Meelup Regional Park Management Committee Agenda

25 November 2019

ALL INFORMATION AVAILABLE IN VARIOUS FORMATS ON REQUEST

city@busselton.wa.gov.au

CITY OF BUSSELTON

MEETING NOTICE AND AGENDA – 25 NOVEMBER 2019

TO: **THE MAYOR AND COUNCILLORS**

NOTICE is given that a meeting of the Meelup Regional Park Committee will be held in the Dunsborough and Districts Country Club, 40 Gifford Road, Dunsborough on Monday, 25 November 2019, commencing at 10.00am.

The attendance of Committee Members is respectfully requested.

DISCLAIMER

Statements or decisions made at Council meetings or briefings should not be relied on (or acted upon) by an applicant or any other person or entity until subsequent written notification has been given by or received from the City of Busselton. Without derogating from the generality of the above, approval of planning applications and building permits and acceptance of tenders and quotations will only become effective once written notice to that effect has been given to relevant parties. The City of Busselton expressly disclaims any liability for any loss arising from any person or body relying on any statement or decision made during a Council meeting or briefing.

MIKE ARCHER

CHIEF EXECUTIVE OFFICER

13 November 2019

CITY OF BUSSELTON

AGENDA FOR THE MEELUP REGIONAL PARK COMMITTEE MEETING TO BE HELD ON 25 NOVEMBER 2019

TABLE OF CONTENTS

1. DECLARATION OF OPENING AND ANNOUNCEMENT OF VISITORS

2. ATTENDANCE

Apologies

3. ELECTION OF PRESIDING MEMBER AND DEPUTY PRESIDING MEMBER

3.1 Mr Paul Needham, Director Planning and Development Services, will conduct the nomination and voting to elect a Presiding Member of the Meelup Regional Park Committee in accordance with section 5.12 of the *Local Government Act*.

3.2 Mr Paul Needham, Director Planning and Development Services, will conduct the nomination and voting to elect a Deputy Presiding Member of the Meelup Regional Park Committee in accordance with section 5.12 of the *Local Government Act*.

4. DISCLOSURE OF INTERESTS

5. CONFIRMATION OF MINUTES

5.1 Minutes of the Meelup Regional Park Committee Meeting held 29 July 2019

RECOMMENDATION

That the Minutes of the Meelup Regional Park Committee Meeting held 29 July 2019 be confirmed as a true and correct record.

6. REPORTS

6.1 MEELUP REGIONAL PARK MANAGEMENT PLAN

STRATEGIC GOAL	3. ENVIRONMENT Valued, conserved and enjoyed
STRATEGIC OBJECTIVE	3.2 Natural areas and habitats are cared for and enhanced for the enjoyment of current and future generations.
SUBJECT INDEX	Meelup Regional Park MR006
BUSINESS UNIT	Environmental Services
REPORTING OFFICER	Environmental Management Coordinator - Greg Simpson
AUTHORISING OFFICER	Director, Planning and Development Services - Paul Needham
NATURE OF DECISION	Executive: substantial direction setting, including adopting strategies, plans and policies (excluding local planning policies), tenders, setting and amending budgets, funding, donations and sponsorships, reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Current Plan Attachment B Draft Plan

OFFICER RECOMMENDATION

That the Council adopt the Draft Meelup Regional Park Management Plan at Attachment B for the purposes of community consultation.

EXECUTIVE SUMMARY

This report presents a review of Meelup Regional Park Management Plan and Council is asked to consider and endorse the draft Meelup Regional Park Management Plan 2019, for the purposes of further consultation with the community and key stakeholders, prior to development and consideration of the final document.

BACKGROUND

The Meelup Regional Park ('the Park') Management Plan ('the Plan') was last revised and endorsed (resolution C0901/020) by the Council in 2010, and has provided the strategic framework for management of the Park over the past 9 years. The current Plan is provided as Attachment A ('Current Plan'). A detailed review of the Current Plan has become necessary to ensure the City continues to manage the Park in a manner in line with community expectations.

The review of the Plan has adopted the style of management plans produced by the Department of Biodiversity Conservation and Attractions (DBCA) for conservation-focused reserves elsewhere in Western Australia, and is intended to provide a clear vision for the future management of the Park, for conservation and environmental enhancement and to allow recreation and other uses of the Park to occur, to the extent that they do not impair the conservation values of the Park.

The review process has focused on the key management issues for the Park and outlines 31 management objectives and 112 management actions as a response to these key issues. A revised draft Plan is provided as Attachment B ('Draft Plan').

In order to complete the review of the Plan, it will be necessary to consult with and receive submissions from the community and other key stake holders as may be identified prior to development of the final document, which then requires the consideration and approval of the Minister of Lands.

OFFICER COMMENT

The Draft Plan incorporates the key themes identified in the Current Plan, but in a new format, together with new information relating to the Park.

The Draft Plan also includes numerous minor amendments throughout the document, many of which reflect changes to legislation and management practises since 2010. The main amendments incorporated into the Draft Plan are:

- Section 5 '*Key Values'* includes additional information to describe the Park's key values.

- Section 8 '*Strategic Goals'* has been amended to link the Draft Plan to the City's *Strategic Community Plan 2017,* and to identify the key strategies within the draft MRPMP that contribute towards the achievement of Community Objective 3.2, in the City's *Strategic Community Plan 2017.*

- Section 14 *'Cross Boundary Management'* has been included as a new section in the Draft Plan. There are a number of cross boundary issues that require a proactive response and the development of good neighbour relationships, in order to implement appropriate management responses to issues such as resilience of species and ecosystems, environmental water flows, fire, weed and pest control.

- Section15 '*Compatible Land Management'* is included as a new section in the Draft Plan and considers the potential of remnant bushland reserves located in the vicinity of the Park to contribute towards to the biodiversity in the Park. These reserves are under the care and control of the City and include 3 reserves along Jingarmup Brook within the Eagle Bay townsite, reserve 11316 at the head waters of Jingarmup Brook and reserve 6229 located at the headwaters of Meelup Brook adjacent to Cape Naturaliste Road. The extension of the Draft Plan management responses to these isolated reserves would be for the purpose of implementing a coordinated approach to issues such as resilience of species and ecosystems, environmental water flows, fire, weed and pest control.

- Section 15 '*Compatible Land Management*' also includes a proposed management action relating to an unmade section of road reserve which intersects management units 6 and 7 within the Park. This unmade road reserve has good vegetation cover and is unlikely to be become part of the City's road network. While it is not intended to formally amalgamate the unmade road reserve into the Park (Reserve 21629), a change of use from 'road' to 'conservation and recreation' may be possible, for consistency of vesting purpose across the Park.

- Section 16 *'Ngari Capes Marine Park'* is included as a new section due to the gazettal of the Ngari Marine Park, June 2012. The preparation of the Draft Plan has been cognisant of the management arrangements for the Ngari Capes Marine Park, and the management issues that are likely to require inter-agency liaison and a complementary and consistent management approach such as the onshore location and maintenance of regulatory and interpretive signage.

- Section 19 'Climate' has been expanded to include potential issues that may be attributed to a changing climate, particularly the current trend of reduced rainfall, stream flow and increased average annual temperature. The Draft Plan proposes several management actions including the implementation of adaptive responses, which focus on improving the resilience of species and ecosystems to help reduce vulnerability to climate change.

- Section 20 *'Geology, Rocks, Landforms and Soils'* has been updated to include additional information and detailed mapping of the geology of the Park.

Statutory Environment

The Park is Reserve 21629 and is Crown Land over which the City has a management order. The reserve purpose is 'Conservation and Recreation'. The City has power to lease over the reserve, for a maximum period of 21 years and subject to the approval of the Minister for Lands (or their delegate), provided that any such lease is consistent with the reserve purpose. It is an 'A-Class' reserve, which means that any change to the management order requires Parliamentary consent.

Under the *Land Administration Act* (the LA Act) the Minister for Lands may place by way of a management order the care, control and management of a resere with a management body. A management order for the purpose of 'conservation and recreation', has been placed with the City.

Under section 49 of the LA Act the City may submit to the Minister for Lands for his or her approval, a plan for the development management and use of the Park for the purpose of the management order.

Relevant Plans and Policies

Preparation of reserve management plans is supported by the City's *Environment Strategy*, under strategic action 1.1 – *'continue to develop and review management plans for natural areas, including the application of fire management'.*

Financial Implications

Financial implications associated with this report relate only to the advertising and consultation on the Draft Plan.

Stakeholder Consultation

A working group comprising members of the Meelup Regional Park Committee and City staff have been involved in developing the Draft Plan over the past 2 years. This working group has endeavoured to include within the Draft Plan, the necessary strategic and operational management guidance considered appropriate for the long term management of the Park.

Subject to Council supporting the officer recommendation, it is proposed that consultation occur, including a media release; community information session to be coordinated (and advertised) during the consultation period; and consultation with other key stakeholders as may be identified. The Draft Plan would then need to be re-considered by the Council in light of any submissions received prior to its subsequent determination and forwarding for consideration to the Minister for Lands.

Risk Assessment

No risks of a medium or greater level have been identified.

Options

The Council may resolve not to support the officer recommendations to endorse the draft MRPMP for the purpose of community and stakeholder consultation or may amend draft MRPMP prior to its endorsement for consultation purposes.

CONCLUSION

Undoubtedly one of the most striking characteristics of the Park is its scenic beauty with views of the ocean, the spectacular coastline and natural landscape. These scenic and physical features are central to all other elements that contribute to the character of the Park.

By reviewing the Plan, the City will renew and reinforce its commitment to protecting its natural environment, as an environmentally responsible and progressive organisation and ensure the City continues to manage the Park in a manner in line with community expectations.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

It is envisaged that implementation of the officer recommendation to commence consultation with the community and stakeholders on the draft MRPMP would commence immediately following Council supporting the officer recommendation, with the finalised review of the draft MRPMP to be completed and a further report presented to the Council by the end of the 2019 calendar year.

ATTACHMENT A - MEELUP REGIONAL PARK MANAGEMENT PLAN 2010

Government of **Western Australia**
Department of **Regional Development and Lands**
Lands Division

Your ref: DWS 1545957
Our ref: 01424-1977/07 (Job No 093114)
Enquiries: Kylie Binks Telephone: (08) 9791 0836
Facsimile: (08) 9791 0835
E-mail: kylie.binks@lands.rdl.wa.gov.au

SHIRE OF BUSSELTON
APPLICATION No.
RECEIPT No.
CIO ID
$
27 AUG 2010
PROPERTY ID
DOC ID
SCAN Y / N
RTN
SHIRE OF BUSSELTON

25 August 2010

Chief Executive Officer
Shire of Busselton
Locked Bag 1
BUSSELTON WA 6280

Attention: Ms Jennifer May

Dear Sir/Madam,

RESERVE 21629 (MEELUP REGIONAL PARK) MANAGEMENT PLAN

Thankyou for your letter dated 24 August 2010. Please find fully endorsed management plan enclosed for your retention.

Do not hesitate in contacting me on 9791 0836 if I can be of further assistance.

Yours sincerely

K. Binks

For Manager
State Lands – South West

093114kb03

Level 6, "Bunbury Tower", 61 Victoria Street, Bunbury, Western Australia 6230
Tel: (08) 9791 0836 Fax: (08) 9791 0835
www.rdl.wa.gov.au ABN 28 807 221 246

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
PO Box 614
Dunsborough WA 6281

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.

Guidance has also been received from the Department of Environment and Conservation (DEC), in particular thanks to Rod Quartermain, Paul McLussky, Denham Bennetts, Aminya Ennis, Greg Mair and Neil Taylor. The Shire of Busselton has provided support for the project, in particular Alan Whitfield and Leo Clifford.

Preparation of the Plan was funded partially by a grant provided by the Lotterywest.

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.

49

APPROVED FOR THE PURPOSES OF SECTION ~~46~~
OF THE LAND ADMINISTRATION ACT 1997

by Order of the Minister for Lands
This document is still subject to the registration requirements of the Transfer of Land Act 1893.

Matthew Smith
CEO Delegation No 5.

IAN STUBBS
SHIRE PRESIDENT

SHIRE OF BUSSELTON
VIAS TUAS CURIMUS
COMMON SEAL

Table of Contents

List of Tables

List of Figures

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.

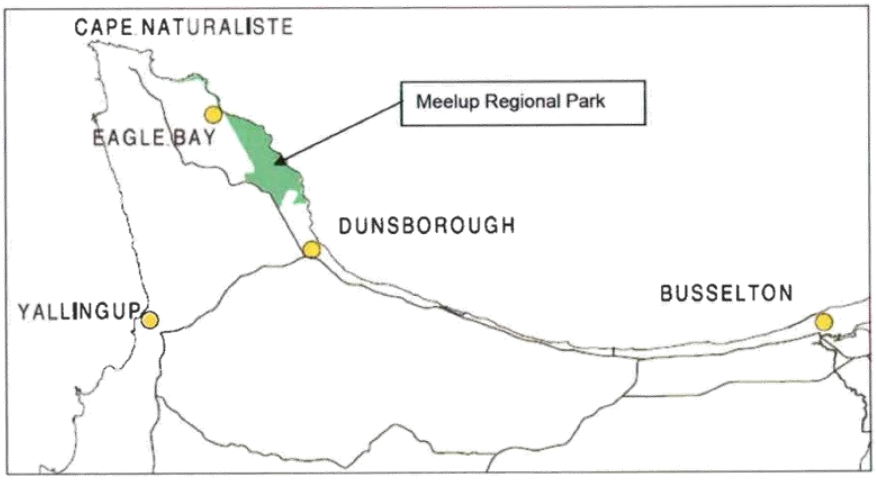


Figure 1 Locality Map

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.

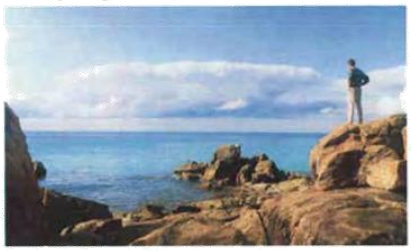
The draft management plan will be advertised and be made available for comment at libraries in Dunsborough and Busselton, as well as at the Shire Offices. A public presentation of the plan will also be held.

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[1]. 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

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 [2]: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

[1] http://www.unep-wcmc.org/protected_areas/categories/eng/ii.pdf

[2] 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[3]. 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[4] and are managed under the *Conservation and Land Management Act (1984)* ("CALM Act"), and its

[3] http://www.dpi.wa.gov.au/crownland/1791.asp

[4] 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[5]

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[6]:

- 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.

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.

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5 http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora#FLORA_CRITICALLY%20ENDANGERED

6 http://www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf

Table 1 Applicable legislation

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

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[7] 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

[7] 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[8].

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.

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

Part B – Principal Management Directions

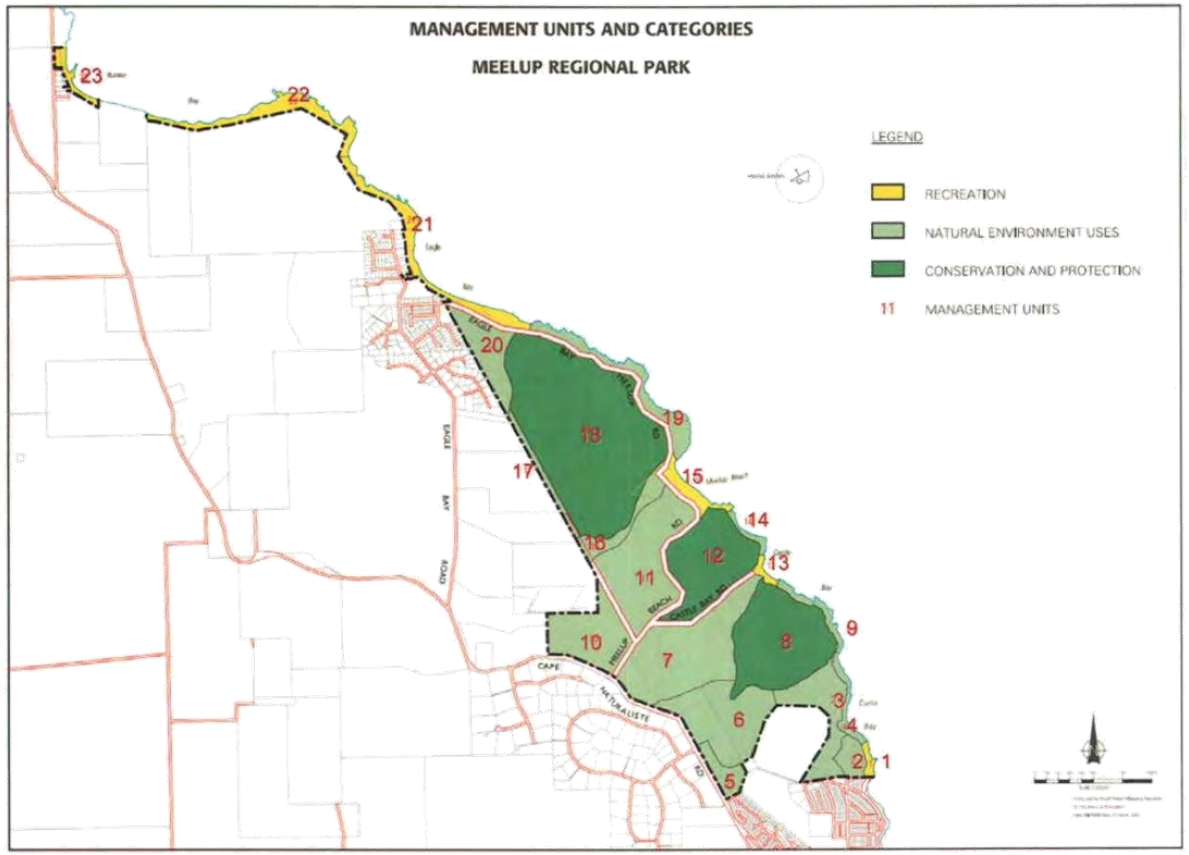


Figure 2 Management Unit Map

Part B – Principal Management Directions

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 uninfected 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 phytophora dieback is soil borne

Part C– Managing the Natural Environment

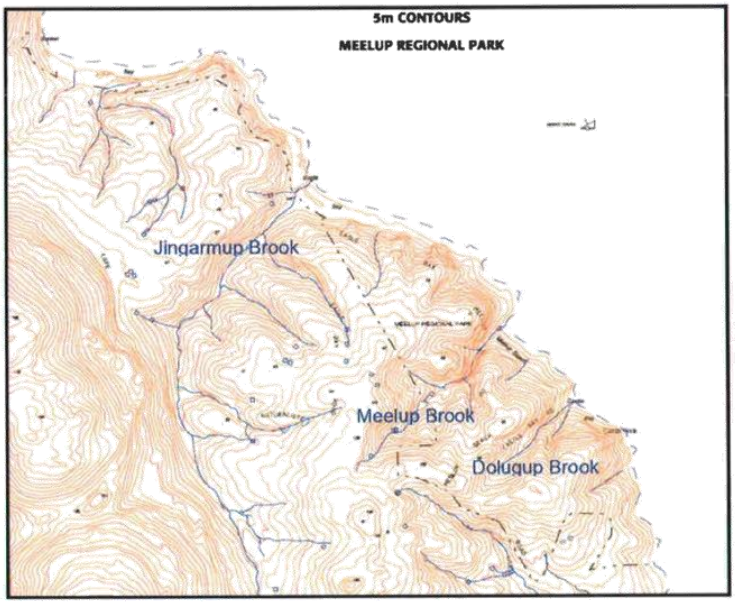


Figure 3 Topography and Surface water courses of Meelup Regional Park

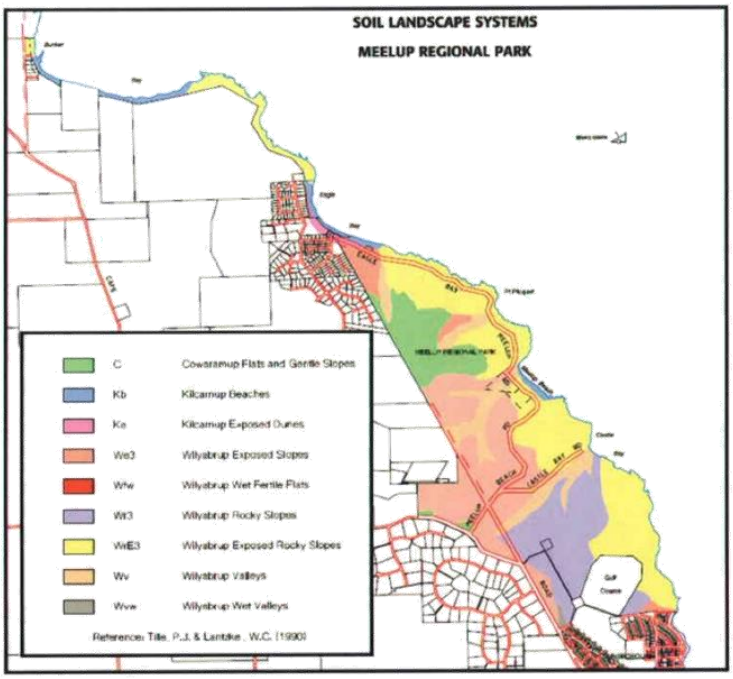


Figure 4 Soil Landscape of Meelup Regional Park

Geology Landform and Soils Management Plan

Issue	Management Strategy	Operational Management
Landform Protection	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 ▪ Restricting access to fragile areas ▪ Limit vehicle use and prohibiting off-road vehicle movements ▪ Restrict sporting activities to designated areas Minimise clearing ▪ Put signage in place if required ▪ Enforce Shire Local Laws and Management Plan Revegetate eroded sites Prevent erosion during site or access development ▪ Assess potential for erosion and plan to manage impacts ▪ No development on foredunes ▪ Provide adequate and effective drainage Disposal areas for runoff should be away from foreshore rocky faces or existing tracks where gullying can occur.
Soil protection	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.

Part C – Managing the Natural Environment

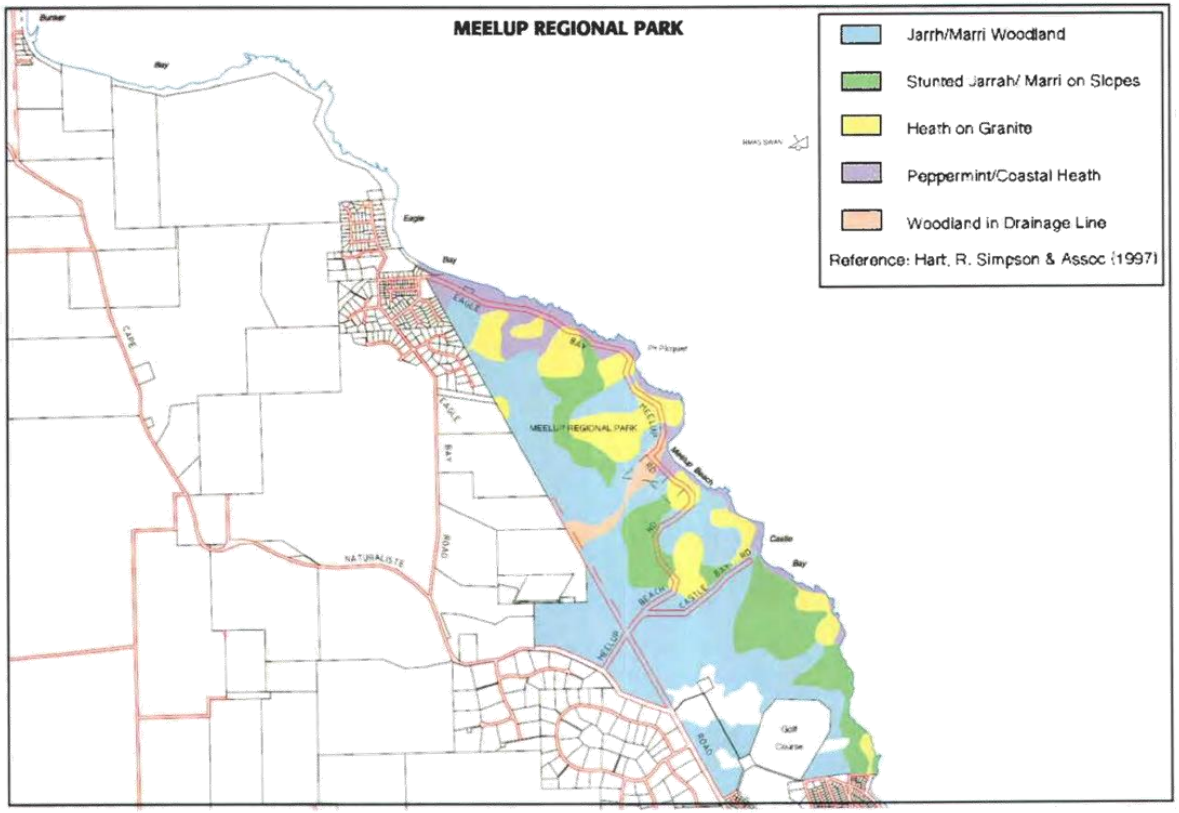


Figure 5 Vegetation communities in Meelup Regional Park

Part C – Managing the Natural Environment

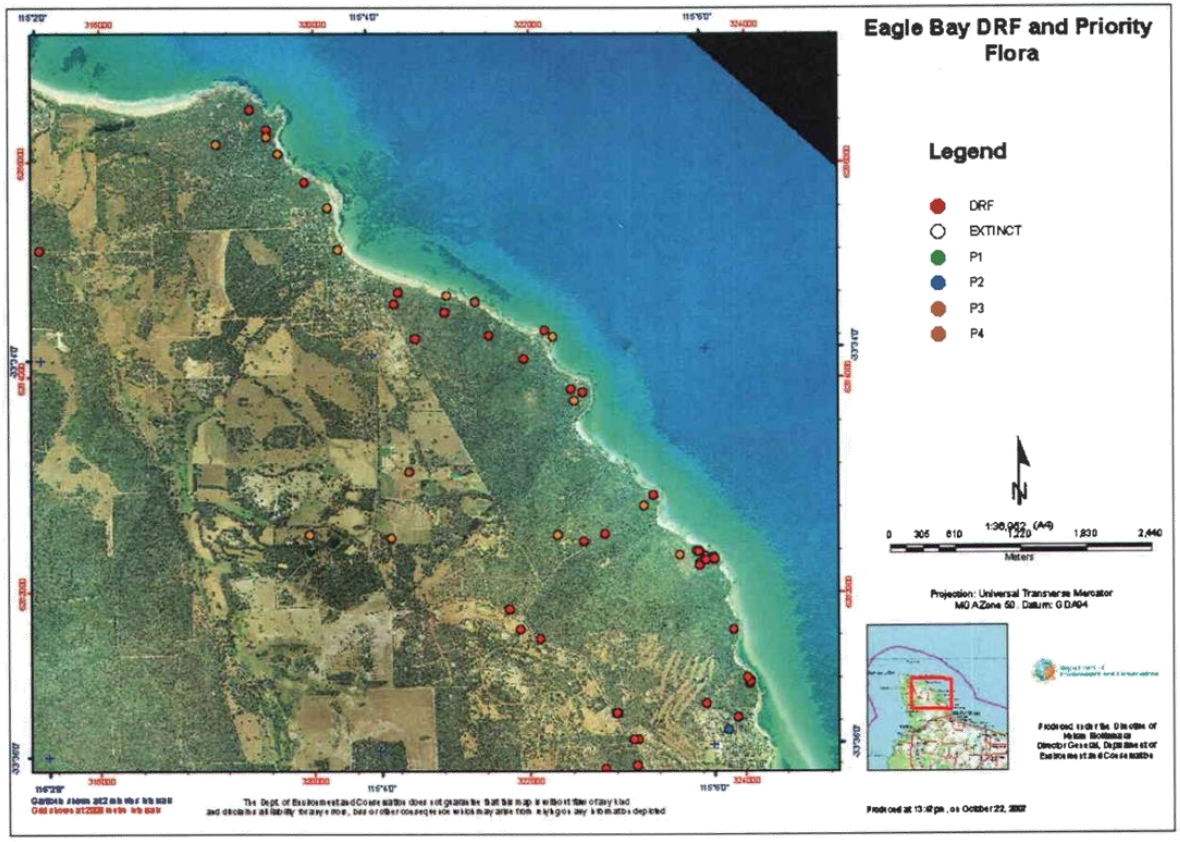


Figure 6 Generalised Location of DRF and Priority Flora in Meelup Regional Park

Native Plants and Plant Community Management Plan

Issue	Management Strategy	Operational Management
Conservation and Protection of Vegetation and TECs	Prioritise protection of *Calothamnus graniticus* heaths Maintain significant areas of all ecosystems that have vegetation in good condition Implement Fire Weed and Dieback Management Plan	No new tracks in *Calothamnus graniticus* 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.

