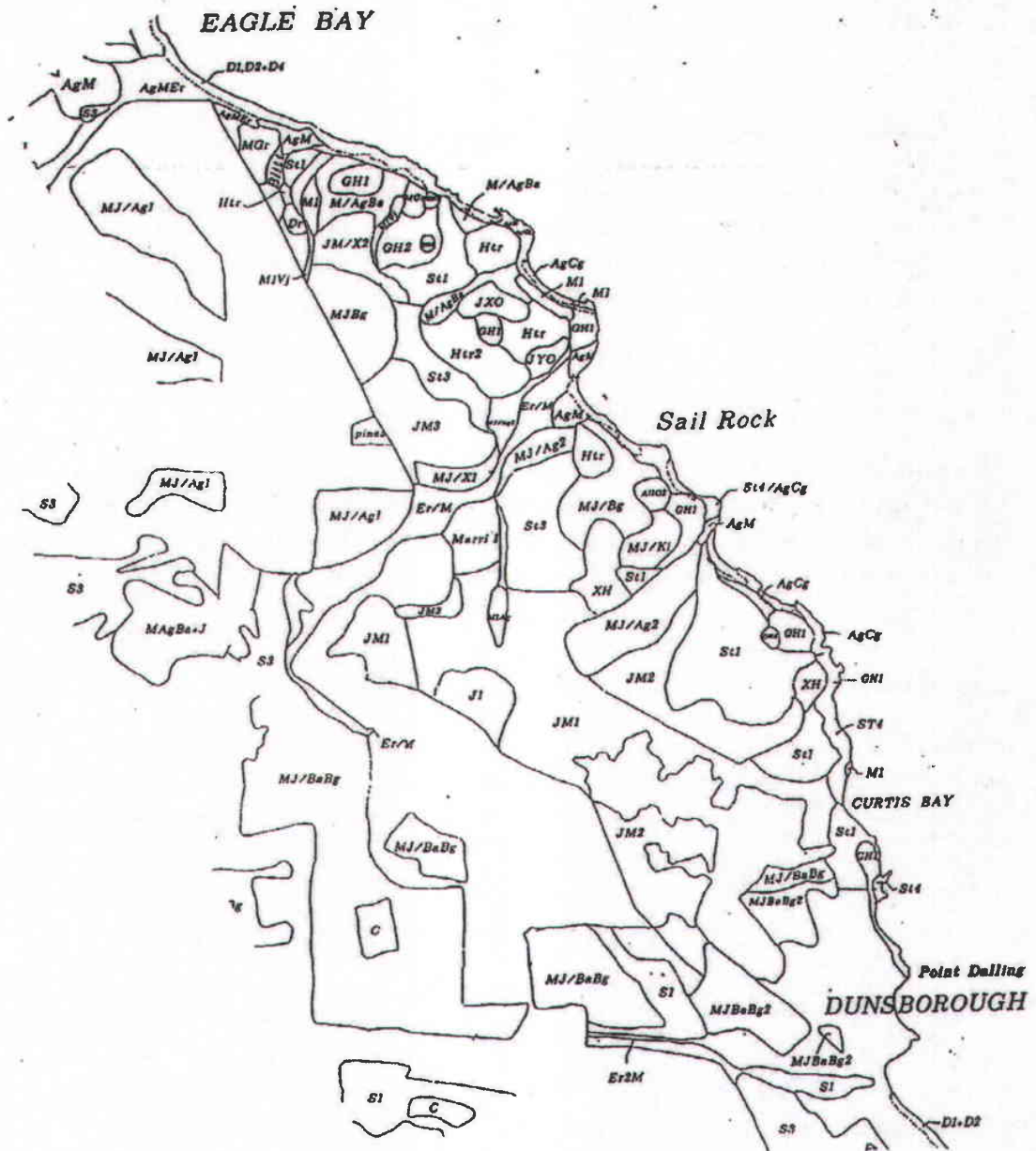
## APPENDIX C

### Flora and Fauna supporting data

# VEGETATION ASSOCIATIONS MEELUP REGIONAL PARK



APPENDIX 4



EXTRACT FROM :  
 - A FLORA AND FAUNA STUDY OF THE  
 COASTAL STRIP FROM FORREST BEACH  
 - CAPE NATURALISTE - WOODLANDS -  
 FOR THE DEPT. OF CONSERVATION AND  
 ENVIRONMENT BY C. KEATING & M. TRUDGEN  
 1986

### **Vegetation Communities of the Meelup Regional Park.**

Community mapping and descriptions extracted from the 1986 report "A Flora and Vegetation Survey of the Coastal Strip from Forrest Beach-Cape Naturaliste-Woodlands" by Colma Keating and Malcolm Trudgen.

#### **M1 – *Melaleuca lanceolata* low closed forest to closed forest.**

This vegetation unit occurs near the beach often with outcropping limestone, the *Melaleuca* varies in height from 2 to 15m reflecting the effects of soil depth and wind pruning. The understory has shrubs of *Tetragonia amplexicoma*, *Rhagodia baccata*, *Leucopogon propinquus*, *Suaeda australis* and occasionally *Pittosporum phylliraeoides* var. *phylliraeoides*.

#### **GH1 – *Calothamnus graniticus* ssp. *graniticus* open to closed heath.**

This vegetation type occurs on granulite outcrops in close proximity to the coast, the dominant species *Calothamnus graniticus* varies in height from approximately 1.2-2m tall and is often wind-pruned. Other prominent species include *Dodonaea ceratocarpa*, *Spyridium globulosum*, *Hakea trifurcata*, *Viminaria juncea*, *Acacia pullchella*, *Melaleuca acerosa* and *Xanthorrhoea preissii*.

#### **AgCg – *Agonis flexuosa*, *Calothamnus graniticus* ssp. *graniticus* closed scrub.**

This vegetation type occurs in near-coastal situations on granulite overlain by creamy-brown to mid-brown sandy soils. The dominant species range in height from 1.5-2.5m with other prominent shrubs including *Hakea trifurcata*, *Dodonaea ceratocarpa*, *Macrozamia reidleyi* and *Xanthorrhoea preissii*.

#### **St4 – *Agonis flexuosa*, *Corymbia calophylla*, *Eucalyptus marginata* low woodland.**

This vegetation type occurs on lower slopes (just above the beach) on pale brown to dark brown sandy soils with granulite pebbles and boulders, the height of the dominant species range from 1.8-3m. Prominent understory species are *Xanthorrhoea preissii*, *Macrozamia reidleyi*, *Calothamnus sanguines*, *Daviesia divaricata*, *Melaleuca acerosa*, *Pimelea ferruginea* and the creepers *Hardenbergia comptoniana* and *Kennidea coccinea*.

#### **AgM – *Agonis flexuosa*, *Corymbia calophylla* low woodland.**

This vegetation unit occurs at the edges of the granitic coast where the granulite is overlain by creamy-brown coloured sandy soils. These woodlands have a height range of 4-9m with understory shrubs including *Viminaria juncea*, *Xanthorrhoea preissii*, *Macrozamia reidleyi*, *Hibbertia cuneiformis*, *Ollearia axillaris*, *Spyridium globulosum*, *Calothamnus graniticus* ssp. *graniticus*, *Acacia rostelifera*, *A. saligna*, *A. cochlearis* and *Pimelea ferruginea*.



**Dr – *Drosera gigantea*, *Stylidium crassifolium* closed herbland.**

This vegetation unit occurs on very gentle slopes with brown sandy soils. The height range of the dominants is 15-30cm and they form a dense herbland with *Patersonia pygmaea*, *P.umbrosa*, *P.occidentalis*, *Levenhookia pusilla*, *Trymalium ledifolium*, *Dampiera linearis* and *Desmocladius fasciculata*.

**Htr2 – *Hakea trifurcata*, *Allocasuarina humilis* low closed heath.**

This vegetation unit occurs on a hill crest with pale brown sandy soils with scattered lateritic pebbles and exposed granulite. The dominants reach 40-80cm; other dominant species include *Dodonaea ceratocarpa*, *Melaleuca acerosa*, *Gastrolobium spinosum*, *Darwinea citriodora* and *Daviesia divaricata*.

**Htr – *Hakea trifurcata* closed scrub.**

This vegetation type is found on hilltops and lower slopes with sand over laterite sometimes with with outcropping granulite. Dominant shrub species of the community include *Xanthorrhoea preissii*, *X.gracilis*, *Viminaria juncea*, *Allocasuarina humilis*, *Hibbertia hypericoides*, *Melaleuca acerosa*, *Calothamnus sanguines*, *Cryptandra arbutiflora*, *Dryandra lindleyana*, *Phyllanthus calycinus*, *Trymalium ledifolium*, *Acacia nervosa* and *Acacia pulchella*.

**MIVj – *Melaleuca lanceolata*, *Viminaria juncea* closed scrub.**

A strip of this vegetation community is found along the bottom of a small valley, the soils are dark grey sands with some scattered surface granulite rocks. The dominants are 2.5-3.5m tall and other understory species include *Acacia saligna*, *A.pulchella*, *Ficinia nodosa*, *Stylidium crassifolium* and *Patersonia occidentalis*.

**St1 – *Corymbia calophylla*, *Eucalyptus marginata* low woodland.**

This vegetation type occurs on areas between granularitic outcrops and lateritic uplands, the soil is dark grey sand with some laterite. There are small outcrops of granulite in the unit. The Jarrah and Marri occur in discrete groups with a height range of 2-4m which are surrounded by a low heath. Common species within the heath can include *Hibbertia hypericoides*, *H.cunninghamii*, *Hypocalymma angustifolium*, *H.robustum*, *Philothea spicatum*, *Xanthorrhoea preissii*, *Daviesia divaricata*, *Hakea lissocarpha*, *H.amplexicaulis*, *Calothmanus sanguines*, *Dodonaea ceratocarpa* and *Dryandra lindleyana*.

