# Rockingham Lakes Regional Park

## Draft Management Plan 2003-2013

GOVERNMENT OF WESTERN AUSTRALIA

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

CITY OF Rockingham

# Rockingham Lakes Regional Park

2003 - 2013

**PLANNING TEAM**

The Planning Team, representing the managers of Rockingham Lakes Regional Park, coordinated the development of this plan on behalf of the Conservation Commission of Western Australia. The Planning Team was assisted by a consultancy team led by Environmental Resources Management Australia Pty Ltd.

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| Tim Bowra | Department of Conservation and Land Management |
| Paul Neilson | City of Rockingham |

## What Do You Think?

We would like to know what you think of the proposals in this draft Management Plan, and encourage you to make a submission.

### Why write a submission?

It is an opportunity to provide information, express your opinion, suggest alternatives and have a say on how we are proposing to manage the Rockingham Lakes Regional Park over the next 10 years. If you prefer not to make your own submission, you could make a joint submission with others.

### What makes an effective submission?

To ensure that your submission is as effective as possible:

- make it concise and clear;
- list your points according to the subject sections and page numbers in the Plan;
- say whether you agree or disagree with any or all of the objectives or recommendations, giving your reasons and sources of information; and
- suggest alternatives to deal with any issue with which you may disagree.

**It is important to indicate those strategies and recommendations you agree with as well as those with which you disagree.**

Give reasons for concerns and give support where appropriate. Information and constructive suggestions relating to your submission are most useful.

### What criteria will be used in assessing your submission?

The draft management plan will be amended if a submission:

- provides additional resource information of direct relevance to management;
- provides additional information on affected user groups of direct relevance to management;
- indicates a change in or clarifies Government legislation, management commitment or management policy;
- proposes strategies that would better achieve/ assist with management goals and objectives; or
- indicates omissions, inaccuracies or a lack of clarity.

The draft management plan will not be amended if a submission:

- clearly supports the draft proposals;
- offers a neutral statement or no change is sought;
- addresses issues beyond the scope of the Plan;
- makes points which are already in the Plan or were considered during Plan preparation and the recommendation of the Draft Plan is still considered the best option;
- is one amongst several widely divergent viewpoints received on the topic and the recommendation of the Draft Plan is still considered the best option; or
- contributes options which are not feasible (generally due to some aspect of existing legislation or government policy);
- is based on incorrect information;
- involves details that are not appropriate or necessary for inclusion in a document aimed at providing management direction over the long term.

## What Happens To Your Submission?

All submissions will be summarised according to the topics discussed. The draft management plan will then be reviewed in the light of the submissions, according to criteria mentioned above. A summary of the submissions will be published along with the final management plan, including an indication of how the plan will be amended or not in response to the submission. If a submission is marked "CONFIDENTIAL" then the author will remain anonymous in the analysis of public submissions document.

### Deadline

Submissions are welcome for three months after the date of release. For enquiries please ring the Department of Conservation and Land Management on (08) 9431 6500

### Where to send your submission

Written submissions should be sent to:

Executive Director
Department of Conservation and Land Management
PO Box 1535
FREMANTLE WA 6959

Attention: Regional Parks Coordinator;
Rockingham Lakes Regional Park Management Plan

### Where to obtain or view additional copies of this plan

Department of Conservation and Land Management
17 Dick Perry Avenue
Technology Park, Western Precinct
KENSINGTON WA 6151
(08) 9334 0333

Department of Conservation and Land Management
Regional Parks Unit
19-21 Phillimore Street
FREMANTLE WA 6160
(08) 9431 6500

Department of Conservation and Land Management
Swan Coastal District
5 Dundebar Road
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City of Rockingham
Civic Boulevard
ROCKINGHAM WA 6967
(08) 9528 0333

(viewing only)

Or visit the Department's NatureBase website at http://www.naturebase.net/national_parks

## How to Use This Plan

This plan is divided into sections as set out in the table of contents. A goal is stated at the beginning of each section. Within each section are subsections. Each subsection begins with the objectives to be achieved by management, followed by a discussion of the main issues and then strategies, accompanied by the agencies responsible for achieving each objective and a priority rating. Priority ratings provide an indication of the relative importance of a strategy. The management agencies names have been abbreviated and a list of all abbreviations used and their meaning is listed in Appendix A. Key Performance Indicators are listed in the Plan and a Performance Audit Table outlining proposed timelines of key strategies is stated.


### ACKNOWLEDGEMENTS

Numerous individuals and groups have contributed valuable ideas and information in the preparation of this draft management plan and their efforts are gratefully acknowledged. The contribution of the Rockingham Lakes Regional Park Community Advisory Committee is appreciated. The following members had input to the draft plan: Richard Smith (Chair); Bob Goodale; Phillip Hoddy; Trenton Jones; Robert Murray; Rick Palmer; Jim Macbeth; and Leigh Liley. The assistance of the Environmental Resources Management Australia Pty Ltd team is appreciated, particularly the contributions from Rebecca Salamone, Katrina Cooper, Debbie Davies, Keryn James, Emma Banforth and Andrew Baker.


### NOMENCLATURE

Inclusion of a name in this publication does not imply its approval by the relevant nomenclature authority.

### THE CONSERVATION COMMISSION OF WESTERN AUSTRALIA AND THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT.

All national parks, conservation parks, nature reserves, and other similar reserves are vested in the Conservation Commission of Western Australia. These reserves are managed on behalf of the Conservation Commission of Western Australia by the Department of Conservation and Land Management.

As the controlling body, the Conservation Commission of Western Australia is responsible for having management plans prepared for all lands that are vested in it. This plan is prepared by the Department of Conservation and Land Management and issued as a draft plan by the Conservation Commission of Western Australia for public comment prior to final approval by the Minister for the Environment.

## Preface

Regional parks are areas of regional open space that have been identified by planning processes as having outstanding conservation, landscape and recreation values. Regional parks provide the opportunity for a consortium of management agencies and private landowners to develop coordinated planning and management strategies.

Regional parks were first proposed in the Stephenson - Hepburn Report of 1955 which was the basis of the Perth Metropolitan Region Scheme, established in 1963. Since then, State planning agencies have been acquiring land in anticipation of the time when regional parks would be formally created.

In 1997, the State government announced a commitment to introduce legislation to give regional parks legal standing and vesting in the former National Parks and Nature Conservation Authority, now the Conservation Commission of Western Australia. Eight regional parks were recognised as formal identities, and the coordination of their management was progressively transferred to the Department of Conservation and Land Management. Other regionally significant parklands exist within the Perth metropolitan region, for example Kings Park, Bold Park and Whiteman Park; these parks are managed by other government agencies.

This Management Plan is a commitment by the Department of Conservation and Land Management and the City of Rockingham to manage Rockingham Lakes Regional Park. The role of the Department of Conservation and Land Management in managing the park is two-fold. Firstly, it is to manage the areas of the Park that are vested in the Conservation Commission of Western Australia. Secondly, it is responsible for coordinating the management of the Park. The latter is initiated through the preparation of this Plan. City of Rockingham will manage the reserves vested in it, in accordance with this Management Plan.

Set in a rapidly growing urban area, Rockingham Lakes Regional Park is a network of environmentally significant lands containing coastal, wetland and upland ecosystems. The Park occupies a significant proportion of the City of Rockingham, and is not only important for conservation in this urban context, but also for the range of recreational opportunities it provides.

The Park crosses the unique Rockingham-Becher Plain, from the coastal promontories of Cape Peron and Port Kennedy, to the wetlands of Lakes Cooloongup and Walyungup. This area is significant for its geomorphic landforms because the distinct parallel sand ridges indicate the positions of former shorelines, providing a record of sea level changes over the past 7,000 years. Wetlands have formed in between the sand ridges, and these are also significant because they form part of an evolutionary time sequence and support unique vegetation communities. Thus the area is of considerable interest and importance for research on coastal history, the evolution of wetlands and biological succession.

The Park also contains significant flora and fauna, including two "Threatened Ecological Communities": sedgelands in Holocene dune swales and Thrombolites at Lake Richmond. In addition, the woodlands and wetlands around Lake Cooloongup, Lake Walyungup, Tamworth Hill, Tamworth Hill Swamp, Anstey and Paganoni Swamps are important remnants of ecosystems that were once widespread on the Swan Coastal Plain.

While the Park has undoubtedly high ecological values and contains some popular recreation areas, it is at the same time beset by a number of critical management problems, such as inappropriate recreation uses, vegetation degradation and loss, widespread weed invasion, fire risk and feral animal impacts. This Management Plan, which is based on previously prepared ecological, recreational and historical surveys, as well as information collected during the study period, seeks to establish clear objectives on how best to manage and protect Rockingham Lakes Regional Park.

The Rockingham Lakes Regional Park Community Advisory Committee was established early in the planning process to provide input during the preparation of the Plan. The Plan has been developed through consultation with a range of stakeholder groups and it reflects their contributions.

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# A. INTRODUCTION

## 1. Purpose and Status of the Management Plan

### PURPOSE OF THE PLAN

The purpose of this draft management plan ("the Plan") is to provide broad direction for the protection and enhancement of the conservation, recreation and landscape values of Rockingham Lakes Regional Park ("the Park"). It will do this by outlining strategies aimed at conserving the special features of the Park and providing for future community requirements. The Plan will help ensure the Park is managed appropriately and is capable of sustaining its high nature conservation and cultural values as well as use by the community.

Given the strategic nature of this Plan, more detailed planning (referred to as subsidiary plans) will be required prior to significant works taking place within the Park (Section 44). Examples of subsidiary plans proposed in this Plan include a weed management and rehabilitation plan and site plans for specified Park areas.

### STATUS OF THE PLAN

This Plan provides statutory direction for lands within the Park vested in the Conservation Commission of Western Australia. The Department of Conservation and Land Management (DCLM) will manage these lands on the Commission's behalf. The Plan will act as an "umbrella" document coordinating existing plans for specific areas of the Park. Implementation of existing plans will need to be consistent with the overall direction of this Plan. Additionally, future plans for areas within the Park will need to be written in a manner to complement the Rockingham Lakes Regional Park Management Plan.

The Conservation Commission of Western Australia (CCWA) endorses this Plan and acknowledges that the Department of Conservation and Land Management has the responsibility for coordinating management of the Park. In consultation with the Department, the Western Australian Planning Commission (WAPC) and Department for Planning and Infrastructure (DPI) will use this Plan to assist with the assessment of development proposals on lands within and adjoining Rockingham Lakes Regional Park. The strategies contained in this Plan have not yet been formally endorsed by the City of Rockingham (CoR).

## 2. Regional Parks

### WHAT IS A REGIONAL PARK?

Regional parks are areas of regional open space that have been identified through planning processes as having regionally significant conservation, landscape and recreation values. Regional parks are a land management system which provides the opportunity for a coordinated planning and management strategy by different land management agencies and private land owners.

Regional parks may comprise Crown lands vested in State government agencies and local governments, as well as private lands where the agreement of the landowner is obtained.

As such regional parks may be comprised of lands with a variety of tenures and reserve purposes, drawn together for coordinated management by the Department of Conservation and Land Management. Rockingham Lakes Regional Park for example consists of land comprising Crown reserves vested in the City of Rockingham, the Conservation Commission of Western Australia, the Recreation Camps and Reserve Board (RCRB) and the Minister for Community Welfare, as well as freehold land owned by WAPC and privately-owned land.

Those lands that have been acquired by the WAPC for inclusion in the Park are now to be transferred to the Conservation Commission of Western Australia and the City of Rockingham, for management as part of the regional park.

It is intended that the high level of protection currently existing for lands already vested in the Conservation Commission of Western Australia (such as nature reserves) will continue as the regional park concept is implemented.

### THE REGIONAL PARK CONCEPT

The concept of regional open space was first introduced to Western Australia in 1955 by the Stephenson - Hepburn Report. The report recommended that a statutory region plan be prepared for Perth which reserved private land required for future public purposes. In 1963 the Perth Metropolitan Region Scheme (MRS) was established and land was reserved for "Parks and Recreation". This land (subject to amendments of the MRS) has been gradually acquired by State planning authorities with the intention to protect open space of regional significance for conservation and recreation.