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 directly (by chasing or killing animals) or indirectly by disease or scent
- Fire, through direct impact and loss of habitat
- Altered hydrology
- Inappropriate recreation

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	
Pseudocheirus occidentalis 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.
Isoodon obesulus fusciventer 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.
Macropus irma 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.
Ninox connivens connivens 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 [9]

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*),

[9] 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	Manage environmental weeds in accordance with the Agriculture and Related Resources Protection Act 1976, and the Environmental Weed Strategy for Western Australia Prioritise area where weeds may impact on threatened species and communities Maintain significant areas of all ecosystems that have vegetation in good condition	Observe statutory and safety requirements with regard to weed control Prioritise eradication of declared weeds Develop identification resources for Park Managers Maintain liaison with the Agriculture Protection Board, adjacent landholders, local authorities and community regarding weed control Maintain up-to-date weed maps Encourage volunteer groups to conduct voluntary weed control in areas that are isolated and costly for contract works Carry out weed control programme consisting of: ▪ Inspection of known weed locations ▪ Employment of weed contractor each spring and late summer to spray winter and summer weeds respectively ▪ Assessment efficacy of spray programme and impact on native vegetation Ensure that chemicals used are not toxic to fauna likely to be present (eg frog-friendly glycophosphate) Initiate targeted weed control post fire
Prevent new weeds from becoming established in the Park	Early identification and eradication of weeds	Prevent illegal dumping of garden waste, erect signs if necessary Contractors bringing machinery into Park to have a weed management plan in place Ensure that rehabilitation materials are weed free and inspect before use Develop identification resources for Park Managers Limit visitor access to established paths Inspect annually for weeds in vulnerable habitats such as along creek-lines Record new weed outbreaks Physically remove without damage to native Use chemical means if necessary Follow up inspection and treatment if required Initiate targeted weed control post fire

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 Pappillionaceae. 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 hand 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
Phytophora Dieback	Make dieback management a top priority for Park management Manage Phytophora dieback in accordance with Dieback Working Group Guidelines and Best practice guidelines for the management of Phytophthora cinnamomi (CALM 2004) Prevent spread of dieback into uninfected areas Prioritise protection of threatened and priority species and TECs Protect susceptible vegetation Educate Park users	No new tracks from infected to uninfected areas Protect significant uninfected areas, particularly Units 8,12 and 18 by preventing all recreational and any other unauthorised access. Restrict vehicle movement in Park: ▪ No vehicle movement off designated tracks ▪ Avoid puddles forming in tracks and vehicle movement through puddles ▪ Prevent or minimise vehicle movement on tracks moving from infected to uninfected areas, install gates where possible ▪ Minimise vehicle movement on tracks that are not hard and well drained ▪ Install signage at key transition locations (into units 8 and 18) Minimise movement of soils ▪ Schedule and earth moving activities for dry soil conditions, ▪ Minimise soil movement during fire break maintenance ▪ Exercise strict hygiene protocols in regard to vehicles, tools, equipment and footwear ▪ Use limestone to form walk trails

		▪ Introduce dieback control measures on walking trails, e.g. foot cleaning stations. ▪ Provide boardwalks over dieback infected wet areas on walk trails, and limestone surfaces which are inhospitable to *Phytophthora cinnamoni*. Minimise waterborne transmission ▪ Do not alter natural drainage patterns ▪ Ensure vehicle tracks are well drained ▪ Avoid walking in Park when soils are wet and muddy ▪ Rehabilitate gravel pits to prevent erosion Only use materials in rehabilitation that are certified free of *Phytophthora cinnamomi*. Development in areas containing dieback need to assess the risk of dieback spread and adopt appropriate procedures such as access by sealed roads only Consider use of phosphite for protection of vulnerable species Carryout full dieback surveys every 10 years and border checks every 2 years
Armillaria luteobubalina and aerial cankers	Prevent spread of *Armillaria* and aerial cankers into uninfected areas Protection of susceptible vegetation	No transport of organic material such as mulch into uninfected areas

Part C – Managing the Natural Environment

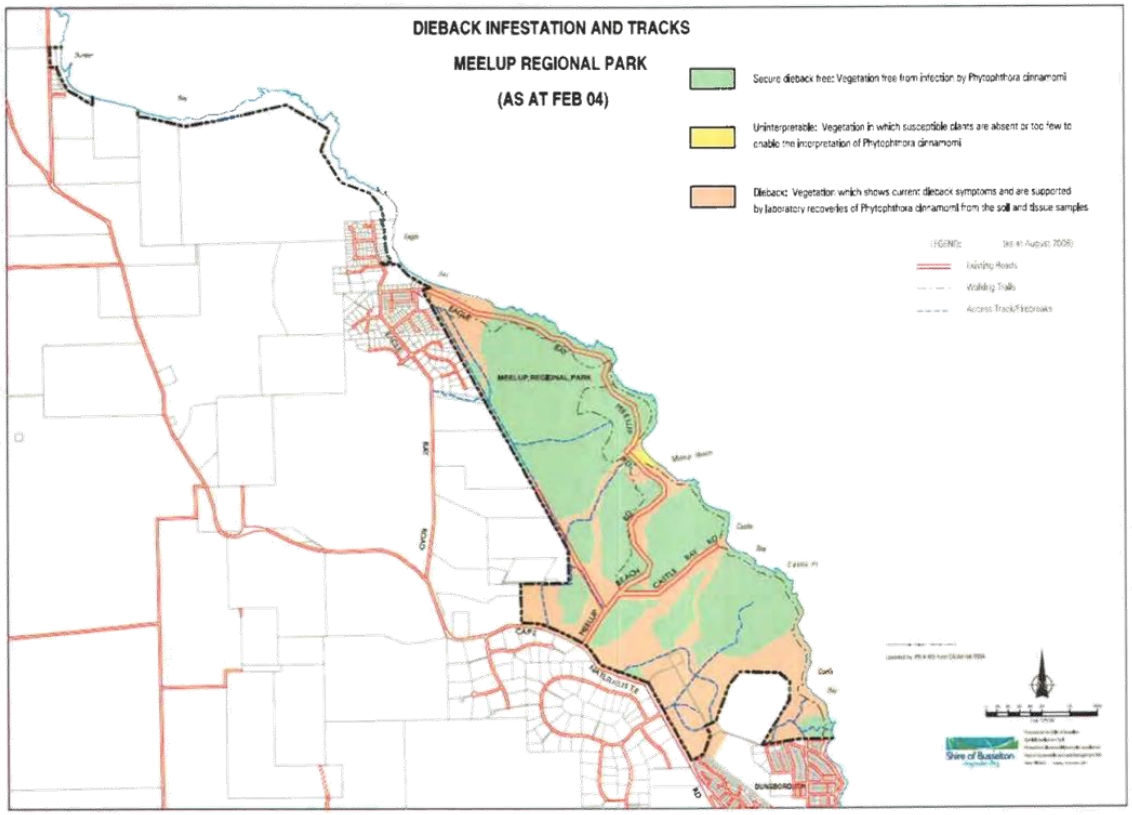


Figure 7 Phytophora dieback and access routes into and within Meelup Regional Park

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 *Phytophora* 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

		▪ Cutting and clearing of vegetation for track maintenance or widening should be completed prior to machine operations. ▪ Vegetation to be removed rather than pushed into adjoining areas. ▪ Where possible firebreak definition should commence about 10 metres from the intersection of public use tracks, and the intersection designed to minimise visual impact. ▪ Machinery use in dry conditions only ▪ Adherence to dieback hygiene protocols Plan to implement intensive weed control post-burning
Protect Human Life and Property	Work with local volunteer fire fighting brigades Hazard reduction burns adjacent to residential areas Prevention of Wildfire	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

Part C – Managing the Natural Environment

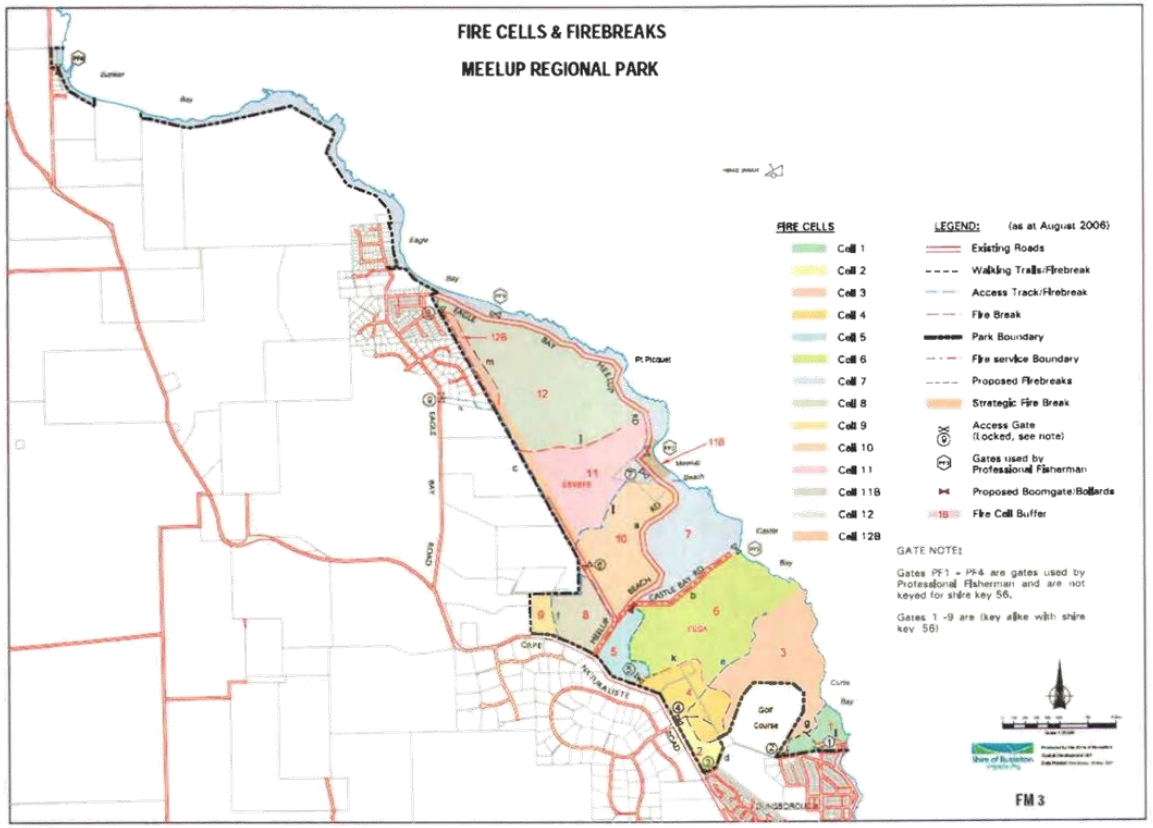


Figure 8 Fire Management Map

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

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.

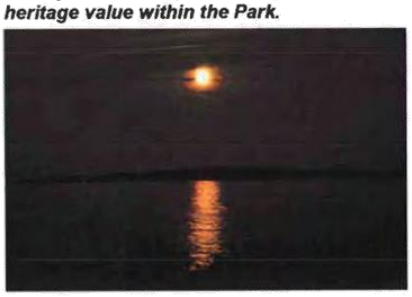
5. Restoration of cultural heritage

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[10].

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.

[10] 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"[11].

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[12].

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.

[11] http://register.heritage.wa.gov.au/index.html

[12] 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

Issue	Management Strategy	Operational Management
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 [13], 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

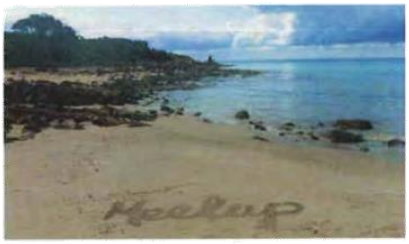
A range of recreation opportunities should be provided for in a local and regional context thereby providing Park visitors with a choice of recreation activities and experiences. Facilities within the Park should compliment, rather than compete with, those available outside the Park.

As discussed in Section 6, the overarching planning document for the area, the State Planning Policy 6.1 Leeuwin-Naturaliste Ridge[14] 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[15].

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

[13] http://www.naturebase.net/content/view/2283/1128/

[14] http://www.wapc.wa.gov.au/Publications/157.aspx

[15] 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

	Management Zones			
Uses	**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	Not Permitted	N/A	Not Permitted
Rock climbing	Not Permitted	Not Permitted	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	Maintain existing vehicle access and parking facilities as per existing arrangements Any new access routes to be developed in accordance with natural environment management requirements Implement Trails Strategy	Shire to maintain roads and carparks Park Management Committee to maintain and upgrade walk tracks Install signage to direct vehicles and pedestrian if required in keeping with the interpretation plan for the Park. Provide raised timber viewing platforms at key vantage points Provide access opportunities for wheelchairs at some locations Consider development of mountain bike tracks and dual use paths in natural environmental use areas only. Bike tracks to be carefully planned to minimise: ▪ risk of erosion, ▪ spread of dieback, ▪ impact on rare and endangered flora, fauna and ecological communities; ▪ conflict with other users, and

Part D – Managing Visitor Use

		▪ aesthetic impacts See Appendix D for details on planned walk trail works
Control of visitor access to prevent negative impacts on conservation values	Prevent unauthorised vehicle entry on management tracks Discourage access to core sensitive areas Educate regarding risks	Use gates to prevent vehicle access to fire breaks and management tracks. Allow professional fishing access and obtain a contribution towards the establishment and maintenance costs of tracks Block entry points and rehabilitate all disused vehicle and pedestrian tracks Provide clearly designated sealed and drained walk paths in natural environment use areas. Consider use of inhospitable plants to keep pedestrians on paths in high use areas. Prevent bicycle use on walk paths. No new tracks in Conservation and Protection areas or dune environments. 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. Encourage walkers to stick to the path and adhere to minimal impact principles in conservation and protection areas. Provide signage at transition points for walk tracks passing from infected into dieback free areas. Consider cleaning station to prevent transfer of soils Use of tracks prone to pooling of water should be discouraged during wet conditions to prevent erosion and risk of spread of dieback Raised walkways should be installed over all waterways and wetland areas to prevent damage and prevent the spread of dieback Monitor for negative impacts: erosion, weeds, damage to vegetation, dieback

Part D – Managing Visitor Use

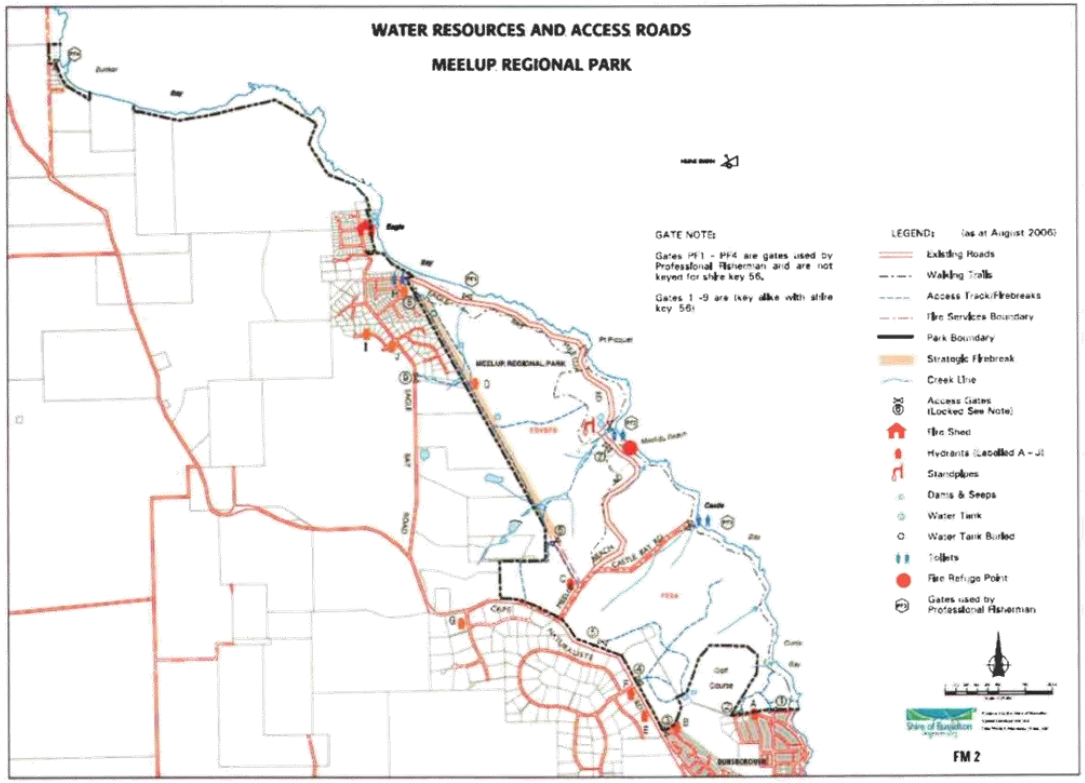


Figure 9 Public and Service Access to and within Meelup Regional Park. Note that Fire Service tracks are limited to for this purpose (and occasional other service vehicles) only

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 the 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.	On receival, promptly initiate assessment of proposals submitted and inform proponent of likely timelines. Provide the proponent with any relevant master and management plans and advise of assessment criteria. Conduct a competitive process for commercial operations initiated by the Committee or Shire 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. Leases to be issued in accordance with Shire of Busselton requirements. Lease and licence conditions need to reflect the requirements of this management plan and the proponents commitments. Develop a mechanism for lease and license fees to be made available for Park management.

Ensure operations do not conflict with Park Values	Assess proposals in relation to consistency with this Management Plan Ensure proposals meet environmental social and economic assessment criteria. Ensure proponents are understand the conservation priorities of the Park and are ethical operators. Granting of Leases and Licences subject to binding performance based conditions	Minimise commercial activity within coastal environments No commercial operations, clearing of vegetation or other negative impacts on conservation and protection areas. 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. Assess proposals on the basis of the following criteria ▪ environmental, social and economic sustainability ▪ compatibility with existing users, and management objectives ▪ net increase in visitor satisfaction ▪ impact on visitor numbers ▪ plans for prevention and mitigation of potential impacts, including generation of rubbish and potential for littering ▪ educational / interpretive services included ▪ business and environmental ethics of proposal ▪ investigations of alternatives ▪ track record of proponent ▪ potential for economic benefit to Park 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 Lease and licence conditions need to reflect the requirements of this management plan and the proponents commitments Annual auditing of compliance with conditions Proponent to provide a bond to cover closure and rehabilitation works

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 he 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 throught publicity or advertising) are to comply with Commercial Operations Management Plan requirements	On receival, 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

Conflict of Events with Park Values	Disallow proposals which are inconsistent with this Management Plan Ensure proposals meet environmental and social and assessment criteria. Ensure proponents are understand the conservation priorities of the Park and are ethical operators. Granting of Leases and Licences subject to binding performance based conditions	No events to be held in conservation and protection areas. Minimisation of negative impacts in Natural Environment Uses Areas following approval from the Park Management Committee and the Shire of Busselton. Assess significant proposals on the basis of the following criteria ▪ potential environmental and social impacts ▪ compatibility with existing users, and management objectives ▪ net increase in visitor satisfaction ▪ impact on visitor numbers ▪ ability of organisers to control crowds ▪ plans for prevention and mitigation of potential impacts ▪ educational / interpretive services included ▪ environmental ethics of proposal ▪ investigations of alternatives ▪ track record of proponent 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. Proponent to provide a bond to cover closure and rehabilitation works if necessary

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	Manage hazards to minimise the potential for injuries and misadventure to visitors Minimise risks to visitors through education Mitigate consequences of incidents	Ensure visitor facilities do not pose a risk to visitor safety Ensure built facilities meet relevant Design Standards and are maintained to a safe standard Ensure that trails and tracks do not expose visitors unduly to tripping, falling and drowning hazards Minimise the likelihood of conflict of activities causing accident or injury (eg prevent bike riders using walk trails). Provide visitor safety information on at least the following: ▪ Risk of falling and drowning in rocky coastal areas, particularly when swell is high ▪ Risk of falling in steep rocky areas Advise that visitors should remain on tracks and exercise caution in rocky and steep areas. Promote visitor compliance with codes of safe conduct for activities such as diving, snorkelling, canoeing, surfing Establish effective links with local Police, State Emergency Services and other relevant bodies in case of any incidents Provide emergency contact numbers at key visitor locations

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	Use signage to enhance Park identity Employ control and educate	Include the Meelup Regional Park Logo on all signs Use signs to provide

	visitors in the Park	▪ directional and orientation information, ▪ management information (eg removal of litter, keep to the tracks, do not pick wildflowers etc) ▪ visitor risk warning and emergency information ▪ and interpretive signs. Employ signs at the transition of infected to dieback free areas Adopt a standard design for signs and interpretive facilities throughout the Park.

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	Permit dogs at existing dog beach (Eagle Bay) Shire to provide bins and bags for collection and disposal of excrement Consider provision of additional designated area for dog exercise, based on: ▪ Potential impact on native fauna ▪ Current levels of visitor pressure ▪ Conflict with other Park users The presence of designated dog areas is not to impede the current feral animal control program

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.

Part D – Managing Visitor Use

Rubbish Management Plan

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

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 [16], 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.

[16] 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-Narturaliste/ 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-Narturaliste/ 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-Narturaliste/ 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 barbeques 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 ▪ Development to have net positive impact on the spread and management of *Phytophora* dieback and other diseases to the satisfaction of the Committee

Part F – Managing Resource Use

	Minimise impacts of developments on Park values	▪ The likely impact of increased visitor use or unauthorised access to Conservation and Protection Areas must be taken into account ▪ Development should not lead to loss of natural values in natural environment uses areas ▪ Development should not increase risk to threatened, endangered or priority flora, vegetation communities or fauna ▪ Site development should intrude on the landscape as little as possible and materials should complement their surroundings ▪ Proponents to demonstrate past environmental stewardship performance and ethical business track record ▪ Proponents to prepare an Environmental Management Plan (EMP) to the satisfaction of the Park Management Committee, the Shire of Busselton and DEC ▪ 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, ▪ Proposals are to address traffic management and parking, ▪ Developments are to incorporate ecotourism and sustainability principles in relation to water use, waste management and power generation ▪ Developments are to obtain ecotourism or environmental accreditation from approved suppliers Implement Commercial Operations Management Plan
Development Proposals adjacent to Park	Engage in approvals process as Stakeholder Assess proposals in the light the objectives of this management plan	Ensure Management Committee is cognisant of any development proposals adjacent to or likely to impact on the Park, including visual impact The Shire is to advise Committee of any proposed developments The Committee is to assess the risk to the Park, recommend to the Shire on the acceptability of proposal Implement mitigation strategies if required including: ▪ Prevention of unauthorised access and development of new tracks ▪ Ensure no drainage into Park

		▪ Prevent introduction of weeds ▪ Prevent impacts from domestic animals ▪ Use of fencing and signage if necessary Assess potential for impact on natural noise and light conditions of the Park If satisfied that impacts are minimal or can be managed, ensure that approval is subject to appropriate conditions 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. If development plans have the potential to impact on threatened or endangered species protected under either the *EPBC* Act or the *Wildlife Conservation Act*, 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.

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.

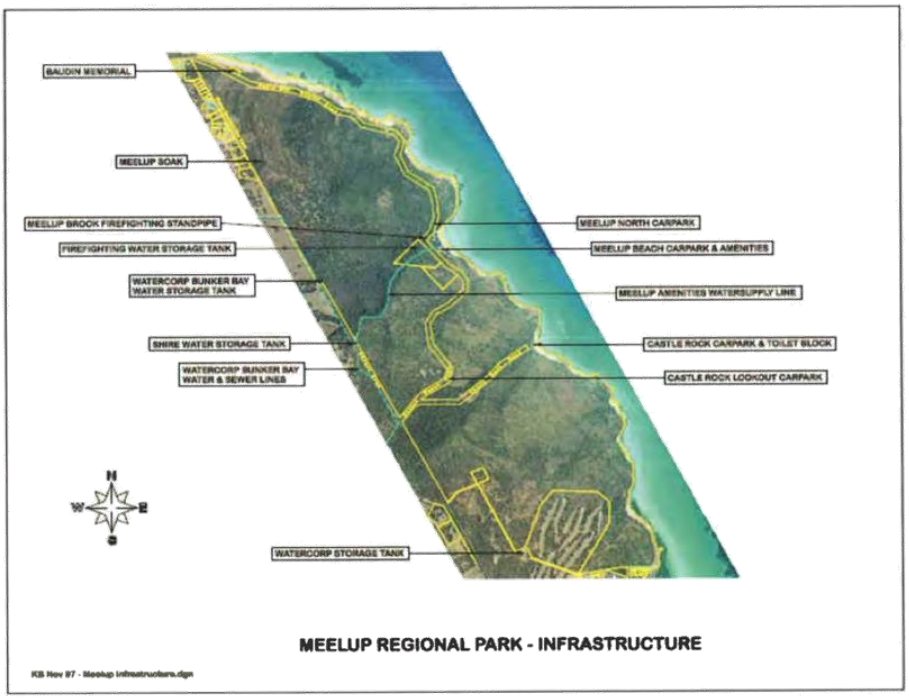


Figure 10 Map of Utilities and Service Infrastructure

Utilities and Services Management Plan

Issue	Management Strategy	Operational Management
Utilities and Services	Ensure utility and service providers aware of and as far as possible abide by Park Management Plan for works within easements in Park New public infrastructure, other than to service the needs of the Park itself not to be permitted	Provide relevant utility and service providers with a copy of the Management Plan 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. Development proposals by utility and service providers to be assessed according to the criteria presented in the Development Proposal Management Plan

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[17]. 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

[17] 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: ▪ Safety in the Park ▪ Natural Environment features and values ▪ Conservation and Protection Measures ▪ Threats and their management ▪ Responsible behaviour ▪ Recreation opportunities ▪ Restrictions to visitor access and activities ▪ Cultural heritage ▪ Community involvement opportunities 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: ▪ Advertising and feature articles in local papers ▪ Displays at community centres and shopping centres ▪ Distribution of information leaflets ▪ Public meetings ▪ Distribution of documents to key community groups and stakeholders ▪ Display of documents in the public library and Shire offices ▪ Public comment called for and comments incorporated into planning process 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 Phytophora 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 fulignosus*) 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 exclosure 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 Phytophora 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

Part H – Research

- 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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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);
"Authorised Officer" means an Officer of the Council who is authorised 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

reserve or foreshore as are set aside as roads or driveways or vehicle parking areas:

(b) 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 one 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

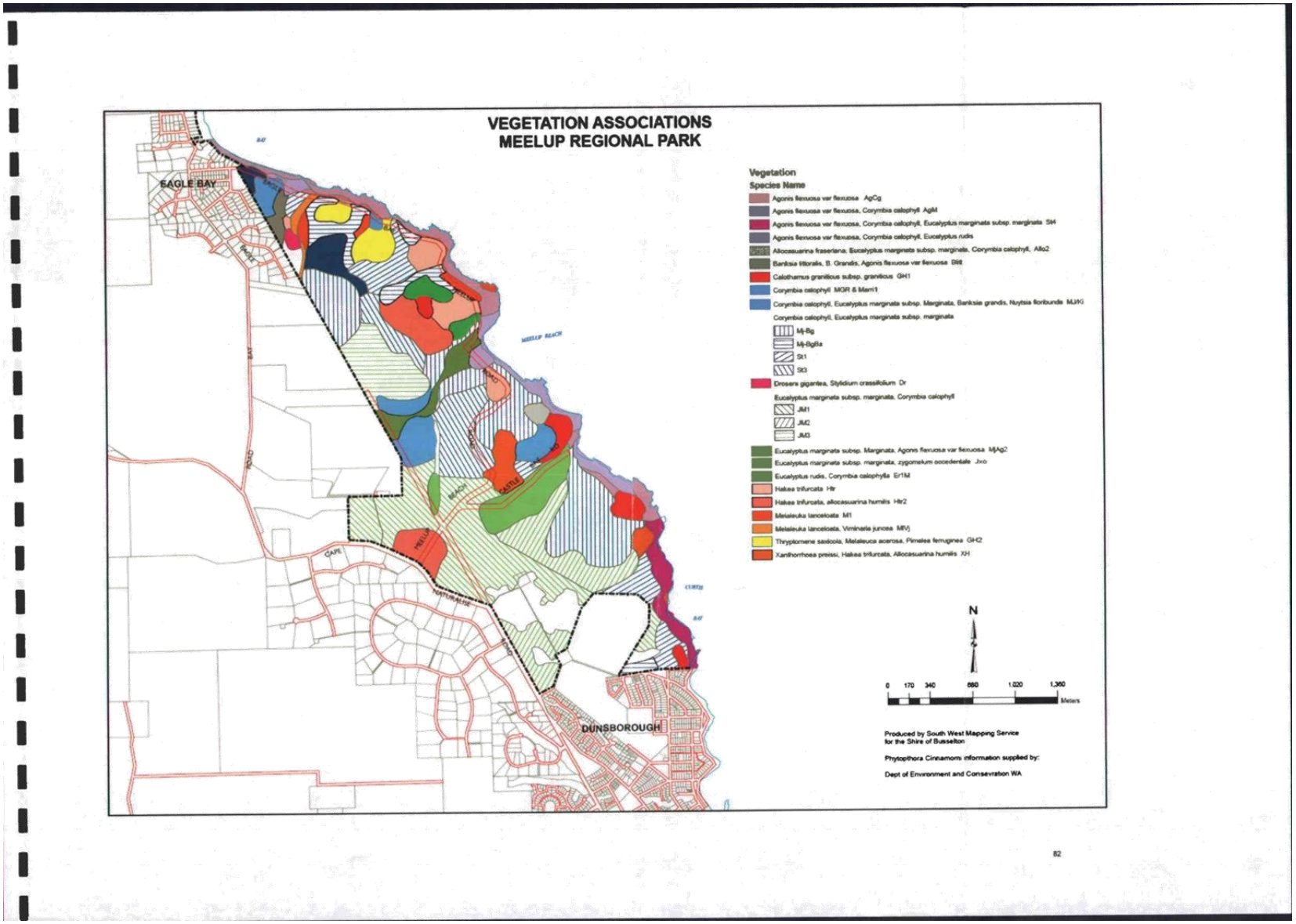
This document may be altered at any time by the Council on the recommendation of the Committee, or after giving 14 days notice to the Committee.

12.0 Committee Recommendations/Decisions

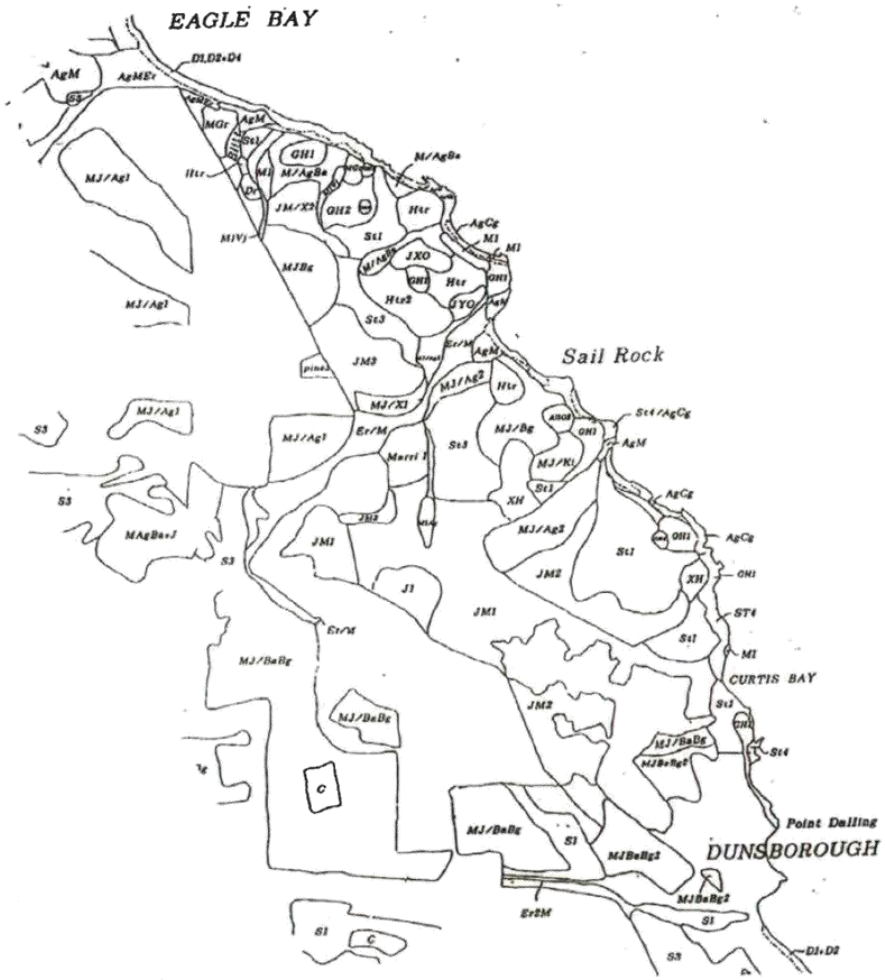
Committee recommendations shall not be binding on Council and must be endorsed by Council to take effect. Decisions made under delegated authority shall not be binding on Council if such decisions are in conflict with the delegated powers.

APPENDIX C

Flora and Fauna supporting data


VEGETATION ASSOCIATIONS
MEELUP REGIONAL PARK
EAGLE BAY
DUNSBOROUGH
MEELUP BEACH
Vegetation
Species Name
Agonis flexuosa var flexuosa AgCg
Agonis flexuosa var flexuosa, Corymbia calophyll AgM
Agonis flexuosa var flexuosa, Corymbia calophyll, Eucalyptus marginata subsp. marginata SH
Agonis flexuosa var flexuosa, Corymbia calophyll, Eucalyptus rudis
Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata, Corymbia calophyll, Allo2
Banksia littoralis, B. Grandis, Agonis flexuosa var flexuosa BM
Calothamus gramitious subsp. gramitious GH1
Corymbia calophyll MGR & Mam1
Corymbia calophyll, Eucalyptus marginata subsp. Marginata, Banksia grandis, Nuytsia floribunda MJH
Corymbia calophyll, Eucalyptus marginata subsp. marginata
Mj-Bg
Mj-BgBa
St1
St3
Drosera gigantea, Stylidium crassifolium Dr
Eucalyptus marginata subsp. marginata, Corymbia calophyll
JM1
JM2
JM3
Eucalyptus marginata subsp. Marginata, Agonis flexuosa var flexuosa MjAg2
Eucalyptus marginata subsp. marginata, zygomelum occedentale Jxo
Eucalyptus rudis, Corymbia calophylla Er1M
Hakea trifurcata Htr
Hakea trifurcata, allocasuarina humilis Htr2
Melaleuka lanceloata M1
Melaleuka lanceloata, Viminaria juncea MVj
Thryptomene saxicola, Melaleuca acerosa, Pimelea ferruginea GH2
Xanthorrhoea preissi, Hakea trifurcata, Allocasuarina humilis XH
N
0 170 340 680 1,020 1,360
Metars
Produced by South West Mapping Service
for the Shire of Busselton
Phytopthora Cinnamomi information supplied by:
Dept of Environment and Consevration WA
82

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 occassionally *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 reidlei* 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 reidlei, 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 granulitic 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 reidlei, Hibbertia cuneiformis, Ollearia axillaris, Spyridium globulosum, Calothamnus graniticus ssp. graniticus, Acacia rostellifera, 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 *Desmocladus 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 lindleyiana, Phyllanthus calycinus, Trymalium ledifolium, Acacia nervosa* and *Acacia pulchella*.

MlVj – *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 granulitic 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, Philotheca spicatum, Xanthorrhoea preissii, Daviesia divaricata, Hakea lissocarpha, H.amplexicaulis, Calothmanus sanguines, Dodonaea ceratocarpa* and *Dryandra lindleyiana.*

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 occassional lower trees of *Persoonia longifolia*. The dense understory has dominant shrubs including *Allocasuarina humilis, Calothamnus sanguines, Melaleuca acerosa, Hibbertia cunninghamii, Hypocalymma angustifolia, Adenanthos meisneri* and *Dryandra lindleyiana.*

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 reidlei, 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 reidlei* 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 lissocarpha, H.amplexicaulis, Calothamnus sanguines, Hibbertia hypericoides, Daviesia divaricata, Xanthorrhoea preissii, Macrozamia reidlei, 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, Persoonia 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 occassional 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 occassional surface granulite pebbles and boulders. Under the Jarrah, Marri (12-15m) there is a second tree layer of *Banksia grandis* and *Agonis flexuosa* with occassional *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 lindleyiana, 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 reidlei* and *Acacia pulchella.* The lower understory layer is dominated by species including *Hibbertia hypericoides, Dryandra lindleyiana, 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 lateritis 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 granulite slopes with brown sandy soils. Other dominant species of the community includes *Dodonaea ceratocarpa, Xanthorrhoea preissii* and *Macrozamia reidlei* with occassional shrubs of *Calothamnus graniticus ssp. graniticus*.