**St3 – *Corymbia calophylla*, *Eucalyptus marginata* low woodland.**

This vegetation type occurs on gentle slopes with dark brown loamy soil with scattered surface laterite. The Marri, Jarrah has a height range of 5-7m with occasional lower trees of *Persea longifolia*. The dense understory has dominant shrubs including *Allocasuarina humilis*, *Calothamnus sanguines*, *Melaleuca acerosa*, *Hibbertia cunninghamii*, *Hypocalymma angustifolia*, *Adenanthos meisneri* and *Dryandra lindleyana*.

**MGr – *Corymbia calophylla* woodland.**

This vegetation occurs on moderate to gentle slopes with lateritic sandy soils. The Marri (6-8m) grows over a dense tall heath dominated by *Calothamnus graniticus ssp. graniticus*, *Hakea trifurcata*, *Dodonaea ceratocarpa* with other shrubs including *Melaleuca acerosa*, *Acacia saligna*, *A.cyclops*, *Macrozamia reidley*, *Bossiaea linophylla* and *Darwinia citriodora*.

**Mj/Bg – *Corymbia calophylla*, *Eucalyptus marginata* woodland.**

This vegetation occurs on moderate inland slopes with sandy soils. There are two distinct tree strata, the upper with Marri more abundant than Jarrah over *Banksia grandis*, *B.attenuata* and *Agonis flexuosa*. The understory also has two distinct layers with an upper layer of scattered shrubs of *Jacksonia furcellata*, *Daviesia divaricata*, *Macrozamia reidley* and *Xanthorrhoea preissii* over a dense lower layer dominated by species such as *Stirlingia latifolia*, *Calothamnus sanguines*, *Melaleuca acerosa* and *Hibbertia hypericoides*.

**Marri1 – *Corymbia calophylla* woodland**

This vegetation community occurs on gentle slopes with brown sandy soils with scattered lateritic pebbles and exposed granulite pebbles and boulders. The Marri (10-15m) grows over a dense low heath dominated by *Hakea lissocarpa*, *H.amplexicaulis*, *Calothamnus sanguines*, *Hibbertia hypericoides*, *Daviesia divaricata*, *Xanthorrhoea preissii*, *Macrozamia reidley*, *Crytandra arbutiflora* and *Acacia nervosa*.

**Jxo – *Eucalyptus marginata*, *Xylomelum occidentale* low forest.**

This vegetation type occurs on a slope about 300m from the beach with deep orange sandy soils. The upper stratum is 8-9m tall and includes the other dominants of *Corymbia calophylla*, *Banksia grandis*, *Persea longifolia*, *Nuytsia floribunda* and *Agonis flexuosa*. This is the only vegetation community that *Xylomelum occidentale* was noted to occur as a substantial stand.

**Blitt – *Banksia littoralis*, *B.grandis*, *Agonis flexuosa* low open forest.**

This vegetation occurs upslope from the beach on grey sands near a permanent soak. The height of the forest is 4-7m with occasional trees of *Nuytsia floribunda*. Other species of the community include *Melaleuca lanceolata*, *Viminaria juncea*, *Xanthorrhoea preissii*, *Trymalium ledifolium*, *Logania vaginalis*, *Dodonaea ceratocarpa*, *Acacia pulchella* and *Hibbertia hypericoides*.

**JM2 – *Eucalyptus marginata*, *Corymbia calophylla* forest.**

This vegetation occurs on gentle slopes with brown sands with surface laterite pebbles and occasional surface granulite pebbles and boulders. Under the Jarrah, Marri (12-15m) there is a second tree layer of *Banksia grandis* and *Agonis flexuosa* with occasional *Persoonia longifolia* and *Viminaria juncea*. The understory is dominated by *Xanthorrhoea preissii*, *Calothamnus sanguines*, *Acacia pulchella*, *Melaleuca acerosa*, *Daviesia cordata* and *Hakea lissocarpha*.

**JM3 - *Eucalyptus marginata*, *Corymbia calophylla* open forest.**

This vegetation unit occurs on lower gentle slopes with brown loamy soils. The dominants (8-12m) is over an understory of two distinct strata. The upper being scattered *Hakea amplexicaulis*, *Xanthorrhoea preissii* and *Persoonia longifolia*, over a low dense heath dominated by *Calothamnus sanguines*, *Hibbertia hypericoides*, *Xanthorrhoea gracilis*, *Adenanthos meisneri*, *Dryandra lindleyana*, *Hakea lissocarpha* and *Hypocalymma angustifolia*.

**Mj/Ag2 - *Eucalyptus marginata*, *Corymbia calophylla*, *Agonis flexuosa* forest.**

This vegetation unit occurs on moderate to steep valley slopes with brown sandy soils and some lateritic pebbles and outcropping granulite. The forest layer reaches 12-16m in height and is over an upper understory layer of *Xanthorrhoea preissii*, *Hakea lissocarpha*, *Calothamnus sanguines*, *Macrozamia reidleyi* and *Acacia pulchella*. The lower understory layer is dominated by species including *Hibbertia hypericoides*, *Dryandra lindleyana*, *Pimelea rosea*, *Astroloma drummondii* and *Trymalium ledifolium*.

**JM1 - *Eucalyptus marginata* forest.**

This vegetation occurs on moderate slopes with dark brown soil and scattered lateritic pebbles. The Jarrah has a height range of 8-14m with very small amounts of Marri. The upper layer of the understory is dominated by *Xanthorrhoea preissii*, *X.gracilis* and *Hakea amplexicaulis* over a lower layer of *Calothamnus sanguines*, *Hibbertia hypericoides*, *H.cunninghamii*, *Acacia alata* and *Tetratheca hirsuta*.

**Allo2 – *Allocasuarina fraseriana*, *Eucalyptus marginata*, *Corymbia calophylla*, *Nuytsia floribunda*, *Banksia grandis* low closed forest.**

This vegetation type has a dense canopy, a very open understory and occurs on exposed moderate upland slopes. The surface soils are dark grey over orange-brown sands. Understory species include *Xanthorrhoea preissii*, *Calothamnus sanguines*, *Melaleuca acerosa*, *Hypocalymma robustum*, *Philotheca spicatum*, *Hibbertia hypericoides*, *H.cunninghamii*, *Acacia pulchella*, *Hemigena incana* and *Synaphea petiolaris*.

**Mj/BgBa - *Corymbia calophylla*, *Eucalyptus marginata* open forest.**

This unit occurs on upper slopes with grey sandy soils. Marri and Jarrah (10-15m) form the upper tree layer over *Banksia grandis*, *B.attenuata*, *B.littoralis* and *Nuytsia floribunda*. The upper shrub layer has scattered *Xanthorrhoea preissii* and *Kingia australis* over a lower layer of *Xanthorrhoea gracilis*, *Hakea lissocarpha*, *Acacia nervosa*, *Hypocalymma angustifolia*, *Daviesia divaricata*, *Calothamnus sanguines*, *Hibbertia hypericoides* and *H.cunninghamii*.

**AgMEr – *Agonis flexuosa*, *Corymbia calophylla*, *Eucalyptus rudis* closed forest.**

This vegetation unit occurs on damp low-lying areas close to the beach with sandy soils and has a height range of 5-9m. The unit has a dense two-layer understory of *Viminaria juncea*, *Acacia saligna* and *Acacia pulchella* over *Xanthorrhoea preissii*, *Beyeria viscosa*, *Olearia axillaris* and *Spyridium globulosum*.

**JM/Xp2 – *Eucalyptus marginata*, *Corymbia calophylla* open forest.**

This vegetation occurs on low slopes leading into a flow line with brown sandy soils with scattered surface lateritic pebbles. The upper stratum is 14-18m high over a dense shrub layer dominated by *Xanthorrhoea preissii* and *X.gracilis*, other dominant species include *Pimelea angustatum*, *Hibbertia hypericoides* and *H.cunninghamii*.

**GH2 – *Hakea trifurcata*, *Gastrolobium spinosum* closed heath.**

This vegetation type occurs on exposed granulate slopes with brown sandy soils. Other dominant species of the community includes *Dodonaea ceratocarpa*, *Xanthorrhoea preissii* and *Macrozamia reidleyi* with occasional shrubs of *Calothamnus graniticus ssp. graniticus*.

**Er1M – *Eucalyptus rudis*, *Corymbia calophylla* open forest.**

This vegetation type occurs in the moist creek valleys. The Flooded Gum and Marri are 12-16m tall over a dense layer of *Agonis flexuosa* (6-8m). Dominant understory species include *Logania vaginalis*, *Bossiaea linophylla*, *Acacia alata*, *A.pulchella*, *A.divergens*, *A.nervosa*, *Trymalium ledifolium*, *Hibbertia cuneiformis*, *H.racemosa*, *Dodonaea ceratocarpa* and *Xanthorrhoea preissii* over dominant sedge species of *Lepidosperma tetraquetrum*, *Juncus pallidus* and *Lepidosperma gladiatum*.