Areas with regionally significant conservation, landscape and recreation value were identified and recommended by the Environmental Protection Authority in *Conservation Reserves for Western Australia, The Darling System – System 6* (Department of Conservation and Environment, 1983). This report also recommended areas of land to be managed as regional parks. A system of regional parks was envisaged which included the land reserved for "Parks and Recreation" in the MRS at Rockingham Lakes, namely Lake Richmond; Lakes Cooloongup and Walyungup; Tamworth Hill Swamp; and Port Kennedy (Localities M102; M103; M104; M106 in the System 6 Report).

In 1989, the State government decided that the responsibility for regional park management would be established within the Department of Conservation and Land Management, and that the responsibility for planning the acquisition of lands for regional open space be retained by the then Department of Planning and Urban Development (now Department for Planning and Infrastructure) on behalf of the WAPC.

In 1990, a task-force report was prepared by the former Department of Planning and Urban Development and the Department of Conservation and Land Management, outlining proposed administration, planning and management of regional open space (Regional Parks Taskforce, 1990). The Environmental Protection Authority's *Red Book Status Report* (Environmental Protection Authority, 1993a) describes the transformation of regional parks from concept to reality as being difficult because of the range of land tenure involved and the funding requirements for continual management of the parks.

In June 1997, the State government announced a commitment to introduce legislation to give regional parks legal standing and vesting in the former National Parks and Nature Conservation Authority, now the Conservation Commission of Western Australia. The coordination of management of eight metropolitan regional parks would be progressively transferred to the Department of Conservation and Land Management, on behalf of the Conservation Commission of Western Australia.

## REGIONAL PARK PLANNING

Planning for regional parks occurs at a number of levels. Regional park management plans are a part of a broad suite of planning undertaken by the relevant managing agencies. Figure 1 illustrates the planning levels typically undertaken for regional parks.


Source: ANZECC 2000.

**Figure 1 - Regional Park Planning Hierarchy**

## 3. Rockingham Lakes Regional Park

Rockingham Lakes Regional Park is one of eight regional parks in the Perth metropolitan area. It is located approximately 39 kilometres south of the Perth central business district (see Figure 2).

The Park covers an area of 4,270 hectares, which consists of coastal areas, wetlands and remnant bushland areas. The main areas or estates of the Park (as indicated in Figure 3) are:

- Cape Peron;
- Lake Richmond;
- Lake Cooloongup;
- Lake Walyungup;
- Port Kennedy Scientific Park;
- Lark Hill;
- Tamworth Hill;
- Tamworth Hill Swamp;
- Anstey Swamp; and
- Paganoni Swamp.

### General Overview

The Park is located in the City of Rockingham, which is experiencing rapid urban development. In 2001, the City had an approximate population of 72,000 people, and it is estimated that the population will be 113,200 in 2016: a growth rate of 6.9% per annum (WAPC, 2000). Urban development and increasing visitor numbers will place added pressure on the natural environment and recreation facilities of the Park.

The Park is a significant feature of the Rockingham area, occupying around 16% of the area of the City of Rockingham. The Park is surrounded mainly by residential and commercial land uses, with some rural areas around Anstey and Paganoni Swamps, to the south east of the Park.

The Park consists of a network of environmentally significant lands, comprising coastal, wetland and woodland ecosystems. There are areas of remnant vegetation in the Park that are considered in good condition. There are also highly disturbed areas of vegetation in the Park, which require rehabilitation.

Parts of the Park are used for recreation, with walking and nature observation being popular activities. The Park also provides access to the coast for swimming, snorkelling and boating. Land yachting and model aero flying has been undertaken at Lake Walyungup, and the Rockingham Golf Course is located within the Park. Other parts of the Park have limited access and no recreational facilities, and consequently, receive few visitors.

### Regional Context

Rockingham Lakes Regional Park is an important link in a series of reserves and regionally significant bushland in the region. Nearby, there are wetlands and bushland in Beeliar Regional Park, Leda Nature Reserve, Stakehill and Lakelands. The Shoalwater Islands Marine Park adjoins the Rockingham Lakes Regional Park to the west at Cape Peron, and extends from the Garden Island Causeway to Becher Point, including Shoalwater Bay and Warnbro Sound. The conservation, recreation and scientific values of the Park are enhanced by this regional context (Tingay and Associates, 1997).

## ESTABLISHMENT OF ROCKINGHAM LAKES REGIONAL PARK

In 1997, the Western Australian Planning Commission (WAPC), Port Kennedy Board of Management, Department of Conservation and Land Management and City of Rockingham collaborated to prepare a framework for managing the proposed Port Kennedy Scientific Park and Rockingham Lakes Regional Park (Tingay and Associates, 1997). The aim of the framework was to protect the environmental values of the parks, whilst allowing for a range of appropriate public uses. The resulting report collated information on the biological, environmental and geomorphic values of the parks, as well as the opportunities for recreation and ecotourism (Tingay and Associates, 1997). The Port Kennedy Scientific Park is now a part of the Rockingham Lakes Regional Park. The proposed boundary and management areas outlined in Tingay and Associates (1997) provide a basis for this Plan.

In 1997, the State Government announced that Rockingham Lakes would be established as a regional park.

The Rockingham Lakes Community Advisory Committee was established by the Department of Conservation and Land Management in 1999 as a forum for the public to provide input to the management of the Park.

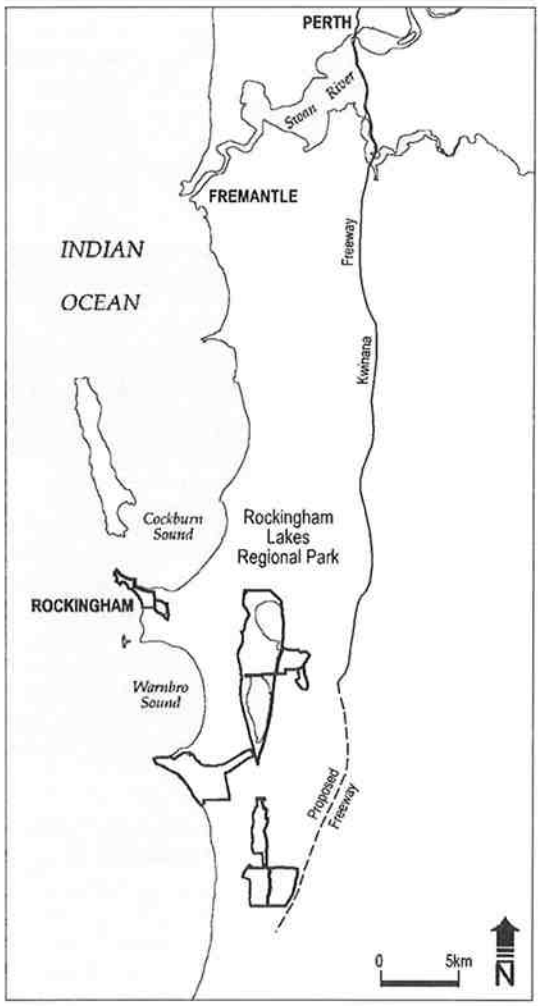


**Figure 2 - Park Location**

## PARK VALUE

The Park has a number of characteristics that are valued by the community. Many of these were identified at a community workshop, held during the preparation of this Plan. The foremost values of the Park are discussed below.

### Natural Environment Value

Rockingham Lakes Regional Park has significant conservation value owing to its geomorphic features, the presence of diverse wetland types, habitat, flora and fauna. The Park's location in relation to other conservation reserves also enhances its value in a regional context and it is considered by the community to be an important buffer to urban development.

The Park includes geomorphic features representative of an evolving coastal environment, which offer a unique opportunity for research into the history of sea level change and the process of coastal wetland development. The Rockingham-Becher Plain is unique in a global sense and is therefore of international importance (Semeniuk Research Group, 1991). The Park preserves an important remnant of this plain.

The vegetation communities in the Park represent a sequence from west to east; from coastal shrubland, permanent and ephemeral wetlands, to Quindalup woodlands including stands of Tuart, Jarrah and Marri. This diversity of vegetation has a high conservation value.

Of particular importance is the occurrence of two "Threatened Ecological Communities" (see Glossary): sedgelands in Holocene dune swales; and Thrombolites in Lake Richmond. These communities have been deemed "critically endangered" and in need of special protection. The two Threatened Ecological Communities are listed under the Commonwealth *Environment Protection and Biodiversity Act 1999*, and so receive additional recognition and protection.

The wetland ecosystems of the Park serve as a refuge for a diverse bird population, including trans-equatorial migratory birds. The Park is also highly valued as a refuge for other wildlife including Quenda (*Isoodon obesulus fusciventer*), Bush rat (*Rattus fuscipes*) and Dunnart (*Smithopsis sp.*) (Tingay and Associates, 1996).

The Park contains natural sites and features recognised and, in some instances, specially-protected at the national and international levels. The Australian Heritage Commission recognises Lake Richmond, Lakes Cooloongup and Walyungup, Tamworth Hill Swamp, Anstey Swamp, Paganoni Swamp and Port Kennedy Scientific Park as having heritage values that should be conserved.

The Becher Point wetlands at Port Kennedy are listed as wetlands of international importance under the Ramsar Convention (see Glossary). These wetlands are also specially protected under the Commonwealth *Environment Protection and Biodiversity Act 1999* and listed on the Directory of Important Wetlands in Australia (Government of Western Australia, 2000).

**Recreation Value**
The diversity of recreation settings in the Park provides for a range of active and passive recreation pursuits. The Park is a resource for the Rockingham community, as well as the broader community. Urban growth and tourism development in the region will inevitably lead to greater visitor use of the Park.

Currently, most visitors to the eastern areas of the Park are local residents, whereas Cape Peron and Lake Richmond have a greater profile and attract visitors from across the Perth metropolitan area.

The coastal areas of the Park - Cape Peron and Port Kennedy, provide access to recreational activities such as swimming, snorkelling and fishing. Wetland and bushland areas provide opportunities for walking and nature appreciation. Lake Walyungup is a unique setting within the metropolitan area for land yacht sailing and aero-model flying. The Rockingham Golf Course is also located within the Park.

Proposed recreation facilities in the Park are described in Section 29 and illustrated in the Recreation Masterplan, Appendix A.

**Cultural Heritage Value**
The Rockingham area has significance to both Aboriginal and non-Aboriginal people.

Traditionally, Aboriginal family groups travelled this area throughout the seasons. The wetlands and woodlands of the Park are likely to have cultural significance for Aborigines due to their importance for food and water and their spiritual significance (Hayden and Hayden, 2002). Lake Richmond was an important area for food gathering and camping. Lakes Cooloongup and Walyungup also hold special Dreaming significance as places where the Sea Waugal laid her eggs (Walley, *pers. comm.*, 2002). Both of these names are Nyoongar in origin (Draper, 1997). Cooloongup means *place of children* and Walyungup means *place where Nyoongars talk* (Walley, pers. comm., 2002). Paganoni Swamp is also culturally significant as it has an Aboriginal burial site nearby. There are three Aboriginal sites in the Park listed by the Department of Indigenous Affairs.

The first European exploration of the Rockingham area occurred between 1801 and 1804 by a French expedition under Commodore Nicolas Baudin (Fall, 1979). Baudin named a number of features along the coast, including Cape Peron. The name Rockingham however, commemorates a ship that ran aground in stormy conditions opposite the present location of Governor Road in 1830 (Fall, 1972).

Farmers settled the eastern parts of Rockingham during the 1830s, when many moved south to the area to find more arable soils than those near the failed settlement of Clarence, adjacent to Woodman Point (Fall, 1972).

The early fate of the town of Rockingham was tied to its port. The town grew as a result of the establishment of the port in Mangles Bay, which was important for shipment of timber from local suppliers as well as those in the Jarrahdale area. Rockingham, however, declined to a small seaside settlement in the early twentieth century, once major ports were constructed at Bunbury and Fremantle (Fall, 1972).

During the Second World War, the HMAS Stirling Naval Base was established at Garden Island as a prominent centre of military and naval operations. The Cape Peron gun emplacements were established as an integral part of the coastal defence system, along with emplacements at Garden Island, Rottnest and Buckland Hill. The Cape Peron Battery Complex is now listed on the Rockingham Municipal Heritage Inventory and has been listed on the Register of the National Estate.