Er1M – *Eucalytpus 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 No	Perth No	Fam No	Species	Location	Flower period
	MEELUP REGIONAL PARK				
	Vascular Plant Species 1996 to 1997. Updated 2006				
	Nomenclature: Cape Naturaliste Regional Herbarium				
	Determinations by Government Herbarium				
		Collation of Data	**by B T Clay**		
		ADIANTACEAE			
153	05578450		Cheilanthes austrotenuifolia	Lat 33 35'.3" S - Long 115 4'.0" E	Sept
155	05578221		Adiantum aethiopicum	Lat 33 34'.3" S - Long 115 5'.0" E	Sept
294B	05601150		Cheilanthes distans	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
198	05598222		Cheilanthes austrotenuifolia	Lat 33 33'.0" S - Long 115 4'.0" E	Aug
294 A	05601142		Cheilanthes sieberi ssp sieberi	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
		AIZOACEAE			
			Carpobrotus virescens		
			Tetragonia implexicoma		
		AMARANTHACEAE			
68	5672465		Ptilotus manglesii		
		ANTHERICACEAE			
401	05607922		Dichopogon capillipes	Lat 33 33'.0" S - Long 115 4'.0" E	Dec
271	05600693	054F	Johnsonia acaulis		
595	06084036	054F	Thysanotus sparteus R.Br.	Lat 33 38'.0" S - Long 115 3'.0" E	
603	06255736	054F	Laxmannia sessiliflora		
394	05888360		Thysanotus arenarius		
201	05598230		Chamaescilla corymbosa var corymbosa	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
		APIACEAE			
413	05578264	281	Pentapeltis peltigera	Lat 33 39'.3" S - Long 115 6'.0" E	
211	05521548	281	Platysace tenuissima	Lat 33 33'.5" S - Long 115 5'.0" E	
282	05600936	281	Trachymene pilosa	Lat 33 38'.0" S - Long 115 5'.0" E	
668	06738559	281	Xanthosia candida		
295	05666198	281	Platysace haplosciadia	Lat 33 34'.3" S - Long 115 5'.0" E	
272	05600715	281	Xanthosia huegelii	Lat 33 33'.0" S - Long 115 4'.0" E	
		ASTERACEAE			
114	05600561	345	Rhodanthe citrina (=waitzia)	Lat 33 37'.0" S - Long 115 7'.0" E	
015	05666171	345	Brachyscome iberidifolia	Lat 33 34'.3" S - Long 115 5'.0" E	
299	05666260	345	Rhodanthe citrina		
615	06385257	345	Siloxerus filifolius		
579	06083811	345	Waitzia acuminata var albicans	Lat 33 33'.0" S - Long 115 4'.0" E	
026	05598427	345	Cotula turbinata *	Lat 33 34'.0" S - Long 115 4'.0" E	Sept
617	06385370	345	Vellereophyton dealbatum		
673	06738591	345	Dittrichia graveolens *	Lat 33 39'.0" S - Long 115 2'.0" E	April
025	06083862	345	Podolepis gracilis		
592	06084001	345	Ozothamnus cordatus	Lat 33 38'.0" S - Long 115 9'.0" E	
405	05607914	345	Trichocline spathulata	Lat 33 33'.0' S - Long 115 4'.0" E 81.0-22	
523	05799236	345	Hypochaeris radicata*	Lat 33 33'.0" S - Long 115 4'.0" E	
028	05521793	345	Lagenophora huegelii	Lat 33 34'.0" S - Long 115 4'.0" E	
630	06385311	345	Quinetia urvillei		

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	
		BORYACEAE			
633	05578655	054L	Borya scirpoidea	Lat 33 33'.3" S - Long 115 4'.0" E	
		BRASSICACEAE			
071	05600707	138	Cakile maritima *	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
		CAESALPINIACEAE			
034	05600499	164	Labichea punctata	82.2-21.9 100m West Meelup Beach	
		CARYOPHYLLACEAE			
686	06611125	113	Petrorhagia dubia		
597	06084060	113	Silene gallica var. gallica	Lat 33 33'.0" S - Long 115 4'.0" E	
		CASUARINIACEA			
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	
		CENTROLEPIDACEAE			
472	05702062	40	Centrolepis drummondiana	Lat 33 33'.0" S - Long 115 4'.0" E	Nil
		CHENOPODIACEAE			
		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	
		COLCHICACEAE			
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
		CYPERACEAE			
662	06417191	32	Lepidersperma 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		
		DASYPOGONACEAE			
441	05578485	054C	Acanthocarpus preissii	Lat 33 33'.3" S - Long 115 4'.0" E	Sept
550	05888263	054C	Kingia australis		
296	05666201	054C	Dasypogon bromeliifolius	Lat 33 35'.0" S - Long 115 4'.0" E	Oct
701	06829678	054C	Lomandra nigricans		
		DILLENIACEAE			
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	
		DROSERACEAE			
240A	05578329	143	Drosera macrantha ssp macrantha	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
240B	05578337	143	Drosera menziesii ssp pencillaris	Lat 33 33'.0" S - Long 115 4'.0" E	Sept

Nat	Perth		Fam	Species	Location	Flower
184	05521467		143	Drosera gigantea ssp gigantea	Lat 33 34'.0" S - Long 115 4'.0" E	Aug
478	05702038		143	Drosera stolonifera ssp stolonifera	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
275	05600766		143	Drosera pallida	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
		EPACRIDACEAE				
431	05620813		288	Styphella tenuiflora	83.9-21.1/83.3-21.2 MRP	
130	05521688		288	Andersonia caerulia	Lat 33 34'.0" S - Long 115 5'.0" E	
431	05620813		288	Styphelia tenuiflora		
432A	05620759		288	Leucopogon oxycedrus "A"		
433B	05620708		288	Leucopogon oxycedrus "B"		
427	05608058		288	Astroloma pallidum	Lat 33 33' 0" S - Long 115 4'.0" E	
269	05600669		288	Leucopogon parviflorus	Lat 33 38'.0" S - Long 115 9'.0" E	
188	05521440		288	Leucopogon capitellatus	Lat 33 33'.5" S - Long 115 4'.0" E	
244	05578418		288	Leucopogon australis var australis	Lat 33 39'.3" S - Long 115 6'.0" E	
190	05521750		288	Lysinema ciliatum	Lat 33 34'.5" S - Long 115 5'.0" E	
111	05608007		288	Leucopogon propinquus	Lat 33 33'.30" S - Lon 115 4'.0" E	
429	05620740		288	Astroloma ciliatum	Lat 33 33.0 - S Long 115 0'.4" E	Ap/May
435	05620848		288	Astroloma drummondi	Lat 33 33'.0" S - Long 115 4'.0" E	
189	05521777		288	Leucopogon tenuis	Lat 33 34'.5" S - Long 115 5'.0" E	
		EUPHORBIACEAE				
226A	05598532		185	Pseudanthus virgatus	Lat 33 34'.0" S - Long 115 4'.0" E	
140	05598656		185	Beyeria viscosa	Lat 33 33'.0" S - Long 115 4'.0" E	
161	05521475		185	Phylanthus calycinus	Lat 33 34'.0" S - Long 115 4'.0" E	July/Sept
		FRANKENIACEAE				
412	05668042		236	Frankenia pauciflora	Lat 33 33'.0" S - Long 115 4'.0" E	Jan
		GENTIANACEAE				
075	05637503		303	Centaurium tenuiflorum *	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
		GERANIACEAE				
479	05702046		167	Erodium botrys*	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
260	05668701		167	Pelargonium capitatum*	Lat 33 33'.3" S - Long 115 4'.0" E	
144	05668174		167	Pelargonium littorale ssp littorale	Lat 33 33'.0" S - Long 115 4'.0" E	
143	05668190		167	Pelargonium capitatum *	Lat 33 33'.0" S - Long 115 4'.0" E	July.Sept
		GOODENIACEAE				
197	05598206		341	Dampiera linearis	Lat 33 35'.0" S - Long 115 4'.0" E	Aug
357	05632951		341	Scaevola calliptera	Lat 33 33'.0" S - Long 115 4'.0" E	
372	05637538		341	Goodenia caerulea	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
392	05607787		341	Goodenia eatoniana	Lat 33 39'.0" S - Long 115 6'.0" E	Dec
289	05601053		341	Scaevola crassifolia	Lat 33 33'.0" S - Long 115 4'.0" E	
160	05632862		341	Scaevola glandulifera	Lat 33 33'.0" S - Long 115 4'.0" E	
320	05666597		341	Velleia trinervis	Lat 33 39'.0" S - Long 115 4'.0" E	
280	05600871		341	Lechenaultia biloba	Lat 33 38'.0" S - Long 115 5'.0" E	
		HAENODORACEAE				
329	05666805		55	Phlebocarya ciliata	Lat 33 39'.3" S - Long 115 6'.0" E	
158	05952468		55	Tribonanthes australis	Lat 33 34'.0" S - Long 115 5'.0" E	
358	05633087		55	Haemodorum discolor	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
388	05607744		55	Anigozanthus flavidus (red)	Lat 33 34'.0" S - Long 115 5'.0" E	
361	05633117		55	Haemodorum simplex	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
212	05521807		55	Anigozanthus manglesii ssp manglesii	Lat 33 34'.0" S - Long 115 4'.0" E	
182	05632927		55	Conostylis aculeata ssp gracilis	Lat 33 36'.0" S - Long 115 6'.0" E	Sept
183	05521483		55	Conostylis setigera ssp setigera	Lat 33 35'.5" S - Long 115 5'.0" E	Sept
		HYPOXIDACEAE				
200	05598249	056A		Hypoxis occidentalis var quadriloba	Lat 33 34'.0" S - Long 115 4'.0" E	

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

Nat	Perth	Fam	Species	Location	Flower
		MYOPORACEAE			
082	05632781	326	Myoporum caprarioides	Lat 33 33'.0" S - Long 115 4'.0" E	July.-Nov.
		MYRTACEAE			
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 systena	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 systena	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
		ONAGRACEAE			
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	Thylymitra 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	Cyanicula sericea	Lat 34 40'.0" S - Long 115 4'.0" E	Sept
473	05741475	66	Caladenia longicauda ssp clivicola x gardneri	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
		OXALIDACEAE			
622	06385214	168	Oxalis purpurea		
		PAPPPILLIONACEAE			
034	05620686	165	Daviesia decurrens	Lat 33 33'.0" S - Long 115 4'.0" E	June
687	05521645	165	Daviesia horrida	Lat 33 33'.5" S - Long 115 4'.0" E	Aug
508	05600847	165	Daviesia cordata	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
177	05633168	165	Viminaria juncea	84.2-21.7/86.4-19.3/84.3-20.6/	Nov-Dec
676	05598702	165	Kennedia coccinea	82.3-22.4/	Sept-Oct
278	05598494	165	Isotropis cuneifolia subsp cunefolia	M7?/	Sept
304	05521653	165	Kennedia prostrata	Lat 33 33'.0" S - Long 115 4'.0" E	July
424	05799333	165	Brachysema praemorsum N59	Lat 33 34'.0" S - Long 115 0'.5" E	Sept
055	05521904	165	Hovea trisperma	81.7-21.7/81.6-22.5/	AugSept
537	05521882	165	Hovea elliptica	83.322.2/81.9-22.2/82.3-23.2/	AugSept
052	05598508	165	Hardenbergia comptoniana	R.36429/29844/26524/23572/31591	July
050	05637546	165	Gompholobium polymorphum (yellow)	Lat 33 39'.0" S - Long 115 6'.0" E	Nov
534	05633206	165	Gompholobium knightianum	Lat 33 35'.0" S - Long 115 5'.0" E	Sept-Nov
048	05666317	165	Sphaerolobium medium	81.4-22.4/82.1-22.1/81.4-22.6/	Oct
046	05637635	165	Chorizema reticulatum P 3	Lat 33 34'.0" S - Long 115 6'.0" E	Sept
042	05578523	165	Eutaxia virgata	Lat 33 37'.0" S - Long 115 7'.0" E	Sept
044	05600839	165	Eutaxia obovata	Lat 33 39'.0" S - Long 115 6'.0" E	Sept
509	05666244	165	Templetonia retusa		
298	05598613	165	Bossiaea eriocarpa	Lat 33 33'.0" S - Long 115 4'.0" E	Sept
524	05620694	165	Hovea chorizemifolia		
051	05598478	165	Chorizema rhombeum	Lat 33 34'.0" S - Long 115 4'.0" E	Sept-Oct
058	05666651	165	Gastrolobium spinosum	Lat 33 35'.0" S - Long 115 6'.0" E	Nov
230	05666503	165	Gompholobium ovatum	Lat 33 39'.0" S - Long 115 6'.0" E	Oct
231	05607868	165	Gompholobium confertum	Lat 33 39'.0" S - Long 115 6'.0" E	Dec
035	056000812	165	Kennedia carinata	Lat 33 33'.0" S - Long 115 4'.0" E	
043	05600820	165	Chorizema diversifolium	Lat 33 33'.0" S - Long 115 4'.0" E	Aug Nov
327	05666694	165	Chorizema aciculare ssp aciculare	Lat 33 33'.0" S - Long 115 4'.0" E	Sept-Oct
399	05600952	165	Bossiaea ornata	Lat 33 34'.0" S - Long 115 0'.5" E	Sept-Oct
470	05666325	165	Gompholobium marginatum	Lat 33 33'.0" S - Long 115 4'.0" E	Oct
036	06738575	165	Daviesia preissii	Lat 33 37'.0" S - Long 115 7'.0" E	April
037	05578647	165	Bossiaea linophylla	Lat 33 34'.0" S - Long 115 0'.5" E	Sept Nov
302	05578248	164	Mirbelia dilitata		
057	05578256	165	Oxylobium lineare	Lat 33 37'.0" S - Long 115 7'.0" E	
229	05637554	165	Gompholobium tomentosum	Lat 33 39'.0" S - Long 115 6'.0" E	Nov
		PHILLYDRACEAE			
305	05666376	50	Philydrella drumondii		
		PHORMIACEAE			
371	05672473	054E	Dianella revoluta	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
351	05632986	054E	Dianella brevicaulis	Lat 33 33'.0" S - Long 115 4'.0" E	Nov
		PITTOSPORACEAE			
627	05668115	152	Billardiera floribunda	Lat 33 33'.0" S - Long 115 0'.4" E	Jan
423	05607906	152	Marianthus tenuis		
498	05633184	152	Sollya heterophylla		
261	05668107	152	Billardiera variifolia	Lat 33 33'.0" S - Long 115 4'.0" E	Dec
116	05701953	152	Pittosporum phylliraeoides		

Nat	Perth	Fam		Species	Location	Flower
		POACEAE				
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)		
		POLYGALACEAE				
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	Muehlenbeckia adpressa		
		PRIMULACEAE				
295	06611265		293	Samolus junceus		
283	06083919		293	Anagallis arvensis var.caerulea	Lat 33 33'.0" S – Long 115 4'.0" E	
		PROTEACEAE				
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	Dyrandra 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		
		RANUNCULACEAE				
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		
		RESTIONACEAE				
450	05673194		39	Desmocladus fasciculatus (f)	Lat 33 33'.0" S – Long 115 4'.0" E	Aug
383	05673208		39	Desmocladus fasciculatus (m)	Lat 33 33'.0" S – Long 115 4'.0" E	Aug
462	05620783		39	Hypolaena exsulca (m)		
330	05701996		39	Desmocladus asper (m)	Lat 33 33'.0" S – Long 115 4'.0" E	Sept
		RHAMNACEAE				
3	05521521		215	Trymalium ledifolium var rosemarinifolium		
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
		RUBIACEAE				
84	05578558		331	Opercularia hispidula		
356	05637473		331	Opercularia vaginata		
		RUTACEAE				
8	05598362		175	Diplolaena dampieri	Lat 33 34'.0" S - Long 115 5'.0" E	Sept
	05666295		175	Boronia tenuis	Lat 33 34'.0" S - Long 115 0'.5" E	Sept
		SANTALACEAE				
139	5668166		92	Leptomeria cunninghamii		
228	5598575		92	Leptomeria pauciflora		
544	5888301		92	Santalum acuminatum		
		SAPINDACEAE				
124	05667925		207	Dodonaea ceratocarpa (m and f)	Lat 33 33'.0" S - Long 115 4'.0" E	June
		SCROPHULARIACEAE				
	05744946		316	Gratiola pubescens	Lat 33 34'.0" S - Long 115 4'.0" E	Nov
235	06255671		316	Bartsia trixago	Lat 33 33'.0" S - Long 115 0'.4" E	Nov
636	05888336		316	Parentucellia viscosa*		
		SOLANACEAE				
235	05598710		315	Solanum symonii (fruit confirmed)		
636	06416764		315	Solanum linnaeanum *		
		STACKHOUSIACEAE				
005/6	05601126		202	Stackhousia monogyna		
4	05666406		202	Tripterococcus brunonis		
		STERCULLIACEAE				
391	05598621		223	Rulingia cygnorum		
002	05600758		223	Thomasia triphylla		
171	05620678		223	Thomasia foliosa		
406	05578213		223	Thomasia rhynchocarpa		
		STYLIDIACEAE				
643	05632722		343	Stylidium amoenum var amoenum		
083	05799309		343	Stylidium calcaratum	Lot 5 Yall Fields	
493	05751365		343	Stylidium diversifolium	Miles Lot 50	
310	05666414		343	Stylidium megacarpum		
307A	05778302		343	Stylidium petiolare		
313	05601134		343	Stylidium affine		
366	05632730		343	Stylidium adnatum		
348	05666252		343	Levenhookia pusilla		
293	06028373		343	Stylidium brunonianum		
569	05578493		343	Stylidium crassifolium		
582	05666740		343	Stylidium schoenoides		
		THYMELAEACEAE				
66	05578477		263	Pimelea ferruginea		
492	05637511		263	Pimelea hispida		
186	05632714		263	Pimelea imbricata var piligera		
555	05600855		263	Pimelea preissii		
258	05521513		263	Pimelea suaveolens ssp suaveolens		
064	06837786		263	Pimelea angustifolia		
063	05598435		263	Pimelea rosea ssp rosea		
		TREMANDRACEAE				
568	05521505		182	Tetratheca setigera		
		VIOLACEAE				
171	05521459		243	Hybanthus floribundus ssp floribundus		

Nat	Perth	Fam	Species	Location	Flower
		XANTHORRHOEACEAE			
654	No code	054D	Xanthorrhoea preissii		
400	05607876		Xanthorrhoea gracilis		
		ZAMIACEAE			
113	5607892	016A	Macrozamia reidlei		

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 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.

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.

Méelup Mallee

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

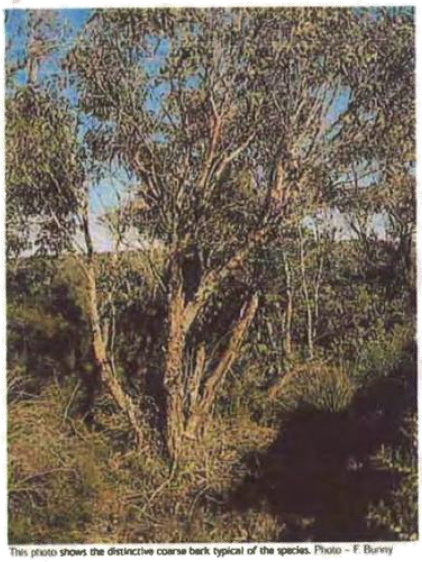
Protection from current threats: The erection of signs that mark the site of the population; the treatment and monitoring of insect borers; the development of a fire protection plan; and the regular monitoring of the health of the population.

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

Threatened and Priority Fauna Database Page 1 of 1

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.				
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.				
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.				
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.				
1969	1	1	Crown Reserve	Night sighting
2005	1	7	Eagle Bay	Night sighting
Priority Five: Taxa in need of monitoring (conservation dependent)				
Isoodon 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.				
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

Tuesday, 31 July 2007 Department of Environment and Conservation

TABLE 2. Cumulative list of all specie
Introduced species are identifie

FROGS
Crinia georgiana
Crinia glauerti
Geocrinea leai
Heleioporus eyrei
Heleioporus inornatus
Limnodynastes dorsalis
Pseudophryne guentheri
Metacrinia nichollsi
Litoria adelaidensis

GECKOS
Phyllodactylus marmoratus marmoratus

LEGLESS LIZARDS
Aprasia pulchella
Delma australis

DRAGON LIZARDS
Pogona minor minor

SKINKS
Bassiana trilineata
Cryptoblepharus plagiocephalus
Ctenotus delli
Ctenotus impar
Egernia kingii
Egernia napoleonis
Hemiergis 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 to3.*
- 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 sulphanate 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.

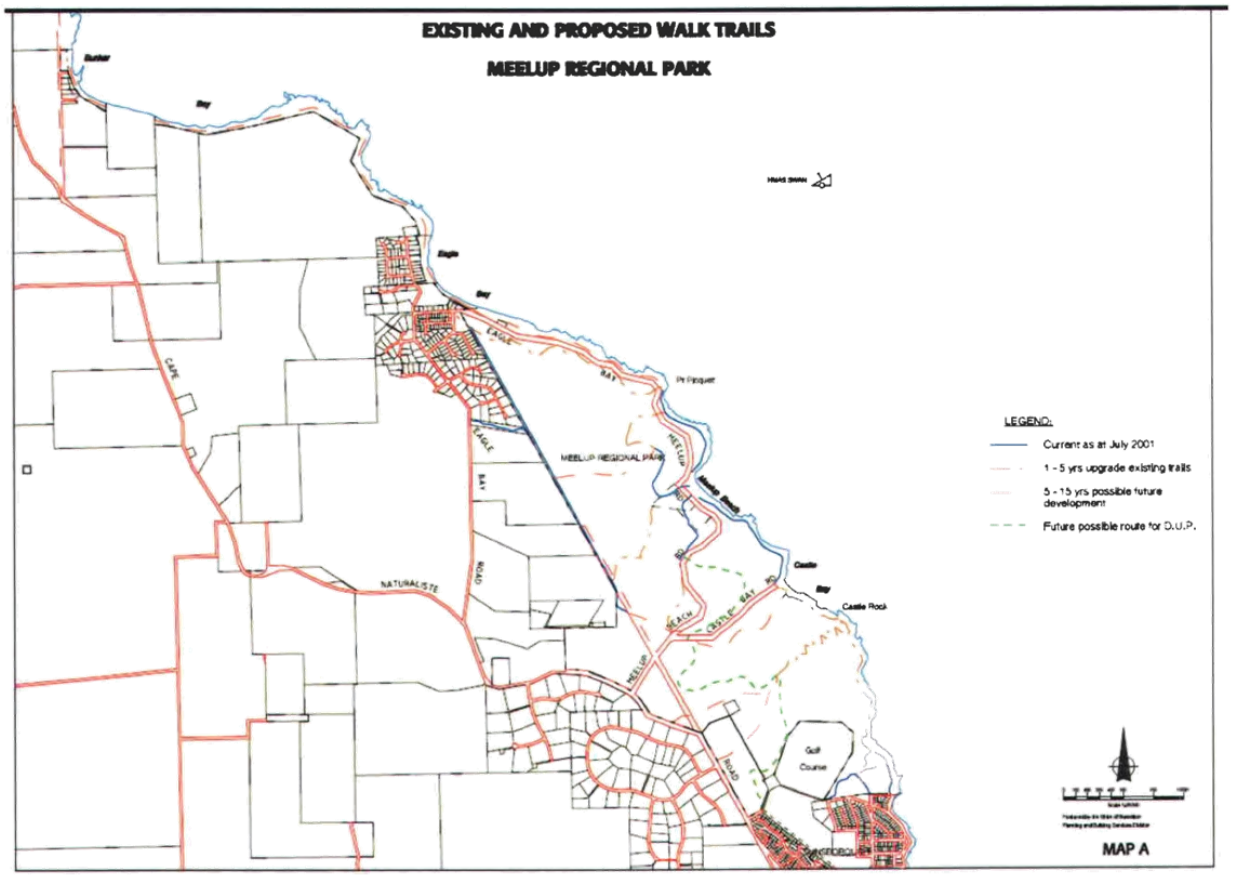
The main service tracks, which are sometimes used as walktrails, are:

- 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
MEELUP REGIONAL PARK
LEGEND:
Current as at July 2001
1 - 5 yrs upgrade existing trails
5 - 15 yrs possible future development
Future possible route for D.U.P.
MAP A
109

APPENDIX E

Community consultation contacts

List of Stakeholders

Organisation / Contact name	Contact details
Meelup Regional Park Management Committee Don McDonald (Chairman) Fiona Anderson (Administrative Assistant) Nik Selheim (EMP Project Manager) Margaret Winchcombe Wes Hartley (Cr Shire of Busselton) Don Hanrahan Smith(Cr Shire of Busselton) John Slee Shirley Fischer Steve Fisher (Shire of Busselton) Rod Griste (ex member)	 MRPMC PO Box 614 Dunsborough WA 6281 Tel 9756 7893 Mobiles: Nik 0412 222 883 Don 0414711815 John 042 139 2995 meelup.committee@westnet.com.au dmcdon@bigpond.net.au
Shire of Busselton **Oliver Darby (Director Community Infrastructure)** **Steve Fisher (Asset Manager)** **James Spath (GIS)** **Shire Council** **Wes Hartley (Shire President)**	Locked Bag 1, Busselton WA 6280 1 Southern Drive General phone number: (08) 9781 0444 Facsimile: (08) 9752 4958 Email: shire@busselton.wa.gov.au Website: www.busselton.wa.gov.au
Department of Environment and Conservation (DEC) Paul McCluskey (Management Planning Unit) Denam Bennets (Planning Officer, Leeuwin-Naturaliste Ridge National Park) Peter Henly – (Planner, Bunbury Regional Office) Aminya Ennis – (Planner, Bunbury Regional Office) Russell Smith, Project Manager, Ringtail Possum Recovery Programme: (08) 9725 4300 or Greg Mair (District Manager – Blackwood) Brad Commons Greg Mair (District Manager – Blackwood) Neil Taylor (DEC–Cape to Cape organiser)	Management Planning Unit Ph: 08) 9334 0598 Fax: 08) 9334 0253 Mobile: 0429 114 313 Email: paul.mccluskey@dec.wa.gov.au Denam.Bennetts@dec.wa.gov.au Regional Office 35-39 McCombe Road Bunbury, WA 6230 (PO Box 261, Bunbury, WA 6231) Tel: +61-8-9726 4111 Fax: +61-8-9726 4100 aminya.ennis@dec.wa.gov.au russells@dec.wa.gov.au Manjimup Office (Blackwood District) 52 Bath Street Manjimup, WA 6258 Tel: +61-8-9771 1878 Fax: +61-8-9771 8108 Geographe Capes District Office 72 Duchess St Busselton PO Box 269 Busselton, WA 6280 Tel: +61-8-9781 0188 Fax: +61-8-9754 4335 www.geocatch.asn.au

Department of Regional Development and Lands (RDL) Dale Putland (Planning Officer?)	Sixth floor "Bunbury Tower" 61 Victoria Street Bunbury Western Australia 6230 Phone: 9791 0577 Fax: 9791 0576 Ninth floor (Land Asset Management) Phone:9791 0836 Fax: 9791 0835
South West Catchments Council (SWCC) **Nicola Holman Communications Coordinator**	The Department of Agriculture and Food WA (DAFWA) Verschuer Place (corner of North Boyanup & Dodson Roads) Bunbury Postal Address: PO Box 5066 Bunbury DC WA 6230 Ph: (08) 9780 6193 Fax: (08) 9780 6198 Nicola: 9780 6196 Website: www.swcatchmentscouncil.com swcc@agric.wa.gov.au njholman@agric.wa.gov.au
Geocatch **Kath Lynch (Geographe Capes District Manager)** **Brendan Oversby (GeoCatch Program Manager)** **Lisa Massey (ex MRPMC member)**	Unit 1A, 72 Duchess St Busselton PO Box 269 Busselton, WA 6280 Telephone: 61 8 9781 0111 Fax: 61 8 9754 4335 Brendan 9781 0104 email: geocatch@environment.wa.gov.au Brendan.oversby@water.wa.gov.au kath.lynch@water.wa.gov.au www.geocatch.asn.au
Dunsborough / Yallingup Chamber of Commerce **Margaret Campbell (President)** **John McCallum (Vice President)** **David Binks (Executive member)** **Busselton Chamber of Commerce** **Peter Gordon (President)**	PO Box 146 Western Australia Australia 6281 http://www.dycci.org.au/index.php?option=com_peoplebook&Itemid=28 John (08) 9755 3131 PO Box 611 Busselton WA 6280 0418 935546
Dunsborough & Districts Progress Assoc Inc. **Ron Glencross** **Jackie Happ** **Rance Driscoll**	PO Box 63 Dunsborough WA 6281 Address: (Hall) Cnr Gifford & Gibney Street DUNSBOROUGH 6281 Contact: Ron Glencross Phone: 97553718 Fax: 97553718 Rance: 0417 934 219

Dunsborough Library Busselton Library	975 3966 Naturaliste Community Centre, Dunsborough Lakes Drive Dunsborough Phone: (08) 9756 7111 Fax: (08) 9752 4958 Email: dunslib@busselton.wa.gov.au Stanley Street, Busselton. Phone: (08) 9754 1588 Fax: (08) 9752 4958 Email: library@busselton.wa.gov.au
State Emergency Service Toni Fringe	PO Box 1386 Busselton WA 6280 9752 2598
Local businesses Southwest Cycles	 7-9 Bussell Hwy, West Busselton, WA 6280 - (08) 9752 3892

Other Community Groups	
Cape Naturaliste Historical Society	8 Caprigardi Court Dunsborough WA 6281
Busselton Naturalistes Club Bernie Masters	PO Box 516 Busselton 6280
Rotary Club of Busselton (Inc) Bernie Masters -	PO Box 314 Busselton WA 6280 Bernie: 9727 2474, 0407 385 071 bmasters@iinet.net
Dunsborough Coast & Land Care (Inc) - (D-CALC Inc) Ron Glencross	PO Box 154 Dunsborough WA 6281 Ron: 9755 3718 Busselton Dunsborough Environment Centre, Prince St Busselton 6280 email gcm@netserv.net.au
Toby Inlet Catchment Group Inc. Vaile Drake Sue Henderson Toby Clay	RSM 180 Commonage Road Dunsborough WA 6281 Vaile 9756 7982 Sue 9756 8051
Busselton Environmental Coalition,	2 Armstrong Rd Busselton 6280
Busselton Peace & Environment Group,	PO Box 291 Busselton 6280
FAWNA Inc,	PO Box 551 Busselton 6280
Dunsborough Facilities Committee	PO Box 63, Dunsborough WA 6281
Lions Club of Dunsborough (Inc)	PO Box 29, Dunsborough WA 6281
Residents of Eagle Bay Association Mr Lynn Wadley	PO Box 64 Dunsborough WA 6281 Lynn 9756 8270
Geographe Bay Tourism Assoc Busselton	38 Peel Terrace, Busselton WA 6280
Busselton Senior Citizens Walking Group	9752 2232
Geographe Over 50's Cycling Club	P.O. Box 548, Busselton WA 6280
Geographe Leisure Centre	9754 3600
Tourism South West Kerry Clarke	c/- RSM 403 Yelverton North Road Busselton WA 6280 Kerry 9755 7524
Bike Group?	
Busselton Horse and Pony Club Rachelle De Marniel Jo McGregor	Queen Elizabeth Avenue Busselton WA 6280 9754 2444, 9753 1184
Naturaliste Game and Sports Fishing Club Steve Sloan Frank Busby	PO Box 441 Busselton WA 6280 9752 2656
West Australian Recreational Fishing & Aquatic Council Inc (WARFAC) Clem Taylor	18 Spindrift Cove, Quindalup WA 6281 9756 7871

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ATTACHMENT B – Draft Meelup Regional Park Management Plan 2019

MEELUP REGIONAL PARK

MANAGEMENT PLAN

2019

DRAFT

City of Busselton
Geographe Bay

MEELUP
Regional Park

ACKNOWLEDGEMENTS

<<Working group acknowledgement to be inserted>>

The traditional owners of the lands that make up Meelup Regional Park, the Wadandi people, maintain a strong connection to their traditional country in the south-west through identity and place, family networks, spiritual practice, resource gathering and natural resource management. A significant number of sites important to Wadandi people are located within the South West capes area, and within Meelup Regional Park.

Within the Park, place names such as Ngari, Wannang, Meeka and Walgermia are of Aboriginal origin and carry meaning and significance. The importance of the cultural heritage values in Meelup Regional Park and the important knowledge that Wadandi people hold is recognised.