Nat	Perth	Fam	Species	Location	Flower
No	No	No			period
<b>MEELUP REGIONAL PARK</b>					
<b>Vascular Plant Species 1996 to 1997. Updated 2006</b>					
<b>Nomenclature: Cape Naturaliste Regional Herbarium</b>					
<b>Determinations by Government Herbarium</b>					
		<b>Collation of Data</b>	<b>by B T Clay</b>		
		<b>ADIANTACEAE</b>			
153	05578450		<i>Cheilanthes austrotenuifolia</i>	Lat 33 35'.3" S - Long 115 4'.0" E	Sept
155	05578221		<i>Adiantum aethiopicum</i>	Lat 33 34'.3" S - Long 115 5'.0" E	Sept
294B	05601150		<i>Cheilanthes distans</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
198	05598222		<i>Cheilanthes austrotenuifolia</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
294 A	05601142		<i>Cheilanthes sieberi</i> ssp <i>sieberi</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
		<b>AIZOACEAE</b>			
			<i>Carpobrotus virescens</i>		
			<i>Tetragonia implexicoma</i>		
		<b>AMARANTHACEAE</b>			
68	5672465		<i>Ptilotus manglesii</i>		
		<b>ANTHERICACEAE</b>			
401	05607922		<i>Dichopogon capillipes</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Dec
271	05600693	054F	<i>Johnsonia acaulis</i>		
595	06084036	054F	<i>Thysanotus sparteus</i> R.Br.	Lat 33 38'.0" S - Long 115 3'.0" E	
603	06255736	054F	<i>Laxmannia sessiliflora</i>		
	394	05888360	<i>Thysanotus arenarius</i>		
201	05598230		<i>Chamaescilla corymbosa</i> var <i>corymbosa</i>	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
		<b>APIACEAE</b>			
413	05578264	281	<i>Pentapeltis peltigera</i>	Lat 33 39'.3" S - Long 115 6'.0" E	
211	05521548	281	<i>Platysace tenuissima</i>	Lat 33 33'.5" S - Long 115 5'.0" E	
282	05600936	281	<i>Trachymene pilosa</i>	Lat 33 38'.0" S - Long 115 5'.0" E	
668	06738559	281	<i>Xanthosia candida</i>		
295	05666198	281	<i>Platysace haplosciadia</i>	Lat 33 34'.3" S - Long 115 5'.0" E	
272	05600715	281	<i>Xanthosia huegelii</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
		<b>ASTERACEAE</b>			
114	05600561	345	<i>Rhodanthe citrina</i> (=waitzia)	Lat 33 37'.0" S - Long 115 7'.0" E	
015	05666171	345	<i>Brachyscome iberidifolia</i>	Lat 33 34'.3" S - Long 115 5'.0" E	
299	05666260	345	<i>Rhodanthe citrina</i>		
615	06385257	345	<i>Siloxerus filifolius</i>		
579	06083811	345	<i>Waitzia acuminata</i> var <i>albicans</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
026	05598427	345	<i>Cotula turbinata</i> *	Lat 33 34'.0" S - Long 115 4'.0" E	Sept
617	06385370	345	<i>Vellereophyton dealbatum</i>		
673	06738591	345	<i>Dittrichia graveolens</i> *	Lat 33 39'.0" S - Long 115 2'.0" E	April
025	06083862	345	<i>Podolepis gracilis</i>		
592	06084001	345	<i>Ozothamnus cordatus</i>	Lat 33 38'.0" S - Long 115 9'.0" E	
405	05607914	345	<i>Trichocline spathulata</i>	Lat 33 33'.0" S - Long 115 4'.0" E 81.0-22	
523	05799236	345	<i>Hypochaeris radicata</i> *	Lat 33 33'.0" S - Long 115 4'.0" E	
028	05521793	345	<i>Lagenophora huegelii</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
630	06385311	345	<i>Quinetia urvillei</i>		

Nat	Perth	Fam	Species	Location	Flower
637	06416772		345 Senecio hispidulus var. hispidulus		
287	05601029		345 Millotia myosotidifolia		
021	05578299		345 Podolepis lessonii	Lat 33 33'.3" S - Long 115 4'.0" E	
027	05578426		345 Olearia ciliata	Lat 33 39'.3" S - Long 115 6'.0" E	
		<b>BORYACEAE</b>			
633	05578655	054L	Borya scirpoidea	Lat 33 33'.3" S - Long 115 4'.0" E	
		<b>BRASSICACEAE</b>			
071	05600707		138 Cakile maritima *	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
		<b>CAESALPINIACEAE</b>			
034	05600499		164 Labichea punctata	82.2-21.9 100m West Meelup Beach	
		<b>CARYOPHYLLACEAE</b>			
686	06611125		113 Petrorhagia dubia		
597	06084060		113 Silene gallica var. gallica	Lat 33 33'.0" S - Long 115 4'.0" E	
		<b>CASUARINIACEA</b>			
593	06084028		70 Allocasuarina fraseriana	Lat 33 38'.0" S - Long 115 3'.0" E	Jan
119	05633109		70 Allocasuarina humilis	Lat 33 33'.0" S - Long 115 4'.0" E	
		<b>CENTROLEPIDACEAE</b>			
472	05702062		40 Centrolepis drummondiana	Lat 33 33'.0" S - Long 115 4'.0" E	Nil
		<b>CHENOPODIACEAE</b>			
			105 Atriplex isatidea	Lat 33 33'.0" S - Long 115 0'.4" E	Jan
138	05668050		105 Rhagodia baccata ssp baccata	R.32015/R.46/R.29842/R.23572	
545	05521726		105 Suaeda australis	Lat 33 37'.5" S - Long 115 7'.0" E	
		<b>COLCHICACEAE</b>			
249	05578515	054J	Burchardia umbellata	Lat 33 34'.0" S - Long 115 4'.0" E	Sept
471	05701767	054J	Wurmbea monantha	Lat 33 33'.0" S - Long 115 4'.0" E	
175	05521572	054J	Burchardia multiflora	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
		<b>CYPERACEAE</b>			
662	06417191		32 Lepidosperma tetraquetrum		
408	05668085		32 Lepidosperma gladiatum	Lat 33 33.0" S - Long 115 4.0" E	Dec
455	05673186		32 Schoenus curvifolius		
442	05620791		32 Lepidosperma squamatum	Lat 33 39'.0" S - Long 115 6'.0" E	May
684	06611257		32 Gahnia trifida	Lat 33 37'.0" S - Long 115 7'.0" E	Oct
			32 Mesomelaena stygia		
			32 Isolepis nodosa		
		<b>DASYPOGONACEAE</b>			
441	05578485	054C	Acanthocarpus preissii	Lat 33 33'.3" S - Long 115 4'.0" E	Sept
550	05888263	054C	Kingia australis		
296	05666201	054C	Dasyogon bromeliifolius	Lat 33 35'.0" S - Long 115 4'.0" E	Oct
701	06829678	054C	Lomandra nigricans		
		<b>DILLENIAACEAE</b>			
105	05600863		226 Hibbertia spicata ssp spicata	85.8-19.5/85.7-19.8 MRP	
463	05701791		226 Hibbertia commutata	Lat 33 33'.0" S - Long 115 4'.0" E	
107	05598524		226 Hibbertia cuneiformis		
418	05578507		226 Hibbertia cunninghamii	Lat 33 37'.0" S - Long 115 7'.0" E	
365	05637570		226 Hibbertia rhadinopoda (hairy)	Lat 33 36'.0" S - Long 115 6'.0" E	
104	05598648		226 Hibbertia hypericoides		
225	05598516		226 Hibbertia racemosa	Lat 33 34'.0" S - Long 115 4'.0" E	
		<b>DROSERACEAE</b>			
240A	05578329		143 Drosera macrantha ssp macrantha	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
240B	05578337		143 Drosera menziesii ssp pencillararis	Lat 33 33'.0" S - Long 115 4'.0" E	Sept

Nat	Perth	Fam	Species	Location	Flower
184	05521467		143 <i>Drosera gigantea</i> ssp <i>gigantea</i>	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
478	05702038		143 <i>Drosera stolonifera</i> ssp <i>stolonifera</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
275	05600766		143 <i>Drosera pallida</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
			<b>EPACRIDACEAE</b>		
431	05620813		288 <i>Styphella tenuiflora</i>	83 9-21.1/83.3-21.2 MRP	
130	05521688		288 <i>Andersonia caerulea</i>	Lat 33 34'.0" S - Long 115 5'.0" E	
431	05620813		288 <i>Styphelia tenuiflora</i>		
432A	05620759		288 <i>Leucopogon oxycedrus</i> "A"		
433B	05620708		288 <i>Leucopogon oxycedrus</i> "B"		
427	05608058		288 <i>Astroloma pallidum</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
269	05600669		288 <i>Leucopogon parviflorus</i>	Lat 33 38'.0" S - Long 115 9'.0" E	
188	05521440		288 <i>Leucopogon capitellatus</i>	Lat 33 33'.5" S - Long 115 4'.0" E	
244	05578418		288 <i>Leucopogon australis</i> var <i>australis</i>	Lat 33 39'.3" S - Long 115 6'.0" E	
190	05521750		288 <i>Lysinema ciliatum</i>	Lat 33 34'.5" S - Long 115 5'.0" E	
111	05608007		288 <i>Leucopogon propinquus</i>	Lat 33 33'.30" S - Lon 115 4'.0" E	
429	05620740		288 <i>Astroloma ciliatum</i>	Lat 33 33.0 - S Long 115 0'.4" E	Ap/May
435	05620848		288 <i>Astroloma drummondii</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
189	05521777		288 <i>Leucopogon tenuis</i>	Lat 33 34'.5" S - Long 115 5'.0" E	
			<b>EUPHORBIACEAE</b>		
226A	05598532		185 <i>Pseudanthus virgatus</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
140	05598656		185 <i>Beyeria viscosa</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
161	05521475		185 <i>Phylanthus calycinus</i>	Lat 33 34'.0" S - Long 115 4'.0" E	July/Sept
			<b>FRANKENIACEAE</b>		
412	05668042		236 <i>Frankenia pauciflora</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Jan
			<b>GENTIANACEAE</b>		
075	05637503		303 <i>Centaurium tenuiflorum</i> *	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
			<b>GERANIACEAE</b>		
479	05702046		167 <i>Erodium botrys</i> *	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
260	05668701		167 <i>Pelargonium capitatum</i> *	Lat 33 33'.3" S - Long 115 4'.0" E	
144	05668174		167 <i>Pelargonium littorale</i> ssp <i>littorale</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
143	05668190		167 <i>Pelargonium capitatum</i> *	Lat 33 33'.0" S - Long 115 4'.0" E	July/Sept
			<b>GOODENIACEAE</b>		
197	05598206		341 <i>Dampiera linearis</i>	Lat 33 35'.0" S - Long 115 4'.0" E	Aug
357	05632951		341 <i>Scaevola calliptera</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
372	05637538		341 <i>Goodenia caerulea</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
392	05607787		341 <i>Goodenia eatoniana</i>	Lat 33 39'.0" S - Long 115 6'.0" E	Dec
289	05601053		341 <i>Scaevola crassifolia</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
160	05632862		341 <i>Scaevola glandulifera</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
320	05666597		341 <i>Velleia trinervis</i>	Lat 33 39'.0" S - Long 115 4'.0" E	
280	05600871		341 <i>Lechenaultia biloba</i>	Lat 33 38'.0" S - Long 115 5'.0" E	
			<b>HAENODORACEAE</b>		
329	05666805		55 <i>Phlebocarya ciliata</i>	Lat 33 39'.3" S - Long 115 6'.0" E	
158	05952468		55 <i>Tribonanthes australis</i>	Lat 33 34'.0" S - Long 115 5'.0" E	
358	05633087		55 <i>Haemodorum discolor</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
388	05607744		55 <i>Anigozanthus flavidus</i> (red)	Lat 33 34'.0" S - Long 115 5'.0" E	
361	05633117		55 <i>Haemodorum simplex</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
212	05521807		55 <i>Anigozanthus manglesii</i> ssp <i>manglesii</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
182	05632927		55 <i>Conostylis acuelata</i> ssp <i>gracilis</i>	Lat 33 36'.0" S - Long 115 6'.0" E	Sept
183	05521483		55 <i>Conostylis setigera</i> ssp <i>setigera</i>	Lat 33 35'.5" S - Long 115 5'.0" E	Sept
			<b>HYPOXIDACEAE</b>		
200	05598249	056A	<i>Hypoxis occidentalis</i> var <i>quadriloba</i>	Lat 33 34'.0" S - Long 115 4'.0" E	