Improvement to transport and infrastructure systems lead to an increase of visitors and residents to the Rockingham area. Significant industrial growth occurred in the region in the early 1950s. Rockingham has since continued to experience growth in commercial, light industry and residential sectors. Despite the development that has occurred, numerous historic buildings and sites relating to early European settlement have been retained in Rockingham and in the Park (State Government of WA, 1979).

**Landscape Value**
Many areas of high landscape quality in the Park are natural areas of mature woodlands and vegetated wetland areas, such as the Tuart forests near Lake Cooloongup and areas of Anstey and Paganoni Swamps. Elevated views across the Rockingham-Becher Plain can be gained from Tamworth Hill. Water is a major visual element in the Park that adds to the landscape amenity of the wetlands and coastal areas. The wide, salt-encrusted expanses of Lakes Cooloongup and Walyungup create a stark but interesting landscape in an urban setting. The rugged Cape Peron promontory provides for vistas across Cockburn Sound to the north and Shoalwater Bay and islands to the south.

The diverse and distinctive landscape character types represented in the Park are integral to its scenic value.

**Research and Education Value**
A recurring theme of the community workshop held during the preparation of the Plan was the educational opportunities presented by the Park's unique environmental features, and the desire to maximise these opportunities.

The proximity of Shoalwater Islands Marine Park and Rockingham Lakes Regional Park provides opportunities for researching and understanding coastal processes and ecosystems.

Remnant bushland areas and local wetlands hold significant conservation, scientific and aesthetic values. Research on the flora and fauna of these areas will provide further information to guide management decisions.

The Port Kennedy Scientific Park protects an important remnant of the Rockingham-Becher Plain, a geomorphic feature of international significance for scientific research. This area is one of the youngest formations on the Swan Coastal Plain and provides an example of Holocene sedimentation and stratigraphic evolution. The Rockingham-Becher Plain is globally unique as arguably the best example of a consistently-developed beach ridge complex in the world (Semeniuk Research Group, 1991). The Becher wetlands, which occur in the swales of the ridges, are the only place in Australia that shows the

progression of old to young wetlands. These wetlands provide a record of the evolution of coastal wetlands and associated floral assemblages. This area also supports "critically endangered" sedgelands in Holocene dune swales. Research on these communities will assist in their protection and enhancement.

A "critically endangered" community of Thrombolites occurs at Lake Richmond. Thrombolites are microbial structures, which represent one of the oldest living organisms on earth. They have a scientific value, as well as a very high conservation value, because they may provide an insight into past environments. Lake Richmond is one of the few places in the world where Thrombolites are found.

The Naragebup Rockingham Regional Environment Centre is located next to Lake Richmond. The centre is actively involved in environmental education, particularly with issues that affect the Park environment. Community members from the education centre are actively involved in helping to protect, conserve and enhance the Park's biodiversity.

## 4. The Management Plan and Community Involvement

The Management Plan for the Park is being prepared in five phases:

1. The first phase was aimed at identifying the relevant planning and management issues. This was achieved by undertaking a literature review, analysing the existing condition of the Park and organising a community workshop. Public involvement in this phase was encouraged through newspaper articles and canvassing key stakeholders for the community workshop.

2. The second phase was the preparation of the draft Management Plan. This involved identifying values and preparing planning strategies to protect those values and address the issues identified in phase one. Within this phase Department of Conservation and Land Management, the City of Rockingham and the Rockingham Lakes Regional Park Community Advisory Committee provided advice on the development of the Plan.

3. The third phase involves presenting the draft Plan for public comment. Its availability for review has been widely advertised, the draft is open for public comment for a period of three months.

4. Phase four will cover the acknowledgement and analysis of public submissions.

5. The fifth phase will comprise the preparation of the final Management Plan incorporating issues or comments raised within the public submissions and comments State government agencies and the City of Rockingham. The revised Plan will be submitted for approval by the Minister for the Environment.

# B. PRINCIPAL MANAGEMENT DIRECTIONS

## 5. The Vision for the Park

The long-term vision for the Park is:

***"The Rockingham Lakes Regional Park will be a well managed park supporting a diversity of habitats in a sustainable manner. The Park will provide for the conservation and preservation of ecological and heritage values, research and education, as well as providing for the recreational needs of the community in a visually harmonious way."***

### GOALS

Goals and objectives have been set for each main section of the Plan. Strategies follow each discussion section, and outline management tasks, including which agencies are responsible for implementation and an indicative priority. The following management goals are proposed for the Park.

**Conservation**
Protect, conserve and enhance the Park's biota as well as its physical, cultural and landscape resources, especially the Threatened Ecological Communities in the Park.

**Recreation**
Provide and manage for recreation, tourism and leisure in a manner that minimises conflict between visitors, and is consistent with other management objectives and Park values.

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

**Research and Monitoring**
Seek a better understanding of the natural and cultural environments, and the impacts of visitor use and Park management, with particular emphasis on the Threatened Ecological Communities in the Park.

**Community Relations**
Promote informed appreciation of the Park's natural environment, cultural values and recreation opportunities 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 planning authorities.

**Strategy**

1. **Manage the Park for conservation and allow recreation and other uses of the Park to occur to the extent that they do not impair the values of the Park. (Department of Conservation and Land Management, CoR) [High]**

## 6. Management Policies

*The objective is to integrate the policies of the management agencies to complement and support the vision for the Park.*

**Conservation Commission of Western Australia and Department of Conservation and Land Management Policies**
This Plan is based on current Conservation Commission of Western Australia and Department of Conservation and Land Management policies. These policies derive from legislation, principally the *Conservation and Land Management Act 1984* and the *Wildlife Conservation Act 1950*, and associated regulations. The policies that relate to this Park guide management in aspects such as conservation, recreation, community involvement, research and monitoring and education. Policies are published and are available to the public on request.

**City of Rockingham**
The management actions of the City of Rockingham should reflect the intent of this Plan.

**Strategies**

1. **Apply Conservation Commission of Western Australia and Department of Conservation and Land Management policies that relate to conservation, recreation, community involvement, research and monitoring and education in the Park. (Department of Conservation and Land Management) [Ongoing]**

2. **Prepare a local government policy statement for implementation by Rockingham City Council that reflects the intent of this Management Plan. (CoR) [High]**

## 7. Park Boundary and Land Tenure

*The objective is to ensure that the values of the Park are protected by security of tenure and reserve purpose.*

### PARK BOUNDARY

The Rockingham Lakes Regional Park boundary is based on the recommendations of the *Proposed Port Kennedy and Rockingham Lakes Management Framework* (Tingay and Associates, 1997). The boundary of the Park

reflects the Metropolitan Region Scheme (MRS), under which the majority of the Park is reserved as "Parks and Recreation". Any changes to the Park boundary will be consistent with future MRS amendments.

Areas at Cape Peron, Lark Hill and Tamworth Hill that are reserved for "Public Purposes" in the MRS are within the boundary of the Park, but are not considered part of the Park for management purposes.

The potential for areas in the Park reserved for "Public Purposes" in the MRS to be changed to "Parks and Recreation" will be investigated when those areas are no longer being used for public purpose, or planned to be used as such.

A number of transport corridors traverse the Park and these reservations are also operationally outside the Park.

The Park boundary and land tenure at the date of this Plan is shown in Figure 3.

**Coastal boundary and interface with Shoalwater Islands Marine Park**

The coastal boundary of Rockingham Lakes Regional Park at Cape Peron and Port Kennedy is as follows.

At Cape Peron, terrestrial Reserve 27853 extends to the low water mark. However, the Shoalwater Islands Marine Park extends landward to the high water mark (see Glossary), creating a slight overlap. Given that the Shoalwater Islands Marine Park was gazetted after Reserve 27853, the operational boundary between the two is considered to be the high water mark. Both the Shoalwater Islands Marine Park and the Rockingham Lakes Regional Park are managed by the Department of Conservation and Land Management.

At Port Kennedy, terrestrial Reserves 44076 and 44077 (managed by the City of Rockingham and the Department of Conservation and Land Management respectively) extend to the high water mark. The City of Rockingham is responsible for managing the beach adjoining these reserves: between the high water mark and low water mark. It is therefore important that there is strong interaction between the City of Rockingham and the Department of Conservation and Land Management for the effective management of the Park.

**Boundary of the Park at Lark Hill**

The *Proposed Port Kennedy and Rockingham Lakes Management Framework* (Tingay and Associates, 1997) recommended an east-west corridor between Port Kennedy Scientific Park and the southern end of Lake Walyungup. The intent of the corridor was to maintain public access to open space of regional significance, as recommended in *Conservation Reserves for Western Australia, The Darling System - System 6* Report (Department of Conservation and Environment, 1983). The corridor also has a role in maintaining an undeveloped link that traverses the geomorphic features from the coast to Lake Walyungup.

The corridor proposed in the *Proposed Port Kennedy and Rockingham Lakes Management Framework* (Tingay and Associates, 1997) includes areas reserved for "Public Purposes" in the MRS which are owned by the Water Corporation. Discussion needs to occur between the Department for Planning and Infrastructure, Water Corporation and Department of Conservation and Land Management regarding the land tenure arrangements and MRS zoning for this area.

Furthermore, the City of Rockingham, in conjunction with the WAPC, is currently undertaking masterplanning for a Regional Sporting and Equestrian Complex to the south of the corridor. The boundary of the complex in relation to the corridor is yet to be determined.

**Inclusion of other lands into Rockingham Lakes Regional Park**

The WAPC has jurisdiction for overall planning and the acquisition of lands for regional parks. The inclusion of additional areas into Rockingham Lakes Regional Park is therefore the responsibility of the WAPC, in consultation with the Department of Conservation and Land Management, Conservation Commission of Western Australia and the City of Rockingham.

The criteria for determining boundaries for a regional park such as Rockingham Lakes take into account not only land tenure and the planning context of the area, but also the condition and status of lands contained within it (Department of Planning and Urban Development, 1992). The park boundary must be manageable and include areas for conservation, recreation, and landscape protection. Other issues that are to be considered include:

- acquisition of land, including cost and impacts on private landowners;
- adequate provision for recreational uses and future demands in a growing population area;
- fire safe boundaries which afford protection to adjacent homes, and the Park itself;
- adequate access for local residents and visitors from elsewhere in the region;
- the enhancement of views into and within the Park;
- provision of future services and roads; and
- ensuring sufficient buffers for conservation areas.

In addition to the above factors, management resources need to be carefully considered when additional lands are being proposed for inclusion to the Park.

The following amendments to the Park boundary are proposed.

1. It is proposed to amend the Metropolitan Region Scheme to change Reserve 27008 to "Parks and Recreation" and include it in the Park. The unvested reserve is located on the corner of Safety Bay and Mandurah Roads adjoining Tamworth Hill estate (Figure 4). The reserve constitutes part of *Bush Forever* site 356 and has conservation and landscape amenity value and is generally in good condition.
2. Part Lot 4 Mandurah Road Karnup is proposed to be reserved as "Parks and Recreation" and included into the Park in exchange for Lot 1 Mandurah Road, which is a disused quarry (Figure 4). Part Lot 4 is located at the south west corner of Paganoni Swamp. It constitutes part of *Bush Forever* site 395 and is an area of quality bushland with a high conservation value. The land exchange will take place between CSR Readymix Limited, the owner

of Part Lot 4, and the WAPC as owner of Lot 1, and will proceed according to State Government planning procedures.

3. It is proposed to extend the Park to include an area of land south of Paganoni Swamp in the City of Mandurah, including Part Lot 1 and Lot 53 Lakelands. This area is reserved as "Regional Open Space" in the Peel Region Scheme and has conservation and landscape values. It is therefore considered an appropriate addition to the Park. This proposal is in its early stages and is subject to further discussions between the Department for Planning and Infrastructure and the Department of Conservation and Land Management (hence the exact boundary of the proposed addition is not represented on Figure 4).

**Possible excision from the Park – proposed boat harbour at Mangles Bay**

There is a proposal to develop a boat harbour at Mangles Bay, at the eastern end of Cape Peron. Should it proceed, this development may require land to be excised from the Park.

The rationale for a boat harbour includes the potential benefits for economic and social development opportunities related to recreation and tourism. However the proposal would also potentially create a number of negative environmental issues including impacts on seagrass habitats in Cockburn Sound, disturbance to an area of Cape Peron and risks to the hydrology of Lake Richmond.