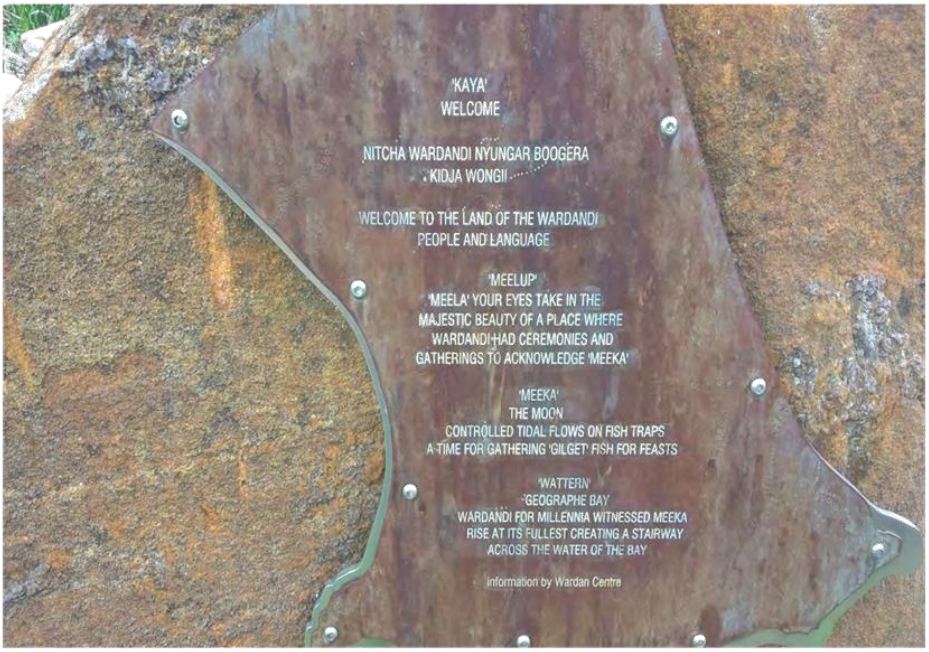


Photo 1: Commemorative plaque at Meelup Beach.

LIST OF ABBREVIATIONS

BC Act	*Biodiversity Conservation Act 2016 (WA)*
CALM Act	*Conservation and Land Management Act 1984 (WA)*
The City	City of Busselton
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services, Western Australia
DoH	Department of Health
DoT	Department of Transport
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
NCMP	Ngari Capes Marine Park
SWALSC	South West Aboriginal Land and Sea Council
WC	Water Corporation

CONTENTS

TABLES AND FIGURES

PART A. INTRODUCTION

1. BRIEF OVERVIEW

Meelup Regional Park (the Park) is located in the south-western corner of Western Australia, approximately 250 kilometres south of Perth within the district of the City of Busselton. The Park is approximately 574 hectares in area and extends along the coastline for about 11.5 kilometres from Dunsborough to Bunker Bay, on the western side of Geographe Bay and adjacent to the northern part of the Ngari Capes Marine Park, and the eastern side of the Leeuwin-Naturaliste Ridge. The Park has an undulating surface rising to 100 metres above sea level, with ephemeral waterways, a diverse flora and mostly pristine vegetation. (Figure 1).

Meelup Regional Park is a Class A reserve vested in the City of Busselton for the purpose of conservation and recreation. The Park is managed by a City appointed Meelup Regional Park Management Committee.

The primary aim of this Management Plan is to ensure that the significant natural values of the Park are protected. Key threats to the Park's flora and fauna include dieback and disease, introduced and problem animals, weeds and fire. The Park is experiencing significant growth in visitation due to population growth in surrounding areas and increasing tourism. The management of threats associated with visitor use and recreation, and the maintenance of the Park's unique visual landscape is a key component of this Plan.

The Park has indigenous and non-indigenous cultural heritage values, with an indigenous Australian heritage place in the Park and other areas recognized for their non-indigenous heritage values, including the whaling station previously located at Castle Bay.

Figure 1: Locality Map

This Management Plan adopts the style of Management Plans produced by the Department of Biodiversity Conservation and Attractions (DBCA) for reserves elsewhere in the State of Western Australia.

This Plan replaces the Meelup Regional Park Management Plan 2010.

2. MANAGEMENT PLAN REVIEW PROCESS

The Management Plan is to be reviewed regularly in consultation with the community. The review process will include extensive consultation with the community and key stakeholders, prior to submission of the Busselton City Council endorsed plan to the Minister for Lands for approval.

3. TERM OF THIS PLAN

The Management Plan will guide management of the Park for a period of five years after which time the Management Plan will be reviewed and amended as required to ensure the information in the Management Plan is current. This Management Plan will remain in force until a new Plan is approved by the Minister for Lands.

4. REGIONAL CONTEXT

The south-west is known for its natural assets including Meelup Regional Park and Leeuwin-Naturaliste National Park, forests and beaches, diversity of nature-based recreational activities, it's agricultural and horticultural assets, and particularly its wineries and splendid coastal vista.

Both Meelup Regional Park and Leeuwin-Naturaliste National Park, serve as important gateways to the Ngari Capes Marine Park. These drawcards coupled with a mild climate attract an estimated 1.55

million visitors each year to the southwest, making it one of the most popular regional tourist destination in the southwest of Western Australia (SWDC 2012).

5. KEY VALUES

Meelup Regional Park key values include:

Natural Environment

- An area that comprises one of 34 biodiversity hotspots in the world, and one of 15 national terrestrial biodiversity hotspots.
- One listed threatened ecological community.
- Declared rare flora species.
- A diverse flora, with 480 native species recorded.
- Interesting and disjunct species that may warrant investigation as separate species.
- Diverse vegetation complexes.
- Well represented fauna habitats.
- A diverse fauna and threatened species.

Cultural

- An Indigenous heritage place, and traditional custodians the Wadandi people and their continuous connection with the area.
- Non-Indigenous cultural heritage and historic sites associated with the French exploration of the south-west coast, the whaling and fishing industry.

Visual Landscape

- An exceptional landscape appeal with stunning beaches, granite headlands, rocky outcrops, natural bushland and views out over Geographe Bay afforded by the steep topography.
- A unique aspect with peaceful bays and coves afforded by its northeast-facing direction sheltered from prevailing south-westerly winds.

Recreation

- A significant recreation destination within the State, and the second most visited destination within the City of Busselton.
- A terrestrial environment that provides opportunities for a wide range of predominantly coastal recreation activities.
- A trail network that provides for both pedestrians and mountain bikes.
- A number of surfing locations and shore-based recreational fishing experiences from sandy beaches and rocky headlands.
- Access to marine-based activities in the adjacent Ngari Capes Marine Park.

Community

- An important area for the local community, contributing to their way of life, sense of identity and enjoyment of the natural environment.
- Opportunities for community involvement in activities and experiences involved with nature conservation and visitor services.
- Opportunities for involvement of the community through the Meelup Regional Park Management Committee and volunteer engagement in management activities within the Park.

Education and Research

- Opportunities for visitors and educators to interpret and acquire knowledge regarding natural and cultural values of the Park.
- Unique and diverse vegetation.
- Geological features that give unique insights into the natural history of the area.
- Research already undertaken and accumulated knowledge of the Park.
- Opportunities for research and monitoring of natural, recreation and cultural values.

6. FORMAT OF THIS DOCUMENT

The document is divided into the following parts:

Part A Introduction, in which the key values of the Park and the context of the Plan are presented.

Part B Management 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 management for their protection.

Part D Managing Cultural Heritage, which examines the cultural and historic values of the Park, and how they can be identified and preserved.

Part E Managing Recreation and Visitor Use, in which the acceptable recreational uses of the Park are prescribed and management requirements to mitigate impacts associated with visitor use are outlined.

Part F Managing Resource Use, in which the Parks natural resources are outlined together with management requirements that are compatible with and enhance the Parks key values.

Part G Involving the Community, which outlines the mechanisms by which the community is involved in the management of the Park.

Part H Research, which outlines the scientific significance of the Park and describes the focus of future research priorities.

Parts A to H each include a summary of the guiding principles used to develop this Management Plan. The Plan focuses on the key management issues and outlines a management response to these key issues through the development of management objective(s) and implementation of appropriate management actions and strategies.

Photo 2: Meelup Regional Park - view towards Dunsborough

PART B. MANAGEMENT DIRECTIONS AND PURPOSE

7. VISION

The vision for Meelup Regional Park is:

To manage Meelup Regional 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.

8. STRATEGIC GOALS

The overarching strategic management of Meelup Regional Park links to Key Goal Area 3 – Environment

of the City's Strategic Community Plan 2017 and specifically Community Objective 3.2 as follows:

Natural areas and habitats are cared for and enhanced for the enjoyment of current and future generations.

A summary of the key strategies identified in this Plan, that contribute to the achievement of this community object are:

Conservation

a) Conserve all native plant and animal species and communities, particularly those that are rare and endangered, and the natural processes that sustain them.
b) Conserve the Park's outstanding visual landscape values.
c) Conserve the Indigenous and non-Indigenous history of the Park, including historical and archaeological sites.

Recreation

a) Maintain the Parks natural area amenity and, manage recreation in a manner that minimizes visitor conflict and is consistent with the Park values and management objectives.
b) Manage visitor use for inspirational, educational, cultural and recreational purposes at a level that will maintain the Park as a natural area and in near natural state.

Commercial

a) Allow appropriate commercial uses to occur within the Park that are consistent with the Park values and management objectives.

Research and monitoring

a) Recognise that scientific research is highly important for the management of the Park, to seek a better understanding of the natural, cultural, social management aspects and threats to the Park.

Education

a) Promote community stewardship of the Park through active community engagement, emphasizing the Parks special natural, cultural, visual landscape, recreation, community and education and research values.

Integration of management

a) Develop and maintain integrated and coordinated management arrangements between the City, relevant government agencies and community.

9. 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, a protected area managed mainly for ecosystem protection and recreation.

These protected areas are large natural, or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities. The primary objective is to protect natural biodiversity along with its underlying ecological structure and supporting environmental processes, and to promote education and recreation (Department of Environment n.d.).

10. LEGISLATIVE FRAMEWORK AND POLICY

State legislation

Land Administration Act 1997 (the LA Act)
The LA Act provides for the administration of Crown land. Under the LA Act, the Minister for Lands may place by way of a management order the care, control and management of a reserve with a management body. A management order for the purpose of 'conservation and recreation', has been placed with the City of Busselton.

Under section 49 of the LA Act, the City may submit to the Minister for his or her approval a plan for the development, management and use of Meelup Regional Park for the purpose of the management order.

Local Government Act 1995 (LG Act)
The LG Act enables the City of Busselton to establish the Meelup Regional Park Committee, which operates under the governance arrangements and terms of reference as determined by the City Council.

Conservation and Land Management Act 1984 (CALM)
National Parks are reserves vested in the WA Conservation Commission and are managed under the CALM Act, subsidiary regulations and associated policy. While not directly applicable to the management of reserves vested in local government, 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.

Biodiversity Conservation Act 2016 (the BC Act)
The BC Act provides for the protection of biodiversity and biodiversity components including native species, habitats, ecological communities, genes, ecosystems and ecological processes.

Environmental Protection Act 1986 (the EP Act)
The EPA provides for an Environmental Protection Authority for the prevention, control and abatement of pollution and environmental harm for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.

Aboriginal Heritage Act 1972 (the AH Act)
The AHA provides for the reporting and protection of Aboriginal heritage sites. There is one recorded heritage site within the Park.

Biosecurity and Agriculture Management Act 2007 (the BAM Act)
The BAM Act amongst other things, prevents new animal and plant pests and diseases from entering Western Australia and manages the impact and spread of those pests already present in the State.

Bush Fires Act 1954 (the BF Act)
The BFA makes provision for diminishing the dangers resulting from bush fires and for the prevention, control and extinguishment of bush fires. This Management Plan is required to ensure adequate fire management is provided in accordance with the BFA.

Commonwealth legislation

Environmental Protection and Biodiversity Conservation Act 1999 (the EPBC Act)

The EPBC Act *is* a Commonwealth Act applicable to Meelup Regional Park due to the presence of listed endangered and threatened species and vegetation community in the Park and, matters of National Environmental Significance (NES) protected under the EPBC Act.

Actions that have, or are likely to have, a significant impact on matters of NES may be referred to the Australian Government Minister for the Environment for assessment and, when appropriate the making of a determination under the EPBC Act.

Local laws

Under the LG Act, the City of Busselton may make Local Laws for the management and regulation of certain activities throughout the City district, the effect of which may apply to activities within the Park.

Policies

Leeuwin-Naturaliste Ridge Statement of Planning Policy (LNRSPP)
The LNRSPP was prepared in 1998, to provide a strategic framework for the Leeuwin Naturaliste Ridge by providing greater vision, guidance and certainty of land use within the Policy area. The LNRSPP recognises the need to protect the unique ecological, social and landscape values and character of the Policy area. The Policy clarifies the priority of conservation in the decision making processes.

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."

Strategic Plans

There are two key City of Busselton planning documents that are relevant for the management of Meelup Regional Park; the City of Busselton Environment Strategy 2016 – 2021 and the Local Environmental Planning Strategy 2011.

The Environment Strategy 2016 – 2021, integrates and aligns with the City's strategies, plans and programmes and identifies with community objectives through transparent, accountable community engagement and reporting processes. The Environment Strategy 2016 – 2021, outlines the City's response to local environmental pressures through the implementation of environmental actions and strategies. The implementation of this Meelup Regional Park Management Plan will help to fulfil the provisions of the Environment Strategy 2016 – 2021.

The Local Environmental Planning Strategy 2011, is part of the city's planning framework and focuses on the key environmental issues relating to development and land use planning. Development proposals for the Park, although rare, do occur, and this document provides guidance to the city on key environmental matters pertaining to land use and development.

11. LAND TENURE AND CLASSIFICATION

Reserve tenure is usually applied to land which because of its intrinsic community value should be preserved and maintained for the benefit of present and future generations. This is primarily because

of its natural resources, its environmental, recreation, historical, social or cultural significance, or because it has special value for present or future generations (DoL 2013).

Meelup Regional Park, is an 'A Class' Reserve 21629, for the purpose of 'Conservation and Recreation', with a formal management plan endorsed by the Busselton City Council and approved by the Minister for Lands pursuant to section 49 of the *Land Administration Act 1997.*

Meelup Regional Park (Reserve 21629), was formed after the amalgamation of six separate reserves in 1993, and currently comprises 16 lots. Reserve 21629 extends from its southernmost point at Dunsborough to Eagle Bay, and from Eagle Bay to its northern most point at Bunker Bay.

12. MANAGEMENT FRAMEWORK

Meelup Regional Park Management Committee

Following creation of the Park in 1993, the Busselton City Council formed a Meelup Regional Park Committee pursuant to sections 5.8 and 5.9(2) (d) of the *Local Government Act 1995*.

The key purpose of the Committee is to:

- Assist the Busselton City Council with the management and promotion of the Park.
- Ensure that the full range of issues relevant to the making of decisions about the management and promotion of the Park are considered, including environmental, amenity, recreational, community, social, economic, and financial considerations.

In accordance with the City's governance arrangements for Meelup Regional Park, the Committee may undertake a wide range of management activities including:

- Providing advice and/or recommendations to the City Council, on the strategic and operational management of the Park.
- Preparing and prioritizing plans and Park maintenance activities
- Coordinating conservation measures and protection of the Park.
- Planning, coordination and management of maintenance in accordance with the City Councils budget allocation for Park management.
- Identifying external funding opportunities to supplement budget.
- Facilitating volunteer contributions to the management and maintenance of the Park.
- Liaising with government agencies, and other stakeholders on matters relating to the management of the Park.
- Educating the wider community on Park issues and management activities.
- Instigating research relevant to Park management.

Resourcing

As part of its annual budget, the City provides funding for Park operations and maintenance, which may be supplemented by grant funding under Commonwealth and State Government grant programs. Community volunteers and the Friends of Meelup Regional Park Incorporated, provide a significant and valuable resource, with community volunteers undertaking a wide range of maintenance projects and activities in the Park.

The City provides technical and administrative management support to the committee and implements management activities including coordination of research, capital works and the ongoing maintenance of the natural environment, public areas and constructed assets including roads and buildings.

Section 12 Management Framework	
Objective 1: To provide a clear framework for Park management and decision making.	
Action No	**Management Action**
1.1	Maintain effective and efficient governance and management arrangements for the administration and implementation of this Plan.
1.2	Maintain direct community involvement in the on-going management of the Park through a City of Busselton appointed Meelup Regional Park Committee.

13. MANAGEMENT UNITS

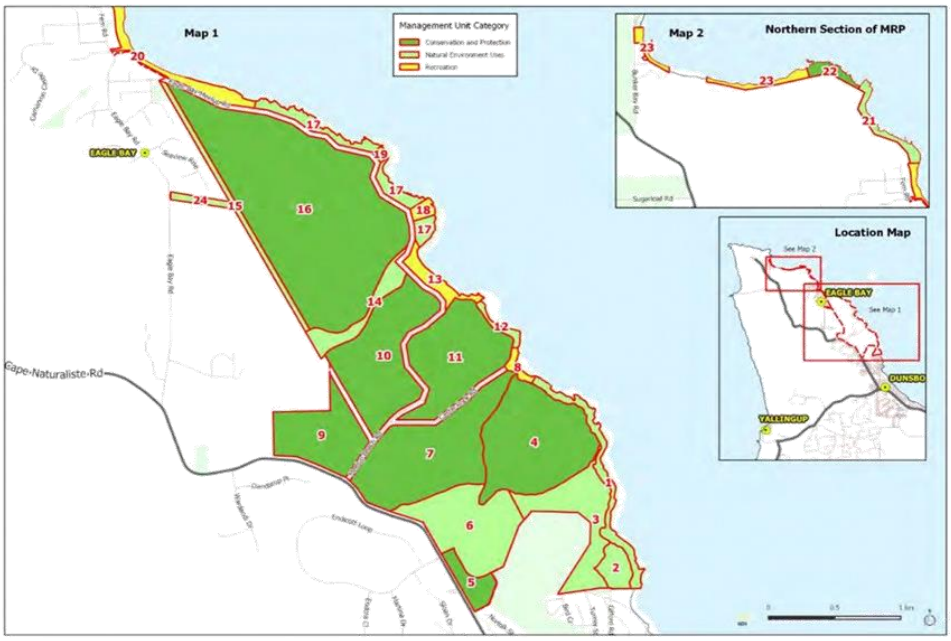
The degree to which a protected area can sustain viable recreational use is dependent on the physical environment, the behaviour of visitors and appropriate management. There are numerous models and processes developed to minimise impacts of visitor use in protected natural areas, whilst providing quality visitor experiences (Brown *et al* 2006).

Categorisation of management units provide a spatial differentiation of protected natural areas and establish a framework for protection of conservation values, provision of appropriate recreation and, indicate the priority management objectives and levels of management required in each unit (Figure 2).

The management unit categories developed for this Management Plan has been adapted from a widely applied system in Western Australia, with the following three management unit categories applicable to the Park (Table 1).

1. Conservation and Protection (CP) areas have high conservation significance and are to be closely managed with conservation as priority. Recreation is to be kept to a minimum and public access restricted. No new trails or other access are to be constructed in these areas, and existing access considered to be incongruous may be considered for closure.
2. Natural Environment (NE) areas are 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.
3. Recreation (R) areas are high use areas that experience the highest visitor numbers. Recreation areas have the highest level of visitor facilities and infrastructure. Although recreation is the primary use, preservation of natural values remains the highest priority, consistent with the reserve's purpose, and is pivotal to their recreational appeal.

Figure 2: Management Unit Categories



The evaluation process for the identification of management units within the Park considered the following attributes:

- The conservation values within the Park, including threatened and significant flora, fauna and vegetation communities
- Existing use and recreation values
- Current dieback status and risk of infection
- Existing roads, firebreaks and trails
- Existing level of access and facilities
- Appropriate level of management intervention.

Section 13 - Management Units	
Objective 2: To implement a management scheme that provides for protection of areas of conservation significance, appropriate recreation and management responses.	
Action No	**Management Action**
2.1	Ensure Park management planning and management activity decisions are appropriate to the Park's management unit categories.
2.2	Review management unit categories as knowledge and understanding of the Park's environment develops.

Table 1: Management Unit Category Evaluation

Unit #	Category	Boundary rationale	Dieback status	Conservation values	Recreation values
1	NE	Dunsborough to Castle Bay, beach side of the coastal trail	U, I, UA	Declared Rare Flora (DRF), Threatened Ecological Communities (TEC), quenda/possum habitat, Wilyabrup veg complex, significant vegetation	Coastal trail, beach access
2	NE	Dieback free vegetation (mostly), trail boundary	U, I	DRF, TEC, Wilyabrup veg complex, significant vegetation	Trails, firebreaks
3	NE	Old gravel pit/dieback infested	I	DRF, Wilyabrup veg complex, significant vegetation	Trails, firebreaks
4	CP	Dieback free vegetation, comprises contiguous CP zone with 7,9,10,11	U, I	DRF, priority flora, TEC, Wilyabrup veg complex, significant vegetation.	Access closed for management only, except for whale lookout trail from coastal trail
5	CP	Good quality remnant vegetation, DRF, firebreak boundary	I	DRF, Wilyabrup veg complex	Existing trail(s) have been closed
6	NE	Firebreak boundaries, gravel pit/landfill area. Dieback infested	I	Areas of excellent quality remnant vegetation, Wilyabrup veg complex, significant vegetation	Mountain bike trail area and dual use trails
7	CP	Dolugup Brook valley, firebreak/road boundary	U, I	DRF, Dolugup Brook creek line, Wilyabrup veg complex, significant vegetation	No access
8	R	Castle Bay coastal node	U, I, UA	Dolugup Brook creek line mouth, Wilyabrup veg complex	Recreation area, beach access, facilities (barbeques, picnic area, toilets)
9	CP	Park boundaries, roads	U, I	DRF, significant vegetation	Burton Rd, firebreak, no trail access
10	CP	Roads, Meelup Brook firebreak	U, I	DRF, priority flora, Wilyabrup veg complex, significant vegetation	Currently informal walk trail
11	CP	Bounded by Castle Bay and Meelup Beach Roads. Mostly dieback free	UA	DRF, priority flora, TEC, Wilyabrup veg complex, significant vegetation	No access

Unit #	Category	Boundary rationale	Dieback status	Conservation values	Recreation values
12	NE	Castle Bay to Meelup coast	U, I	DRF, TEC, significant vegetation	Coastal trail
13	R	Meelup Beach coastal node	I, UA	Eagle Bay sanctuary zone (Ngari Capes Marine Park), WRP habitat, Meelup Brook mouth/dam	Recreation area, beach access, facilities (barbeques, picnic area, toilets)
14	NE	Meelup Brook riparian zone	I	Meelup Brook creek line, WRP habitat, significant vegetation	Firebreak/trail runs alongside brook, decking area
15	NE	Eagle Bay boundary firebreak	U, I	Vegetation contiguous with rest of Park	Firebreak also part of trail network
16	CP	Large area of intact remnant vegetation, significant conservation values	U, I	DRF, priority flora, TEC, large area dieback protectable/unprotectable vegetation, granitic apron, creek line and spring (important fauna habitat), includes one of only three areas of banksia woodland in the Park, Wilyabrup veg complex, significant vegetation	Coastal trail along northernmost extent and lookout circuit
17	NE	Meelup Beach to Eagle Bay coast - areas between coastal nodes	UA, U	DRF, priority flora, Wilyabrup veg complex, significant vegetation	Special purpose shore-based fishing zone (Ngari Capes Marine Park), coastal trail, beach access
18	R	Gannet Rock coastal node	UA	Wilyabrup veg complex, significant vegetation	Recreation area, special purpose shore-based fishing zone (Ngari Capes Marine Park), beach access, picnic tables
19	R	Point Picquet coastal node	UA	Wilyabrup veg complex, significant vegetation	Recreation area, special purpose shore-based fishing zone (Ngari Capes Marine Park), beach access, whale watching platform and public amenities.
20	R	Eagle Bay coastline	I, UA	Hooded plover habitat, Jingarmup Brook, Wilyabrup veg complex	Recreation area, beach access, Dual Use Path (DUP) from Fern Road to Eagle Bay beach, dog exercise area on beach, close to public amenities at Riedle Park and Eagle Bay Hall.

Unit #	Category	Boundary rationale	Dieback status	Conservation values	Recreation values
21	**NE**	Eagle Bay to Rocky Point	**U**	DRF, priority flora, hooded plover habitat, Wilyabrup veg complex, significant vegetation	Recreation area, Informal trail, beach access
22	**CP**	Rocky Point to Bunker Bay beach	**U, I**	DRF, priority flora, Wilyabrup veg complex, significant vegetation	Informal trail
23	**R**	Bunker Bay to northernmost Park boundary	**U**	Hooded plover habitat	Recreation area, beach access, adjacent to resort, café and toilets
24	**NE**	Wildlife corridor	**I** ***P.cryptogea***	Small stand of remnant vegetation	Firebreak, part of trail network
Abbreviations		**Management Unit Category** - **CP**-Conservation and Protection - **NE**- Natural Environment Uses - **R**- Recreation	**Dieback Status** **- I-** Infested, **U**- Uninfested, **UA** - Uninterpretable		**P. cryptogea** - (Phytophthora cryptogea)

14. CROSS-BOUNDARY LAND MANAGEMENT

Meelup Regional Park has urban and rural neighbours, as well as neighbouring conservation estate managed by DBCA. The main cross-boundary land management issues pertinent to effective management of the Park, include:

- Fencing
- Fire management
- Weed and pest animal control
- Access to and activities in and adjacent to the Park
- Natural resource management
- Signage
- Neighbour input
- Communication, contacts and liaison.

A Good Neighbour approach, similar to the DBCA Good Neighbour Policy (2007), should be developed to guide the establishment and maintaining of good relationships with adjoining land owners and the management of cross boundary issues for the mutual benefit of the Park and adjoining land owners.

Section 14 - Cross-boundary land management	
Objective 3: **To develop and maintain healthy neighbour relations for the benefit of the Park's management**	
Action No	**Management Action**
3.1	Develop and implement a Good Neighbour Policy to assist the management of cross-boundary issues for Meelup Regional Park.

15. COMPATIBLE LAND MANAGEMENT

There are isolated remnant bushland reserves located in the vicinity of the Park that warrant further assessment to determine the potential for these reserves to contribute towards the protection of biodiversity in the Park. These reserves are under the care and control of the City and include 3 reserves along Jingarmup Brook within the Eagle Bay townsite, Reserve 11316 at the head waters of Jingarmup Brook and Reserve 6229 located at the headwaters of Meelup Brook adjacent to Cape Naturaliste Road. The extension of the management responses identified within the draft MRPMP to these isolated reserves would be for the purpose of implementing a coordinated approach to issues such as resilience of species and ecosystems, environmental water flows, fire, weed and pest control.

Any future additions into the operational management arrangements for the Park, should consider:

- proximity and connectivity to the Park
- presence of threatened or priority species and ecological communities
- contribution to protecting conservation, recreation and landscape values
- extent and quality of vegetation
- contribution to increasing biodiversity
- contribution to management of threatening processes
- contribution to facilitating management as an integrated unit
- size and shape
- current vesting.

Management units 6 and 7 are intersected by an unmade road reserve which aligns with and connects Sheen Road, to the Cape Naturaliste Road. Sheen Road alignment is indicated in Figure 11. This unmade road reserve has good vegetation cover and is unlikely to become part of the City's road network. While it is not intended to formally amalgamate the unmade road reserve into Meelup Regional

Park (Reserve 21629), a change to the current designated land use purpose from 'road' to 'conservation and recreation' would promote consistency of vesting purpose across the Park.

Section 15 - Compatible Land Management	
Objective 4: **To enhance the conservation values of the Park.**	
Action No	**Management Action**
4.1	Investigate the benefit of incorporating remnant bushland reserves located in the vicinity of the Park into the Parks management arrangements.
4.2	Seek and amendment of vesting purpose for the unmade road reserve land intersecting management units 6 and 7, from 'road' to 'conservation and recreation' to promote consistency of vesting purpose across the Park.

16. NGARI CAPES MARINE PARK

Meelup Regional Park is bounded on its ocean side by the Ngari Capes Marine Park. The majority of the Marine Park adjacent to Meelup Regional Park coast has been zoned 'general use', except for the 'Eagle Bay sanctuary zone' (which includes Meelup Beach), and the 'Eagle Bay special purpose zone' (DEC 2013).

Sanctuary zones are 'Look but don't take' areas where all forms of fishing are restricted and special purpose zones (Shore Based Activities) are mainly conservation areas and allow beach or rock fishing (DEC 2013).

The *Ngari Capes Marine Park management plan 2013-2023*[1] (DEC 2013) directs the management for the Ngari Capes Marine Park. For direction in the management of marine waters adjacent to Meelup Regional Park, the *Ngari Capes Marine Park management plan 2013-2023,* should be referred to in the first instance.

The preparation of this management plan has been cognisant of the management arrangements for the Ngari Capes Marine Park, and the management issues that are likely to require inter-agency liaison and a complementary and consistent management approach such as the onshore location and maintenance of regulatory and interpretive signage

Photo 3: Ngari Marine Park sign, Castle Bay

[1]The Department of Environment and Conservation Ngari Capes Marine Park management plan can be accessed at: dpaw.wa.gov.au/images/documents/parks/management-plans/decarchive/20120471-ngari-capes-marine-park-mp-74-2013-2023-v10.pdf

PART C. MANAGING THE NATURAL ENVIRONMENT

17. GUIDING PRINCIPLES FOR MANAGING THE NATURAL ENVIRONMENT

The key guiding principles for management of the Parks natural environment are:

1. Conservation and protection of the natural environment
   Natural processes and biodiversity will be managed to maintain their inherent values. Threats to the Park's natural environment from human use, the surrounding urban area and management practices will be minimised in order to maintain the biodiversity of the Park.

2. Park management priorities
   The Park will be managed with conservation and environmental enhancement as its highest management priority. Recreation and other uses may be allowed to occur to the extent that they do not impair the Park's 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 ecological communities, priority fauna, other specially protected fauna, outstanding natural and visual landscape features and sites of Aboriginal and historical significance will be given priority for conservation and restoration.

5. Threats to Park values
   Threats to the Park's values attributed to climate change, tree decline and disease (particularly *Phytophthora* dieback), weeds, feral animals, wildfires and inappropriate visitor use will be monitored, investigated and managed.

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.

7. Consistency of management policies
   Management actions will be planned and implemented in a coordinated manner consistent with relevant legislation, principles and policies.

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.

18. IBRA BIOREGIONS

The Interim Biogeographic Regionalization for Australia (IBRA) seeks to map and describe biogeographic regions based on attributes of geology, landform patterns, climate, ecological features and plant and animal communities (DoE n.d.). Western Australia is grouped in 27 biogeographic regions, with Meelup Regional Park sitting on a narrow north-west extension of the Jarrah Forest bioregion.

This narrow extension of Jarrah Forest bioregion adjoins the Warren bioregion to the south and the Swan Coastal Plain bioregion to the east.

19. CLIMATE

The climate of the south-west, including Meelup Regional Park, is temperate with distinct wet and dry seasons. Most rainfall occurs between April and October and averaged 657.3 millimetres annually at Cape Naturaliste over 2001-2018. The annual mean temperatures for Cape Naturaliste range from a mean minimum of 10.3°C in winter and 26.7°C in summer (BoM 2018).

The wind pattern is generally a morning easterly followed by an afternoon south to south-westerly in summer, with an increase in northerly winds during winter months. Due to its north-east orientation, the Park coastline is sheltered from the strong sea breezes that are experienced as onshore in the majority of Western Australia.

Climate change

In the south-west of WA, the most significate attributes of a changing climate are reduced rainfall, streamflow, and an increase in average annual temperature. Climate change projections include increased drought frequency and duration, further reduction in stream flow, increased temperatures, more frequent and extreme fire danger and increases in extreme storm events (Hughes 2014, Western Australian Local Government Association n.d, DoE n.d.)

The south-west of WA is considered to be at considerable risk of significant biodiversity loss as a result of climate change. Potential direct impacts on biodiversity include changes in animal and plant physiology, changes in life cycle timing, and changes in species distribution and abundance. Indirect impacts may arise from changes in species competition and predation, or through alteration to the nature and intensity of existing biodiversity pressures (e.g. disease, salinization, density and distribution of weeds, erosion, habitat fragmentation and loss of wetlands) (DEC 2010). There are also potential impacts to the landscape, infrastructure and facilities from inundation, saltwater incursion and sea level rise.

Species most likely to be affected are those:

- with narrow temperature or cool temperature requirements
- with narrow geographic ranges that are closely associated with local environmental conditions
- dependent on relatively high rainfall
- unable to evolve in situ (DEC 2010).

Decreased rainfall in the Park may cause some wetlands and waterways to contract or dry out, reducing associated vegetation types and predisposing these areas to fire. This in turn may affect the structure of waterways as well as both the terrestrial and aquatic ecology and fringing vegetation. Landscape fragmentation in the Cape Naturaliste region may make it difficult for some species to migrate, especially those with narrow temperature range tolerance or those at the upper limits of their range. However, the Park's proximity to the Leeuwin-Naturaliste National Park, which extends from Cape Naturaliste to Cape Leeuwin, may assist the migration of some species.