Nat	Perth	Fam	Species	Location	Flower
<b>IRIDACEAE</b>					
491	05751349		60 <i>Pattersonia pygmaea</i>	Lat 33 40'.0" S - Long 115 6'.0" E	
150	05601118		60 <i>Orthrosanthos laxus</i> var <i>laxus</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
149	05521556		60 <i>Patersonia umbrosa</i> var <i>xanthina</i> (yellow)	Lat 33 35'.5" S - Long 115 5'.0" E	
292	05601096		60 <i>Patersonia occidentalis</i> (white)	Lat 33 34'.0" S - Long 115 4'.0" E	
148	05666473		60 <i>Patersonia occidentalis</i>	Lat 33 34'.3" S - Long 115 5'.0" E	
151	05601010		60 <i>Orthrosanthos polystachyus</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
147	05601045		60 <i>Patersonia juncea</i>	Lat 33 36'.0" S - Long 115 6'.0" E	
146	05600960		60 <i>Patersonia babianoides</i>	Lat 33 39'.0" S - Long 115 5'.0" E	
<b>JUNCACEAE</b>					
526	05799280		52 <i>Juncus kraussii</i> ssp <i>australiensis</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
547	05888271		52 <i>Juncus caespiticus</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
522	05799228		52 <i>Juncus pallidus</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
<b>LAMIACEAE</b>					
077	05666228		313 <i>Hemigenia podalyrina</i>	Lat 33 35'.3" S - Long 115 5'.0" E	Sept
076	05748127		313 <i>Hemigenia rigida</i>	Lat 33 35'.0" S - Long 115 5'.0" E	
<b>LAURACEAE</b>					
132	05668212		131 <i>Cassytha racemosa</i> forma <i>racemosa</i>	Lat 33 35'.0" S - Long 115 5'.0" E	Nov
133	05668204		131 <i>Cassytha racemosa</i> forma <i>pilosa</i>	Lat 33 35'.0" S - Long 115 5'.0" E	Sept
698	06837735		131 <i>Cassytha racemosa</i>	Lat 33 37'.0" S - Long 115 0'.7" E	Feb
<b>LENTIBULARIACEAE</b>					
199	05598273	323	<i>Utricularia multifida</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
<b>LOBELIACEAE</b>					
168	05633133		340 <i>Lobelia alata</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
583	06083773		340 <i>Lobelia tenuior</i>		
169	05633214		340 <i>Lobelia gibbosa</i>	Lat 33 40'.0" S - Long 115 6'.0" E	
167	05632919		340 <i>Lobelia rhytidosperma</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
506	05748232		340 <i>Lobelia rhombifolia</i>	Lat 33 35'.3" S - Long 115 6'.0" E	
170	05632757		340 <i>Isotoma hypocrateriformis</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
<b>LOGANIACEAE</b>					
448	05668158		302 <i>Logania campanulata</i> (no specimen)	Lat 33 40'.0" S - Long 115 6'.0" E	
080	05598672		302 <i>Logania vaginalis</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept-Nov.
079	05598486		302 <i>Logania serpyllifolia</i> ssp <i>angustifolia</i>	Lat 33 34'.0" S - Long 115 4'.0" E	Sept-Nov
<b>LORANTHACEAE</b>					
127	05607930	097	<i>Nuytsia floribunda</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
<b>MENYANTHACEAE</b>					
078	05632900	303A	<i>Villarsia latifolia</i>	Lat 33 34'.0" S - Long 115 4'.0" E	
<b>MIMOSACEAE</b>					
121	05667941		163 <i>Acacia cyclops</i>	Lat 33 33'.0" S - Long 115 0'.4" E	July-Oct
234	05598699		163 <i>Acacia saligna</i>	Lat 33 34'.0" S - Long 115 5'.0" E	July-Oct
422	05667968		163 <i>Acacia stenoptera</i>	Lat 33 33'.3" S - Long 115 5'.0" E	Jan
218	05598346		163 <i>Acacia rostelifera</i>	Lat 33 34'.0" S - Long 115 5'.0" E	Sept
430	05620732		163 <i>Acacia obovata</i>	Lat 33 40'.0" S - Long 115 6'.0" E	May
664	06417175		163 <i>Acacia stenoptera</i>	Lat 33 39'.0" S - Long 115 0'.2" E	Jan
217	05598338		163 <i>Acacia cochlearis</i>	Lat 33 34'.0" S - Long 115 0'.5" E	Oct
215	05598265		163 <i>Acacia littorea</i>	Lat 33 35'.0" S - Long 115 0'.5" E	Sept
193	05521610		163 <i>Acacia lateriticola</i> "glabrous variant"	Lat 33 35'.5" S - Long 115 0'.5" E	Aug
219	05598354		163 <i>Acacia divergens</i>	Lat 33 36'.0" S - Long 115 0'.6" E	Sept
191	05521858		163 <i>Acacia alata</i> var <i>alata</i>	Lat 33 35'.5" S - Long 115 0'.5" E	Aug
452	05673895		163 <i>Acacia pulchella</i> var <i>pulchella</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
192	05521831		163 <i>Acacia nervosa</i>	Lat 33 35'.5" S - Long 115 5'.0" E	Aug
227	05598567		163 <i>Acacia pulchella</i> var <i>glaberrima</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept



Nat	Perth	Fam	Species	Location	Flower
		<b>MYOPORACEAE</b>			
082	05632781	326	Myoporum caprarioides	Lat 33 33'.0" S - Long 115 4'.0" E	July.-Nov.
		<b>MYRTACEAE</b>			
194	05521866		273 Darwinia vestita	Lat 33 35'.5" S - Long 115 5'.0" E	Aug
531	05799317		273 Baekea camphorosmae	Lat 33 36'.0" S - Long 115 6'.0" E	
404	05607957		273 Calytrix flavescens	Lat 33 35'.0" S - Long 115 4'.0" E	Dec
159	05637619		273 Melaleuca tricophylla	Lat 33 35'.0" S - Long 115 4'.0" E	
580	06083846		273 Eucalyptus patens	Lat 33 38'.0" S - Long 115 3'.0" E	Dec
398	05607841		273 Kunzea glabrescens	Lat 33 39'.0" S - Long 115 6'.0" E	
091	05632773		273 Melaleuca lateritia	Lat 33 37'.0" S - Long 115 7'.0" E	?
087	05632749		273 Melaleuca systema	Lat 33 35'.0" S - Long 115 5'.0" E	
276	05600782		273 Calothamnus sanguineus	Lat 33 36'.0" S - Long 115 6'.0" E	Oct
092	05598559		273 Melaleuca viminea ssp viminea	Lat 33 34'.0" S - Long 115 4'.0" E	Sept -
129	05598729		273 Verticordia plumosa var plumosa	Lat 33 33'.0" S - Long 115 4'.0" E	
195	05521394		273 Darwinia citriodora	Lat 33 33'.5" S - Long 115 4'.0" E	Aug
251	05578566		273 Agonis flexuosa var flexuosa	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
321	05666708		273 Taxandria linearifolia	Lat 33 39'.0" S - Long 115 4'.0" E	Oct
210	05521580		273 Calothamnus graniticus subsp. graniticus	Lat 33 35'.0" S - Long 115 6'.0" E	Aug
088A	05578590		273 Melaleuca systema	Lat 33 35'.0" S - Long 115 5'.0" E	
562	05952530		273 Eucalyptus rudis ssp cratyanther	Lat 33 33'.0" S - Long 115 4'.0" E	June
090	05666627		273 Melaleuca thymoides		
314	05666538		273 Eremaea pauciflora var pauciflora	Lat 33 40'.0" S - Long 115 4'.0" E	Oct
421	05667984		273 Corymbia calophylla	Lat 33 33'.0" S - Long 115 4'.0" E	Feb
252	05578582		273 Eucalyptus phylacis (DRF)	Lat 33 33'.0" S - Long 115 5'.0" E	Sept
085	05521408		273 Hypocalymma angustifolium	Lat 33 33'.5" S - Long 115 5'.0" E	Aug-Oct
086	05521564		273 Hypocalymma robustum	Lat 33 34'.0" S - Long 115 4'.0" E	Sept-Oct
527	05799279		273 Melaleuca preissiana	Lat 33 39'.0" S - Long 115 4'.0" E	
089	05578272		273 Melaleuca lanceolata	Lat 33 34'.3" S - Long 115 5'.0" E	
233	05598680		273 Eucalyptus marginata ssp marginata	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
		<b>ONAGRACEAE</b>			
474	05701988		66 Pterostylis recurva	Lat 33 39'.0" S - Long 115 6'.0" E	
483	05702054		66 Lyperanthus serratus	Lat 33 33'.0" S - Long 115 4'.0" E	
577	06083838		66 Thelymitra benthamiana	Lat 33 33'.0" S - Long 115 4'.0" E	
456	05681154		66 Diuris aff amplissima	Lat 33 34'.0" S - Long 115 5'.0" E	Sept
514	05748143		66 Thelymitra crinita	Lat 33 35'.0" S - Long 115 5'.0" E	
468	05681103		66 Caladenia macrostylis	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
466	05681111		66 Caladenia longicauda ssp clivicola (P1)	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
521	05744997		66 Elythranthera emarginata	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
459	05681073		66 Eriochilus dilatus ssp multiflorus	Lat 33 39'.0" S - Long 115 6'.0" E	May
500	05748216		66 Microtis media ssp densiflora	Lat 33 40'.0" S - Long 115 6'.0" E	
454	05673178		66 Pterostylis vittata	Lat 33 39'.0" S - Long 115 6'.0" E	
457	05673232		66 Caladenia flava ssp flava	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
529	05799570		66 Prasophyllum brownii	Lat 33 39'.0" S - Long 115 4'.0" E	
496	05751281		66 Elythranthera brunonis	Lat 33 35'.0" S - Long 115 5'.0" E	Oct
481	05702011		66 Thelymitra antennifera	Lat 33 33'.0" S - Long 115 4'.0" E	
480	05702003		66 Cyanicula gemmata	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
551	06028446		66 Caladenia chapmanii	Lat 33 36'.0" S - Long 115 6'.0" E	Sept
495	05751373		66 Caladenia latifolia	Lat 33 38'.0" S - Long 115 9'.0" E	Oct
502	05748194		66 Diuris longiolia (and 502B)	Lat 33 39'.0" S - Long 115 6'.0" E	Aug
513	05748186		66 Caladenia attigens ssp attigens	Lat 33 35'.0" S - Long 115 4'.0" E	Oct
469	05681081		66 Caladenia longicauda susp clivicola x gardneri	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
606	06255752		66 Prasophyllum aff. Parvifolium		

Nat	Perth	Fam Species	Location	Flower
611	06417140	66 <i>Cyanicula sericea</i>	Lat 34 40'.0" S - Long 115 4'.0" E	Sept
473	05741475	66 <i>Caladenia longicauda</i> ssp <i>clivicola</i> x <i>gardneri</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
		<b>OXALIDACEAE</b>		
622	06385214	168 <i>Oxalis purpurea</i>		
		<b>PAPPILLIONACEAE</b>		
034	05620686	165 <i>Daviesia decurrens</i>	Lat 33 33'.0" S - Long 115 4'.0" E	June
687	05521645	165 <i>Daviesia horrida</i>	Lat 33 33'.5" S - Long 115 4'.0" E	Aug
508	05600847	165 <i>Daviesia cordata</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
177	05633168	165 <i>Viminaria juncea</i>	84.2-21.7/86.4-19.3/84.3-20.6/	Nov-Dec
676	05598702	165 <i>Kennedia coccinea</i>	82.3-22.4/	Sept-Oct
278	05598494	165 <i>Isotropis cuneifolia</i> subsp <i>cunefolia</i>	M7?/	Sept
304	05521653	165 <i>Kennedia prostrata</i>	Lat 33 33'.0" S - Long 115 4'.0" E	July
424	05799333	165 <i>Brachysema praemorsum</i> N59	Lat 33 34'.0" S - Long 115 0'.5" E	Sept
055	05521904	165 <i>Hovea trisperma</i>	81.7-21.7/81.6-22.5/	AugSept
537	05521882	165 <i>Hovea elliptica</i>	83.322.2/81.9-22.2/82.3-23.2/	AugSept
052	05598508	165 <i>Hardenbergia comptoniana</i>	R.36429/29844/26524/23572/31591	July
050	05637546	165 <i>Gompholobium polymorphum</i> (yellow)	Lat 33 39'.0" S - Long 115 6'.0" E	Nov
534	05633206	165 <i>Gompholobium knightianum</i>	Lat 33 35'.0" S - Long 115 5'.0" E	Sept-Nov
048	05666317	165 <i>Sphaerolobium medium</i>	81.4-22.4/82.1-22.1/81.4-22.6/	Oct
046	05637635	165 <i>Chorizema reticulatum</i> P 3	Lat 33 34'.0" S - Long 115 6'.0" E	Sept
042	05578523	165 <i>Eutaxia virgata</i>	Lat 33 37'.0" S - Long 115 7'.0" E	Sept
044	05600839	165 <i>Eutaxia obovata</i>	Lat 33 39'.0" S - Long 115 6'.0" E	Sept
509	05666244	165 <i>Templetonia retusa</i>		
298	05598613	165 <i>Bossiaea eriocarpa</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
524	05620694	165 <i>Hovea chorizemifolia</i>		
051	05598478	165 <i>Chorizema rhombeum</i>	Lat 33 34'.0" S - Long 115 4'.0" E	Sept-Oct
058	05666651	165 <i>Gastrolobium spinosum</i>	Lat 33 35'.0" S - Long 115 6'.0" E	Nov
230	05666503	165 <i>Gompholobium ovatum</i>	Lat 33 39'.0" S - Long 115 6'.0" E	Oct
231	05607868	165 <i>Gompholobium confertum</i>	Lat 33 39'.0" S - Long 115 6'.0" E	Dec
035	056000812	165 <i>Kennedia carinata</i>	Lat 33 33'.0" S - Long 115 4'.0" E	
043	05600820	165 <i>Chorizema diversifolium</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Aug Nov
327	05666694	165 <i>Chorizema aciculare</i> ssp <i>aciculare</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Sept-Oct
399	05600952	165 <i>Bossiaea ornata</i>	Lat 33 34'.0" S - Long 115 0'.5" E	Sept-Oct
470	05666325	165 <i>Gompholobium marginatum</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
036	06738575	165 <i>Daviesia preissii</i>	Lat 33 37'.0" S - Long 115 7'.0" E	April
037	05578647	165 <i>Bossiaea linophylla</i>	Lat 33 34'.0" S - Long 115 0'.5" E	Sept Nov
302	05578248	164 <i>Mirbelia dilatata</i>		
057	05578256	165 <i>Oxylobium lineare</i>	Lat 33 37'.0" S - Long 115 7'.0" E	
229	05637554	165 <i>Gompholobium tomentosum</i>	Lat 33 39'.0" S - Long 115 6'.0" E	Nov
		<b>PHILLYDRACEAE</b>		
305	05666376	50 <i>Philydrella drumondii</i>		
		<b>PHORMIACEAE</b>		
371	05672473	054E <i>Dianella revoluta</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
351	05632986	054E <i>Dianella brevicaulis</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
		<b>PITTOSPORACEAE</b>		
627	05668115	152 <i>Billardiera floribunda</i>	Lat 33 33'.0" S - Long 115 0'.4" E	Jan
423	05607906	152 <i>Marianthus tenuis</i>		
498	05633184	152 <i>Sollya heterophylla</i>		
261	05668107	152 <i>Billardiera variifolia</i>	Lat 33 33'.0" S - Long 115 4'.0" E	Dec
116	05701953	152 <i>Pittosporum phylliraeoides</i>		