Proposals and studies for a boat harbour at Mangles Bay date back to 1977 and pre-date the establishment of Rockingham Lakes Regional Park. A marina proposal was approved in 1986 but never built, ostensibly because of economic reasons (Environmental Protection Authority, 1993b; Mangles Bay Boat Harbour Steering Committee, 1998). In 1992, a number of options for a marina were put forward by the then Department of Marine and Harbours for Public Environmental Review. None of these obtained environmental approval on the basis that they would result in the loss of a large area of seagrass (Environmental Protection Authority, 1993b).

In 1997, State Cabinet requested the development of a concept plan for an inland boat harbour in response to the concerns about the loss of seagrass, and established a steering committee to report on the matter. The Mangles Bay Boat Harbour Steering Committee endorsed a development option for an inland harbour located east of the Garden Island Causeway (Mangles Bay Boat Harbour Steering Committee, 1998). An inland harbour was considered the best proposal for minimising impacts on sea grasses in Cockburn Sound. Under the option preferred by the Mangles Bay Boat Harbour Steering Committee, it is estimated that approximately 50 hectares of land would need to be excised from the Park. A formal decision on the development has not yet been made by the State Government.

In order to proceed, the proposal for a boat harbour at Mangles Bay may require that land be excised from the Park. An excision would require an amendment to the Metropolitan Region Scheme to change the land from "Parks and Recreation" to an appropriate zoning. Furthermore, the Department of Environment has indicated that a formal environmental assessment is likely to be required. Public consultation would occur during these processes.

As the boat harbour is likely to be the subject of further planning, and in recognition of prior planning for the development, the area of the Park that may potentially be affected has been identified as an "Area subject to further planning" (Table 1 and Figure 4). This allows for the existing values of the land to be maintained whilst the outcomes of Government decisions on the proposed boat harbour at Mangles Bay are unknown.

Should the proposed boat harbour not proceed, the land tenure and management zoning of the area will be reviewed.

The proposal for a boat harbour at Mangles Bay is also discussed in Section 35, in the context of its impacts on the conservation, recreation and landscape values of Cape Peron.

## LAND TENURE

Land within the Park consists of reserves administered under the *Land Administration Act 1997* and vested in a number of State government agencies and the City of Rockingham, as well as freehold land owned by government agencies and private organisations and individuals. Existing land tenure is shown on Figure 3.

The Plan seeks to reserve land and vest it in either the Conservation Commission of Western Australia, or the City of Rockingham (as outlined in Table 1).

Crown Reserves will be created using the management areas outlined in Table 1 and Figure 4 as a guide.

Reserves to be vested in the City of Rockingham may have management orders under the *Land Administration Act 1997* requiring them to comply with this Plan.

The tenure arrangements for some areas of the Park will not change, for instance, the Port Kennedy Scientific Park, is to remain vested in the Conservation Commission of Western Australia as a nature reserve.

Should additional land be included within the boundary of the Park during the term of this Plan, its tenure arrangements will be consistent with the protection and enhancement of the Park's values.

**Transfer of WAPC-owned freehold land**

Freehold lands owned by the WAPC will be converted to reserves under the *Land Administration Act 1997* and vested with the Conservation Commission of Western Australia or the City of Rockingham. They will be managed in accordance with this Plan.

Reserves created from WAPC freehold land and vested in the Conservation Commission of Western Australia will be afforded the purpose of "Conservation Park" and will be classified as Class A under the *Land Administration Act 1997* (Table 1).

As agreed by the City of Rockingham, reserves created from WAPC freehold land and vested in the City of

Rockingham will be afforded an appropriate purpose and given similar tenure arrangements as the reserves vested in the Conservation Commission of Western Australia (Table 1).

**Crown reserves and unallocated Crown land**

Reserves 27853 and 39475 at Cape Peron are currently vested with the Recreation Camps and Reserve Board. Reserve 27853 is proposed to be transferred to the Conservation Commission of Western Australia, and managed in accordance with this Plan (Table 1). It will be afforded an appropriate classification and purpose under the *Land Administration Act 1997*. Consideration will be given to the boat harbour proposal at Mangles Bay in determining the reserve classification and purpose. Reserve 39475 will be transferred to the City of Rockingham and will be afforded an appropriate classification and purpose under the *Land Administration Act 1997*.

Crown reserves now vested in the City of Rockingham which are proposed to be vested in the Conservation Commission of Western Australia will be converted to Class A Reserves under the *Land Administration Act 1997* and afforded an appropriate purpose (Table 1).

Roads in the Park at Cape Peron that form part of the reserves vested in the Recreation Camps and Reserve Board will be transferred to the City of Rockingham for management as part of the local roads network. The roads are: the western end of Point Peron Road, Memorial Drive and Lease Road. The City of Rockingham is investigating the potential to close Memorial Drive between Lease Road and Safety Bay Road.

Road reserves considered unnecessary by planning and management agencies will be investigated for inclusion into the gazetted area of the Park and managed by the appropriate agency.

Unallocated Crown land is to be created as reserves and transferred to either the Conservation Commission of Western Australia. These reserves will be afforded an appropriate reserve purpose and tenure arrangements under the *Land Administration Act 1997*, consistent with the protection and enhancement of Park values (Table 1).

Land vested in the Minister of Community Welfare at Port Kennedy is to retain its reserve vesting and purpose. The area is managed by the Department of Community Development, and operated as a youth camp for the Department's clients, youth and school groups (Table 1).

**Private property**

All private property within the Park is reserved "Parks and Recreation" in the MRS, and is therefore earmarked for acquisition by the WAPC. The Department for Planning and Infrastructure, on behalf of the WAPC, will continue its voluntary acquisition program within regional parks. Negotiated settlements are required in order to obtain the remainder of private land within the Park boundary. This plan is not the mechanism by which freehold land, held by private organisations or individuals, is to be acquired by the WAPC.

Until acquired by the WAPC, private property in the Park will remain protected under the MRS by the "Parks and Recreation" reservation.

This Plan will not dictate the management of privately owned freehold land held by organisations or individuals in the Park. For instance, Lakeside Youth Camp is on freehold land owned and managed by the Salvation Army. The Plan does not propose any changes to the management of the camp whilst it is in private ownership. However, when the land is acquired by the WAPC, management will be in accordance with the Plan's park management zones (Table 1 and Figure 4).

Access by Park visitors to areas of private property owned by organisations or individuals in the Park is not available until the property is acquired by the WAPC.

There are pockets of private property in the Park at Lake Richmond, Tamworth Hill, Tamworth Hill Swamp, Anstey Swamp and Paganoni Swamp (Figure 3).

**Strategies**

1. **Adopt the Park boundary as shown on Figure 3. The boundary will be modified should additional lands be included in the Park. (WAPC, CCWA, DPI, Department of Conservation and Land Management, CoR) [High]**

2. **Consider the acquisition of additional lands for inclusion into the Park in consultation with the Department of Conservation and Land Management. (WAPC, DPI) [Ongoing]**

3. **Progress a Metropolitan Region Scheme amendment to change Reserve 27008 to "Parks and Recreation" for inclusion in the Park. (DPI) [High]**

4. **Progress the proposed land swap of Lot 1 for Pt lot 4 Mandurah Road, west of Paganoni Swamp for inclusion in the Park. (DPI) [High]**

5. **Progress the inclusion of land south of Paganoni Swamp at Lakelands in the Park. (DPI, Department of Conservation and Land Management) [High]**

6. **Create or transfer reserves to be vested in the relevant managing agency using Table 1 and Figure 4 as a guide. (WAPC, DPI, CCWA, Department of Conservation and Land Management, RCRB, DSR) [High]**

7. **Consider management orders for reserves to be vested in the City of Rockingham requiring compliance with this Plan. (DPI) [Medium]**

8. **Create road reserves for the western portion of Point Peron Road, Memorial Drive and Lease Road, and transfer them to the City of Rockingham. (DPI, RCRB, CoR) [High]**

9. **Investigate the closure of road reserves within the Park considered unnecessary by the planning and management agencies for inclusion into the gazetted area of the Park. (Department of Conservation and Land Management, CoR, DPI) [Medium]**

10. **Seek to acquire the remainder of the private land within the Park as soon as practicable from willing landowners. (WAPC) [High]**

11. **Investigate the potential for Metropolitan Region Scheme amendments for lands currently reserved for "Public Purposes" at Cape Peron (excluding the wastewater treatment plant) and Lark Hill, to be changed to "Parks and Recreation". (DPI, Department of Conservation and Land Management) [Ongoing]**

## 8. Legislative Amendments and Interim Management

*The objectives are to provide for the long-term legislative protection of the Park under the Conservation and Land Management Act 1984 and to ensure that interim management arrangements facilitate appropriate management of the Park.*

### INTERIM MANAGEMENT ARRANGEMENTS

Prior to the gazettal of the final Plan and transfer of lands to the appropriate managing agencies, there is a need to clearly define interim management arrangements between the agencies involved managing land in the Park.

The Department of Conservation and Land Management will coordinate the interim management of Rockingham Lakes Regional Park under management agreements prepared for Crown reserves and WAPC-owned freehold land.

**Interim management of WAPC-owned freehold land**

The management agreement for WAPC-owned freehold land is in the form of a Section 16 agreement under the *Conservation and Land Management Act 1984*. Section 16 of the Act allows the Department to enter into formal agreements for the management of private land. The WAPC and Department of Conservation and Land Management have a Section 16 agreement that covers land owned by the WAPC, except areas currently under lease. The agreement will stand until the land is transferred to the Conservation Commission of Western Australia or the City of Rockingham.

**Interim management of Crown reserves, unallocated Crown land and freehold land owned by government agencies**

The Department of Conservation and Land Management will manage land vested in the Recreation Camps and Reserve Board in the interim, according to a management agreement.

The City of Rockingham will be responsible for managing lands vested in it, in accordance with the objectives of this plan. An overall integrated approach to the interim management of Rockingham Lakes Regional Park will be coordinated by the Department of Conservation and Land Management.

**Interim arrangements on private property**

Where organisations or individuals hold land as private property, the owner is responsible for its management. The Department of Conservation and Land Management may seek formal management arrangements with private landowners in the Park.

### LEGISLATIVE AMENDMENTS

The *Conservation and Land Management Act 1984* will need to be altered to specifically include the management of regional parks. The management of regional parks could be included as a function of the Department of Conservation and Land Management.

**Strategies**

1. **Implement the Section 16 Agreement under the *Conservation and Land Management Act 1984* with the WAPC. (Department of Conservation and Land Management, WAPC) [ High]**

2. **Implement the management agreement for interim park management between the Department of Conservation and Land Management and the Recreation Camps and Reserve Board. (Department of Conservation and Land Management, DSR, RCRB) [High]**

3. **Amend the *Conservation and Land Management Act 1984* to provide for regional parks. (Department of Conservation and Land Management) [Medium]**

## 9. Park Management Zones

*The objective is to adopt a management zoning system that seeks to protect conservation values, provides for appropriate recreation and other uses, and provides for efficient management of the Park.*

Management zones are a framework for protecting the Park by identifying areas of conservation and recreation value, and determining appropriate uses and activities. The aim is to minimise existing and potential conflicts between uses and activities. Management zones provide a broad guide to the public 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 will also help to communicate management intentions to the public.

The management zones and areas for the Park are illustrated in Figure 4. The zones provide a guide for the future vesting and tenure arrangements of Park areas, however they should not be used as a detailed schedule for changing land tenure arrangements in the Park.

Five zones have been identified for managing the Park:

a) conservation and protection;
b) natural environment use;
c) recreation;
d) infrastructure and services; and
e) area subject to further planning.

Refer to Table 1 for the management emphasis and acceptable uses and facilities within each zone.

The zoning scheme does not direct the management of privately owned freehold land held by individuals or organisations in the Park. However, where the land is acquired by the WAPC, management will be in accordance with the Plan's park management zones.