There are some species and communities in the Park that are endemic, at or near the limits of their range and some may exist with restricted wet habitat requirements, and hence may be vulnerable to climate change. Rising sea levels and associated erosion may impact on coastal infrastructure, however, the Park's rocky coastline is likely to provide it with some protection from erosional forces associated with sea level rise and storm surge events.

Response to changing climate

Responding to climate change is complicated by significant knowledge deficits of the potential impact of climate change on the Park. Regional scale monitoring and modelling is necessary to predict impacts, and to guide forward planning and future management of the Park to accommodate climate change.

The key climate change response principles identified for the Park are:

- Increasing research to better understand the impacts of climate variations and change on the Park's biota.
- Implement an adaptive management approach focused on increasing the Parks resilience to any adverse pressures and impacts that result from human activities in the Park
- Adopt the precautionary principle and manage the Park for uncertainty.
- Work with the community, government agencies and natural resource management groups, as appropriate, to develop appropriate responses to changing climate.

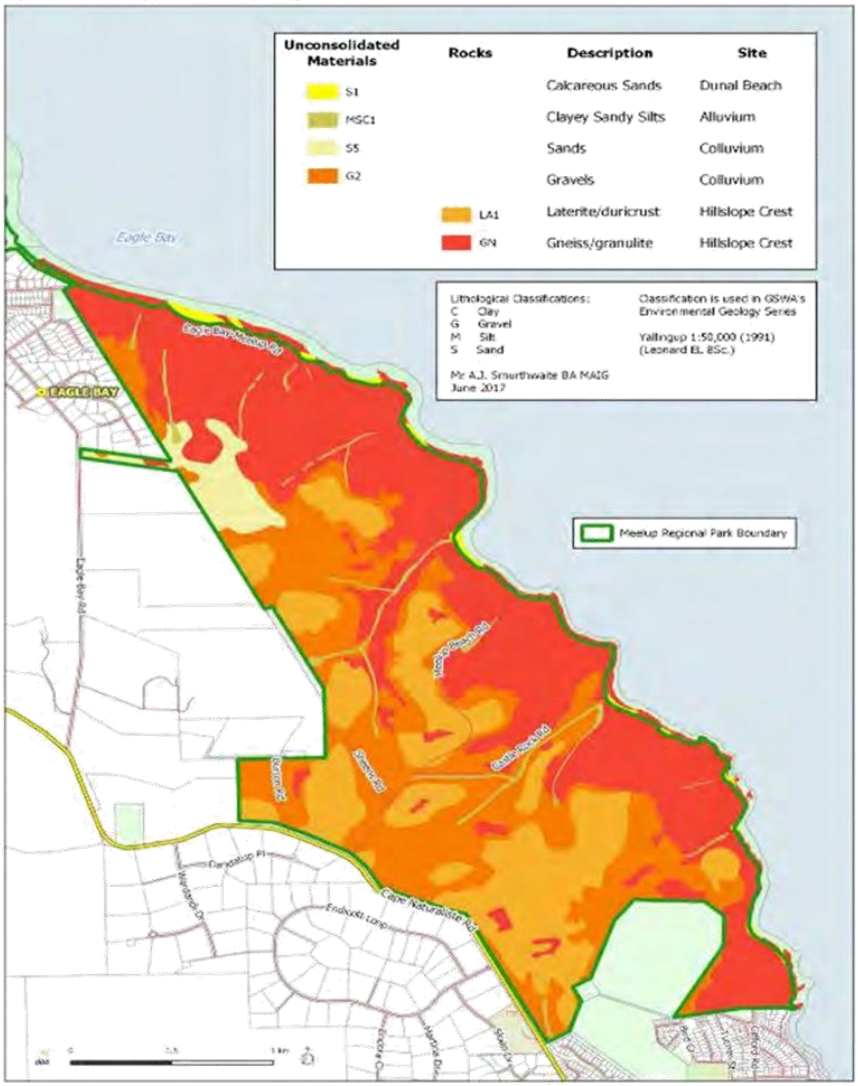
Improving the resilience of species and ecosystems helps to reduce their vulnerability to climate change. This includes continuing management strategies regarding control of introduced plants and animals, fire management, dieback and other disease management and managing impacts associated with visitor use. It also includes maintaining large areas of intact, good quality vegetation, free from visitor use; possible translocation of threatened native plants and animals; and identifying, creating and maintaining wildlife corridors in cooperation with landowners adjacent to the Park.

Section 19 - Climate	
Objective 5: **To protect the Park's values from the impacts of climate change.**	
Action No	**Management Action**
5.1	Investigate climate change impacts, in particular those species of conservation significance or likely to be highly vulnerable to climate change.
5.2	Retain remnant vegetation connectivity within the park and provide wildlife corridor linkages and climate refugia.
5.3	Work with relevant government agencies and landholders to enhance species adaption to climate change and connectivity of wildlife corridors.
5.4	Continually review and adapt management in response to new knowledge and understanding of climate change and its impact on biodiversity.

20 GEOLOGY, ROCKS, LANDFORMS AND SOILS

Geology is the science of the Earth, and it deals with rocks their origins, properties, processes, soils, landforms; and charts their evolution and spatial distribution. Geological mapping of the ground within the boundaries of the Park has identified occurrences of two rock types: granitic gneiss/granulite and laterite; their landforms, and the six soil units and associated intergrades derived from them (Figure 3).

Figure 3: Geology of Meelup Regional Park



Rock Types and Landforms

Granitic gneiss is a metamorphic rock whose outcrops and boulders are widespread (an estimated 60 per cent) throughout the Park and they occur as the crest of hills, as ridge slopes , as stream beds, as escarpments, as coastal head lands , as wave-cut platforms, as beaches, as islands, and as reefs. The Park's eastern areas are very jointed, dissected and heavily eroded. Massive erosion and removal of regolith materials, some 280 Million years ago in the Permian Era, created the rugged photogenic landscape of roundly shaped outcrops known as tors, knolls and inselbergs or island mountains.

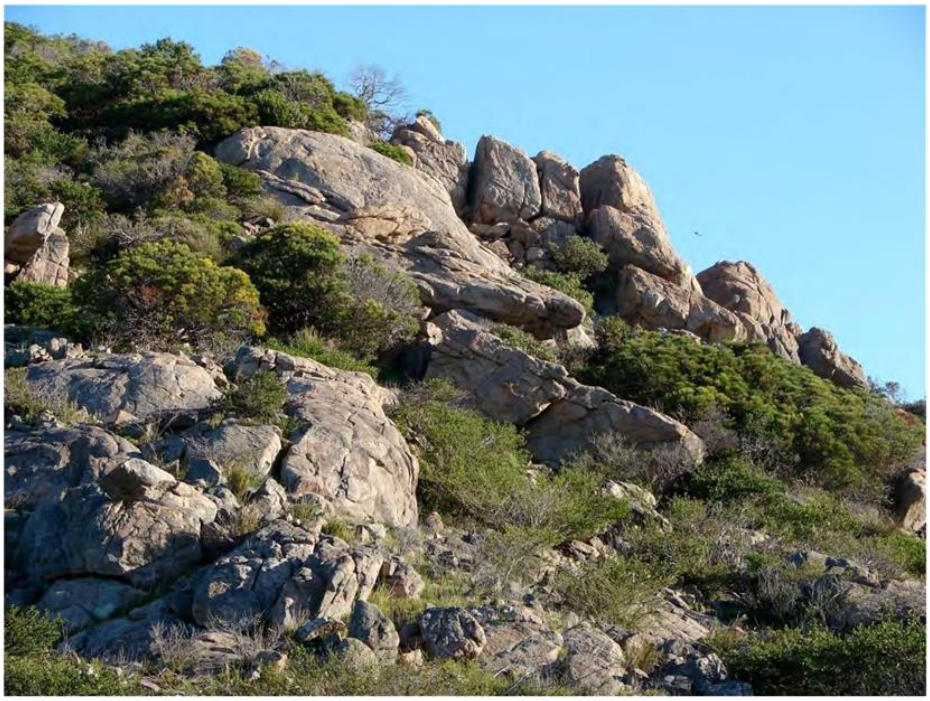


Photo 4: Granitic gneiss - roundly shaped outcrops known as tors, knolls and inselbergs

The Park experienced heavy rain events which resulted in immense volumes of ground water increasing the erosional capacities of the Meelup and Dolugup Brooks and their side- streams to cut down into the bedrock and to carve out deep valleys and 20-degree slopes. The brooks' head ward erosion of their valleys continues currently but, at a reduced rate, due to intermittent stream flow. The four beaches are crest-shaped and lined with mobile aoelian dunes. Beach materials are a mix of quartz sand, shell fragments, isolated ilmenite-rich strand line, pebble and cobble accumulations. Each beach profile is site- specific and is determined by aspect, slope, gravity, the shapes and composition of beach material deposits, and by the dynamics of winds, longshore drift, currents, tides and storms.

Detailed research of the Park's granitic gneiss 'mineral assemblage and texture (alternating bands of quartz, feldspar and pyroxene) classifies it as a *granulite* of the Dunsborough suite of the Leeuwin Complex. During a 600 million year period (from 530 to 1100 Ma), in the Protozoic Era, the original granite rock (a coarse- grained igneous rock) was subjected to intense heat and pressure and was metamorphosed by a violent tectonic episode (the Pinjarra Orogeny) which was associated with the break-up of the Gondwana super continent when Greater India separated from Australia and Antarctica.

Laterite regolith is the second rock type: it forms the plateaus and hills of the northern, western and southern areas of the Park. Because of the mode of laterite development and its mineral suite, laterite

is regarded as being more of fossil soil than as a rock type. It is developed by laterisation which is a complicated weathering process that took place 25 to 40 Ma ago in the Eocene Era: a time when the South West of Western Australia had a tropical climate (prolonged wet and hot seasons alternating with short dry seasons) and dense vegetation comparable to what is habitual in Southeast Asian countries.

Laterite's thin profile (0.5-1.5 metre thick) is formed *in situ* by the chemical weathering of the granulite's feldspars which, over millennia, gradually transforms their constituent iron and aluminium hydroxides into gibbsite, boehmite, hematite and maghemite. This suite of secondary minerals is then segregated by chemical and physical processes into four zones: ferricrete duricrust (a capstone cemented by iron oxyhydroxides), friable mottled and pallid clays, saprolite (partly weathered bedrock) and fresh bedrock.

Soils

Soil formation is broadly controlled by five factors: climate, organisms, parent material, topography and "geologic time"; and, ultimately, soil formation represents the balance achieved between the processes of soil creation and its erosion. In the case of the Park, the weathering of the hard granulitic bedrock, despite the rock's many joints and foliations, is very much a limiting factor. In contrast, the friability of the lateritic regolith causes its break down into pre-weathered floaters, gravels and sands and silts and consequently to expose mottled clays and saprolite weathering and decomposition. All of the Park's soils are thin and fragile which makes them prone to erosion by wind, surface run-off and fluvial processes to produce alluvial deposits downstream.

Mapping the spatial distribution of the Park's soils in relation to slope and relief situation assists in understanding the interplay between weathering, erosion and deposition. Steep slopes and localized heavy rainfall events accelerate erosion. Weathering has a major influence on the permeability and porosity of soil and that of the underlying saprolite, and in turn, influences the movement of surface run-off and groundwater and can adversely affect hill slope stability.

The distribution of the Park's four soil units (unconsolidated materials) is depicted in Figure 3. Each soil unit has been delineated in terms of its areal extent, physical properties, (permeability, slope stability, its ease of excavation, shrinkage, and load- bearing capacity), lithology (clay, gravel, silt sand), grain- size, relief, slope, current process (stream flow, run-off), erosion potential, and the unit's suitability for specific land-uses and is a measure of their environment suitability. The soil mapping is based on literature review, field observations and the geological interpretation of satellite imagery and topographic contour maps.

By using the map one can move inland from the coast, via stream valleys and dissected terrain, to the lateritic regolith uplands, the soil units plus their identifiers (colour and descriptor shown on map) and their principal land forms are listed as follows:

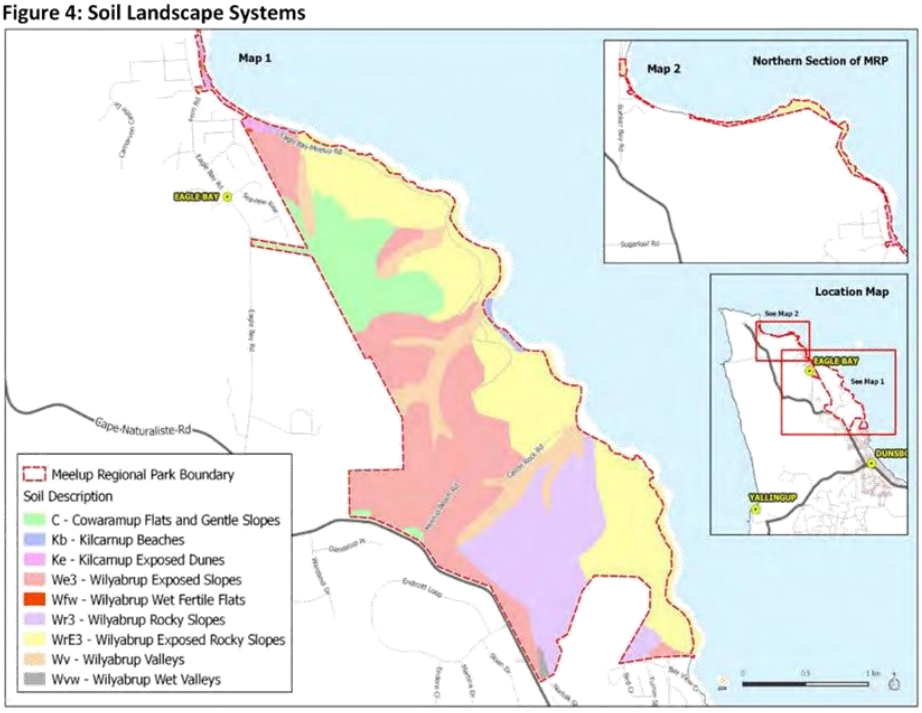
- Calcareous sands (yellow, S1) (dunes and beaches) ;
- Clayey sandy silts (light green Msc1) (alluvium, valley floors);
- Silty gravelly sands (light purple, Sgm2), (colluviums, granulite talus slopes);
- Pisolitic gravels (orange, G2) (crests and slopes of lateritic ridges).

In addition to these mapped soil units, there are intergrades where several units blend into the Park's soil scapes (lateritic upland, valleys and rocky escarpments). For example, pockets of pisolitic gravel and granulite outcrops occur within the lateritic regolith and overlie pallid clays and saprolite. Clayey silts and silty sands form the valley floors and upper reaches of the Meelup and Dolugup Brooks (where there could be acid sulphate soils present), granulite outcrops and boulders are embedded in silty sands and gravels and partially weathered floaters which form the very steep talus or scree slopes. The northwestern lateritic plateau is overlain by grey sand blown there during a previous dry period.

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

- **Cowaramup Uplands: Jarrah**- Marri forest is the principle vegetation of this system
- **Kilcarnup Dunes**: Coastal scrub is the predominant vegetation on this system
- **Wilyabrup Valleys System**: Jarrah-Marri forest predominates on this system.
  The soil landscape systems are shown in Figure 4.

Figure 4: Soil Landscape Systems



Acid sulphate soils

Acid sulphate soils are naturally occurring soil or sediment containing iron sulphides (most commonly pyrite) over extensive low lying areas under waterlogged or anaerobic conditions. These soils may be found close to the natural ground level but may also be found at depth in the soil profile.

The Park has some water courses of 'moderate to low risk' acid sulphate soils and a precautionary approach is adopted in these areas to avoid soil disturbance.

Threats

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

- Extraction. Exploration or mining activities have the potential to significantly impact the Park's geology, landforms and soils.
- Erosion. Removal of vegetation by various mechanisms including clearing, trampling and fire typically results in acceleration of soil erosion. The key to prevention is the retention of vegetation and revegetation of degraded areas. This is particularly critical on banks of waterways, areas of past gravel extraction and landfill, and in fore dune areas. Where dunes are vegetated defined access paths must be provided. No other developments should occur on fore dunes.
- Contamination. Soils can become contaminated by fuel and chemical spills, dumping of waste materials, or disturbance of acid sulphate soils. A former waste disposal site is also located with management zone 6.
- Inappropriate visitor use. This can result in erosion, sedimentation, and other impacts to geological features and soils.

Section 20 - GEOLOGY, ROCKS, LANDFORMS AND SOILS	
Objective 6: **To protect and conserve geological features, landforms and soils and preserve the unique character of the Parks visual landscape.**	
Action No	**Management Action**
6.1	Identify and mitigate potential adverse impacts on the Park's geology, soils, landform, and visual landscape to preserve the unique character of the Park.

21. WATERWAYS

Water is primarily managed for ecological purposes in the Park. The responsibility for water resource protection, licensing and management rests with DWER. The taking of water from catchments is regulated under the *Rights in Water and Irrigation Act 1914* (RIWI Act), which is administered by DWER. Under the RIWI Act, a licence is required to take water in proclaimed areas or non-artesian groundwater areas proclaimed or prescribed under the Act. Such licences specify the amounts and conditions under which water may be taken. All groundwater and surface water catchments in Meelup Regional Park are proclaimed under the RIWI Act.

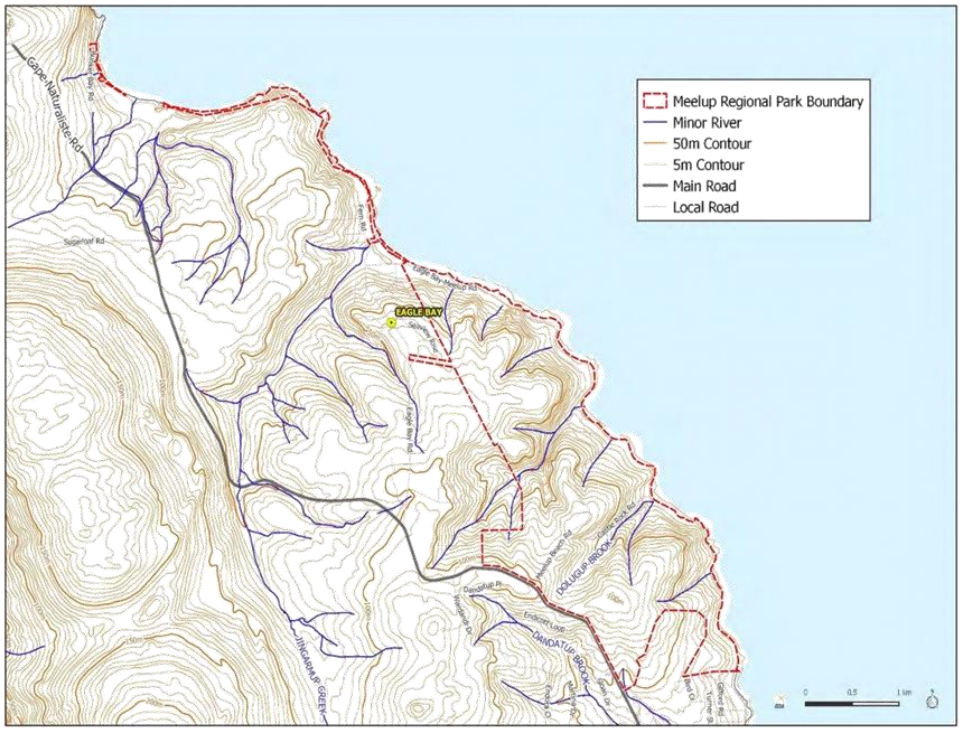
Under the RIWI Act, works that may interfere with the bed and banks of waterways within the Park require a permit from DWER.

Surface water

Many of the wetlands and waterways in the Geographe catchment have been degraded by clearing, drainage, pollution, stock intrusion and altered flow regimes. Therefore, those that are unmodified and within bushland such as Meelup Regional Park have high conservation value. Waterways within the Park are managed primarily for ecological purposes and are not considered a water resource for human use.

The Park has three small and ephemeral surface streams: Jingarmup, Meelup and Dolugup Brooks, which are all within the Geographe catchment Figure 5.

Figure 5: Topography and Surface Water Courses



A River Action Plan developed by the Cape to Cape Catchment Group in 2006 outlines the characteristics, values, condition and management issues for the Dunsborough streams including Meelup Brook, Dolugup Brook and Jingarmup Brook. Approximately half of Meelup Brook is within the Park and its headwaters are on a small reserve to the east of Cape Naturaliste Road. Meelup Brook flows through farmland and a vineyard before reaching the Park. The brook has a number of minor tributaries and much of the riparian foreshore is in excellent condition, although there are some areas of erosion and weed infestation. Two on-stream dams exist on the lower half of Meelup Brook close to Meelup Beach.

Photo 5: Meelup Brook ocean outfall at Meelup Beach

Dolugup Brook is the smallest of the waterways and is entirely within the Park, with its headwaters to the south of Meelup Beach Road. It flows alongside Castle Rock Road before reaching Castle Bay. It is mostly in excellent condition except for some minor erosion and disturbances near the mouth caused by Castle Bay's car Park and road drainage. Observations over the last decade indicate that Dolugup Brook does not flow annually.

Jingarmup Brook is the longest of the three waterways and only has a small portion running through the Park. The headwaters are on farmland at the southern edge of Cape Naturaliste near Vidler Road. It flows north through farmland, then passes through rural residential and residential areas in Eagle Bay before entering the ocean on the western edge of Eagle Bay. The majority of the catchment has been cleared for agriculture and the foreshore is mostly degraded (Cape to Cape Catchments Group 2006).

Photo 6 Jingarmup Brook Eagle Bay

Groundwater

The groundwater of Meelup Regional Park is thought to be restricted to shallow aquifers because the gneiss bedrock is either outcropping or close to the ground surface in most parts of the Park. There are surface springs and seeps, which provide important habitat for aquatic fauna and are a water source for terrestrial fauna. Little is known about the Park's groundwater and further research is required to fill this knowledge gap.

Water quality

Water quality monitoring in Jingarmup Brook has previously been undertaken as part of a catchment-wide assessment of the water quality of major waterways, under the Vasse Wonnerup Wetlands and Geographe Bay Water Quality Improvement Plan (WQIP) (2010)

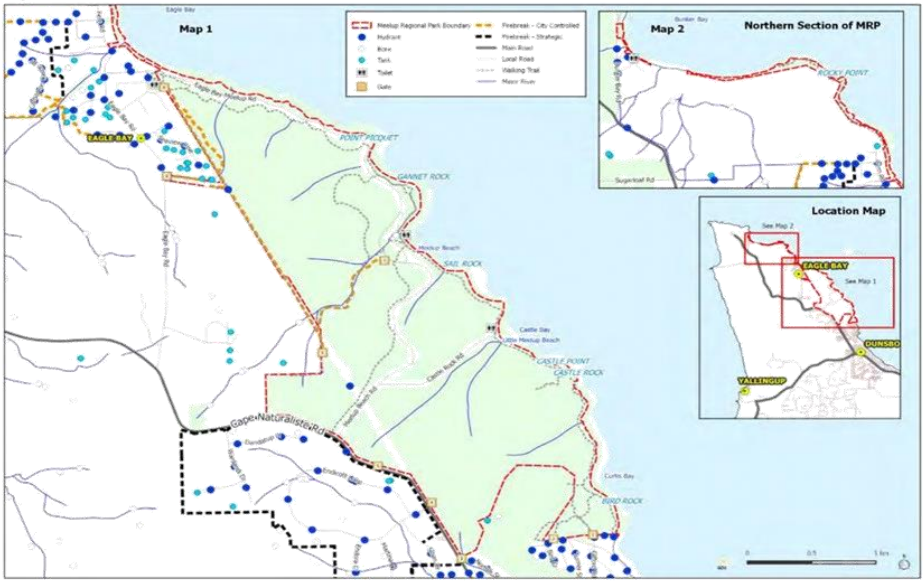
The aim of the WQIP (2010) is to provide a strategic approach to reducing nutrients in the Vasse Wonnerup Wetlands and Geographe Bay. Dolugup Brook was not included in the water quality monitoring programme.

Several water quality issues have been identified within the Jingarmup Brook, including nutrient enrichment (elevated nitrogen), seasonal odour at its mouth arising from decomposition of algae and/or exposure of anoxic sediment, and high turbidity. The management objective for Jingarmup Brook is 'intervention', to prevent phosphorus rising and reduce nitrogen to recommended levels (DoW 2010).

Water Supply Infrastructure

Water resources are required to support Park facilities and for fire management. The water supply pipeline for Bunker Bay provides the ablutions water to Meelup Beach and is used for irrigation of the grassed areas. There is no water supply to other recreation area in the Park. Fire hydrants supply water for fire management purposes, with the locations of fire hydrants detailed in the Fire Management Plan (Figure 6).

Figure 6: Water Infrastructure and Access Roads



Threats

Threats to the Park's waterways and wetlands include:

- Visitor access and associated recreational activities. High visitor usage of sensitive waterways can potentially damage vegetation, causing erosion, sedimentation and spread dieback and weeds.
- Upstream water extraction/contamination. Land use activities within the water catchment upstream of the Park's boundaries, including both on-stream and off-stream activities, can impact surface water quality and stream flow in the Park.
- Infrastructure development. The provision of infrastructure within the Park has the potential to disturb vegetation, alter the local hydrology and impact water quality.
- Extraction. Ground water extraction within the Park poses a threat to these resources and the ecosystems that depend on them.

Section 21 - Waterways and Wetlands	
Objective 7: **To protect and conserve existing surface and ground water resources of the Park, the Park's waterways and wetlands**	
Action No	**Management Action**
7.1	Develop a catchment protection and enhancement plan for the Meelup and Jingarmup Brook catchments in collaboration with relevant government agencies, local catchment management groups and the Park's neighbouring landholders
7.2	Rehabilitate degraded areas, including erosion control, weed control and revegetation.
7.3	Ensure effective stormwater and drainage systems that maintain environmental flow.

22. NATIVE PLANTS AND PLANT VEGETATION COMMUNITIES

The south-west corner of WA is internationally recognised as one of the world's 34 biodiversity hotspots for its rich plant diversity and high endemism with many species unique to the region. The Busselton to Augusta area is listed as one of Australia's 15 national biodiversity hotspots.

Native plants

The Park has a diverse flora with 480 species of native vascular plants recorded and is comparable to other reserves within the south-west botanical province, considered to be centres of species diversity. Little is known or recorded about non-vascular plants in the Park, including fungi, lichen, algae, mosses and liverworts.

The largest families represented are Fabaceae (57 native, 10 weeds), Orchidaceae (37 native, 1 weed), Cyperaceae (34 native, 2 weeds), Poaceae (16 native, 19 weeds), Asteraceae (24 native, 10 weeds) and Myrtaceae (27 native). The largest genera are Acacia (16), Schoenus (15), Caladenia (14), Stylidium (13), Lomandra (10), Drosera (9), Hibbertia (8) and Leucopogon (8) (Webb 2013).

The BC Act 2016 provides for the protection of native flora that is likely to become extinct, rare or otherwise in need of special protection.

Of the significant species in the Park, 11 are listed as threatened, which includes four species listed as declared rare flora (DRF) and seven are assigned a priority flora status (Table 2). Priority flora are those species that may be rare or threatened, but of which there is insufficient information to make a determination of their status. Unlike DRF, priority flora are not gazetted and do not have the same level of legislative protection. However, the priority flora list is maintained as a mechanism to highlight flora of special conservation interest and to encourage appropriate management. Taxa are grouped from Priority 1 to Priority 4 according to the perceived urgency for further survey (DEC 2010). Appendix 1 provides further information on threatened species ranking and priority codes.

Photo 7: Cape spider orchid
(Caladenia caesarea subsp. *maritima)*

DBCA develops and implements recovery plans for threatened species, which outlines action that need to be taken to prevent these species from further decline and eventual extinction. The Australian Government Minister for Environment may also make or adopt and implement recovery plans under the EPBC Act.

Table 2: Threatened and priority flora and rankings

Species	State	Commonwealth
Bussell's spider orchid* *Caladenia busselliana*	CR	EN
Cape spider orchid *Caladenia caesarea* subsp. *maritima* *	CR	EN
Dunsborough spider orchid *Caladenia viridescens* *	CR	EN
Giant spider orchid *Caladenia excelsa*	EN	EN
Meelup mallee *Eucalyptus x phylacis* *	CR	EN
Acacia latericola (glaberous variant)	P3	
Boronia tenuis	P4	
Calothamnus graniticus ssp. graniticus	P4	
Eucalyptus rudis ssp. cratyantha	P4	
Eucalyptus virginea	P4	
Thelymitra variegata	P3	
Meionectes tenuifolia	P3	

Abbreviations		
	EN: Endangered CR: Critically endangered *Interim Recovery Plan	P3: Priority 3: Poorly known species, some on conservation lands P4: Priority 4: Rare, threatened or other taxa in need of monitoring

Two of the Park's priority listed species (*Boronia tenuis* and *Eucalyptus virginea*) are significantly disjunct from their typical area of occurrence. *Caladenia caesarea* ssp. *maritima* and *Eucalyptus x phylacis* (the Meelup mallee) are endemic to Meelup Regional Park and *Caladenia viridescens* is only known from the Park and other bushland areas within 10km of Meelup (Webb 2013).

The Cape Naturaliste endemic and subspecies *Calothamnus graniticus* ssp. *graniticus* (City of Busselton floral emblem) is only known from Meelup Regional Park and nearby Sugarloaf Rock. Keighery et al. (2011) note that the form of this species in Meelup has glaberous leaves compared to hairy leaves at Sugarloaf rock, it is possible that with further taxonomic and/or genetic work that separate forms of this species could be recognised (Webb 2013).

Photo 8: *Calothamnus graniticus* ssp. *graniticus* (City of Busselton floral emblem)

The critically endangered Meelup mallee, *Eucalyptus x phylacis,* is a small mallee to 5 metres with distinctive coarse, non-fibrous bark overlaying thick corky bark. The Meelup mallee was first collected in 1982 and named in 1992. The Kings Park and Botanical Gardens has undertaken research into the genetics of the species and discovered that the only known population is in fact a single plant (clone). The distance between the mallee ramets suggests that the plant is very old, possibly as old as 6600 years. This indicates that it is potentially one of the oldest eucalypts on record (Patten 2004). The

location of the Meelup Mallee is restricted in order to protect the species. Annual monitoring is necessary to observe the ongoing health of the species, identify any concerns and instigate necessary recovery actions. The monitoring data is held by the DBCA.

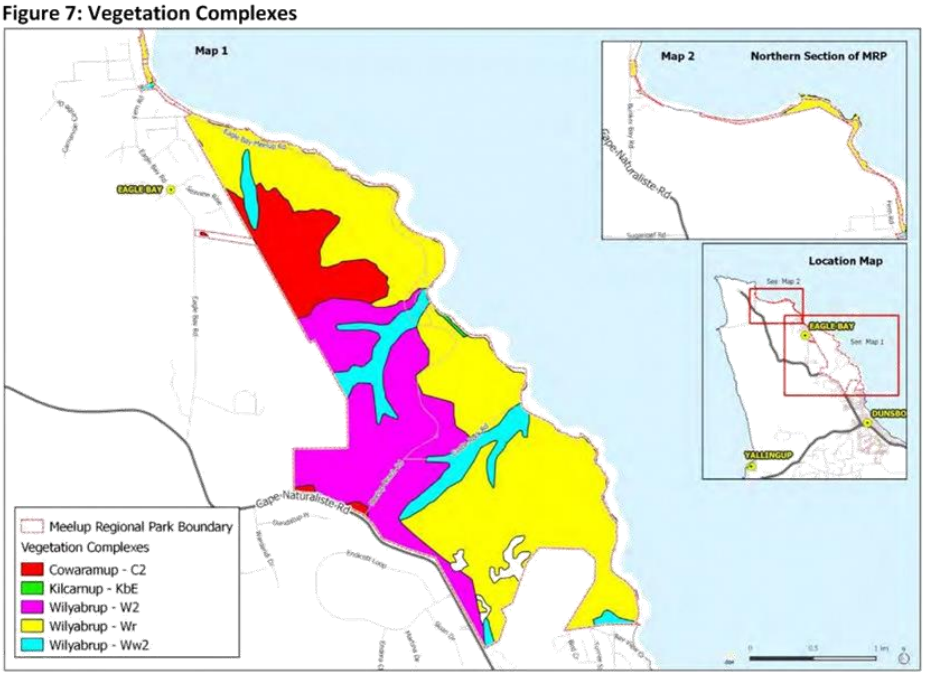
The recent discovery of *Eucalyptus virginea* approximately 300m from the Meelup Mallee population has resulted in Nicolle and French (2012) considering the Mallee to be a hybrid of that species and *Eucalyptus decipiens*. The current conservation listing details the Meelup mallee as a hybrid: *Eucalyptus x phylacis.*

Vegetation complexes

Vegetation complex mapping is the mapping of vegetation based on landform, soils and climatic zones and their relationship to vegetation (primarily understorey vegetation).