Nat	Perth	Fam	Species	Location	Flower
		<b>POACEAE</b>			
173	05668026		31 Spinifex hirsutus	R.46/R.23572/R.29842/	
520	05632854		31 Spinifex longifolius		
658	05578639		31 Tetrarrhena laevis		
641	05748151		31 Lagurus ovatus *		
620	06416802		31 Briza maxima *	Lat 33 39'.0" S - Long 115 0'.2" E	Oct
239	06385230		31 Briza minor *	Lat 33 39'.0" S - Long 115 0'.2" E	Oct
646	05578310		31 Themeda triandra (extension of range)		
		<b>POLYGALACEAE</b>			
315	06385362		183 Polygala myrtifolia *		
390	05607817		183 Comesperma calymega	Lat 33 39'.0" S - Long 114 6'.0" E	Dec
014	05666384		183 Comesperma ciliatum	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
315	05666767		183 Comesperma virgatum	Lat 33 39'.0" S - Long 115 6'.0" E	Oct
228	05578612		183 Muchlenbeckia adpressa		
		<b>PRIMULACEAE</b>			
295	06611265		293 Samolus junceus		
283	06083919		293 Anagallis arvensis var. saerulea	Lat 33 33'.0" S - Long 115 4'.0" E	
		<b>PROTEACEAE</b>			
181	05521637		90 Grevillea trifida	Lat 33 34'.0" S - Long 115 5'.0" E	Aug
102	05600529		90 Adenanthos meisneri	Lat 33 36'.0" S - Long 115 6'.0" E	Sept
341	05620821		90 Synaphea gracillima		
675	05888344		90 Banksia grandis	Lat 33 34'.0" S - Long 115 0'.5" E	Aug
446	05600731		90 Dryandra sessilis var. cordata (P 2)	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
103	05701775		90 Petrophile linearis	W Harrison Bay MRP	
241	05888352		90 Banksia attenuata	Lat 33 39'.0" S - Long 115 0'.2" E	May
096	05666392		90 Petrophile linearis		
549	05521491		90 Hakea trifurcata		
567	05673151		90 Dryandra lindleyana var. mellicula	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
608	05521416		90 Synaphea gracillima		
306	05607884		90 Persoonia longifolia		
402	05667933		90 Hakea ruscifolia		
451	05578469		90 Hakea prostrata		
097	05521874		90 Hakea lissocarpha	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
393	05521912		90 Stirlingia latifolia		
125	05600774		90 Persoonia longifolia		
180	05521823		90 Grevillea quercifolia	Lat 33 35'.0" S - Long 115 6'.0" E	Sept
100	05598419		90 Hakea amplexicaulis	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
118	05672422		90 Dryandra bipinnatifida ssp. bipinnatifida	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
286	05521424		90 Synaphea petiolaris		
		<b>RANUNCULACEAE</b>			
067	05578620		119 Clematis linearifolia	Lat 33 38'.0" S - Long 115 9'.0" E	Sept
515	05598664		119 Clematis pubescens	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
259	05600685		119 Ranunculus colonorum		
		<b>RESTIONACEAE</b>			
450	05673194		39 Desmodcladus fasciculatus (f)	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
383	05673208		39 Desmodcladus fasciculatus (m)	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
462	05620783		39 Hypolaena exsulca (m)		
330	05701996		39 Desmodcladus asper (m)	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
		<b>RHAMNACEAE</b>			
3	05521521		215 Trymalium ledifolium var. rosmarinifolium		
005/6	05521432		215 Cryptandra arbutiflora var. tubiflora	Lat 33 35'.0" S - Long 115 5'.0" E	Sept
557	05521769		215 Spyridium globulosum		

Nat	Perth	Fam	Species	Location	Flower
		<b>RUBIACEAE</b>			
84	05578558	331	<i>Opercularia hispidula</i>		
356	05637473	331	<i>Opercularia vaginata</i>		
		<b>RUTACEAE</b>			
8	05598362	175	<i>Diplolaena dampieri</i>	Lat 33 34'.0" S - Long 115 5'.0" E	Sept
	05666295	175	<i>Boronia tenuis</i>	Lat 33 34'.0" S - Long 115 0'.5" E	Sept
		<b>SANTALACEAE</b>			
139	5668166	92	<i>Leptomeria cunninghamii</i>		
228	5598575	92	<i>Leptomeria pauciflora</i>		
544	5888301	92	<i>Santalum acuminatum</i>		
		<b>SAPINDACEAE</b>			
124	05667925	207	<i>Dodoneae ceratocarpa</i> (m and f)	Lat 33 33'.0" S - Long 115 4'.0" E	June
		<b>SCROPHULARIACEAE</b>			
	05744946	316	<i>Gratiola pubescens</i>	Lat 33 34'.0" S - Long 115 4'.0" E	Nov
235	06255671	316	<i>Bartsia trixago</i>	Lat 33 33'.0" S - Long 115 0'.4" E	Nov
636	05888336	316	<i>Parentucellia viscosa</i> *		
		<b>SOLANACEAE</b>			
235	05598710	315	<i>Solanum symonii</i> (fruit confirmed)		
636	06416764	315	<i>Solanum linnaeanum</i> *		
		<b>STACKHOUSIACEAE</b>			
005/6	05601126	202	<i>Stackhousia monogyna</i>		
4	05666406	202	<i>Tripterococcus brunonis</i>		
		<b>STERCULIACEAE</b>			
391	05598621	223	<i>Rulingia cygnorum</i>		
002	05600758	223	<i>Thomasia triphylla</i>		
171	05620678	223	<i>Thomasia foliosa</i>		
406	05578213	223	<i>Thomasia rhynchocarpa</i>		
		<b>STYLIDIACEAE</b>			
643	05632722	343	<i>Stylidium amoemum</i> var <i>amoemum</i>		
083	05799309	343	<i>Stylidium calcaratum</i>	Lot 5 Yall Fields	
493	05751365	343	<i>Stylidium diversifolium</i>	Miles Lot 50	
310	05666414	343	<i>Stylidium megacarpum</i>		
307A	05778302	343	<i>Stylidium petiolare</i>		
313	05601134	343	<i>Stylidium affine</i>		
366	05632730	343	<i>Stylidium adnatum</i>		
348	05666252	343	<i>Levenhookia pusilla</i>		
293	06028373	343	<i>Stylidium brunonianum</i>		
569	05578493	343	<i>Stylidium crassifolium</i>		
582	05666740	343	<i>Stylidium schoenoides</i>		
		<b>THYMELAEACEAE</b>			
66	05578477	263	<i>Pimelea ferruginea</i>		
492	05637511	263	<i>Pimelea hispida</i>		
186	05632714	263	<i>Pimelea imbricata</i> var <i>piligera</i>		
555	05600855	263	<i>Pimelea preissii</i>		
258	05521513	263	<i>Pimelea suaveolens</i> ssp <i>suaveolens</i>		
064	06837786	263	<i>Pimelea angustifolia</i>		
063	05598435	263	<i>Pimelea rosea</i> ssp <i>rosea</i>		
		<b>TREMANDRACEAE</b>			
568	05521505	182	<i>Tetradlea setigera</i>		
		<b>VIOLACEAE</b>			
171	05521459	243	<i>Hybanthus floribundus</i> ssp <i>floribundus</i>		

Nat	Perth	Fam	Species	Location	Flower
		<b>XANTHORRHOACEAE</b>			
654	No code	054D	Xanthorrhoea preissii		
400	05607876		Xanthorrhoea gracilis		
		<b>ZAMIACEAE</b>			
113	5607892		016A Macrozamia reidleyi		

# Meelup Mallee

Endangered Flora of Western Australia

**If you think you've seen this plant, please call  
CALM South West Capes on (08) 9752 1677**

Commonly known as the Meelup mallee, *Eucalyptus phytalis* is a small mallee or tree to 5 m tall, with distinctive coarse, non-fibrous bark overlaying thick corky bark.

Meelup mallee blooms in February and March, when masses of white flowers are produced in the axils of terminal leaves.

The species is closely related to *Eucalyptus decipiens*, but differs in having smaller buds and fruit, broadly conical opercula (the cap on the bud) and in not having emarginate (a small notch at the leaf tip) juvenile leaves.

Meelup mallee was first collected in 1982, and named in 1992.

Kings Park and Botanic Garden staff have undertaken research into the genetics of the species. During this research they discovered that the only known population is in fact a single plant (clone) which may be up to 3600 years old.

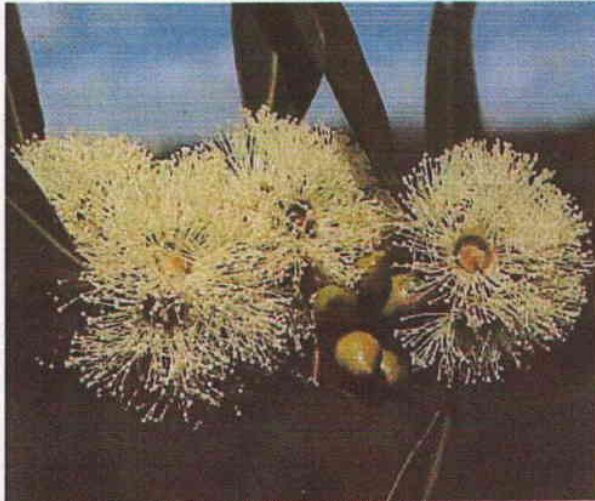
Meelup mallee was ranked as Critically Endangered in 1995 but, through successful recovery actions, has since been re-ranked as Endangered.

CALM has set up the Central Forest Region Threatened Flora Recovery Team to co-ordinate recovery actions addressing the most threatening processes affecting the species' survival in the wild. (See overleaf.)

Threats include accidental damage through road maintenance, no germination from seed (the species having very poor seed viability), and insect damage.

The species is known from only one roadside population in the Meelup area, and we are eager to know of any others.

If unable to contact the District office on the above number, please phone CALM's Wildlife Branch on (08) 9334 0422.



A close-up of the creamy-white flowers typical of the species. Photo - A. Brown



A fully grown tree. Note the low branching habit. Photo - A. Brown

## Recovery of a Species



CALM is committed to ensuring that Critically Endangered taxa do not become extinct in the wild. This is done through the preparation of a Recovery Plan (RP) or Interim Recovery Plan (IRP), which outlines the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of threatened taxa in the wild and begin the recovery process.

IRPs are prepared by CALM and implemented by Regional or District Recovery teams consisting of representatives from CALM, Kings Park and Botanic Garden, community groups, private landowners, local Shires and various government organisations.

# Meelup Mallee

**Essential recovery actions that have been implemented to protect the species include:**

**Protection from current threats:** The erection of signs that mark the site of the population; the treatment and monitoring of insect borers; the development of a fire protection plan; and the regular monitoring of the health of the population.

**Protection from future threats:** The maintenance of dieback hygiene; ensuring that relevant authorities, land owners and CALM personnel are aware of the species and the need to protect it; and that all are familiar with the threatening processes identified in the Interim Recovery Plan.