**Strategy**

1. **Base future management of the Park on the zoning plan. (Department of Conservation and Land Management, CoR) [Ongoing]**

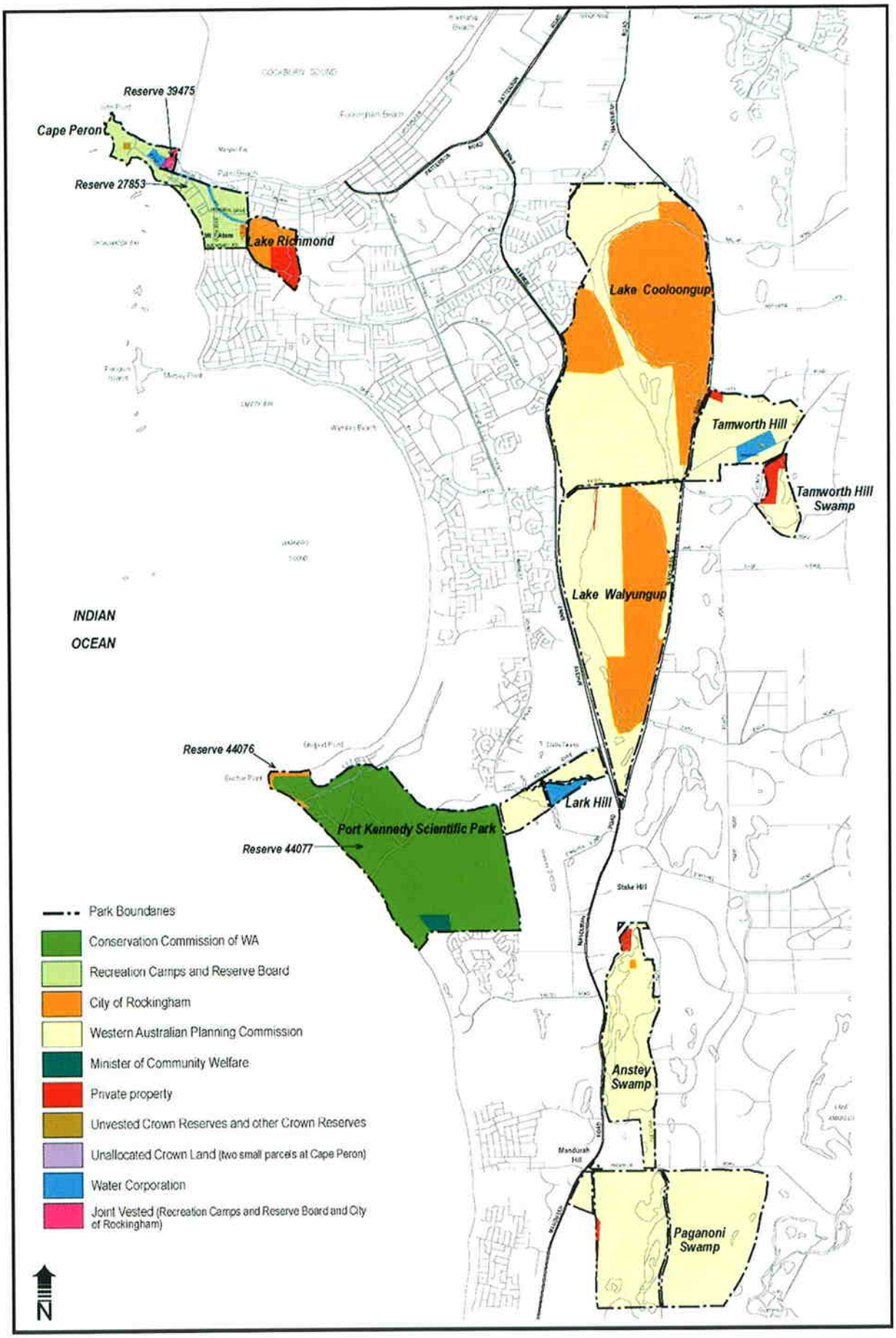


**Figure 3 - Existing Land Tenure and Park Boundary**

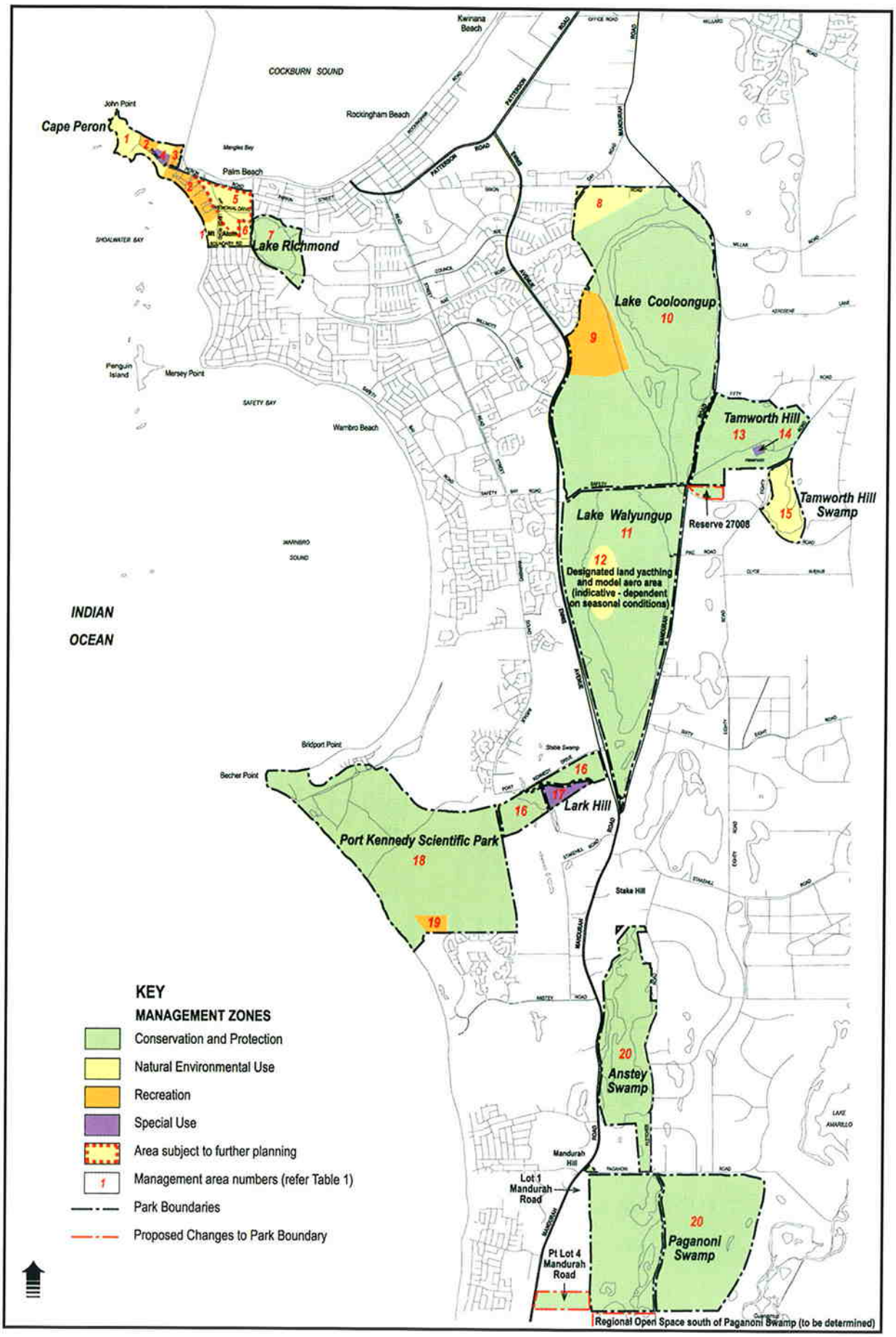


**Figure 4 - Management Zones and Areas**

**Table 1 - Management Zones and Future Tenure Arrangements**

| Management Zone | Plan Area | Management Agency | Reserve Purpose[1] | Management Emphasis | Acceptable Uses and Facilities |
|---|---|---|---|---|---|
| **Conservation and Protection** | 7 | CoR | Conservation and Public Recreation | The management emphasis of this zone is to protect and where possible enhance the conservation values (biota and heritage) as well as the landscape qualities of the Park. Priority will be given to restoring and maintaining the natural state of conservation and protection areas. Visible evidence of management will be minimal. | Public access restricted to nature trails, boardwalks, observation platforms, and cycle paths primarily for through access. Some facilities acceptable in certain locations (see Section 28 - Recreation Masterplan). Unauthorised vehicles and water-craft prohibited. Rehabilitation of vegetation and habitat protection will be undertaken. Education, interpretation and research uses allowed. |
| | 10 | DCLM | Conservation Park | | |
| | 11 | DCLM | Conservation Park | | |
| | 13 | DCLM | Conservation Park | | |
| | 16 | DCLM | Conservation Park | | |
| | 18 | DCLM | Nature Reserve - conservation of flora and fauna | | |
| | 20 | DCLM | Conservation Park | | |
| | 21 | DCLM | Conservation Park | | |
| **Natural Environment Uses** | 1 | DCLM | Conservation Park | The management emphasis is to provide for appropriate uses of the natural environment. Areas will be managed jointly for public use, conservation and enhancement of flora and fauna, and improvement of landscape qualities. Public use must be compatible with the assigned purpose of the relevant reserve. Visible evidence of management may be moderate to high. Management will encourage uses and develop facilities that promote conservation and education. | Public access primarily by walk trails and cycle paths. Approval has been given for model aeroplane and land yacht sailing club activities on a seasonal basis at Lake Walyungup, under conditions managed by the Department of Conservation and Land Management. Through access by vehicles along established roads is allowed. Some development of facilities may be necessary. These may include education nodes and facilities associated with visitor use. The provision of facilities will depend on the values of an area. Rehabilitation and habitat protection may be necessary. |
| | 6 | CoR | Environment Centre | | |
| | 8 | CoR | Conservation and Public Recreation | | |
| | 12 | DCLM | Conservation Park | | |
| | 15 | CoR | Conservation and Public Recreation | | |
| **Recreation** | 2 | DCLM | Conservation Park | The prime emphasis of management will be to provide a variety of recreation opportunities. The type and scale of facilities provided will depend on the values of any given area, community demand for recreation and the appropriate management of the Park. Management involves minimising the impact of visitor activities through the sensitive placement and provision of access and facilities as well as through the provision of information and interpretive material. Visible evidence of management may be high. | Public use may be high in these areas. Predominantly passive recreation pursuits, allowing for Park service and picnic facility development. Commercial concessions are considered appropriate within this management zone. Rehabilitation, landscaping and reticulation of areas may be necessary. |
| | 3 | CoR | Recreation, Parking and Sea Rescue Centre | | |
| | 9 | CoR | Recreation (golf course) | | |
| | 19 | Minister for Community Welfare | Government Requirements, Community Welfare Department | | |

*Continued over page...*

**Table 1 (continued) - Management Zones and Future Tenure Arrangements**

| Management Zone | Plan Area | Management Agency | Reserve Purpose[1] | Management Emphasis | Acceptable Uses and Facilities |
|---|---|---|---|---|---|
| **Infrastructure and Services** | 4 | Water Corporation | Sewerage treatment works | Whilst within the boundary of the Park, these areas will be managed for purposes other than parks and recreation. | Private lease or freehold land. No public access. Access for managing agencies as required. |
| | 14 | Water Corporation | Reservoir and access | | |
| | 17 | Water Corporation | Water | | |
| **Area subject to further planning** | 5 | DCLM | Not applicable | This management zone represents an emphasis on conserving the area's existing values. Long term management may depend on the outcomes of further planning and Government decisions on the proposed boat harbour at Mangles Bay. Should the boat harbour not proceed, the tenure and management zoning of this area will be reviewed. | Current uses and facilities will be maintained. Long term management may depend on the outcomes of further planning and Government decisions on the proposed boat harbour at Mangles Bay. Some development of facilities and infrastructure may be necessary. |

[1]Definitions of reserve purpose for reserves vested in the Conservation Commission of Western Australia and managed by the Department of Conservation and Land Management under the *Conservation and Land Management Act 1984*:

- Conservation Parks are reserves established to meet as much of the demand for recreation by members of the public as is consistent with the proper maintenance and restoration of the natural environment, the protection of indigenous flora and fauna and the preservation of any feature of archaeological, historic or scientific interest;
- Conservation of flora and fauna or Conservation of flora, fauna and water are designated reserve purposes for nature reserves. Nature reserves are established to maintain and restore the natural environment, and to protect, care for, and promote the study of, indigenous flora and fauna, and to preserve any feature of archaeological, historic or scientific interest.