Five vegetation complexes are mapped for the Meelup reserve system (Figure 7), as per Havel and Mattiske (2000): Cowaramup (C2), Kilcarnup (KbE) and three Wilyabrup complexes (Wr), (W2) and (Ww2) (Webb 2013).

Figure 7: Vegetation Complexes



The Park's vegetation complexes are highly restricted and poorly reserved. The Wilyabrup (Wr) vegetation complex is one such example, with the Park supporting almost 50% of its remaining pre-European extent (Table 3). All occurrences of this complex support significant populations of endemic and disjunct flora, and in the context of the Leeuwin Block occurrences in Meelup, are the largest and the richest. The National Objectives and Targets for Biodiversity Conservation 2001-2005 (Department of the Environment and Heritage 2001) recognised that in order to protect Australia's biological diversity there needs to be the minimum retention of 30% of the pre-clearing extent.

Table 3: Extent of Meelup reserve system vegetation complexes (Webb 2013).

Vegetation complex	Pre-European extent (ha)	Extent remaining (ha)	% remaining	% in formal reservation	Extent * in Meelup (ha)
Cowaramup (C2)	13,683	4,889	36	6	60
Kilcarnup (KbE)	355	285	80	69	5
Wilyabrup (W2)	4,101	1,407	34	2	145
Wilyabrup (Ww2)	1,328	519	39	0	52
Wilyabrup (Wr)	1,111	799	72	9	390

(* - includes partly cleared and regenerating vegetation)

Vegetation associations

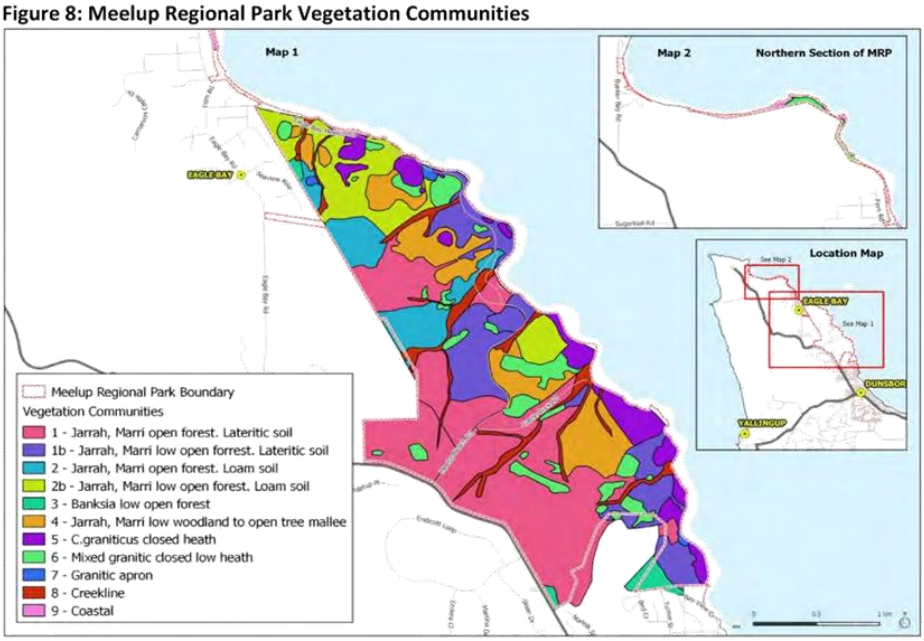
Trudgen and Trudgen (2010) define vegetation associations as covering two or more plant communities with similar structure and dominant species (Webb 2013). Meelup supports an intact granitic landscape and associated vegetation from the top of the landscape to the bottom; the vegetation of the reserve system is linked to its topographic position.

The Flora and Vegetation of the Meelup Reserve System mapped the Meelup vegetation at the association level, detailing the following eight vegetation associations with associated plant communities (Figure 8):

1. Jarrah, marri forests
2. Jarrah, marri woodland
3. *Banksia* woodland
4. Granitic heath
5. *Calothamnus graniticus* closed heath
6. Granitic apron
7. Creek lines
8. Coastal vegetation (Webb 2013).

Photo 9: Jarrah Marri woodlands within the Park

Figure 8: Meelup Regional Park Vegetation Communities



Significant vegetation

Keating and Trudgen (1986) indicate that the Park contains a significant variety of vegetation types that are poorly represented elsewhere. In particular, the jarrah, marri woodland and forest vegetation found in the Park is of significant diversity, good condition and the only area of such vegetation of a substantial extent, in reservation (Webb 2013). In addition, the granitic heath vegetation found in Meelup is thought to only be found within the Park.

Both these forms of vegetation comprise approximately 116 hectares of the Park's vegetation (70 hectares jarrah, marri woodland and 46 hectares granitic heath), appear to be highly restricted, support the majority of the Park's threatened and significant flora, are exceptionally diverse and are of excellent condition. Because of their limited extent it is considered that they should be assessed for nomination as a threatened ecological community. Surveys of nearby reserves need to be undertaken to place these vegetation types in context to surrounding areas (Webb 2013).

The survey undertaken by Keating and Trudgen in 1986, also identified a number of other plant communities that are considered significant in the Park (Webb 2013). The dominant subspecies of *Calothamnus graniticus* ssp. *graniticus* and its associated vegetation is only known from the tip of Cape Naturaliste in Meelup reserve and at Sugarloaf rock (Webb 2013). The threatened ecological community (TEC) "Meelup granites" or "*Calothamnus graniticus* heaths on south west coastal granites" is currently listed in WA as vulnerable and recorded as occurring in several locations in the Park within the heath on granite areas.

Small areas of the Meelup landscape support a granitic apron vegetation, which is also considered of high conservation significance in the broader Leeuwin Block context, as there is only one other location on the Leeuwin Block where comparable vegetation is known. This vegetation comprises edges

of outcropping granite, covered in shallow soil of varying depths resulting in the soil alternating between waterlogged and dry throughout the seasons. These areas can support a plant community ranging from an annually renewed herbland to a wetland taxa influenced scrub community (Webb 2013).

The coastal fringing vegetation is also considered to be of high conservation value, particularly the form on loamy soils associated with outcropping granite. The sheltered nature of the Meelup coastline has allowed for a unique combination of woodland and heath vegetation to combine with a number of taxa typically associated with the coastal fringe to form a very attractive and otherwise un-replicated coastal flora (Webb 2013).

Corridors

Corridors of remnant vegetation provide important ecological linkages for the natural movement of wildlife, and are crucial for helping species adapt to climate change. The Park provides connectivity to about four South West Regional Ecological Linkages (SWREL). These linkages are recognised as having regional importance. The SWREL project identifies regional scale ecological linkages and aims to respond to the issues of fragmentation and climate change through land use planning policy and procedures. It also seeks to retain native vegetation and fauna habitat and reduce the loss of biodiversity and ecological function in the South West (Molloy et al. 2009, in ngh environmental 2015). The SWREL axis lines are a series of vegetation patches, which due to their proximity, act as habitat stepping stones thereby facilitating ecological processes and movement of organisms at the landscape scale) (ngh environmental 2015).

The Park provides secure tenure of mostly remnant vegetation along the coastal fringe from Dunsborough through to Cape Naturaliste (and Leeuwin Naturaliste National Park), apart from about 400m along Bunker Bay Beach, which is recognised as unique for a single reserve along Geographe Bay. There is also a linkage via the wildlife corridor, and two linkages identified to the Leeuwin-Naturaliste National Park to the east (ngh environmental 2015).

Jingarmup Brook and Meelup Brook provide habitat corridor opportunities, however, only a very small portion of Jingarmup Brook is within the Park boundary; the middle and upper reaches are within privately owned land, extensively cleared of native vegetation. Meelup Brook is considered to provide an opportunity to work with upstream landholders to revegetate the brook and provide a riparian corridor to its headwaters, which is contained within a small 3.2 hectare class A reserve located adjacent to Cape Naturaliste Road.

Threats

Threats to the flora and vegetation communities of the Park are:

- Climate change. Climate change may impact the Park's flora and vegetation communities through reduced rainfall, altered seasonal patterns and increased temperatures.
- Disease and tree decline. *Phytophthora* dieback can impact over 40% of species in the south-west of WA. Over 25% of the Park is infested with dieback.
- Visitor use, access and recreational activities. Visitor use and access can affect vegetation through trampling or clearing for trails, or indirectly through erosion, sedimentation and spread of weeds.
- Unplanned or poorly planned fire management. Fire risk mitigation regimes and wildfires impact large areas of vegetation, declared rare flora species and threatened ecological communities. Overuse of fire for risk mitigation purposes could potentially alter the composition of vegetation communities.

- Weeds. Weeds can outcompete native flora species for water, nutrients and space; impact ecology by removing habitat and food sources for native fauna, and increase fire risk.
- Urban interface issues. The Park's proximity to suburban areas means it is highly accessible to the local population. The edge effect is apparent at the Park's boundary, with degradation resulting from uncontrolled access, garden rubbish dumping, litter and weeds.
- Road reserve maintenance. Although the road reserve is not within the Park's boundaries, the vegetation is contiguous and in some locations includes declared rare flora and threatened ecological communities.
- Introduced animals. Introduced animals graze on regenerating vegetation, spread weeds and can contribute to erosion.
- Importation of soil into the Park. Imported soils can introduce disease, deleterious insects, fungus and other foreign materials into the Park, which may impact native vegetation.
- Unauthorised removal of rare flora. Visitors to the Park actively seeking plant species for their private collections.

Section 22 - Native plants and vegetation communities management	
Objective 8: **To protect and conserve native plants and vegetation communities with an emphasis on threatened and priority species and significant vegetation.**	
Action No	**Management Action**
8.1	Avoidance of vegetation clearing for the purpose of developing visitor facilities and infrastructure within the Park.
8.2	Monitor annual weed control program to ensure there are no potential impacts to threatened and priority flora and significant vegetation.
8.3	Provide support to the DBCA with monitoring of important species and vegetation communities within the Park, and with the implementation of DRF recovery plans.
8.4	Undertake revegetation of degraded areas that are unlikely to naturally regenerate using local provenance native species.
8.5	Continue the annual monitoring program of the Meelup mallee with DBCA.
8.6	Monitor quadrats associated with the flora survey as appropriate or every five years.
8.7	Ensure contractors, staff and volunteers working in the park are adequately informed about the protection of threatened and priority flora.
8.8	Develop a roadside vegetation management plan to conserve threatened and priority flora, significant vegetation communities, and visual amenity.
8.9	Develop a procedure for the management and maintenance of the Park's road reserve vegetation.

23. NATIVE ANIMALS

The Park is important for fauna habitat due to several factors:

- The Park is a reasonably sized natural habitat located adjacent to the extensive Leeuwin-Naturaliste National Park.
- Has connectivity to four regional ecological linkages
- Fauna habitats are mostly in good condition with high diversity of fauna species present
- There are a number of conservation significant fauna species within the Park
- The Park is of high importance for the persistence of conservation significant fauna in the local area.
- The limited number of introduced species (Hart, Simpson and Associates Pty Ltd 1997).
- The Park is located in a region of growing population and increasing urbanization

A series of fauna surveys were undertaken during 1994, 1996 and 1997, the results of which are summarised in a single report (Hart *et al* 1997). In 2014 a second fauna survey was undertaken, introducing new surveying methods, targeting a wider range of fauna and surveying representative habitat based on more recent vegetation information. The resultant report found that of the total 293 vertebrate fauna taxa (13 amphibians, 205 birds, 33 mammals, 42 reptiles) that occur within 10km of the Park, 102 fauna species were observed in the Park, excluding fish and invertebrates.

Six of the eleven introduced species recorded locally were also found in the Park, and of those fauna recorded, eight species are of conservation significance and are listed by state and/or federal agencies as migratory, vulnerable or endangered (Table 4). DBCA develops and implements recovery plans for threatened species, which outlines action that need to be taken to prevent these species from further decline and eventual extinction. A full list is included in the report (ngh environmental, 2015).

There has been limited fish and freshwater crayfish surveying in-stream of Meelup Brook and Jingarmup Brook. No freshwater fish have been identified in Jingarmup Brook however, gilgie and estuarine species Swan River goby and sea mullet have been observed. Juvenile sea mullet and marron have been recorded at the mouth of Meelup Brook; the latter were probably introduced into the artificial dam near the beach (Beatty *et al* 2006). The introduced yabby has been recorded in the kangaroo seep. No in-stream surveying has been undertaken of Dolugup Brook due to mostly dry conditions.

Threats

Major threats to the Park's native fauna are:

- Introduced animals. Particularly foxes, which predate on small native fauna
- Domestic animals. Primarily dogs and cats, have the potential to disturb native fauna either directly (by chasing and/or killing animals) or indirectly by disease or scent.
- Visitor use, access and recreational activities. Visitor use and access can affect vegetation, alter hydrology in waterways and wetlands, resulting in disturbance and alteration of habitat.
- Unplanned or poorly planned fire management. Fire risk mitigation regimes and wildfires impact large areas of vegetation and ecological communities through direct mortality and/or loss of habitat.
- Disease and tree decline. Loss of habitat through clearing or disease, such as *Phytophthora* dieback. Over 25% of the Park is infested with dieback.

The listing category abbreviations for significant fauna, conservation status and habitats under the EPBC Act, BC Act and International Union for Conservation of Nature, are summarised in Table 4.

Table 4: Category abbreviations for significant fauna and conservation status.

State BC Act	Commonwealth EPBC Act	Criteria set by DBCA	Criteria set by IUCN
1: Schedule Rare or likely to become extinct: *VU- Vulnerable* *EN- Endangered* *S2- Extinct* *S3-Protected under International Agreements* *S4- Other specially protected fauna*	*VU- Vulnerable* *EN- Endangered* *CE-Critically Endangered*	*Priority 1-3: Poorly known species* *Priority 4-5: Taxa in need of monitoring*	*VU: Vulnerable* *EN: Endangered* *CE: Critically Endangered* *NT: Near Threatened* *LC: Least concern*

Table 5: Recorded significant fauna, conservation status and habitats in the Park

Species	State	Commonwealth	IUCN	Habitat
Mammals				
Western false pipestrelle *Falsitrellis mackenziei*	P4		NT	Roost in tree hollows
Western ringtail possum *Pseudocheirus occidentalis* *	CE	CE	VU	Forest and dense woodlands. Requires tree hollows and/or dense canopy for refuge and nesting
Brush-tailed Phascogale *Phascogale tapoatafa spp*	VU	NT	NT	A variety of forest and woodland habitats
Chuditch *Dasyurus geoffroii* *	VU	VU	NT	Wooded habitat, including Eucalypt forest, dry woodland, mallee shrubland, riparian forest
Quenda or southern brown bandicoot *Isoodon obesulus fusciventer*	P5		LC	Dense understorey vegetation, particularly around swamps and along waterways
Western brush wallaby *Macropus irma*	P4		LC	Forest and woodland supporting a dense shrub layer
Birds				
Forest red-tailed black cockatoo *Calyptorhynchus banksii naso* *	VU	VU	LC	Eucalypt forests
Baudin's cockatoo *Calyptorhynchus baudinii* *	EN	EN		Eucalypt forests
Carnaby's cockatoo *Calyptorhynchus latirostris* *	EN	EN		Eucalypt forests
Rainbow bee-eater *Merops ornatus*	S3 Mig		LC	Most vegetation types, open country
Barking owl *Ninox connivens*	P2		LC	Forest and woodland supporting a dense shrub layer
Caspian tern *Sterna caspia*	S3 Mig		LC	Coastal
Hooded plover ^ (western subspecies) *Thinornis rubricollis tregellasi*	P4		VU C1	Above the high tide mark on wide, sandy beaches
Reptiles				
Dell's Ctenotus *Ctenotus delli*	P4			Not known

Section 23 - Native Animals	
Objective 9: **To protect and conserve naturally occurring fauna species in the park, particularly threatened and priority species.**	
Action No	**Management Action**
9.1	Liaise with the DBCA and with neighbouring land owners on the management of native animals and implementation of recovery plans for threatened species in the park.
9.2	Investigate utilizing the Park as a site for translocation or re-introduction of native species.

24. ENVIRONMENTAL WEEDS

Environmental weeds are introduced plants that establish themselves in natural ecosystems and modify natural processes; often resulting in the decline of the communities they invade (CALM 1999). Weeds impact on ecosystems by competing with native plants for space, nutrients, water and light; pushing out native fauna that depend on native plants for food and shelter; and altering fire regimes. The Park has 91 known introduced species (Webb 2013).

The edge effect is clearly observed in the Park: weeds are primarily found in close proximity to recreational nodes, along trails and firebreaks, and boundaries with neighbouring properties. Weeds are also found along waterways, wetlands and extensively throughout the old gravel pit and decommissioned former landfill site (management unit 6) in the southern portion of the Park. Weeds are often introduced by Park visitors and vehicle movement.

Photo 10: Arum Lily control within the Park

The Environmental Weed Strategy for Western Australia (1999) provided a ranking of weed species on a state-wide basis against three criteria – invasiveness, distribution and environmental impact. A total of 1350 weeds species were rated through this process as either high, moderate or low, with 34 weeds species being rated as high priority for control. Environmental weeds of concern in the Park, are identified in Table 5.

To protect WA agriculture, the Department of Primary Industry and Regional Development (DPIRD) regulates harmful plants under the *Biosecurity and Agriculture Management Act 2007.* Plants that are prevented entry into the State or have control or keeping requirements are known as declared pests. The Western Australian Organism List (WAOL)[2] contains information on the area(s) in which a plant is declared and the control and keeping categories to which it has been assigned in Western Australia. Declared weeds in the Park come under the C3 control category, which means they are established in Western Australia but, may warrant management of spread, impact and distribution.

[2]The Western Australian Organism List is available on the Department of Primary Industries and Regional Development Website: agric.wa.gov.au/organisms

Table 6: Weeds of significance in Meelup Regional Park

Species	Included on WONS list	Included on WAOL List	Environmental Weeds of concern in the Park
Bridal creeper *Asparagus asparagoides*	Yes	Yes	Yes
Mediterranean turnip *Brassica tournefortii*		Yes	
Double gee *Emex spinosa*		Yes	
Flax-leaf broom *Genista linifolia*	Yes	Yes	Yes
Tagasaste *Chamaecytisus palmensis*		Yes	Yes
Hare's tail grass *Lagurus ovatus*		Yes	
One-leaf cape tulip *Moraea flaccida*		Yes	Yes
Rose Pelargonium *Pelargonium capitatum*		Yes	Yes
Guildford grass *Romulea rosea*		Yes	Yes
Harlequin flower *Sparaxis bulbifera*		Yes	
Apple of sodom *Solanum linnaeanum*		Yes	Yes
Watsonia *Wastonia spp*		Yes	Yes
Arum lily *Zantedeschia aethiopica*		Yes	Yes
Brisbane Golden Wattle *Acacia fimbriata*		Yes	Yes
Flinders range wattle *Acacia iteaphylla*		Yes	Yes
Sydney golden wattle *Acacia longifolia*		Yes	Yes
Manna wattle *Acacia micobotyra*			Yes
Queensland silver wattle Acacia podalyrifolia			Yes
Dolichos pea *Dipogon lignosus*		Yes	Yes
Victorian teatree *Leptospermum laevigatum*		Yes	Yes
Sweet pittosporum *Pittospermum undulatum*		Yes	Yes
Milkwort *Polygala myrtifolia*		Yes	Yes
Pyp grass *Ehrharta villosa*		Yes	Yes
Olive *Olea europaea*		Yes	Yes

An extensive weed survey was undertaken by the committee in 2011, with an assessment of all trails and firebreaks, recreation nodes, waterways, wetlands, gravel pits and former waste facility landfill area in management unit 6 (Fisher 2011). This valuable resource provides a baseline for future weed surveying and recommends prioritization of weed control. Meelup Regional Park Weed Control Guidelines have been developed for contractors to maximize the efficacy and minimize the impacts of weed control on Park users and the environment.

An annual weed inspection is also undertaken of key sites within the Park and weed control is prioritized based on financial resources and an assessment of:

- Invasiveness: how rapidly and aggressively the weed can spread.
- Distribution: where it is located and the population's extent. Control should be prioritized for newly established weed populations, areas of good quality bushland and rehabilitation areas.
- Ecological impact on the environment: taking into account the two considerations above and the weed's potential to alter the composition, especially the formation of monocultures, in the natural environment. In addition, weeds that have the potential to impact on rare and threatened flora and fauna need to be prioritized for control.
- Potential and current distribution and feasibility of control.

Non-native trees have been planted for rehabilitation, aesthetic or shading purposes in some locations in the Park, namely at Eagle Bay, Meelup Beach and the old gravel pit/landfill site. These include New Zealand Christmas trees (*Metrosideros excelsa*), coastal mort (*Eucalyptus utilis*) and non-native *Eucalyptus* species. Some of these species have naturalized and are spreading to other areas of the Park, or are preventing natural regeneration. These populations need to be regularly monitored; and

- retained where they pose no threat of spreading or affecting adjacent conservation values;
- incrementally removed and replaced if they are determined inappropriate, are impacting on natural regeneration or revegetation efforts; or have naturally senesced;
- removed where they are self-seeding.

In addition, the efficacy of past rust and leafhopper release programs for the control of bridal creeper must be monitored, as although ongoing recurrence appears to be limiting the weeds spread this may change with time.

Section 24 - Environmental Weeds	
Objective 10: **To minimise the impact of environmental weeds on the natural environment values.**	
Action No	**Management Action**
10.1	Develop and implement a priority weed control action plan, based on assessment of invasiveness, distribution and potential environmental impacts within the Park.
10.2	Regularly review effectiveness of weed control programme and monitor the impact of weed control on native flora and maintain an effective mapping system of weed management.
10.3	Regularly review the Parks annual weed control programme and maintain a mapping system of weed management.

25. INTRODUCED AND FERAL ANIMALS

Introduced animals are feral species that have become established as wild or naturalised populations, whilst problem animals are native species that have altered their natural distribution and population, often to the detriment of locally native species (Table 6). Introduced and other problem animals can seriously impact on ecosystems through predation, habitat destruction, competition for food and habitat, introduction of disease, and by causing environmental degradation.

Table 7: Introduced and other problem animals in Meelup Regional Park

Species	WAOL control category
Mammals	
Black rat *(Rattus rattus)*	
Rabbit *(Oryctolagus cuniculus)*	C3 management
Fox (*Vulpes vulpes)*	C3 management
Feral cat (*Felis catus)*	
Fish	
Rosy barb *(Puntius conchonius)*	
Birds	
Laughing kookaburra *(Dacelo novaeguineae)*	

The house mouse (*Mus musculus*) is also expected to be present but has not been recorded.
Foxes are considered to have contributed to the extinction and decline of many ground-nesting birds, small to medium sized mammals (35g to 5.5kg) and reptiles. Cats are also considered to have a significant impact; however the evidence of their effect on fauna in the south-west is scarce. Rabbits compete with native fauna for food and can impact on the regeneration of native vegetation through grazing.

Kookaburras are commonly observed at Meelup Beach. They are considered an 'acclimatised species' or 'fauna living in a wild state as a result of being released or escaping from confinement or because it is offspring of fauna that has been released or has escaped from confinement'. They are considered native to WA and are protected under the BC Act.

Rosy barb have been recorded in Jingarmup Brook (Beatty *et al* 2006). Although they were recorded outside of Meelup Regional Park, a small section of Jingarmup Brook is within the Park and it is therefore possible that this species exists within Park boundaries. This was the first wild population of the species recorded in WA, and was probably a result of a deliberate aquarium release.

Upstream dams may provide a mother stock of this feral species and so it may prove difficult to completely eradicate them from the stream system. Further research is required on the source and potential eradication of this species.

Control

An annual introduced animal control program is undertaken in the Park, using 1080 poisoned oats and calicivirus virus for rabbits, 1080 baits for foxes and cage traps for feral cats. Baiting results recorded between 2009 and 2018 indicate a relatively consistent bait take by foxes, which supports the importance of continuing a baiting program. Feral cats have been observed in the Park and a trapping program has been implemented.

Section 25 - Introduced and Feral Animal	
Objective 11: **To minimise the impact of introduced and other problem animals on the Park's biodiversity.**	
Action No	**Management Action**
11.1	Implement a feral animal control programme within the Park and in collaboration with adjoining landowners and review the effectiveness of the programme annually.
11.2	Engage with neighbouring landholders to facilitate a coordinated and extended feral animal management programme beyond the Parks boundary.

11.3	Investigate the potential for a rosy barb (feral fish) monitoring project to determine their presence in Jingarmup Brook, and implement management actions as appropriate.
11.4	Conduct regular surveys to identify potential impacts of introduced pest and feral animals on the Park threatened fauna population.

26. TREE DECLINE AND DISEASE

Tree decline

Since the 1990's there has been an observed decline in the health of a number of tree species in the south west, including *Agonis flexuosa, Eucalyptus rudis, E. gomphocephala, E. marginata* and *Corymbia calophylla*. It is thought that high temperatures, declining rainfall and lowered water tables are the primary stressors, with vulnerable trees susceptible to secondary impacts from insects and disease, resulting in the eventual death of trees (Australian Broadcasting Corporation 2012). Tree decline has been anecdotally observed in the Park, but no qualitative data currently exists.

The decline of key tree species in the Park may have significant impacts on the Park's ecology and threatened species such as the western ringtail possum and Carnabys, Baudin and forest red-tailed black cockatoos. Dying trees can pose a safety hazard to visitors from falling branches and limbs. The reduction in the health and number of trees can also impact on the visual amenity and character of the Park, with these species providing an important component of the Park's visual landscape.


Photo 11: Carnaby's Black Cockatoo

The Western Australian State Centre of Excellence on climate change and woodland and forestry health (the Centre), affiliated with Murdoch University, is concerned with the premature decline of key tree species in WA. The Centre is undertaking various research projects in the context of climate change; decline ecology; restoring biodiversity values; and determining policies and action for the restoration of woodlands and forests (Centre 2010). Tree treatment trials are being undertaken in Meelup Regional Park as part of a larger trial in the Margaret River region. This involves treating marri trees with various treatment options and monitoring changes in tree health over time to determine the most effective treatment.

A large-scale treatment program covering the entire Park is considered resource intensive however, an effective treatment programme could target tree treatment in key areas such as along roadsides and in popular visitor nodes such as Meelup Beach and Castle Bay.

Vegetation condition change has been analysed using Landsat multi spectral imagery for the period February 1988 to January 2015. Although full analysis of data is pending, the imagery shows a clear trend of vegetation decline in the majority of the Park over this period, with the key exception being in and around a gravel extraction pit and a former landfill waste disposal site located within management zone 6. Both these sites have been rehabilitated and or naturally regenerated.

Disease

The vegetation of the south-west is under threat from several plant diseases, with the most frequently reported being pythiacious root rots (*Phytophthora* species), Armillaria root rots, stem cankers, rusts, and leaf spots and blights. The disease mostly focused on in Meelup Regional Park is caused by the pathogen *Phytophthora cinnamomi*. This is mostly due to the fact that little is known about other plant diseases and their existing and potential impact on the Park's vegetation and ecosystems.

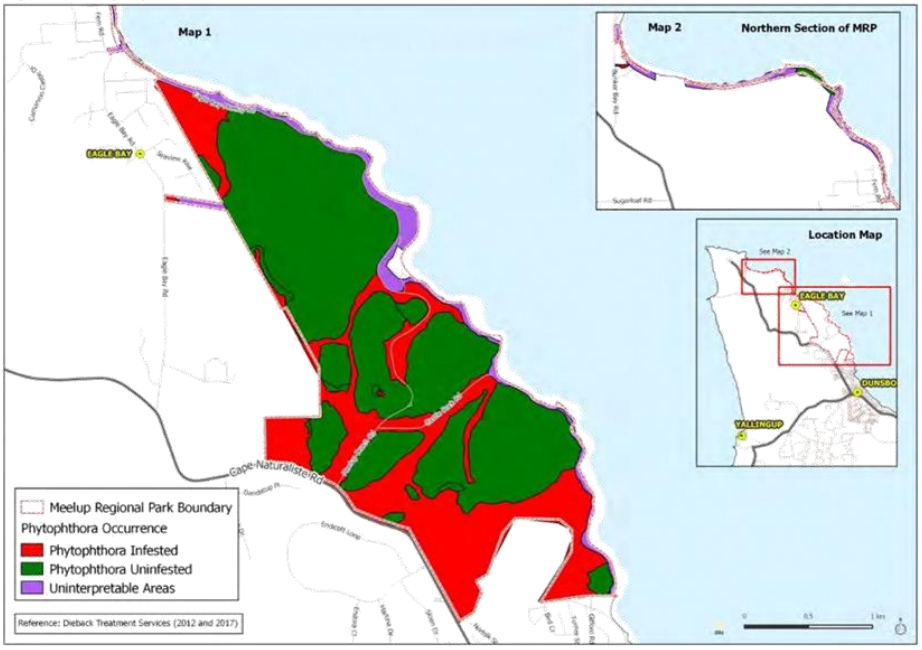
***Phytophthora* dieback**

Phytophthora dieback refers to the deadly plant disease caused by the pathogen *Phytophthora cinnamomi,* which is an Oomycete or water mould. There are over 50 species of *Phytophthora*, but *P.cinnamomi* has the most severe impact on native vegetation in Western Australia. Over 40% of Western Australian plant species are susceptible to *P.cinnamomi* (Shearer *et al* 2004). Changes in species composition impact native fauna that depend on this vegetation for food and habitat. *Phytophthora* dieback poses a serious threat to the Park's biodiversity values and is a high priority for Park management.

Distribution of *P. cinnamomi* is known to be widespread in the Park, especially in the area between the Dunsborough townsite and Meelup Beach Road. All riparian areas in the Park are infested with *P. cinnamomi* (Figure 9). *Phytophthora* dieback poses a significant threat to the Park given the existing upland plant communities that contain a number of susceptible species including jarrah, banksia and grass tree.

Photo 12: Grass Tree - Dieback *(Phytophthora cinnamomi))*

Figure 9: Phytophthora occurrence



Phytophthora cryptogea has also been found in the park, as determined by soil samples, in the 'wildlife corridor' accessible from Eagle Bay Road. This pathogen was identified as the cause of death of a cluster of *Xanthorrhoea preissii* (DTS 2012).

Detection of the disease is based on visual assessment of vegetation condition and presence of symptoms in conjunction with soil analysis to detect the pathogen; however, sampling can fail to detect the pathogen in clearly infected areas. An area is declared infested if symptoms and/or pathogens are detected. The Park was most recently surveyed for *Phytophthora* dieback in 2013 (Dieback Treatment Services 2017), which showed that 25.5% of the Park is infested with *Phytophthora cinnamomi* and another 13.5% of the Park is at risk of infestation by natural spread.

Expression of the disease in the Park is generally cryptic in nature with small numbers of fresh indicator species deaths observed along infested boundaries during surveying. The low disease expression is thought to be a result of a combination of factors, namely the deeply incised creek lines, a wildfire that occurred in 2005, vegetation communities that traditionally have low to moderate disease impact and generally drier conditions (Dieback Treatment Services 2009). Although mapping is undertaken approximately every five years, the existing and potential impact of the disease on the significant vegetation communities and flora of the Park is poorly understood.

It is important to note that despite a large proportion of the Park being assessed as infested, these areas still have significant natural environment values that need to be preserved. Mapping tends to be conservative, and pockets of land within larger areas classified as infested remain free of symptoms and have vegetation in good condition. The danger exists that areas classified as infested are perceived as not being worthy of protection, and biological and aesthetic values are compromised as a result.

Introduction or spreading of *Phytophthora* dieback into an area can be considered serious environmental harm under the Environmental Protection Act. There are several publications that provide general guidelines on the management of *Phytophthora* dieback, including:

- *Managing Phytophthora dieback in bushland* (Dieback Working Group 2005)
- *Phytophthora cinnamomi and disease caused by it* (DEC 2003)
- *Managing Phytophthora dieback – Guidelines for local government* (DWG 2000)

Management of *P. cinnamomi* within the Park should focus on uninfested areas and infested areas that have significant environmental values, such as DRF or TECs. A number of management units are dieback free and prevention of infestation of these areas is a high priority. Access to these areas needs to be restricted and strict hygiene measures implemented. This is particularly important for management units 4 and 16, where firebreaks have been cleared along a ridge into dieback free bushland. The movement of visitors and vehicles from infested to uninfested areas should ideally not be permitted, or at a minimum carefully managed to prevent the movement of infected soils to uninfested areas.

Photo 13: Dieback cleaning disinfection station on walk trail

Management of *Phytophthora* dieback will aim to:

1. Implement practices which mitigate the damaging effects of *P. cinnamomi* where it has already established.
2. Contain or prevent further autonomous spread at the boundaries of existing infestations. This may include the realignment or re-surfacing of firebreaks and trails, as well as phosphite application.
3. Reduce the rate of vectored spread and establishment of new infestations within uninfested protectable areas by:
    a. ensuring hygiene management is implemented for new developments where appropriate (e.g. recreational facilities and upgrades, realignments of trails and firebreaks);
    b. restricting operations to dry soil conditions;
    c. applying phosphite in priority areas, and) minimising or prohibiting access into these areas.