**Desirable recovery actions, which are being progressively implemented, include:**

Enhancing plant numbers by removal of weeds, amelioration of some other limiting factor, or by direct propagation and translocation techniques; the collection of seed; the maintenance of live plants away from the wild (i.e. in botanical gardens); conducting further surveys; and researching the biology and ecology of the Meelup mallee.

IRPs will be deemed a success if essential recovery actions have been implemented, and identified threatening processes have been removed within three years of their approval.



This photo shows the distinctive coarse bark typical of the species. Photo - F. Bunny



Masses of white flowers are produced in February and March. Photo - A. Brown



Department of Conservation and Land Management

33.54429 °S 115.04129 °E / 33.5999 °S 115.111 °E

Meelup Regional Park

\* Date Certainty Seen Location Name Method

**Schedule 1 - Fauna that is rare or is likely to become extinct*****Pseudocheirus occidentalis* Western Ringtail Possum 3 records**

This species occurs in areas of forest and dense woodlands and requires tree hollows and/or dense canopy for refuge and nesting.

Date	Certainty	Seen	Location Name	Method
1969	1	2	Crown Reserve	Day sighting
1994	1	1	Meelup Regional Park	Night sighting
2005	1	1	Eagle Bay	Night sighting

***Engaewa reducta* Dunsborough Burrowing Crayfish 1 records**

The species belongs to a genus of strong burrowers that spend nearly all their lives underground. They inhabit sandy or loamy soil in heathlands dominated by myrtaceous shrubs. It is currently known in the vicinity of Yelverton south of Dunsborough.

Date	Certainty	Seen	Location Name	Method
1960	1	4	Dunsborough	Caught or trapped

**Priority Two: Taxa with few, poorly known populations on conservation lands*****Ninox connivens connivens* Barking Owl (southwest pop) 1 records**

This species inhabits forest and woodland and is becoming increasingly rare in the south-west. It preys on invertebrates and small mammals.

Date	Certainty	Seen	Location Name	Method
1996	1	1	Dunsborough	Night sighting

**Priority Four: Taxa in need of monitoring*****Macropus irma* Western Brush Wallaby 2 records**

This species occurs in areas of forest and woodland supporting a dense shrub layer.

Date	Certainty	Seen	Location Name	Method
1969	1	1	Crown Reserve	Night sighting
2005	1	7	Eagle Bay	Night sighting

**Priority Five: Taxa in need of monitoring (conservation dependent)*****Isodon obesulus fusciventer* Quenda 3 records**

This species prefers areas with dense understorey vegetation, particularly around swamps and along watercourses, that provides ample protection from predators.

Date	Certainty	Seen	Location Name	Method
1969	1	1	Crown Reserve	Caught or trapped
1994	1	1	Meelup Regional Park	Diggings
2005	1	3	Eagle Bay	Caught or trapped

\* Information relating to any records provided for listed species:-

Date: date of recorded observation

Certainty (of correct species identification): 1=Very certain; 2=Moderately certain; and 3=Not sure.

Seen: Number of individuals observed.

Location Name: Name of reserve or nearest locality where observation was made

Method: Method or type of observation



TABLE 2. Cumulative list of all species.  
Introduced species are identified

**FROGS**

*Crinia georgiana*  
*Crinia glauerti*  
*Geocrinia leai*  
*Heleioporus eyrei*  
*Heleioporus inornatus*  
*Limnodynastes dorsalis*  
*Pseudophryne guentheri*  
*Metacrinia nichollsi*  
*Litoria adelaidensis*

**GECKOS**

*Phyllodactylus marmoratus marmoratus*

**LEGLSS LIZARDS**

*Aprasia pulchella*  
*Delma australis*

**DRAGON LIZARDS**

*Pogona minor minor*

**SKINKS**

*Bassiana trilineata*  
*Cryptoblepharus plagiocephalus*  
*Ctenotus delli*  
*Ctenotus impar*  
*Egernia kingii*  
*Egernia napoleonis*  
*Hemiernis peronii*  
*Lerista distinguenda*  
*Menetia greyii*  
*Morethia lineoocellata*  
*Tiliqua rugosa rugosa*

**MONITORS**

*Varanus rosenbergi*

**SNAKES**

*Ramphotyphlops australis*  
*Pseudonaja affinis affinis*  
*Suta nigriceps*

**MAMMALS**

*Echidna*  
Common Dunnart  
Southern Brown Bandicoot  
Western Ringtail Possum  
Common Brushtail Possum  
Honey Possum  
Western Grey Kangaroo  
Western Brush Wallaby  
\* Black Rat  
\* Rabbit  
\* Fox  
\* Feral Cat

## APPENDIX D

### **Trails Strategy**

# MEELUP REGIONAL PARK TRAILS MANAGEMENT PLAN

STRATEGY UPDATE, MARCH, 2007

## 1. INTRODUCTION

The tracks and trails in M.R.P. consist of walking trails, plus service vehicle tracks and fire breaks. The Coastal Walkway provides a connection to the National Park at Cape Naturaliste and the Cape to Cape long distance Track. There is a potential for an eventual connection to a future walking or dual use path to Busselton. There are no allowed bike trails at the present time, though it is possible that these will be provided in the future.

(see map 10, *Existing and Proposed Tracks and Trails*),

## 2. WALKTRAILS

### 2.1 Standards.

All walk trails in the Park shall be identified by Australian Standards classification.

### 2.2. The walk trail system.

M.R.P. walk trails are;

- A Coastal Walkway or trail extending from the southern boundary at Forrest St to Eagle Bay.  
*Variable, Class 1 to 3.*
- An unofficial coastal trail from Eagle Bay to meet the beach at Bunker Bay, some passing through private land, thence via the beach to meet the Leeuwin Naturaliste National Park at Cape Naturaliste.  
*Class 3 to 5.*
- A circuit trail to a lookout above Pt Picquet, from Meelup Brook to the Coastal Walkway near Gannet Rock  
*Class 3.*
- A short disability use trail along Meelup Brook from Meelup Beach for 250m.  
*Class 1.*
- A short disability use trail from Reidle Park at Eagle Bay to the Baudin Memorial.  
*Class 1.*
- An unofficial, but walkable, trail along Meelup Brook, beyond the disability trail, to the old dam, and thence via the firebreak to Sheens Rd.  
*Class 3.*
- A short steep trail from Castle Rock to the historic Whale Lookout.  
*Class 4.*
- A trail from Bird Crescent at the southern boundary, to the Coastal walkway at Curtis bay.  
*Class 1, 4.*

- A trail from Gifford Road entry on the southern boundary via the edge of the golf course to the Coastal walkway at the northern end of Curtis Bay.

*Class 4.*

- An infrequently used trail and track, known as the “car-rally” track. It starts at the bypass road above Meelup Beach, and then via an old road and a rough goat track, connects to the bitumen road at the top of the hill near the junction of Meelup Rd and Castle Rock Rd.

*Variable Class 3 to 5.*

These trails are of varying standards, from well made wheelchair accessible, to unmarked, rocky, barely discernible footpads, as at between Rocky Point and Bunker Bay or the beach at Bunker Bay. A program to develop and improve these trails was implemented in 1995. This program has been designed to meet the needs of all on-foot users of Meelup Regional Park for the immediate future.

### 2.3. Walk trail Users

Walkers generally fall into one of three categories:

- **Casual Users:** Day visitors to the Park, usually Meelup Beach or Castle Bay, includes families with children and prams, in casual beach footwear, who undertake a short walk as part of the day’s activities.
- **Recreational Hikers:** Purposely visit to walk in the Park, which includes fishermen accessing coastal points. Many walk long sections, or through the Park as part of a longer hike. Better footwear is necessary.
- **Local Users:** Residents living near the perimeter of the Park who walk sections on a regular basis.

**Cyclists:** Currently, there are no facilities for cyclists, but cyclists are regularly using, and damaging, the walktrails. A demand does exist to make provision for bikes if a sustainable solution can be found.

### 2.4. Required standards.

To make provision for all these groups into the future, a range of different classes of trail has been planned, some of which are already in place. To achieve these aims a planned network should be composed of:

- Some high quality trails up to 1.5m or 2m. wide, with a firm surface and easy gradients, some suitable for wheelchairs, with interpretive signage, radiating out a short distance from Meelup Beach and Castle Bay and adjoining townships at either end. The intention is to provide the highest quality trails where the greatest use by casual walkers occurs.
- A coastal trail of varying quality along the whole coastline.
- A network of inter-linking trails offering a variety of experiences and distances, providing access to differing areas and some circuit routes. Some trails will remain wilderness or adventure trails to cater for the more dedicated hikers.

At least one route for cyclists from Dunsborough to Meelup beach (and perhaps beyond) should be considered. It is not safe to allow cyclists to use existing trails and constructed walkways because of potential conflict with walkers. These paths are purposely designed for intimate pedestrian use. Their sight distances and widths are too restricted for dual use and they can include difficult rocky terrain, steps and steep slopes subject to erosion. All trails must be clearly defined and signposted.

#### 2.5 Priorities for development. (Existing tracks and extensions)

- a. A trail from Eagle Bay via Rocky Point to Bunker Bay.  
A strategy is being developed to overcome problems of the existing trail traversing private property and to relocate the route where necessary. Staged construction of this trail is proposed as funds become available.
- b. Bird Crescent to Curtis bay, below the access track from Gifford Road. Up grade where necessary, with steps and relocation of short sections. Pave with limestone or gravel as required.
- c. Meelup Brook to Sheen Road firebreak  
This trail is used by walkers from the accommodation at Wises Winery and others, to access the beach. Some unofficial signage has been erected by persons unknown. The path passes through a Dieback infected area.  
Consider surfacing with limestone or other measure to combat the threatened spread of Dieback to clean areas. Install signage as appropriate.
- d. Gifford Road to Curtis Bay North, via the edge of the golf course.  
This unimproved track is suffering from erosion, and needs erosion control, particularly where it descends from the golf course and is being damaged by bikes. Upgrade with steps.
- e. Car Rally track. Upgrade the unformed track which joins the two sections of old gravel road, and delineate the last section which meets the bitumen opposite Castle Rock Rd.
- f. Consider upgrading the disability use pathway up Meelup Brook, as far as platform lookout, with hot mix seal.