The purpose of reserves vested in the City of Rockingham, Minister for Community Welfare and Water Corporation depends on the reason for their gazettal.

## 10. Integrated Management of the Park

*The objective is to provide for the effective involvement of both the managing agencies and the community in the management of the Park.*

### THE PARK MANAGEMENT STRUCTURE

The joint managers of the Park are the Department of Conservation and Land Management and the City of Rockingham. Their areas of responsibility are set out in the previous section on management zones (Table 1). It is proposed that once gazetted, management will be in accordance with the strategies outlined in this Plan.

The State government considers the Department of Conservation and Land Management the most appropriate agency to provide a strong integrated framework for management of complex conservation and recreation areas. The Department is responsible for managing areas of the Park vested in the Conservation Commission of Western Australia and for the overall coordination of management. The City of Rockingham will manage areas of the Park vested in it, in accordance with the strategies outlined in this Plan. Responsibility for overall planning such as changes to the MRS for regional parks, as well as the acquisition of private land within the Park, is retained by the WAPC.

Close co-operation is required by the management agencies and the community for this Plan to be implemented efficiently and effectively. Management decisions will involve input and negotiation between the land management agencies. Where appropriate, joint working parties comprising representatives from Department of Conservation and Land Management and the City of Rockingham will be established to facilitate the preparation of detailed subsidiary plans for the Park. The different levels of planning are illustrated in Figure 1. Subsidiary plans will be prepared in consultation with the community.

There is a strong interest by Aboriginal people to be involved in the management of conservation estate in Western Australia and to strengthen cultural ties to the land. By working together with Aboriginal people to care for the land, there will be great benefits for the preservation of heritage and conservation of the environment, as well as for cross-cultural awareness.

The State Government has shown a commitment to joint management arrangements for conservation reserves with traditional owners. A draft working paper outlining options for ownership, administration and joint management of conservation lands in Western Australia was released for public comment in June 2003. This paper includes options for the management of conservation reserves, irrespective of the status of Native Title.

#### A common management direction

The establishment of a management structure, common goals and agreement on priorities are necessary for safeguarding the Park where a number of management authorities, the general public and interest groups are involved. This Plan has been written cooperatively by the Park managers, and comments are being sought from the public on the draft in order to establish a common management direction. Community involvement and community education are important components in achieving the management goals set out in this Plan.

### INTEGRATED LAND USE PLANNING FOR AREAS ADJACENT TO THE PARK

Many impacts and threatening processes on the Park emanate from surrounding land uses and activities, particularly from within the catchments of the Park's wetlands.

Planning for areas surrounding the Park is determined at both the State and local level. At the State level, the Western Australian Planning Commission is responsible for administering the Metropolitan Region Scheme (MRS). The MRS directs land use in the Perth metropolitan area by defining the future use of land, and dividing it into broad zones and reservations.

At the local level, the MRS requires local government town planning schemes to provide detailed plans for their part of the region. These town-planning schemes must be consistent with the MRS.

It is not the intent of this Plan to provide strategies to guide land uses and activities outside of the boundary of the Park. Planning mechanisms such as the MRS and local government town planning schemes as well as environmental assessment procedures have been established to guide land use decisions. Land use planning within the catchments of the Park needs to consider the potential adverse environmental impacts on the Park, and in particular, the Park's wetlands. Planning and environmental assessment authorities should discourage adjacent land-use practices that may lead to the leaching and run-off of nutrients and pollutants into the wetland system, or other unacceptable impacts on the values of the Park.

#### Strategies

1. **Establish, where appropriate, joint working parties representing the relevant managing agencies for subsidiary and other implementation plans. (Department of Conservation and Land Management, DSR, CoR) [High]**

2. **Engage the community in contributing to the preparation of subsidiary plans and the management of the Park. (Department of Conservation and Land Management, CoR) [High]**

## 11. Key Performance Indicators

*The objective is to set key performance indicators in order to measure the overall effectiveness or otherwise of management in relation to protection and enhancement of Park values.*

Defining key performance indicators in management plans reflects the need for the Park managers to take an outcome-based approach from which the effectiveness of management can be assessed.

Key performance indicators do not cover all objectives or strategies, but they have been selected to give a strategic indication of how well the values of the Park are being maintained through the implementation of key objectives and strategies. Key performance indicators therefore relate specifically to the key ecological and social values of the Park (see Table 2).

The key objectives and key performance indicators for Rockingham Lakes Regional Park are consistent with the Department of Conservation and Land Management's strategic directions, which are:

1. conserving biodiversity;
2. creating sustainable community benefits;
3. maintaining community involvement and support;
4. improving the way we do business (Department of Conservation and Land Management, 2002) (see Table 2).

Key performance indicators underpin the audit process of this Plan (see Section 47 - Performance Assessment).

**Strategies**

1. **Establish baseline information to initiate the process of monitoring the key performance indicators by implementing the key management strategies. (Department of Conservation and Land Management) [High]**

2. **Develop an integrated program of survey, research and monitoring within the Park, focusing on the key performance indicators. (Department of Conservation and Land Management, CoR [High]**

3. **Audit and measure the overall effectiveness of Park management based on the key performance indicators. (Conservation Commission of Western Australia, Department of Conservation and Land Management) [Ongoing]**

**Table 2 - Performance Assessment**

| Key Values | Key Objectives | Key Performance Indicators | Key Management Strategies<br>Establish baseline information to initiate the process of monitoring the key performance indicators. | Timeline for Key Management Strategies |
|---|---|---|---|---|
| Department of Conservation and Land Management strategic direction: *Conserving biodiversity* | | | | |
| Vegetation communities in the Park are representative of communities once widespread on the Swan Coastal Plain but now significantly decreased in distribution and condition. | To protect, conserve, rehabilitate and restore local and culturally significant flora and vegetation in the Park. | ▪ The range of vegetation communities is maintained.<br>▪ The abundance and distribution of priority weed species are reduced. | 16.3 Develop and implement a targeted and integrated monitoring program of bushland condition, changes to vegetation communities and weed proliferation.<br><br>19.1 Prepare and implement a weed management plan in accordance with the *Weed Plan for Western Australia* and *Environmental Weed Strategy for Western Australia*. The plan will:<br>▪ assess bushland condition;<br>▪ prioritise and control weed species according to invasiveness, distribution and environmental impacts;<br>▪ assess changes to vegetation communities;<br>▪ identify areas largely free of weeds, maintain these areas, and conduct weed control works out from these areas;<br>▪ specify appropriate control techniques and timing for removal; and<br>▪ integrate with the rehabilitation plan (Section 22).<br><br>22.1 Prepare and implement a rehabilitation plan for the Park that prioritises proposed works. | To be prepared prior to the five year audit.<br><br>To be prepared within two years of the release of the Draft Management Plan.<br><br>To be prepared within two years of the release of the Draft Management Plan. |
| The presence of "critically endangered" Threatened Ecological Communities, that are of limited distribution in other places. | To protect, conserve, rehabilitate and restore the Threatened Ecological Communities. | ▪ The status of the Threatened Ecological Communities is improved. | 17.1 Finalise and implement Interim Recovery Plans for the Threatened Ecological Communities in the Park. | To be completed prior to the five year audit. |
| The diverse coastal, wetland and upland habitats of Rockingham Lakes support a variety of indigenous fauna species. | To maintain the diversity of indigenous fauna species in the Park and, if feasible, reintroduce species lost from the Park. | ▪ The species diversity of indigenous fauna populations is maintained. | 18.1 Develop and implement a program for fauna management within the Park. The program will:<br>▪ establish baseline information to initiate selected fauna monitoring; and<br>▪ specify appropriate management actions for fauna and habitat protection. | To be prepared prior to the five year audit. |
| The Rockingham-Becher Plain is a unique geomorphic formation with international significance. | To protect and conserve the existing geomorphic structure of the Rockingham-Becher Plain. | ▪ Landscape linkages that preserve geomorphic features are maintained. | 7.1 Adopt the Park boundary as shown on Figure 3. The boundary will be modified should additional lands be included in the Park.<br><br>7.10 Investigate the potential for Metropolitan Region Scheme amendments for lands currently reserved for "Public Purposes" at Cape Peron (excluding the wastewater treatment plant) and Lark Hill, to be changed to "Parks and Recreation". | Immediately.<br><br>To be undertaken prior to the ten year audit. |

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**Table 2 (continued) - Performance Assessment**

| Key Values | Key Objectives | Key Performance Indicators | Key Management Strategies<br>Establish baseline information to initiate the process of monitoring the key performance indicators. | Timeline for Key Management Strategies |
|---|---|---|---|---|
| Department of Conservation and Land Management strategic direction: *Creating sustainable community benefits* | | | | |
| Rockingham Lakes has a diversity of settings which provides for a range of recreational opportunities in close proximity to urban areas. | To ensure that the level of visitor use and behaviour is sustainable and minimises conflict with other Park visitors and values. | ▪ Visitor numbers increase subject to maintaining an overall positive trend of visitor satisfaction. | 27.1 Develop and implement a visitor survey program to gain an understanding of visitor use, numbers and satisfaction within the Park. Use the Department of Conservation and Land Management's VISTAT as a basis for the program.<br><br>27.2 Implement and periodically update the Regional Park Communication Plan. The plan provides direction on:<br>▪ community education;<br>▪ community involvement; and<br>▪ interpretive strategies and techniques.<br><br>28.1 Implement the Recreation Masterplan that allocates appropriate facilities and services to those areas of the Park best able to accommodate them in a sustainable manner. | To be prepared prior to the five year audit.<br><br>Ongoing.<br><br>Access and circulation aspects of the Masterplan to be completed prior to the ten year audit. |
| The opportunity to recreate safely in the Park. | To take all reasonable and practical steps to ensure the safety of visitors in the Park. | ▪ High risk sites or facilities in the Park are removed or mitigated. | 33.1 Implement the visitor risk management program to ensure procedures are developed to manage and monitor all known risks. | Ongoing. |
| Department of Conservation and Land Management strategic direction: *Maintaining community involvement and support* and *improving the way the Department of Conservation and Land Management does business* | | | | |
| The Park is a community asset. | To provide for the effective involvement of both the managing agencies and the community in the management of the Park. | ▪ The community is effectively involved in the planning and management of the Park. | 42.2 Maintain active liaison with community groups involved in the Park. | Ongoing. |
| The Park's conservation, recreation and landscape values. | To ensure that the values of the Park are protected by security of tenure and reserve purpose. | ▪ Appropriate land tenure arrangements are established for the new reserves within the Park. | 7.5 Create reserves to be vested in the relevant managing agency using Table 1 and Figure 4 as a guide. | To be completed prior to the ten year audit. |

# C. CONSERVATION

## 12. Conservation Goal

### CONSERVATION GOAL

Protect, conserve and enhance the Park's biota and natural ecosystems as well as its physical, cultural and landscape resources, especially the Threatened Ecological Communities.

## 13. Geomorphology and Geology

*The objective is to protect and conserve the existing geomorphic structure and soil associations of the Park.*

At Rockingham, the rise and fall of the landmass and sea levels have been recorded in a series of past shorelines that, together with climatic and oceanic processes, have contributed to the unique landforms and soil characteristics of the Park.

### GEOMORPHOLOGY

The Park lies on two major geomorphic landforms: the Quindalup Dune System and the Spearwood Dune System (Tingay and Associates, 1996; Government of Western Australia, 2000).

The Quindalup Dune System is a relatively recent landform that occurs along the Western Australian coast from Dongara to Geographe Bay. It comprises marine sands and a variety of dune types as a result of variation in climate, geology, regional geomorphology, coastal processes and vegetation cover.

Within the Park, the Quindalup Dune System is made up of Safety Bay Sands, which forms a distinct and significant geomorphic unit known as the Rockingham-Becher Plain (Gozzard, 1983, Tingay and Associates, 1996). The Rockingham-Becher Plain consists of a series of parallel sand ridges with intervening poorly-developed swales. The parallel dunes along the coast mark the changing positions of earlier coastlines. The plain is significant because it provides one of the best examples in the world of sand accumulation and stratigraphic evolution over the Holocene period (7,000 years to present) (Searle *et al.*, 1998). Consequently, it has been possible to establish the history of shoreline growth, sea level movement, soil development and wetland development through study of the plain (Woods, 1988). Cape Peron, Port Kennedy, Lark Hill, Lakes Richmond, Cooloongup and Walyungup are all located within the Rockingham-Becher Plain.