Emphasis of management will be on reduction of vectored spread and human-assisted establishment of new areas of infestation within protectable areas.

Due to the relatively small size of Meelup Regional Park and previous surveying efforts, boundary re-checks are a relatively simple and inexpensive exercise. However, due to the apparent slow spread of *P. cinnamomi* in the Park, boundary re-checks are recommended every five years as resources allow. Ideally, treatment with phosphite injection in priority areas should be undertaken every three to five years, whilst phosphite spraying should be undertaken every one to two years. For any new developments in the Park, for example new or realigned trails or firebreaks, dieback surveys should be undertaken to determine the presence or absence of dieback.

Armillaria luteobubalina

Armillaria luteobubalina is a soil-borne fungus common to sclerophyll forests and can infect many woody plant species. It spreads through root to root contact with infected trees, especially old decayed stumps and roots. It 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. Symptoms of the disease include the death of branches, yellowing of foliage, poor vigour and darkening and rotting of larger roots.

The range of species susceptible to the fungus is large and poorly defined (at least 50 families and more than 200 species), with little information on the presence of resistant or tolerant species. Shearer and Tippett (1988) and Shearer *et al.* (1997, 1998) found that many species that resist infection by *P. cinnamomi* are susceptible to *A. luteobubalina* (DEC 2010). Seventeen percent of the Park's vegetation was mapped as infected with *A. luteobubalina* in 1994 (Helyar 1994), however, no follow up surveys have been undertaken since.

In natural ecosystems, because it is a naturally occurring fungal species, *A. luteobubalina* 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 (R. Robinson, personal communication, n.d.).

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 and sound hygiene measures should be implemented.

Aerial cankers

Aerial cankers pose a significant risk to vegetation in the Park. It has been identified as a major threat to the *Eucalyptus x phylacis* (Meelup mallee) population in which stem death is evident, as well as *Corymbia calophylla* (marri). Fungi of the species *Quambalaria*, *Endothiella* and *Sporothrix* all appear to cause canker-like lesions on the trees. Once a tree has canker it will eventually die. Cankers have been observed in the Park and impacts becoming progressively noticeable over time, however, information on the extent, spread and impacts of cankers in the Park is limited to anecdotal evidence.

The loss of marri trees, which comprise a significant proportion of overstorey vegetation in the Park, is a significant risk associated with the existence of aerial cankers. Other significant species, including the declared rare flora Meelup mallee, are at risk from aerial cankers.

Quambalaria shoot blight

Marri trees provide important flowering resources over summer, and damage to flowers is likely to cause substantial losses of foraging resources for native fauna and honeybees. *Quambalaria pitereka* is a fungal pathogen responsible for leaf and shoot blight known as Quambalaria Shoot Blight (QSB). QSB is known from eucalypt plantations of NSW and Queensland, but has recently emerged in WA, affecting the leaves, flower buds, flowers and fruit of WA host tree species (*C. calophylla* and *C. ficifolia*) (Marbus 2010). Management of this pathogen is limited due to its occurrence in natural areas, making individual tree treatment with fungicide difficult.

Other plant diseases

There are a range of other plant diseases that have the potential to impact the Park's vegetation, particularly as numerous stressors are resulting in increased plant susceptibility to disease. These stressors include drought stress from falling water tables and reduced rainfall, increased temperatures, altered seasonal patterns and insect attack. Changing species composition impacts dependant fauna, resulting in altered ecosystems and exacerbating stressors, resulting in a negative feedback loop. Management is restricted to human intervention to enhance the resilience of vegetation, including appropriate hygiene measures, controlling human and vehicle access from areas of intact vegetation, creating or enhancing vegetation corridors, weed control and rehabilitation of degraded areas.

Section 26 - Tree Decline and Disease	
Objective 12: **a) To monitor and manage tree decline and its impacts on the park's environment; and** **b) To identify and control the spread of plant diseases and to protect areas currently free of disease.**	
Action No	**Management Action**
12.1	Develop and implement a dieback management program to maintain uninfested conservation and protection areas.
12.2	Develop dieback and hygiene management plans for the park, and implement best practice hygiene measures for dieback management and promote use of trail dieback hygiene stations and limestone capping for fire breaks and trails.
12.3	Conduct dieback surveys as appropriate and at intervals of not more than 5 years duration to monitor and document the spread of dieback within the Park.
12.4	Develop a programme for the use of phosphite in protectable dieback-free areas every one to two years for spraying, and every three to five years for injecting.
12.5	Create no new trails or firebreaks in areas identified as uninfested with dieback.
12.6	Maintain dieback trail markers and re-install if dieback boundaries change.
12.7	Investigate options for the treatment of trees with signs of decline.
12.8	Utilise image mapping and analysis to periodically monitor changes in vegetation condition, to inform vegetation management decisions.

27. FIRE

Australian wildlife has adapted to the natural occurrence of fire, however, fire may also have severe adverse impacts on native flora and vegetation communities of the Park and on fauna through alteration of habitat.

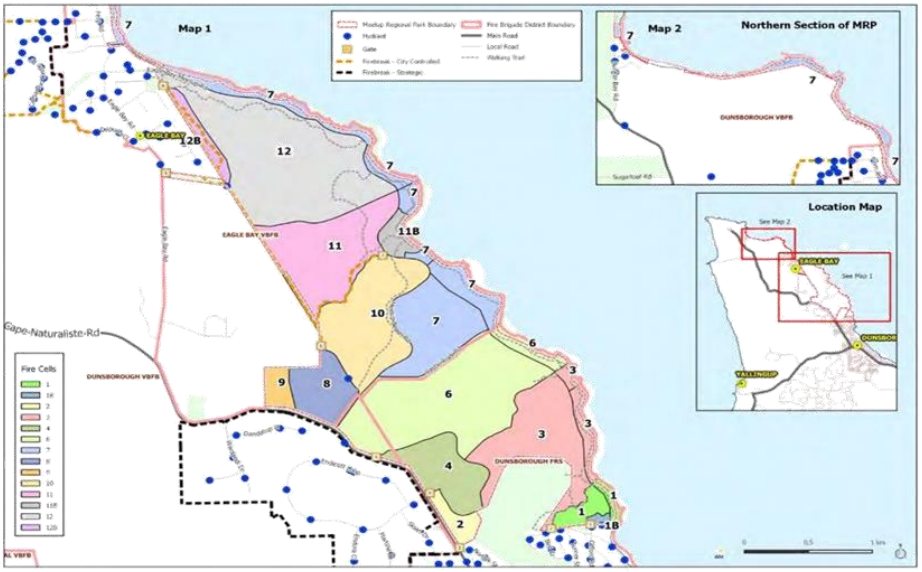
Further research is required to better understand the most appropriate fire regimes to conserve biodiversity values for the Park. This is a complex subject and future research is planned to assess the particular requirements, including knowledge of vital attributes of key fire response of species and habitats, to derive an appropriate 'ecological' fire regime for the Park.

Uncontrolled fire in and around the Park also poses a serious risk to life, property and infrastructure. 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. Peak visitor use coincides with the summer high-risk period.

Currently, hazard reduction burns are carried out in fire cells as required, with higher rotations in the Park's buffer cells located adjacent to town sites. Wildfires have occurred in the past; with the most

significant being an escaped prescribed burn in 2005, which burnt 230 hectares of the Park's bushland. A map of the fire management cells and infrastructure is provided in Figure 10.

Figure 10: Fire Cells and Infrastructure



The management of fire, including the use of fire, fire suppression and bushfire prevention, is guided by the Meelup Regional Park Fire Management Plan, and DBCA is consulted on a regular basis to ensure flora and fauna are protected.

The Fire Management Planning in the Park should consider:

- The size, timing and rotation of prescribed burns in order to protect Park ecosystems
- Appropriate management of declared rare flora, vulnerable habitat and dieback in the event of fire
- Research and development of an appropriate 'ecological' fire regime for the Park
- Water supplies, access and egress routes, the strategic firebreak system, firefighting resources, and education and liaison.
- The potential for *Phytophthora* dieback and weeds spread, particularly in conservation and protection zones.

Section 27 - Fire	
Objective 13: **To manage fire to protect and promote the conservation of biodiversity and natural values, whilst providing for the protection of human life and community assets.**	
Action No	**Management Action**
13.1	Implement the Meelup Regional Park Fire Management Plan in conjunction with the provisions of this Management Plan.
13.2	Implement fire ecology research to guide the future fire management within the Park
13.3	Review fire management planning for the Park in collaboration with the DBCA and traditional custodians.

28. REHABILITATION

Historical land use, visitor access and urban proximity are all factors that have contributed to the degradation of some areas of the Park, resulting in the loss of native vegetation and introduction of weeds and disease. Degradation impacts the natural environment and visual amenity of the Park.

Areas of the Park requiring rehabilitation include the old gravel pit and decommissioned former landfill waste disposal site in the southern portion of the Park, informal trails, disused vehicle tracks and degraded riparian, coastal and bushland areas. The edge effect is observable around the coastal nodes and the reserve-urban interface.

The Coastal Nodes Master Plan (2013) provides for rehabilitation of the nine coastal nodes along Meelup Beach and Eagle Bay-Meelup Roads, excluding Meelup Beach, which is specifically guided by the Meelup Beach Master Plan (2011). Combined, these nodes provide for the majority of the Park's visitation and are experiencing associated impacts.

Photo 14: Revegetation of former gravel extraction area.

Annual revegetation activities undertaken in the Park, focus on specific sites for intensive weed control and planting with local native species to rehabilitate degraded areas. Measures to prevent degradation should be implemented concurrently with rehabilitation where required in the Park.

Management Unit 6

Several gravel extraction areas and a former landfill waste disposal site are located within management unit 6, in the southern portion of the Park and this area is almost entirely infested with *Phytophthora* dieback. Topsoil was removed from the gravel extraction areas and soil erosion is evident. The previous revegetation of the excavated areas in 1993, involved the planting of unsuitable and non-endemic species, resulting in an increased fire risk and potential seed spread into other, more pristine areas of the Park.

Although zone 6 contains large degraded areas, there are areas of excellent to good quality bushland (57% of the total area) (Onshore Environmental 2013) and naturally regenerating vegetation. The Rehabilitation Plan for Zone 6, Meelup Regional Park (2014) provides a detailed framework and management document for the rehabilitation of the Parks management unit 6. The plan ranks rehabilitation of the unit 6 into high, medium and low priority areas; providing prescriptions for each including site preparation, weed control, revegetation and other considerations (ngh environmental 2014).

The former landfill waste disposal site located within zone 6 has been reported to DWER in accordance with the *Contaminated Sites Act 2003.* The *Contaminated Sites Act 2003*, provides for the identification, recording, assessment, management and remediation of contaminated sites in Western Australia. Extensive rehabilitation works are being undertaken to remediate the former landfill waste site for future use as a mountain bike trail facility.

Section 28 - Rehabilitation	
Objective 14: **To rehabilitate and restore natural vegetation in degraded areas of the Park.**	
Action No	**Management Action**
14.1	Develop and implement an annual program for rehabilitation of vegetation throughout the Park.
14.2	Use only local native species of plants that occur in the park for brushing, planting and seeding.
14.3	Use disease and weed free mulch in vegetation rehabilitation activities, within areas of high quality bushland.
14.4	Ensure that seed collection in the park is authorised by the City and licensed by DBCA, and that collectors use appropriate dieback hygiene measures.

PART D. MANAGING CULTURAL HERITAGE

29. GUIDING PRINCIPLES FOR MANAGING CULTURAL HERITAGE

1. Conservation and protection of cultural heritage
The Park will be managed in a way that helps maintain cultural heritage, attributes and traditions. 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, Federal and international heritage conventions.

3. Community involvement
The community is to be involved in managing sites of heritage value and a range of consultation opportunities are to be provided to maximise community engagement and community contribution to the management of the Park

4. Research and interpretation
Where appropriate, interpretative 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
Heritage sites are to be protected and their heritage value preserved. Sites with high heritage significance will be considered priorities.

30. INDIGENOUS CULTURAL HERITAGE

The *Aboriginal Heritage Act 1972 (AH Act)* was enacted to ensure that all Aboriginal cultural heritage within Western Australia is appropriately protected and preserved. The AH Act applies to various places and objects which are culturally, spiritually or ceremonially significant to traditional custodians. A register of sites and objects is maintained under the AH Act, although the Act also protects sites that have not yet been entered on the register.

At the time of European settlement Wadandi of the Nyungar people were the traditional custodians of the land bounded by Capel to the Northeast, Augusta in the South and including the regions now referred to as Busselton, Yallingup and Margaret River. The cultural heritage values and the valuable knowledge that Wardandi of the Nyungar people hold is acknowledged, and the cultural significance of Meelup Regional Park lands, is to be incorporated into the ongoing management arrangements for the Park.

Within the Park, the Castle Bay heritage place is registered under the AH Act as an artefacts scatter site and it is known that Aboriginal people camped above Meelup Beach, but otherwise little is documented about the pre-European use of the area.

As the State register is not a comprehensive listing of all existing Aboriginal heritage sites, assessments may be necessary before any operations where there is potential to inadvertently damage sites. Appropriate approvals under the AH Act are required before proceeding with any public works that may affect heritage values.

A Cultural Heritage Management Plan (CHMP) is a potential means for guiding the conservation and future use of an area containing Aboriginal sites. Statements of significance and an assessment of heritage values are the governing documents that shape and form a CHMP. Consultation methods and procedures are an important part of a CHMP, ultimately providing an ongoing avenue of consultation and partnership in the management of heritage places. CHMPs provide an opportunity to form a working, cooperative and mutually beneficial partnership allowing the management of important cultural places (Sean O'Hara pers. comm. 22/07/14).

Section 30 - Indigenous Cultural Heritage	
Objective 15: **To identify, protect and appropriately manage sites with Indigenous cultural heritage value within the park.**	
Action No	**Management Action**
15.1	Engage actively with the Wadandi people on Aboriginal history and heritage sites in the park.
15.2	Engage actively with the Wadandi people on relevant activities/projects undertaken within the Park
15.3	In consultation with the Wadandi people, incorporate information on history and culture into visitor interpretation facilities.
15.4	Work proactively with traditional custodians, the Wardandi people to understand and promote to the broader community the cultural significance of the Parks lands and waters.
15.5	Develop an indigenous cultural heritage management plan for the Park.

31. NON-INDIGENOUS CULTURAL HERITAGE

Meelup Regional Park's European heritage relates mostly to exploration of the coastline and activities such as whaling and fish processing. For the past 150 years Meelup Beach and nearby bays have been popular picnic and day-trip destinations for both local and regional residents. A small fish processing factory was operated in Eagle Bay during the 1950s, and camping was permitted at Meelup Beach until the 1970s.

There are many different lists of natural, historic and Indigenous heritage places throughout Australia. There are no heritage places within Meelup Regional Park that are afforded protection under the EPBC Act.

Cultural heritage places in Western Australia are recorded in many different heritage listings, some which provide statutory protection to heritage places, through requirements for heritage-related approvals or referrals. Other listings are unofficial or quasi-official designations, often arising from local, community-based or thematic surveys. There are seven heritage places in the Park that are listed on the State Heritage List (Appendix 2).

Captain Nicolas Baudin scientific expedition

In 1801 a French expedition with scientists and crew under the command of Captain Nicolas Baudin visited Geographe Bay in the corvettes *Geographe* and *Naturaliste*. Only two boats were sent ashore when the expedition reached the western shore, one under the command of Sub-Lieutenant Picquet, to examine Cape Naturaliste and the other, under command of Henri de Freycinet, to land at a sheltered cove, thought to be in Eagle Bay, to take soil samples and investigate the country (Marchant 1998). Only Freycinet's mission was successful; the sea was too rough for Picquet to land. This was the only Baudin expedition landing made in the area now known as Meelup Regional Park.

The landing of Baudin at Eagle Bay in 1801 is commemorated by a lookout in the form of a ship's bow overlooking the landing site of the Baudin scientific expedition. A number of sites in the area bear European names of this expedition, including Point Picquet, Cape Naturaliste, Riedle Park and Geographe Bay.

Castle Bay Whaling Company

Castle Bay was a favorite anchorage for whalers in days gone by. In the early 19th century, American whalers from Massachusetts were the first to catch whales here, and every year they made the long five month voyage to the area. Castle Bay was ideal for bay whalers, with plenty of firewood available and water was provided by wells dug close to the beach.

In 1845 John Bateman formed the Castle Bay Whaling Company with three other Fremantle businessmen. They built a shore station at Castle Bay on the west side of Dolugup Brook, which flows into the bay next to the carpark. The station was often referred to as 'The Fishery'; a cairn marks the original site. The 'whale lookout' in this context, on the hill above Castle Rock was used to sight whales swimming past, and quandong trees were seeded there at the time. When the whales were brought ashore, their blubber was boiled in huge cauldrons stirred with long handled spoons. The oil was then poured into casks for shipping.

Photo 15: Cairn marking site of the Castle Rock Company Whaling Station, Castle Bay

In 1872 the Castle Bay Whaling Company closed down because the price of whale oil was falling due to the discovery of petroleum. In 1949 there were thoughts about re-opening the whaling industry. Cape Naturaliste lighthouse keepers were asked to count any whales sighted, but as only 400 were seen from July to November, the idea was dropped.

The Western Australian Heritage Council advises "Nothing obvious remains from the historic use of the place for whaling activities".

Section 31 - Non- Indigenous Cultural Heritage	
Objective 16: **To identify, protect and appropriately manage the park's non-Indigenous cultural heritage sites.**	
Action No	**Management Action**
16.1	Manage visitor activities to ensure the Park's cultural heritage is not adversely impacted.
16.2	Consult with historical records and historians to develop and collate existing information and data on historic sites located in, and general history of, the Park.
16.3	Include historical information about the Park as appropriate on interpretative signage within the Park promote historical information on the Park website.

PART E. MANAGING RECREATION AND VISITOR USE

32. GUIDING PRINCIPLES FOR MANAGING VISITOR USE

1. Preservation of environment values
   The intensity and distribution of recreational activities is managed to maintain the environment and amenity of the Park for the enjoyment of all visitors and to foster appreciation of the Park's natural values.

2. Consistency of recreation with reserve purpose
   Recreational activities must be compatible with the Park's assigned purpose under the Land Administration Act.

3. Equity
   Visitor events and activities that impair or jeopardise the safety of other visitors will be specifically managed, directed to more appropriate places or not permitted. Priority will be given to low impact activities and those that promote awareness, appreciation and understanding of the Park's natural environment.

4. Management
   Visitor access and use of the Park is effectively managed for the benefit of the community and natural environmental values.

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 complement, rather than compete with, those available outside the Park.

The objectives of managing visitor and associated commercial activities in the Park include:

1. Encourage visitor use whilst ensuring the level and type of visitor use is sustainable and minimizes conflict with Park values and other visitors/user groups.
2. Provide opportunities to improve and increase community awareness and appreciation of the Park.
3. Maintain and enhance the natural, cultural and visual landscape qualities of the Park.

33. VISITOR MANAGEMENT

Visitor Profile

Meelup Regional Park is a popular tourist and recreational asset in the south-west, due to the Park's outstanding natural beauty, sheltered beaches, relatively undeveloped and pristine environment, its proximity to the township of Dunsborough and unique recreational opportunities.

Two visitor surveys have been carried out in the Park, in 2010 and 2016. Both surveys found that the largest proportion of field-surveyed visitors were from the Perth metropolitan region. Most visitors were aged 40 years old and above with the most visited site being Meelup Beach followed by Eagle Bay Bunker Bay and Castle Rock. The survey also indicated most visitations to the Park were one to two hours, in small groups of two to five people. The 2016 survey found that most visitors heard about Park through 'word of mouth', that the majority of visitors were very satisfied with their visit. The

majority of visitors spent their time resting and relaxing, spending time with family and friends and enjoying nature and the outdoors.

Traffic counters installed in the Park, generally for a two-week period at several sites annually since 2002, indicate a trend of increasing use. Increased visitations are particularly evident during summer, particularly the summer school holiday and Easter holiday periods.

Ongoing visitor monitoring in the Park assists determination of visitor use pressures, guides sustainable tourism and ensure the values of the Park are protected. Information obtained from visitor monitoring will help:

1. Quantitatively demonstrate the Park's values according to visitor perceptions
2. Guide the provision and location of facilities and infrastructure
3. Assess the importance of Meelup Regional Park to the local economy
4. Provides information to guide the Park's management activities.

Visitor Access

The provision of appropriate visitor access is important to enable visitors to recreate and enjoy the Park. This includes access to beaches, formalized walking and mountain bike trails and facilities.

Visitor access planning within the Park also includes improving access to events, buildings, facilities and information, for the benefit of people with disability, the elderly, young parents and people from culturally and linguistically diverse backgrounds.

Not all areas of the Park are readily accessible to visitors and some areas need to be restricted for the protection of conservation values, culturally sensitive areas and to prevent the spread of dieback and weeds.

There are three main types of access within the Park:

1. sealed roads enabling public access by vehicles.
2. unsealed management access using firebreaks accessible via locked gates
3. trails of varying experience, terrain and difficulty levels for pedestrian and/or bike access, and universal access.

Visitor access to the Park is predominately by vehicle on public roads, followed by walking or cycling from surrounding areas, or by boat. Vehicle access onto beaches and trails in the Park is controlled and restricted to authorized vehicles. Boats can be launched from a sand boat ramp at one location within the Park, at the Eagle Bay Community Hall carpark, Fern Road Eagle Bay.

Public Roads

The public roads that dissect the Park are Meelup Beach, Castle Rock and Eagle Bay-Meelup Roads. Eagle Bay-Meelup Road is a coastal road between Meelup Beach and Eagle Bay and is one of the few locations in the south-west where a road runs alongside the ocean, providing outstanding scenic values. The Coastal Nodes Master Plan recommends that Eagle Bay-Meelup Road should be regarded as a scenic and recreation road rather than a transport route, with an emphasis on the road's natural values and environs (WJLA 2013).

Vehicle management in the Park involves maintaining low vehicle speed limits and implementation of traffic calming measures to:

- Improve safety for pedestrians and cyclists due to the winding nature of the road system and intersecting walk trails.
- Reduce impacts to wildlife (roadkill), including threatened species such as quenda and western ringtail possum.
- Promote increased appreciation of the coastal scenery and landscape.
- Minimise the risk of vehicle collision particular during the Park's peak visitor period during summer.

Photo 16: Annual school leaver's event Meelup Beach

Section 33 – Visitor Management	
Objective 17: **a) To provide opportunities for visitor appreciation of the park while at the same time preventing adverse impacts from uncontrolled access.** **b) To encourage visitor use whilst ensuring that the level and type of visitor use is sustainable and minimise conflict with other Park visitors and values.**	
Action No	**Management Action**
17.1	Maintain existing public vehicle access, parking facilities and management access tracks in trafficable condition.
17.2	Promote 'stay on trail' message on signage and other interpretative material to encourage all users to stay on trails designated for their use.
17.3	Implement controls on visitor access, including closure, rehabilitation and physical barriers where necessary, to prevent negative impacts on the Park's conservation values.
17.4	Prevent unauthorised vehicle entry on management tracks by maintaining locked gates and monitoring and closing other potential access points.
17.5	Implement Meelup Regional Park Trails Master Plan, Coastal Nodes Master Plan and Meelup Beach Master Plan recommendations relevant to management of visitor access and activities.
17.6	Provide appropriate management for peak visitor periods.
17.7	Monitor recreation sites for impacts and undertake remedial measures to mitigate the impact as necessary.
17.8	Regularly implement a visitor survey and vehicle monitoring program, for the purpose of guide the future management of the Park.

34. VISITOR ACTIVITIES

Meelup Regional Park has unique characteristics, in that:

- It is adjacent to suburban Dunsborough and readily accessible by the locals and tourists
- Visitation is concentrated in small, discrete coastal nodes
- Due to its natural beauty, unique aspect, trail network and proximity to an urban centre, it is a desirable location for events
- It has significant conservation values, including listed flora and fauna.

Visitor recreation activities

The majority of visitor recreation in the Park tends to be marine-based and includes activities such as swimming, snorkeling, surfing, diving, kayaking, stand-up paddle boarding and fishing. Although many of these activities occur within the Ngari Capes Marine Park, access to the marine Park is through Meelup Regional Park.

Apart from marine-based activities, other popular activities include bushwalking and picnicking (Polley 2012), and mountain biking with the development of a mountain bike trail network.

The majority of visitor activities are passive and all interact with the natural environment to some degree. The most highly rated reasons for visiting the Park include spending time with family and friends, resting and relaxing, and enjoying nature and outdoors. Some activities are highly seasonal and attract different types of visitors at different times of the year. For example, wildflower viewing in spring, fishing and surfing in autumn/winter, and whale watching in winter/spring (Polley 2012). Viewing of the full moon rising over Geographe Bay is a popular evening activity that occurs in the right conditions only a few times a year, when there is a full moon and when it rises after sunset.

P Photo 17: Whale Viewing Platform Point Picquet

The categorisation of management units to provide a spatial differentiation of protected natural areas and establish a framework for protection of conservation values, provision of appropriate recreation and, indicate the priority management objectives and levels of management required in each unit, is outlined in table 1.

In accordance with the management unit categories developed for this Management Plan, Table 7 provides a management guide for recreational opportunities within the Park, which has been informed by conservation values, potential environmental impacts and the minimisation of visitor risk and conflict.

The following criterion has been used to categorise recreational activities within the Park:

1. Encouraged: positively enabled with provision of facilities and interpretive material.
2. Permitted: allowed for but not actively encouraged.

3. Discouraged: permitted but undesirable, with disincentives (such as the lack of provision of facilities) and signage requesting specified activities not occur.
4. Not permitted: in accordance to this management plan, local laws or overarching legislation.

Table 8: Recreational Activities Management Guide

USE TYPE	MANAGEMENT UNIT CATERGORY[1]			
	Roads	**Recreation**	**Natural Environment Uses**	**Conservation and Protection**
Land Based Activities				
Camping	Not permitted	Not permitted	Not permitted	Not permitted
Collecting natural products	Not permitted[2]	Not permitted[2]	Not permitted[2]	Not permitted[2]
Competitive sports	Permitted	Discouraged	Not permitted	Not permitted
Four wheel and off-road driving	Not permitted	Not permitted	Not permitted	Not permitted
Hang gliding	Not permitted	Not permitted	Not permitted	Not permitted
Horse riding	Not suitable	Not permitted	Not permitted	Not permitted
Mountain bikes	Permitted	Permitted on specified trails/Mountain bike zone	Not permitted	Not permitted
Nature study	NA	Encouraged	Encouraged	Encouraged
Orienteering	NA	Not permitted	Not permitted	Not permitted
Picnics	NA	Encouraged	Permitted	Discouraged
Road bikes	Encouraged	Permitted on specified trails/Mountain bike zone	Not permitted	Not permitted
Rock climbing	Not permitted	Permitted	Permitted	Not permitted
Sightseeing	Encouraged	Encouraged	Encouraged	Permitted
Trail bikes		Not permitted	Not permitted	Not permitted
Walking		Encouraged	Encouraged	Permitted on trails only
Marine Based - Activities				
Fishing	NA	Refer to NCMP[3]	Refer to NCMP[3]	Refer to NCMP[3]
Motor boats	NA	Refer to NCMP[3]	Refer to NCMP[3]	Refer to NCMP[3]
Paddle craft	NA	Encouraged Refer to NCMP[3]	Encouraged Refer to NCMP[3]	Refer to NCMP[3]
Sailing	NA	Refer to NCMP[3]	Refer to NCMP[3]	Refer to NCMP[3]
Snorkelling	NA	Encouraged Refer to NCMP[3]	Encouraged Refer to NCMP[3]	Refer to NCMP[3]

Marine Based – Activities				
Spear fishing	NA	Discouraged Refer to NCMP[3]	Discouraged Refer to NCMP[3]	Refer to NCMP[3]
Surfing	NA	Refer to NCMP[3]	Encouraged at Pt Picquet and Rocky Pt Refer to NCMP[3]	Refer to NCMP[3]
Swimming	NA	Encouraged Refer to NCMP[3]	Encouraged Refer to NCMP[3]	Encouraged Refer to NCMP[3]
Wake boarding / water skiing	NA	Not permitted Refer to NCMP[3]	Not permitted Refer to NCMP[3]	Refer to NCMP[3]
Whale watching	NA	Encouraged Refer to NCMP[3]	Encouraged Refer to NCMP[3]	Permitted Refer to NCMP[3]
Wind/kite surfing	NA	Discouraged Refer to NCMP[3]	Discouraged Refer to NCMP[3]	Discouraged Refer to NCMP[3]

[1]To be read in conjunction with Table 1 – Management Unit Category Evaluation
[2] Except under the Biodiversity Conservation Act 2016 Part 10 Division 3- Aboriginal Customary Purposes
[3] NCMP – Ngari Capes Marine Park (Sanctuary zone and Special Purpose Zone restrictions apply)
NA – Not Applicable within management unit category

Meelup Regional Park Trails Master Plan

The Meelup Regional Park Trails Master Plan (2014) is the guiding document for the development and management of trails in the Park. The TMP was developed to address concerns regarding increased visitor numbers and potential environmental and social impacts of unmanaged trail use. The aim is to provide a quality recreation experience for trail users whilst preventing environmental impacts associated with inappropriate trail use. The TMP:

1. Provides a clear outline of existing trails in the Park, their purpose and current issues
2. Proposes new trails, closures, realignments and upgrades where considered appropriate.

Bushwalking

There are a variety of walking trails within the Park with short walks, loop trails and the longer coastal trail from Dunsborough to Eagle Bay. (Figure 11).

Management of bushwalking focuses on the provision and maintenance of safe and accessible trails, managing user conflict and providing an appropriate level of interpretation that balances the need for the provision of information with protection of the Park's amenity.

Photo 18: Coastal Walk Trail

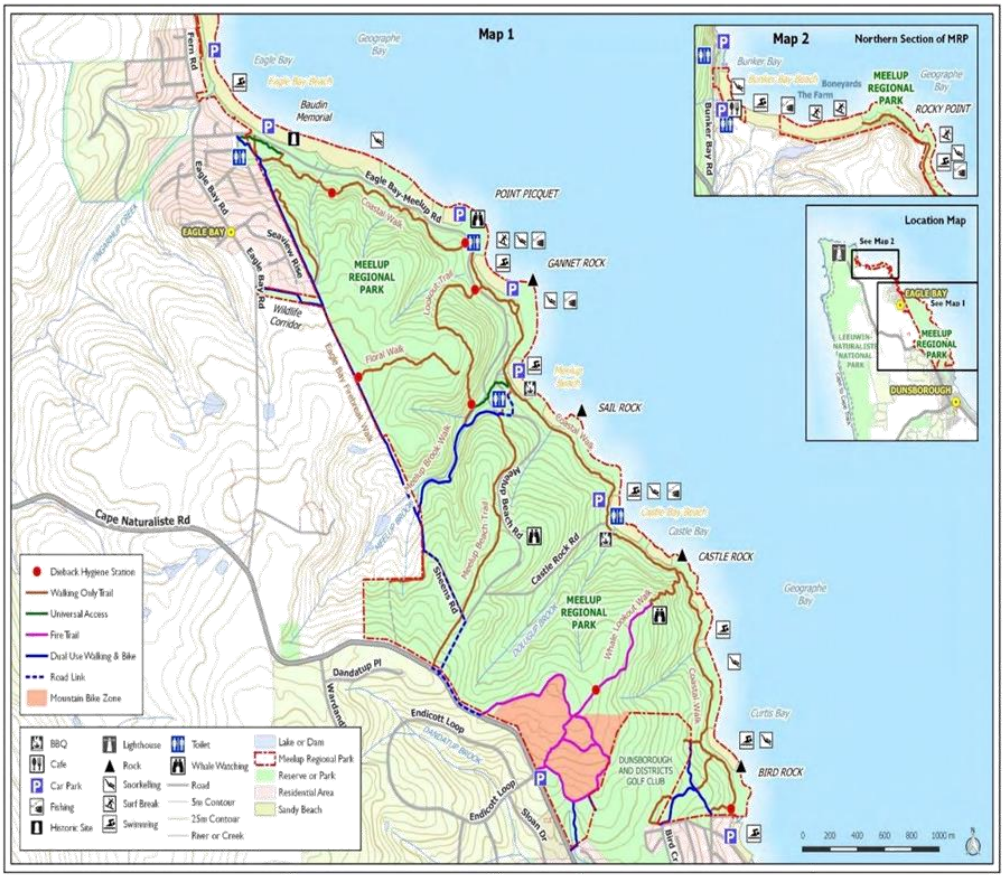
The Park is also connected to the Leeuwin-Naturaliste National Park, Cape Naturaliste and the lighthouse, and the 135 kilometer-long Cape to Cape track to Augusta. With an existing dual use pathway that connects Busselton to Dunsborough, this essentially provides a valuable long-distance trail connection from Busselton to Augusta, along the coastline of Geographe Bay and the Leeuwin-Naturaliste Ridge.