This program would consolidate existing trails within the Park.

#### 2.6 Potential new routes

To develop a network of inter linking and circuit walks, several new routes should be examined. Some of these will traverse pristine and uncontaminated bush which merits consideration of the implications.

- a. Meelup Brook to Castle Rock Rd /Meelup Road junction. The existing track up Meelup Brook firebreak to the junction with the boundary firebreak at Sheens Rd is in frequent use. From here there are three options to provide return circuit routes:
  - Following the firebreak north-east to Eagle bay will remain a viable route.

- A connection is needed towards the south to connect with the “car-rally track” at the Castle Rock Road junction. This would complete a return circuit to Meelup Beach.
- A trail from the above junction to the coastal track at Castle Bay will provide a choice of alternative return routes to Meelup Beach. This trail could be on either side of the bitumen road and would be quite steep.

On the upper (Meelup) side is an old road, quite overgrown, but which could provide a fair base for a track. On the lower, creek side, an opportunity exists to build a very attractive path along the creek. This could be an expensive option and would raise questions about introducing walkers to a pristine creek in very good condition, and risking contamination or degradation.

- b. Meelup Hills subdivision.  
There is evidence of walkers from the subdivision using firebreak tracks and accessing the Whale Lookout and Coastal Track at present. This is a viable route, with access from the rehab area gate as well as Little Big Rock. However, this also raises issues of Dieback control, which must be addressed before advertising and signposting this route.
- c. Consideration should be given to allowing a route between the north-west boundary firebreak and the Lookout Circuit trail. A firebreak extends eastwards to within 200 metres of the Lookout. This would allow a circuit return route from Meelup Beach as well as a circuit return route from Eagle bay. However, this would also traverse uncontaminated bush.

## 2.7 Maintenance

All capital works need maintenance at some time to prevent them degrading to an unacceptable condition.

Walking tracks which are surfaced with naturally occurring materials will erode under the effects of rain, wind gradient, and traffic. The only question is at what rate. Even manufactured hard surfaces do not last for ever though they cost a lot more.

Erosion may be slow, insidious, and sometimes almost unnoticed but can vary hugely under different conditions. To retain the Parks tracks and trails in perpetuity a system of regular inspection and reporting on the condition of all sections of trail needs to be instituted. Recommended action to help sustain these assets needs to be based on observed departures from an adopted standard of surface finish. This standard should form part of the M.R.P. Trails Management plan.

Maintenance, being funded from Council’s budgeted funding, should be treated in two ways;

- As minor routine maintenance to cover localised occurrences that crop up anywhere from time to time.
- As specific maintenance to cover systematic degradation of sections of route in accordance with a management plan.

Minor maintenance jobs are dealt with on an as- needs basis from time to time by volunteers, or by Shire workers.

All trails are pruned once a year in the spring, by volunteers and as required at other times.

## 2.8. Signage

A signage policy is yet to be identified and adopted. It should include guidelines to marking trails, to include destination and distance signage at every terminal and junction, and reassurance markers at intervals on all trails. Interpretive nature signage could be included.

## 2.9 Guidelines for all trail construction.

A current policy ensures that all walktrails should remain unsealed, but may be surfaced with natural materials. Until such time as the results of a study proves that limestone is not injurious to the bushland, future use of this material should be suspended.

Before commencing any work on walktrails, certain procedures must be undertaken, as follows:

- Establish demand, present and future.
- Establish land ownership.
- Consult Aboriginal Elders re heritage.
- Impact assessment
  - DRF
  - Vegetation.
  - Habitat.
  - Dieback control
  - Landscape values
  - Erosion potential
- Establish design of path.  
Location, width, materials to be used, construction methods.
- Establish rehabilitation plan for disturbed bush and relocated paths.
- Provide Committee with written report on all these issues for approval of project.

All work must be carried out in compliance with the MRP Management plan, and the 7 step Dieback Strategy followed.

To this date, walktrails have been successfully constructed using clay stabilized limestone, which after several years use, has proved to be hard wearing.

Some earlier trails constructed with an experimental use of limestone stabilized with DUSTEX, a lignum sulphate based additive, have not worn well and the fines on the surface have blown away, leaving a rough track.

### **3. SERVICE TRACKS AND FIREBREAKS**

A number of old 4wd tracks have been utilized throughout the Park and with the addition of several new sections, form a system of firebreaks and service tracks. These compartmentalise bush cells for planned control burns and to allow access to all areas of the Park for firefighting vehicles.

#### **3.1 Service tracks.**

The main service tracks, which are sometimes used as walktrails, are:

- Sheens Rd to Eagle Bay, via the north western boundary.
- The fauna corridor exit to Eagle Bay Rd (not officially part of Park)
- From the north west boundary, along Meelup Brook, to the Meelup Beach bypass road.
- From Cape Naturaliste Rd opposite Endicott Loop to the Whale Lookout.
- From the above track near the main gate entrance to the town water supply tank.
- Gifford Road Carpark to Curtis bay.
- Bird Crescent to the above track.

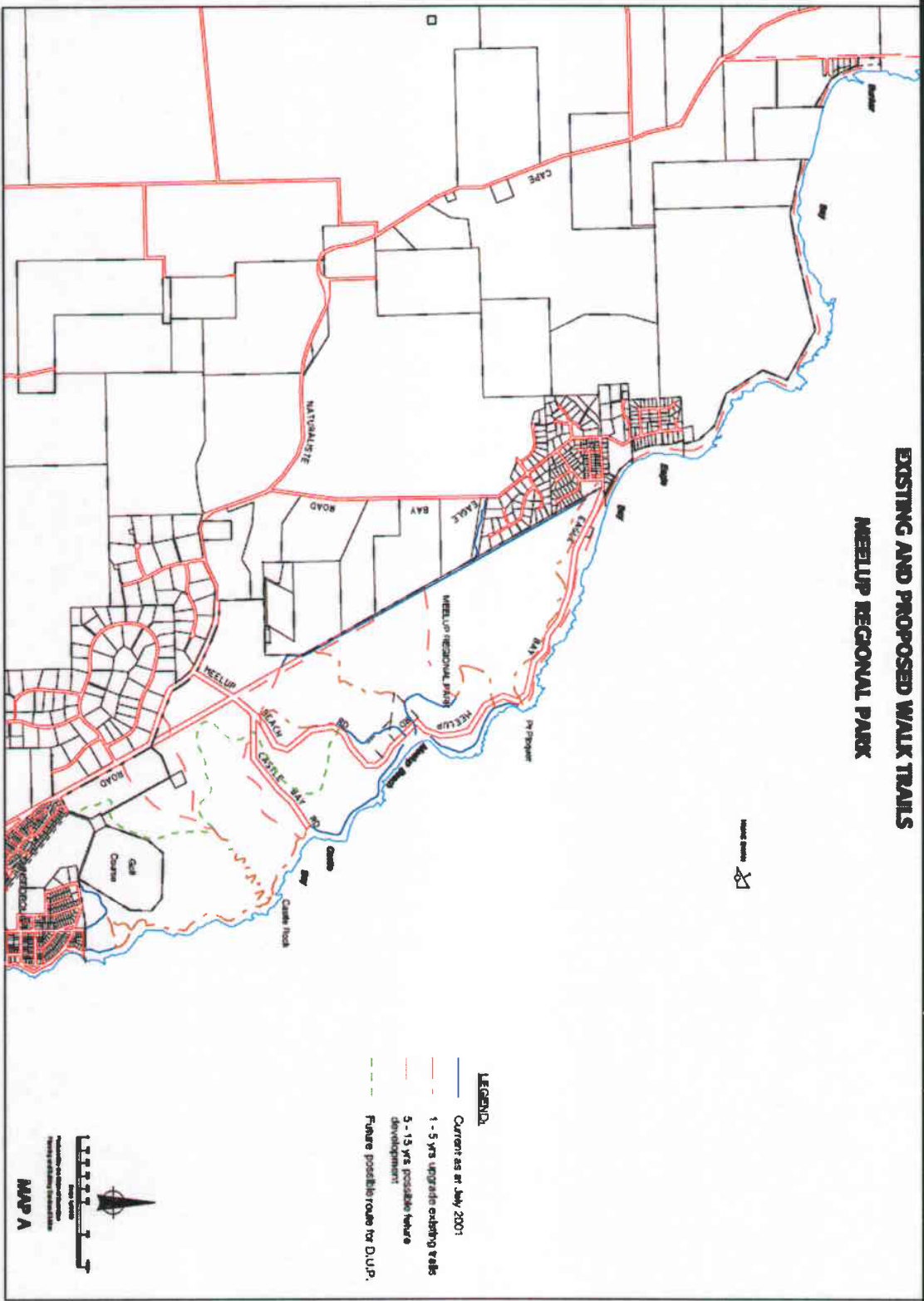
The condition of these trails is variable and has not been documented here. However, all tracks should be inspected from time to time and pruned where necessary and kept in a trafficable condition for 4wd vehicles.

#### **3.2 Firebreaks.**

There are in addition a number of cleared routes suitable for 4wd access used for control burns. These trails have been mapped and documented in the Fire Strategy attached to the M.R.P.Management Plan.



# EXISTING AND PROPOSED WALK TRAILS NEELUP REGIONAL PARK



## APPENDIX E

### Community consultation contacts