In addition to the unique Rockingham-Becher Plain, the Park contains the interesting geomorphic features of Cape Peron and Becher Point within the Quindalup Dune System. These promontories are cuspate forelands, which have formed where sand has been trapped and deposited in the lee of off-shore islands and reefs (Rippey and Rowland, 1995). Indeed, Cape Peron was an island that was progressively connected to the mainland as sand continued to accumulate (Rippey and Rowland, 1995).

The Spearwood Dune System is older than the Quindalup Dune System, and appears as a series of shore parallel ridges and depressions comprised of Tamala Limestone (Gozzard, 1983). This system occurs to the east of Lakes Cooloongup and Walyungup. Paganoni, Anstey and Tamworth Hill Swamps are wholly contained within this system.

### GEOLOGY

The surface geology of the Park comprises various sediments from marine and estuarine origin deposited during the Pleistocene (1.8 million to 7,000 years before present) and Holocene periods (7,000 years to present).

In general, the soils in the western parts of the Park are typical of the Quindalup Dune System. They are calcareous, having been built up from marine deposits, and are deficient in trace elements (Woods, 1988). The most extensive geological unit is the Safety Bay Sands, which covers Cape Peron, Port Kennedy, Lark Hill and is also dominant around Lakes Richmond, Cooloongup and Walyungup. In places, this unit overlies Becher Sands and Tamala Limestone formation (Woods, 1988).

Soils of the Spearwood Dune System are commonly derived from Tamala Limestone. Tamala Limestone was deposited around 100,000 years before present, and the sediments have since been cemented into porous limestone (Woods, 1988). Tamala Limestone is visible on the surface at Tamworth Hill Swamp (Tingay and Associates, 1996).

Wetlands within the Park also occur on Holocene swamp deposits and in the case of Lakes Cooloongup and Walyungup and Lake Richmond, on lagoonal and estuarine deposits, which reflects their origin.

**Erosion from uncontrolled access**
Uncontrolled access to coastal areas may denude vegetation, which opens soils to accelerated levels of erosion. This may be effectively controlled by constructing access paths, fencing, rehabilitating denuded dune areas with native vegetation, and using wood chipped mulch, coconut mesh mats or brushing with tree prunings to stabilise sand. This is discussed further in regards to visitor access (Section 31).

**Strategy**

1. **Prepare specific work plans for areas at risk from erosion prior to undertaking works. (Infrastructure Providers, CoR, Department of Conservation and Land Management) [Ongoing]**

## 14. The Coast and Foreshore

*The objective is to maintain and improve the ecological condition of the coast adjoining the Park.*

Climatic and oceanic forces shift sediments and form and rework landforms. These changes to the coastline adjoining the Park may have implications for management.

The proximity of the Shoalwater Islands Marine Park increases the opportunity for completing research and understanding of local coastal processes and ecosystems (Tingay and Associates, 1997).

### WINDS, WAVES AND SURFACE CURRENTS

Wind is an essential element in wave generation and water circulation (currents and eddies). For the much of the year, winds in the coastal areas of Rockingham are offshore in the mornings and evenings and onshore in the afternoon. In the summer months, winds from the south-west are dominant, while in winter, dominant winds are from the north-west, west and south-west (Woods, 1988).

Along with winds, waves are drivers of coastal processes. Their energy is affected and dissipated by the shape and composition of the shore and presence or absence of longshore sandbars, islands and reefs (Beer, 1997).

Offshore islands and reef systems substantially protect Shoalwater Bay and Warnbro Sound from wind and wave energy. This limits sediment movement in and out of Shoalwater Bay (Green, 1997).

Surface currents are formed by the wind blowing over the surface of the ocean. Dominant west to south-westerly winds frequently generate a northerly current, which interacts with wave energy to move beach sand in a northerly direction.

### SEDIMENT MOVEMENT

Winds, waves and currents all influence sediment movement along a shoreline and on- and off-shore, causing some areas to erode (lose sand) and others to accrete (gain sand). Geographical features such as points and bays can trap or restrict the movement of sand. Similarly, artificial structures in the coastal zone affect the flow of sediment.

Winds, waves and currents along the coast of Western Australia transport large quantities of sand. Southerly to westerly winds create a predominantly northward long-shore drift. Generally, erosion occurs on south-west facing coasts, such as south of Becher Point, with sand being deposited on the leeward side of forelands and rocky promontories, such as on the north side of Becher Point and Cape Peron. This northerly longshore drift can be reversed and in some instances counteracted during winter storms (Tingay and Associates, 1996; Rippey and Roland, 1995; Woods, 1988).

**Erosion and Accretion**
As a naturally occurring process, marine erosion is generally not considered a management issue, unless it threatens the values of the Park, visitor safety or built facilities and infrastructure. Similarly, accretion is not generally a management concern, except when considering the placement of visitor facilities in the Park.

Shoreline movement and sediment transport patterns affecting the two coastal areas of the Park (Cape Peron and Port Kennedy) are illustrated in Figure 5 and are described below.

The northern side of Cape Peron has accreted substantially: a distance of 72 metres between 1942 and 1994 at the most significant point (Department for Planning and Infrastructure, undated). This sediment would usually move eastwards along the Mangles Bay coast, however the construction of a boat ramp and Garden Island causeway has interrupted this flow. Sediment accumulates in the marine area between the boat ramp and Garden Island causeway. Agreement has been reached with the Department of Conservation and Land Management for the City of Rockingham to extract sand from this area and to stockpile the sand on Reserve 39475, for use in other areas.

Marine erosion is occurring on the southern side of Cape Peron (CoastWise, 2001), where it has, and continues to, threaten some of the recreation camps. Sustained erosion of this area in the longer term may cause a risk to existing infrastructure, such as roads and Water Corporation infrastructure.

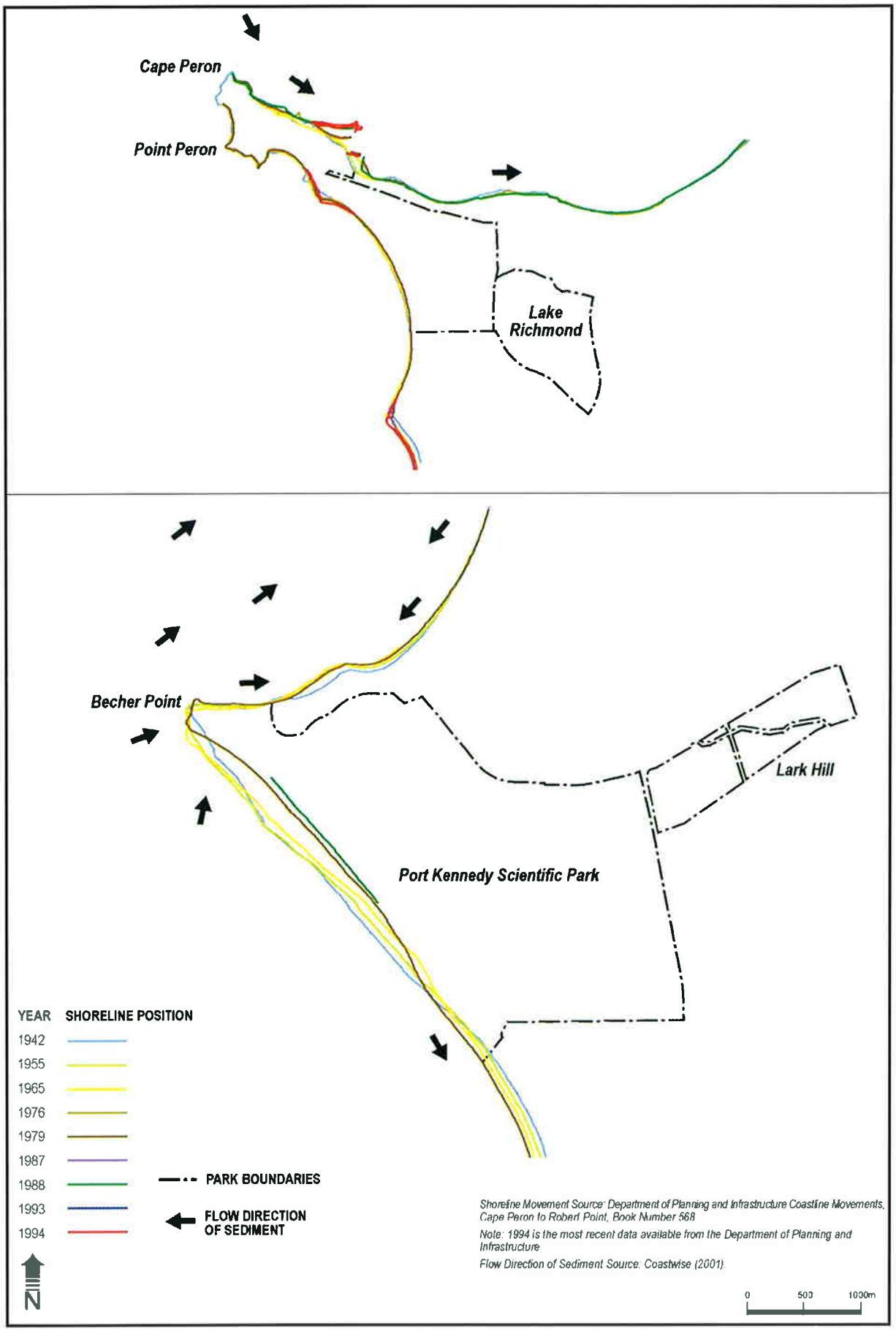



**Figure 5 - Conceptual view of shoreline movement**

The northern side of Becher Point has generally been accreting. However the southern face of Becher Point is eroding at a significant rate of approximately 5 to 6 metres each year (Rippey and Rowland, 1995). The most pronounced recession has occurred immediately south of the point, where the shoreline moved eastwards by 407 metres over the period between 1942 and 1994 (Department for Planning and Infrastructure, undated). However, this does not currently present any management problems.

**Strategy**

1. **Ensure long-term planning for the Park and developments within the coastal zone considers the likelihood and implications of coastal erosion and accretion. (Infrastructure Providers, CoR, Department of Conservation and Land Management) [Ongoing]**

## 15. Hydrology and Wetlands

*The objective is to protect and enhance wetland environments within the Park.*

### HYDROLOGY

Fresh groundwater in the Rockingham region occurs in the Safety Bay and Rockingham aquifers.

The Safety Bay aquifer is shallow and unconfined, and forms an elongated mound midway between the coast and Lakes Cooloongup and Walyungup (Woods, 1988). The groundwater flows both towards the coast and the lakes. In some sections near the two lakes the groundwater is bordered by a clay barrier (Bowman Bishaw Gorham, 1997). Overall the aquifer covers an area of approximately 50 square kilometres, and contains potable water.

The deeper Rockingham aquifer, which is separated from the Safety Bay Sands by a thin (1 to 2 metres) layer of clay or indurated limestone, also contains potable water (Coastwise, 2001).

### WETLANDS

Wetlands are a valuable environmental asset because they support diverse ecosystems and contribute to the State's biodiversity. Most wetlands on the Swan Coastal Plain have been dramatically modified by surrounding land uses and development.

Wetlands in the south-west of Western Australia are influenced greatly by the Mediterranean climate; it is a normal occurrence that water levels rise during wetter winter months and dramatically decrease in summer. This seasonal hydrological cycle creates biological, chemical and physical characteristics that are unique to the Swan Coastal Plain wetlands.

The Park contains a number of wetlands, including Lake Richmond, Lake Cooloongup, Lake Walyungup, Tamworth Hill Swamp, Becher wetlands at Port Kennedy, Anstey Swamp and Paganoni Swamp. These range in size, salinity, permanence and depth.

**Significance of Wetlands in the Park**

The wetlands in the Park are recognised and protected at state, national and international levels. At the state level, all wetlands within the Park are Conservation Category Wetlands. These wetlands support a high level of ecological attributes and functions (Government of Western Australia, 2000). In addition, Lake Richmond, Lake Cooloongup, Lake Walyungup, Tamworth Hill Swamp, Anstey Swamp and Paganoni Swamp are protected under the State's *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP). Wetlands identified under this policy are protected from unauthorised effluent disposal, filling, mining and drainage (Government of Western Australia, 2000).