Bike riding on trails

Bike riding on trails within the Park is limited to the dual use trails established along the western fire-break from Sheen Road to the Eagle Bay townsite, with a connecting trail that links the western fire-break trail to Meelup Beach along the Meelup Brook.

A mountain bike trail facility has been established with the former gravel extraction areas and former waste disposal landfill site located within management zone 6. The mountain bike facility has been purpose built as a public facility to meet the growing needs of the local and broader mountain bike fraternity (Figure 11).

Figure 11: Bushwalking and Bike Trails



Rock climbing

Rock climbing and bouldering are activities increasing in popularity, and there are two known sites within the Park where granite formations are suitable for such activities. These are Castle Rock and 'copper rocks' on the northern side of Castle Bay. Both climbing sites are accessible from existing trails

and climbing is permitted at these sites only insofar as these trails are used for access and no new trails are created. No climbing infrastructure has been provided at these locations.

Picnicking

Picnicking is a popular activity in the Park, particularly at Meelup Beach and Castle Bay, where picnic tables and gas barbeque facilities are provided. Tables are also provided at Gannet Rock. Waste disposal bins are provided at nearly all coastal nodes within the Park.

Recreational fishing

Fishing is a popular shore- based activity in the Park due to its sheltered nature and easy access from rocky outcrops. In autumn, the annual salmon run attracts large numbers of recreational fishers to beaches and rocky headlands in the Park.

While there are numerous access points to the Park's beaches, fishers searching the coast for suitable vantage points some of which traverse sensitive areas or significant vegetation, can lead to vegetation loss from trampling, soil compaction and erosion, and the introduction of weeds.

Litter and lighting fires is also a significant issue associated with shore based fishing activities, due to discarded waste fishing line, bait bags and other packaging waste and the occasional small fire to cook catch.

In recognition of the significant use of the Meelup coastline for fishing, the Eagle Bay special purpose zone (shore-based activities) is provided for within the Eagle Bay sanctuary zone in the Ngari Capes Marine Park Management Plan 2013. Meelup Beach is designated as a prohibited fishing area.

Marine-based activities

Marine-based activities occur both in the Park's waters and the adjacent Ngari Capes Marine Park, with swimming indicated to be the most popular activity in the 2010 and 2016 survey of visitors to the Park (Figure 11). Pristine waters with a mixture of sand and reef bottom, protected from prevailing south-westerly winds, provide ideal swimming conditions for visitors of all ages and abilities. Small, isolated coves can be found along the coast for those seeking solitude and seclusion.

Surfing is mostly undertaken in the autumn and winter months, in periods of high swell and south-westerly winds that are offshore for this part of the coastline. Northerly winds push swells into otherwise calm bays and various point breaks can be surfed in these conditions. Popular surfing spots include Bunker Bay and Rocky Point, as well as other small points to the east.

Section 34 - Visitor Activities and Use	
Objective 18: **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.**	
Action No	**Management Action**
18.1	Implement Meelup Regional Park Trails Master Plan, Coastal Nodes Master Plan and Meelup Beach Master Plan recommendations relevant to management of visitor access and activities.
18.2	Provide appropriate management for peak visitor periods.
18.3	Monitor recreation sites for impacts and undertake remedial measures to mitigate the impact as necessary.

18.4	Regularly implement a visitor survey and vehicle monitoring program, for the purpose of guide the future management of the Park.
18.5	Develop and implement a tree safety inspection program for vegetation alongside approved access tracks and trails and in coastal nodes.
18.6	Develop and implement a visitor safety plan for the Park.
18.7	Provide as appropriate visitor safety information and emergency contact information at key visitor locations within the Park

35. VISUAL LANDSCAPE

Undoubtedly one of the most striking characteristic of Meelup Regional Park is its scenic beauty with views of the ocean, the spectacular coastline and natural landscape. These scenic and physical features are central to all other elements that contribute to the character of the Park. The rocky and sandy beach coastline is particularly attractive as it is relatively unspoilt, although well used.

The Park's visual qualities that are highly valued include its:

- contiguity of bushland and coastline
- location on the Leeuwin-Naturaliste Ridge, which provides opportunities for high, panoramic views of Geographe Bay
- calm and turquoise waters, a product of its north-east facing coastline
- contrasting coastline afforded by granite headlands interspersed with sandy coves
- peacefulness in secluded locations during much of the year
- trees located close to the coastline at several locations including Meelup Beach
- sense of isolation and solitude, despite its proximity to urban areas
- near natural state and lack of development.

Ongoing maintenance and upgrading of Park facilities and infrastructure is essential to maintain the visual landscape of the Park, as well as ensuring its environment remains valued by visitors. Both the Meelup Beach Master Plan and the Coastal Nodes Master Plan consider visual amenity in their recommendations.

Threats

Threats to the Park's visual landscape may result from:

- signs, monuments and erected structures
- recreational infrastructure such as trails, barbeques and picnic tables
- built and utility infrastructure such as ablution blocks, gas compounds, tanks and pipelines
- roads and car Parks
- access control measures such as fencing and bollards
- boat moorings and ramps
- past use such as gravel pit extraction and landfill
- visitor behaviours such as litter, informal trail creation of and vehicle incursion into bushland
- vegetation clearing and degradation associated with all of the above.

Rehabilitation of degraded areas and appropriate access control measures help to improve the visual landscape.

Section 35 - Visual Landscape	
Objective 19: **To conserve and enhance the park's visual landscape.**	
Action No	**Management Action**
19.1	Implement the Coastal Nodes Master Plan and Meelup Beach Master Plan recommendations for the preservation and protection of the Parks visual landscape.
19.2	Develop and implement a regular maintenance programme for the Park's infrastructure including roads, car parks and visitor facilities.
19.3	Develop and implement a visual landscape and natural character protection plan for the Park.
19.4	Develop a foreshore management plan to guide long term protection and conservation of the Park's foreshore vegetation and unique coast line.

36. COMMERCIAL ACTIVITIES IN THE PARK

The current management order granted under the LA Act, places responsibility for the care, control and management of the Park for the purpose of 'conservation and recreation', with the City of Busselton. This management order includes the power to grant a lease or license over any part of the Park for activities ancillary or beneficial to the reserve purpose.

A commercial concession is a right granted by way of a lease or license over any part of the Park, which needs to be carefully designed and managed, to ensure any commercial activity remains ancillary or beneficial to the reserve purpose and the conservation and landscape values of the Park.

In the assessment of applications for a lease or license, the overarching principle is to ensure that commercial concessions do not conflict with the management purpose and Park's conservation values. Commercial applications are to be assessed on a case by case basis against the criteria provided in this Plan, and in accordance with City Local Laws and relevant guiding policy.

No leases have been approved for uses within the Park. A small number of licenses have been granted under City Local Laws, which permit visitor-service businesses such as beverage and food, and a water sports equipment hire vendor to operate within the Park. Conditions apply to these licenses.

Section 36 - Commercial Activities in the Park	
Objective 20: **To ensure that commercial activities within the Park are complementary to the protection and conservation of the Park key environmental values.**	
Action No	**Management Action**
20.1	Regularly review the Park's commercial activity policy to ensure the protection of sensitive coastal areas and the Park's unique natural characteristic and values.
20.2	Identify suitable locations where commercial activities can operate in areas without adverse impacts to the natural environment.
20.3	Ensure proponents of commercial activities develop and implement a performance based environmental management plan that ensures the protection of the Park's unique natural characteristic and values.
20.4	Encourage proponents of approved commercial activities to promote the Park's unique natural characteristic and values.

37. EVENTS

City policy guides the event application assessment and approval process for events held within Meelup Regional Park. Applications for the conduct of events within the Park are assessed in accordance with legislative requirements and under the events policy. The Park is a popular event destination and events need to be carefully designed and managed to ensure they do not impact the Park's values.

In the assessment of event applications, the overarching principle is to ensure that events do not conflict with Park values and are consistent with the Park's purpose. The following objectives provide guidance for the management of events in the Park;

- natural systems should be able to sustain the recreational use that is occurring or proposed
- the intensity, frequency, type, duration, timing and distribution of recreational activities may need to be controlled to maintain the amenity of the park.
- recreation planning will seek to foster appreciation of the Park's natural values.

Events are subject to City Local Laws, and approvals generally involve imposition of limits of use, to ensure each event or activity is adequately managed and does not adversely impact the Park.

Events held in Meelup Regional Park are categorised in the following areas:

Trail Based Events:
Trail Based Events generally involve participants walking, running or cycling on designated trails or roads within the Park.

Site Based Events:
Site based events generally involve use of a beach and/or adjacent picnic and car park areas and range from relatively small social gatherings to larger scale events. Wedding ceremonies, school excursions, functions or informal gatherings are not classified as events, however these activities are required to be adequately managed in accordance with the City's Local Laws.

Road Based Events:
Whilst road reserves within the Park are technically not part of the Park, an integrated approach to management of events utilizing or within these road reserves is essential if the Park's values are to be protected and enjoyment of the Park by the broader community is not to be adversely impacted.

Section 37 - Events	
Objective 21: **To ensure that events within the Park are complementary to the protection and conservation of the Park key environmental values.**	
Action No	**Management Action**
21.1	Maintain an Events Policy for the Park that ensures the protection of the Park's unique natural characteristic and values.
21.2	Ensure proponents of events develop and implement a performance based environmental management plan that ensures the protection of the Park's unique natural characteristic and values.
21.3	Encourage proponents of approved events to promote the Park's unique natural characteristic and values.
21.4	Develop, implement and regularly review the Park's events policy to ensure the protection of sensitive coastal areas and the Park's unique natural characteristic and values.

38. INFORMATION AND INTERPRETATION

Information

An effective communication strategy is essential to the promotion of awareness, understanding and enjoyment of the Park's natural environment, and to inform and involve the community in the Parks management. Due to the conservation significance of the Park, it is important that the Parks values are appropriately communicated to visitors and the broader community.

An effective strategy to promote the conservation values of the Park to the wider community and to ensure consistency of messages and approach may include:

- A signage system and style guide to ensure adequate and appropriate interpretative signage, trailheads and trail markers across the Park.
- Publications related to the Park, including general information (wildflower and trails brochures), to expand the visitor interpretation experience.
- Media statements to promote key issues or projects of note for public interest.
- The use of social media platforms to provide ongoing information updates to the community.
- Well maintained website www.meeluppark.com that is updated regularly with information on the Park.
- Promotion of educational opportunities and community awareness activities and events.

Interpretation

Interpretation provides visitors with the opportunity to make a connection with a place, provides information about a natural area in a memorable way and enhances its value. Interpretation leads visitors from understanding to appreciation and from appreciation to conservation (DEC 2010).

The Meelup Regional Park Interpretation Report prepared by the DEC Interpretation Unit (2010) details themes and key messages to deliver to Park visitors. This was used as a guiding document in the development of the Park's interpretative signage.

One of the key components for signage planning is the preservation of the Park's aesthetic values through the minimization and consolidation of signage, and careful design and siting. Visitors most appreciate the Park's pristine, undeveloped nature (Polley 2012); therefore it is important that these values are considered in the planning, development and installation of signage.

Section 38 - Information and Interpretation	
Objective 22: **To increase the community's awareness, appreciation and understanding of the Park's values.**	
Action No	**Management Action**
22.1	Develop and implement a communications strategy to promote the conservation values of the park to the wider community.
22.2	Investigate and develop educational opportunities with external organizations, including schools.
22.3	Develop publications and interpretative materials on the park's flora, fauna and geology
22.4	Ensure signage complies with the Signage Policy, sign system and sign prescription, and is guided by the Meelup Regional Park Interpretation Report.
22.5	Ensure adequate signage to promote visitor awareness of regulated activities within the Park.

39. DOMESTIC ANIMALS

Under the Dog Regulations 2013, the Busselton City Council has specified that dogs are prohibited everywhere in the Park except for a small section on the beach from a point adjacent to the Eagle Bay beach access ramp to a point 450 metres north of Jingarmup Brook, and a section of beach at the northern end of Bunker Bay adjoining the Leeuwin Naturaliste National Park. Guide dogs for the visually impaired or tracker dogs for search and rescue are permitted in the Park.

Hooded plovers are monitored in Eagle Bay and Bunker Bay as part of an annual program coordinated by Birdlife Australia, and are present on an almost annual basis (see section 23 *Native animals).* Unleashed dogs can significantly impact on the already small population of these birds by causing them to:

- abandon their nests for lengthy durations, often resulting in non-hatching of eggs;
- go into hiding, which can result in eventual starvation due to not having sufficient feeding time at the water's edge; and
- abandon their chicks, leaving them vulnerable to predation by bigger birds.

The Cat Act 2011, was introduced by the State Government with the aim of encouraging responsible pet ownership and reducing the number of unwanted cats and the incidents of cats roaming at large and harassing wildlife. Feral cat monitoring and control should be included in ongoing operational management programs for the Park

Section 39 - Domestic Animals	
Objective 23: **To manage and control domestic animals in the park.**	
Action No	**Management Action**
23.1	Implement dog exclusion and control within the Park, except for: • guide dogs for the visually impaired, or dogs for search and rescue operations • dogs that remain in vehicles whilst in transit through the park • dogs in a designated dog exercise area(s).
23.2	Monitor hooded plovers in known breeding areas and implement measures to protect breeding sites including installation of barrier and signage.
23.3	Include feral cat monitoring and control in ongoing operational management programs for the Park

40. WASTE

Litter

Litter within the Park includes discarded beverage container and packaging, toilet waste, and the occasional dumping of garden and other domestic waste, all of which are an ongoing concern for Park management. The Visitor Survey Report found that litter was the most important issue of concern to Park visitors (Polley 2012). Litter impacts visual amenity, makes an area look unmanaged and potentially poses a safety risk (broken glass) to visitors. In contrast, visitors are less likely to litter pristine areas (Litter Prevention Program n.d.).

Photo 19: Beach litter Meelup Beach

Litter management is a priority management issue to maintain visitor enjoyment, respect for the Park and conservation of the environment. Litter programs that include both enforcement and regular litter collection activities are essential to the ongoing operational management of the Park.

The Park is provided with a regular waste collection service and a number of waste bins are installed at sites across the Park for visitor convenience. The collection service frequency is increased during peak visitor periods (November to end April), and reducing these in non-peak periods (May to October).

Public amenities

Public amenities within the Park are located at Meelup Beach, Castle Bay, Point Picquet and within the Eagle Bay town site at Riedle Park and Eagle Bay Community Hall.

Section 40 - Waste	
Objective 24: **To minimize the environmental and social impacts of waste on the Park's values.**	
Action No	**Management Action**
24.1	Implement a litter removal program for the Park
24.2	Develop and implement a litter awareness program for the Park.

PART F. MANAGING RESOURCE USE

41. GUIDING PRINCIPLES

1. Preservation of the values of the land itself
   Land use should not compromise the natural and cultural values of the Park. Future development should be required to assess the environmental impacts and ensure that proposals do not detract from the Park's natural settings and landscape amenity.

2. Consistency of land use with reserve purpose
   Activities must be compatible with the assigned purpose of the Park.

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
   Western Australian government Procurement Practice Guide will be followed to ensure that opportunities for commercial concessions in the Park are assigned based on an open and competitive process.

5. Financial viability
   Development proposals within the Park will be required to demonstrate financial viability where the proposal invokes a commercial interest. Revenue from commercial concessions within the Park should be used for Park management purposes.

6. Management compliance
   Commercial activities and facilities within the Park should be subject to regular compliance monitoring.

42. COMMERCIAL AND RECREATIONAL FISHING

The majority of the waters off Meelup Regional Park are within the Ngari Capes Marine Park General Use Zone, however, a large proportion is within the Eagle Bay Sanctuary Zone and Eagle Bay Special Purpose (Shore-Based Activities) Zone. The special purpose zone does not encompass Meelup Beach, which is within the sanctuary zone, therefore fishing is not permitted at Meelup Beach or anywhere else within the sanctuary zone (refer to section 35 *Visitor activities and use*). The Special Purpose Zone extends from Gannet Rock westwards towards Eagle Bay, encompassing Point Picquet and a proportion of the Eagle Bay coastline.

All types of commercial fishing are allowable within the General Use Zone, no commercial fishing is allowed in Sanctuary Zones, while some activities (commercial abalone, aquarium and specimen shell collecting) are allowed in the Special Purpose Zone. Commercial charter boats for non-extractive diving on the Swan Wreck operate from Meelup Beach and commercial diving groups to the Eagle Bay bommie operate from the shore between Point Picquet and Baudin memorial.

Section 42 - Commercial and Recreational Fishing	
Objective 25: **To ensure fishing that occurs along the coast line of the Park does not conflict with Park values.**	
Action No	**Management Action**
25.1	Manage the Meelup coastline onshore fishing activities to minimize impact on coastal vegetation and natural features of the Park.

43. DEVELOPMENT

Development is a defined term within the *Planning and Development Act 2005,* and includes demolition, erection, construction, alteration of or addition to any building or structure on the land, and the carrying out on the land of any excavation or other works. At present, rural land use dominates most of the Park's boundary, with limited development within the Park. However, the close proximity of the Dunsborough townsite to the Parks southern/eastern boundary requires ongoing operational management programs to minimize the risk of direct or indirect impact on the Parks values.

A small reserve of approximately 1.5 hectares being Lot 272, vested with the Water Corporation for the purpose of water supply, intersects a section of Park's management zone 6. There is currently no development on Lot 272, however the Water Corporation have developed a water tank immediately adjacent to the Park boundary on Lot 341 and may have a future requirement to develop additional water supply infrastructure on Lot 272 for the supply of water to the Dunsborough township. More recently a mobile tower for the National Broadband Network has also been developed on Lot 341.

Section 43 - Development	
Objective 26: **To minimise the impact of developments on the Park.**	
Action No	**Management Action**
26.1	Commercial development within the Park is generally not supported and it to be consistent with the reserve purpose 'Conservation and Recreation' and does not enhance of the Park's environment, ecology, cultural and visual landscape values of the Park.
26.2	Development proposals on land adjacent to the Park, should complement the Parks conservation and recreation purpose and enhance the Park's environmental and landscape values.
26.3	Development proposals within the Park, should include a public consultation process
26.4	Development proposals on land adjacent to the Park should be required to undertake and environmental impact assessment and including a targeted dieback survey of the proposed development site, to guide the development assessment process.

44. UTILITIES AND SERVICES

Utility infrastructure and service providers may seek access to the Park for public works (water, sewerage, telecommunications, electric power and gas services) to service communities in the vicinity of the Park. Construction, maintenance and operation of public infrastructure and service lines within the Park can result in a number of management considerations including:

- disturbance of landforms, flora and fauna
- habitat fragmentation and associated problems
- increased susceptibility to soil erosion, and spread of weeds and disease particularly dieback
- visual impacts
- Restrictions on Park recreational usage and or activities.

To limit the problems listed above, utility infrastructure not primarily servicing the Park itself should be located outside the Park boundaries. In accordance with the Leeuwin-Naturaliste Ridge Statement of Planning Policy, a landscape management plan must be prepared by the proponent where new services and utilities are proposed and the clearing of native vegetation is required. Infrastructure should also be sensitive to the character of the area.

Water and telecom providers have laid water supply, sewerage pipelines and telecommunications cables, and constructed two small tanks along the western boundary of the Park in management unit 17; these areas have not been excised and are not within an easement. This infrastructure is primarily to service the resort in Bunker Bay but also provides water supply to the Meelup Beach public amenities and two fire hydrants on the Park boundary. There is also local drainage infrastructure to service part of the Eagle Bay townsite within the Park near the boundary with the Eagle Bay.

Section 44 - Utilities and Services	
Objective 27: **To ensure that utilities and services in the park do not conflict with park values.**	
Action No	**Management Action**
27.1	New public infrastructure works shall generally not be considered unless the works provide a benefit to the ecology, cultural and visual landscape values of the Park.

45. FORESTRY PRODUCE

There are no forest produce industries present in the Park except for seed collection. However, it is possible that unauthorised wildflower picking, firewood collection or timber harvesting occurs. Under the provisions of the BC Act, a licence for scientific or other prescribed purposes is required for non-commercial harvesting of flora on Crown lands, including seed collection.

Photo 20: Seed collection in the Park

Section 45 - Forestry	
Objective 28: **To protect the Park's values from exploitation of forest produce in the Park.**	
Action No	**Management Action**
28.1	The taking of forest produce from the Park, is not supported, except where it is taken for therapeutic, scientific or horticultural purposes and under a licence granted pursuant to the BC Act.

46. WATER RESOURCES

The Department of Water and Environmental Regulation is responsible for water resource protection and water allocation management, and under the RIWI Act, a licence is required to take water in proclaimed areas or non-artesian groundwater areas proclaimed or prescribed under the Act. Licences specify the amounts and conditions under which water may be taken. All groundwater and surface water catchments in Meelup Regional Park are proclaimed under the RIWI Act and no licences exist for the taking of water in the Park.

Ecological Water Requirements (EWRs) are the water regimes needed to maintain, at a low level of risk, the ecological values of water dependent ecosystems. These are the primary consideration in the determination of Environmental Water Provisions. Environmental Water Provisions (EWPs) are the water regimes provided as a result of the water allocation decision-making process taking into account ecological, social and economic impacts. They may meet in part or in full the ecological water requirements (WRC 2005).

Although the Park's waterways are within proclaimed areas, gauging stations have not been installed on any; therefore there is no data with which to determine EWRs or EWPs. Flows are therefore estimated through correlating the rainfall, catchment size, topography and other physiographic information with nearby gauged systems. There are currently two on-stream dams on Meelup Brook within the Park's boundaries. An assessment of the Parks EWRs should be undertaken to better understand the potential impacts on local hydrology and the Parks ecological water requirements.

Section 46 - Water Resources	
Objective 29: **To protect and conserve existing surface and groundwater resources of the Park.**	
Action No	**Management Action**
29.1	Liaise with DWER on the management of Park's ground water and surface water catchment for the benefit to the environmental, ecological, and visual landscape values of the Park.
29.2	Ensure proposals for water extraction of ground or surface water within the Park's water catchment do not adversely affect the environmental, ecological, and visual landscape values of the Park.
29.3	Investigate the potential to install gauge stations on Meelup, Dolugup and/or Jingarmup Brooks to determine ecological water requirements.

PART G. INVOLVING THE COMMUNITY

47. 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 identified purpose and 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. 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 may have influenced the decision making process.

4. Management activities
   The community will be encouraged to contribute to nature conservation and land management activities. This will help to build community awareness, understanding and commitment to the Park's management 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.

48. COMMUNITY INVOLVEMENT AND LIAISON

Ongoing community support is essential for the successful implementation of this plan. Community involvement with the Park is evident on a number of levels:

- The Park is managed by the city-appointed, community based Meelup Regional Park Management Committee, which provides an ongoing community linkage to the management of the Park.

- A number of voluntary activities take place to assist the management, maintenance and enhancement of the Park, including trail maintenance, vegetation pruning, litter collection, visitor surveys, revegetation and weed control.

- Community consultation is undertaken as part of the development of important management and planning documentation.

- Local schools regular participate in activities within the Park, such as revegetation and weed removal.

Friends of Meelup Regional Park

In December 2018, the community with the support of the City of Busselton established the Friends of Meelup Regional Park (FOM). FOM is an incorporated association and provides a further avenue for building on the many years of good work, undertaken within the Park by community volunteers and for attracting additional resources and support for the long term protection and conservation of the Park values.

Section 48 - Community Involvement and Liaison	
Objective 30: **To provide key stakeholders and the wider community with opportunities to be effectively involved in Park management.**	
Action No	**Management Action**
30.1	Ensure that environmental volunteer programmes and projects align with the key objectives of the Plan.
30.2	Provide resources to support the Park's environmental volunteer programmes and activities.
30.3	Implement a programme for the development of knowledge and skills of the Park's environmental volunteers and volunteer group leaders.
30.4	Develop and implement an environmental volunteer recruitment programme and actively market the benefits of becoming a Park volunteer.
30.5	Develop and implement a programme to recognise environmental volunteer contributions to the management of the Park.
30.6	Identify opportunities to engage the wider community, including schools and community groups, in park activities, partnership projects and programs.
30.7	Promote community awareness of regulated activities within the Park, as appropriate, in published documents and on the Park website (www.meeluppark.com)

PART H. RESEARCH

49 RESEARCH

The aim of research is to better understand the Parks natural, cultural and social values, and the processes that threaten these values. The unique natural values of Meelup Regional Park are of considerable scientific interest. The Park has a unique geology, high biodiversity and a number of rare and endangered flora and fauna of scientific significance. As Park visitation and usage increases, research is invaluable to ensure the Park is appropriately managed into the future.

The Meelup Regional Park Research Proposal 2014-2024 (Appendix 3) was developed to provide guidance for planning and prioritising research projects. The program covers a wide range of topics including:

- flora and fauna
- geology
- dieback and tree decline
- weeds and feral animals
- fire
- visitor impacts
- ground and surface water
- Indigenous and non-indigenous heritage.

Any research undertaken in the Park must be properly managed to ensure it does not adversely impact the Park's values, and proposals therefore need to be assessed for their suitability.

A number of research projects have been undertaken or are ongoing in the Park. Resulting reports are available on the www.meeluppark.com website.

Section 49 - Research	
Objective 31: **To foster research that increases understanding of the Park, its values and visitor use, to ensure appropriate management of the Park; whilst ensuring that research does not conflict with Park values.**	
Action No	**Management Action**
31.1	Progressively implement the Meelup Regional Park Research Proposal 2014-2024 and promote research results to the wider community.
31.2	Actively seek resources for the implementation of research projects to guide the future management of the Park.
31.3	Regularly review the research programme for the Park to prioritise projects and for seeking funding.

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APPENDICES

APPENDIX 1: THREATENED SPECIES RANKING AND PRIORITY CODES

Conservation Codes for Western Australian Fauna

T: Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice; Threatened Fauna (Fauna that is rare or is likely to become extinct). Species that have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.

X: Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice; Fauna that is presumed to be extinct. Species which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such.

IA: Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice; Migratory birds protected under an international agreement. Birds that are subject to an agreement between governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction.

S: Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice; Other specially protected fauna. Species that are in need of special protection, otherwise than for the reasons mentioned in the above schedules.

State Rank

Threatened Fauna are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example: *Potorous gilbertii* is specially protected as Fauna that is rare or is likely to become extinct (Schedule 1) in the Wildlife Conservation (Specially Protected Fauna) Notice and is a threatened species with a ranking of critically endangered.

CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
EN: Endangered –considered to be facing a very high risk of extinction in the wild.
VU: Vulnerable - considered to be facing a high risk of extinction in the wild.
EX: Extinct – there is no reasonable doubt that the last individual has died.

Please note that a listing at species level, means that the assigned conservation status applies to all recognised sub-species within the state.

Priority Codes

P1: Priority One: Poorly-known species (on threatened lands)
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2: Priority Two: Poorly-known species (on conservation lands)

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national Parks, conservation Parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3: Priority Three: Poorly-known species (some on conservation lands)
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4: Priority Four: Rare, Near Threatened and other species in need of monitoring
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

P5: Priority Five: Conservation Dependent species
Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

APPENDIX 2: HERITAGE PLACES

Name	Place #	Place type	Statement of significance	Description	History
Meelup Reserve Precinct	05346	Precinct or Streetscape	Meelup Reserve, a largely natural and cultural modified site, has cultural heritage value for its associations with the historic whaling industry and for its picturesque natural features and amenity.	The Meelup Reserve Precinct is a natural bushland and coastline that is home to a rich array of endemic species of flora and fauna. Nothing obvious remains from the historic use of the place for whaling activities. There are developed Parking areas and amenities, but the place remains largely a natural site, with spectacular ocean views, beaches and rock features.	Prior to settlement, the place was one of the locations used by American whalers. William Seymour settled at Dunsborough in 1845-1846 to work for Lionel Sampson and Co.'s "Castle Rock Whaling Company", which was later taken over by J. W. Bateman. This enterprise had fluctuating success as it was affected by difficulties with drunkenness, absconding workers and bad language. In 1849, all boats and sheds were destroyed by fire. Castle Rock used to function as a lookout spot for whales. However, nothing remains of the original fabric in the present day. The place is now a popular venue for recreation.
Meelup Brook	05345	Landscape	Meelup Creek, a natural feature, has cultural heritage significance as a popular place for recreation over a considerable period of time that is of social value to the local community and to Western Australians more generally.	The Meelup Regional Park is a large "A" Class Reserve (number 21629) of approximately 550 hectares adjacent to the towns of Dunsborough and Eagle Bay. The Park is vested with the City of Busselton and managed by the Meelup Regional Park Management Committee under a Management Plan, which was approved by the Minister for Lands in 1993; and with an annual operating budget provided by the Busselton City Council. The creek is a natural declivity with surrounding bush.	Meelup became a popular place for recreation in the local community and for Western Australian visiting the State's south-west. Prior to becoming a single "A" Class Reserve, the Park was a collection of a number of smaller "C" Class Reserves. The amalgamation process commenced in 1993 and was concluded in 1994.

Curtis Bay	02948	Landscape	Curtis Bay, a natural environment with no built features, has cultural heritage significance for its historic associations with the American whaling ships, a landing place for stock, and for its aesthetic value as a picturesque setting.	Small stretch of coastline on Geographe Bay. A picturesque beach and bay with a sandy shoreline contained by rocky edges, with a bushland backdrop and beautiful views out to sea.	Curtis Bay is named after Anthony Curtis. Curtis was a master of a coastal trading vessel and later owner of the Vasse-Wonnerup Estate. He bought Inlet Park from the Chapman brothers. The place was an anchorage for early whalers. It was also a landing place for stock and in recent history has become a place associated with leisure and holidaymaking.
Anse Depuch (Baudin memorial)	03820	Historic Site			
Point Picquet	13488	Urban Open Space		Point Picquet: Small northern most point of a number of points in Meelup Reserve between Eagle Bay and Dunsborough. Anse Depuch: Sandy bay adjacent to the north of Point Picquet. 'Anse' is French for 'Cove'.	Landing places for French Explorer Baudin. They are two of a number of areas first named by Nicholas Baudin in 1801. Point Picquet is named after a Lieutenant on the Geographe, Furcy Picquet. Baudin Memorial opened at Anse Depuch in June, 2001.
Castle Bay Whaling Station and Lookout Site	05336	Landscape	Castle Rock, largely natural location with a monument, has cultural heritage significance as the historic location of the Castle Bay Whaling Station	A largely natural site with historic associations. The place is largely a natural location used for recreation. There is a rock monument commemorating whaling activities.	Castle Bay was an historic location for whalers in the region. William Seymour settled at Dunsborough in 1845-1846 to work for Lionel Sampson and Co.'s "Castle Rock Whaling Company", which was later taken over by J. W. Bateman. This enterprise had fluctuating success as it was affected by difficulties with drunkenness, absconding workers and bad

			and lookout site is derived from its close associations with whaling as an early industry in the area. The site's natural splendour contributes to its aesthetic significance as it enhances the beauty of the Cape Naturaliste area at a macro level.		language. In 1849, all boats and sheds were destroyed by fire. Castle Rock used to function as a lookout spot for whales. However, nothing remains of the original fabric in the present day.

More information can be found on the WA State Heritage Register (www.stateheritage.wa.gov.au).

APPENDIX 3: MEELUP REGIONAL PARK RESEARCH PROPOSAL 2014-2024

In 2014, the City of Busselton through the Meelup Regional Park Management Committee commissioned the preparation of the 'Meelup Regional Park Research Proposal 2014 -2024'. The report was prepared by Erica Shedley from the Department of Parks and Wildlife.

The report provides a summary of the 13 highest priority projects identified for further research. These projects were:

- Soil erosion and track maintenance.
- Impacts of fire on Threatened and Priority flora and fire sensitive communities
- Impacts of fire on Threatened and Priority fauna and their habitats
- Impacts of tree decline on vegetation communities and fauna habitat quality
- Understanding the susceptibility of plants to Phytophthora disease
- Monitoring the impacts of introduced predators on western ringtail possums and southern brown bandicoots
- Conservation of Meelup Mallee (Eucalyptus phylacis)
- Conservation of Threatened orchids
- Research into the taxonomy and genetics of priority and disjunct flora
- Determine the sustainable visitor capacity of Meelup Regional Park
- Reduce visitor impacts on vegetation
- Reduce visitor impacts on hooded plovers and other shorebirds
- Trends in stream water flow and quality

The 'Meelup Regional Park Research Proposal 2014 -2024', is available for viewing at www.meelup-park.com.

7. GENERAL DISCUSSION ITEMS

8. NEXT MEETING DATE

9. CLOSURE