The Australian Heritage Commission has listed Lake Richmond, Lakes Cooloongup and Walyungup and surrounds, Paganoni Swamp and the Port Kennedy area on the Register of the National Estate as areas that have heritage values and that should be conserved (Australian Heritage Commission, 2003).

The Becher wetlands are nominated as "wetlands of international importance" under the Ramsar Convention and are therefore subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (Ramsar, 2002; also see Glossary). These wetlands are also nominated on the Directory of Important Wetlands in Australia (Environment Australia, 2001). The directory identifies nationally important wetlands across Australia and provides information on the wetlands and the dependent flora and fauna.

Lakes Richmond, Cooloongup and Walyungup are locations where bird species identified under the Japan Australia Migratory Bird Agreement (JAMBA) and the China Australia Migratory Bird Agreement (CAMBA) are known to inhabit. These bird species are also subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

**Lake Richmond**

Lake Richmond is a perennial freshwater lake that is perched about one metre above sea level, and is up to 15 metres deep (Australian Heritage Commission, 2003). The Lake evolved from a marine embayment and historically contained saline water. However in the mid to late 1960s, drains were installed for surface and storm water discharge from the surrounding Rockingham and Safety Bay area and this has contributed to the decreasing salinity of water in the Lake (Goodale *et al.*, 1998; Arnold, 1990). Currently there are three inlets to the Lake and one outlet drain that flows to the ocean. Sluice gates have been installed

on the outlet drain to prevent salt water intrusion (Tingay and Associates, 1996).

Lake Richmond provides a habitat for a Threatened Ecological Community of Thrombolites (see Section 17). It is thought that an increase in salinity would likely have more significant impacts on the function of the Thrombolites than a decrease in salinity (English, *pers. comm.*, 2002).

**Lakes Cooloongup and Walyungup**
Lakes Cooloongup and Walyungup are both shallow, saline lakes that were once connected to the ocean. The water levels in both of these wetlands are dependent on groundwater flows and rainfall, with depths ranging from 0.5 to 3.5 metres (the deepest areas being in the permanent pools of Lake Walyungup). Lake Cooloongup is significantly less saline than Lake Walyungup, however both lakes are thought to be increasing in salinity (Tingay, 1977; Australian Heritage Commission, 2003).

The limestone ridge to the east, the dunes to the west and the dunes separating the lakes act as groundwater divides, such that each lake has a separate hydrological system. Lake Cooloongup has a saline groundwater outflow towards the sea, while Lake Walyungup is a closed system with evapotranspiration the only form of discharge (Tingay and Associates, 1996). Each lake is surrounded by small drainage basins. An interesting feature is the presence of small freshwater wetlands and seepages along the western edge of the lakes (Tingay and Associates, 1996).

**Becher Wetlands**
This suite of wetlands has been estimated as one of the youngest on the Swan Coastal Plain. The Becher wetlands at Port Kennedy comprise a number of small sumplands (seasonally inundated lowlands) and damplands (seasonally waterlogged lowlands) that are located within the dune swales, arranged roughly parallel to the coast. The wetlands are surface expressions of the groundwater.

The Becher wetlands are of conservation and scientific value because collectively they represent an evolutionary time sequence. The youngest wetlands are located near the coast, with progressively older wetlands further to the east. This provides an excellent record to compare the wetlands' characteristics as they evolve over time (Semeniuk Research Group, 1991).

**Tamworth Hill, Anstey and Paganoni Swamps**
Tamworth Hill, Anstey and Paganoni Swamps are part of the Stakehill Suite of wetlands, and may be described as sumplands or seasonally inundated lowlands (Hill *et al.*, 1996). Tamworth Hill is fresh water, whereas Anstey and Paganoni Swamps are fresh to brackish wetlands.

## THREATS TO WETLANDS AND GROUNDWATER

Key threats to the wetlands and/or groundwater of the Park include:
- pollution including eutrophication;
- hydrological changes;
- salination;
- impacts of surrounding developments;
- aquatic and environmental weeds (Section 17);
- insect pest control (Section 19);
- fire (Section 20); and
- aesthetic disruption (Section 22).

**Pollution including eutrophication**
All wetlands in the Park are susceptible to pollution because of their connection to groundwater and because they receive surface runoff from surrounding urban areas.

There is a high risk of groundwater contamination because the Safety Bay aquifer is unconfined and is recharged by rainfall (Woods, 1988). Pollutants such as chemicals, pesticides and excess nutrients from the Rockingham area may easily infiltrate the permeable Safety Bay Sands.

Pollutants may be carried to the wetlands by surface runoff. Lake Richmond is particularly at risk because it receives surface and stormwater runoff from three drains. The risk of nutrient enrichment and presence of other pollutants is recognised in the Interim Recovery Plan that is being developed for the Threatened Ecological Community of Thrombolites (discussed further in Section 17). The City of Rockingham has undertaken drainage improvement works along the Rockingham Main Drain to improve water quality entering Lake Richmond. This has occurred in conjunction with a community awareness strategy to reduce the amounts of domestic pollutants entering the drain. Environment Australia and the City of Rockingham jointly funded this initiative.

Pollutants may include compounds of nitrogen and phosphorus, suspended solids, oils and other hydrocarbons, pesticides, heavy metals, litter and other gross pollutants. The levels of many of these pollutants in runoff and groundwater are generally low, but the limited capacity of the wetlands to assimilate these pollutants is quickly exceeded.

Prior to European settlement the nutrient levels in the Park's wetlands would have been very low. The dark-coloured waters of most wetlands would have supported very low levels of phytoplankton activity and much of the wetland primary production would have been associated with the fringing wetland vegetation communities. However, the wetlands are now susceptible to eutrophication, where the build up of nitrogen and phosphorous may lead to blooms of blue-green algae. This can poison wildlife and support nuisance populations of midges.

Given their location in an urban setting, likely sources of pollutants to wetlands in the Park are garden fertilisers, herbicides and pesticides. Provision of community information regarding appropriate fertiliser, herbicide and pesticide use within catchment areas of the wetlands will help to reduce the nutrient inputs into the wetland system.

Reducing the inflow of pollutants to wetlands is a difficult management issue because the pollutants may originate from a range of sources within the catchment, and this requires an integrated approach by land managers. Retention basins may be an option for trapping nutrients and other pollutants before they enter the wetland ecosystem.

Should an algal bloom occur, the Department of Environment (DoE) and Health Department are to be notified. Tests will be undertaken to indicate if the bloom is toxic and appropriate management action will be undertaken, such as the installation of warning signs to advise of the risk and that contact with the algae should be avoided.

**Hydrological changes**

The hydrology of the Rockingham area has been changed by European settlement and has altered the wetland ecosystems in the Park, although the exact nature of these changes is largely unknown.

Significant areas of Rockingham were cleared in the mid-1800s for the timber industry and to make way for grazing and market gardening. Deep-rooted perennial natives that tapped into groundwater deep below the surface were replaced with shallow-rooted annual pasture species, which use less water. This likely caused an increase in groundwater levels. In addition, a continual increase in impermeable surfaces such as roads and buildings has lead to increased runoff and subsequent recharge to the groundwater.

Conversely, as groundwater is commonly used for irrigation of domestic gardens and public areas in Rockingham, there is a risk of over-pumping and a resultant decline in groundwater levels. This also has implications for wetland ecosystems that are fed by groundwater.

Changes to the hydrological cycle linked to groundwater or surface runoff can influence wetland flora and fauna. The germination, survival and composition of aquatic and riparian vegetation communities may be jeopardised by a change in water level or alteration to seasonal drying and inundation. Furthermore, changes to water levels may affect the chemical conditions in the wetland. These changes may in turn threaten the wildlife species that inhabit the wetland. Loss of some aquatic and riparian vegetation, which may filter and trap pollutants, can subsequently lead to an influx of nutrients.

The Becher wetlands are particularly sensitive to fluctuations in the hydrological regime because they are surface expressions of the groundwater. The superficial Safety Bay aquifer is a critical resource for sustaining the Threatened Ecological Community of sedgelands in Holocene dunes (Blyth, *pers. comm.*, 2003) (discussed further in Section 17).

Lake Richmond is also particularly susceptible to changes in water levels because of the three drains that flow into it. The flow of water into Lake Richmond is compensated by outflow through the sluice gates and ocean drain. There is a need to ensure that water level changes (either an increase or decrease) in the lake do not affect the Threatened Ecological Community of Thrombolites, as water level and quality are important determinants for their survival. This is addressed in the Interim Recovery Plan (as discussed in Section 17).

**Salination**

There is a salt water interface between the ocean and groundwater, which extends approximately 150m inland to the base of the Safety Bay aquifer. The lower portion of the Rockingham aquifer also contains salt water. The abstraction of groundwater could lead to an inland movement of the salt water interface and intrusion of salt water into fresh water. This has occurred on the Cape Peron peninsula, where some domestic bores in the vicinity are contaminated with salty water (Woods, 1988; Coastwise, 2001). A similar risk exists in the Port Kennedy-Lark Hill areas, where groundwater allocations are becoming increasingly committed.

Salination can affect wetland ecosystems adversely, as the indigenous flora and fauna may not be able to tolerate the change in conditions.

**Impacts of surrounding developments**

Urban development surrounding the Park may cause physical disturbance to wetlands. Drainage, excavation and filling works (including de-watering activities) either during or post- construction need to be managed. This can be achieved by ensuring appropriate conditions are placed on the proponents of developments when planning approvals are being sought.

There is a need for integrated catchment management to help manage and mitigate the effects of pollution, hydrological change, salination and surrounding land uses on wetlands in the Park.

**Strategies**

1. **Promote and adopt Integrated Catchment Management and Water-Sensitive Urban Design principles for managing water catchments affecting the Park. (CoR, DPI, DoE) [High]**

2. **Develop and implement a monitoring program for Lake Richmond, consistent with the Interim Recovery Plan for the Threatened Ecological Community of Thrombolites. (CoR, Department of Conservation and Land Management) [High]**

3. **Adopt management practices throughout the Park that do not add to the build up of nutrients and pollutants in the wetland systems, eg. planting, fertiliser and irrigation management practices based on minimal nutrient loss and irrigation run-off. (Department of Conservation and Land Management, CoR) [On-going]**

4. **Protect and re-establish reedbeds and fringing vegetation in disturbed areas as nutrient traps as well as wildlife habitats. (Department of Conservation and Land Management, CoR) [On-going]**

5. **Investigate the installation of retention basins at Lake Richmond to decrease nutrient inflow to the Lake (CoR, Water Corporation) [Medium]**

6. **Discourage land-use practices which lead to the leaching and run-off of nutrients and pollutants into the wetland system and encourage and facilitate the relocation of inappropriate land uses to more suitable locations. (DPI, CoR) [On-going]**

7. **Ensure appropriate planning conditions are placed on proponents of developments in or adjoining the Park to help ensure there are no adverse physical impacts, either during or post construction on wetlands in the Park. (Department of Conservation and Land Management, CoR, WAPC and DPI) [On-going]**

8. **Provide interpretive material to the community:**
   - **outlining the effects of pollution on the wetlands; and**
   - **appropriate use of fertilisers.**

   **(Department of Conservation and Land Management, CoR) [On-going]**

## 16. Flora and Vegetation

*The objective is to protect, conserve, rehabilitate and restore locally and regionally significant flora and vegetation communities in the Park.*

Vegetation in some areas of Rockingham Lakes Regional Park has been disturbed but other areas have remained intact as representatives of remnant vegetation communities. These remnants, which are present from the coast through to coastal plain wetlands, are important for their conservation values and for interpreting the sequence of vegetation that would once have been present over much of the southern Perth metropolitan area.

There is no record of Declared Rare Flora species in the Park, however a number of taxa are considered to have special significance as they are uncommon or at the limits of the species' range.

### FLORISTIC COMMUNITIES

A number of floristic community types have been defined for the Swan Coastal Plain bioregion. These floristic community types are based on analysis of detailed floristic data from a large number of quadrants located throughout the region (Gibson *et al.*, 1994 and subsequent work undertaken as part of *Bush Forever*, Government of Western Australia, 2000). Table 3 shows the floristic community types that occur in the Park.

**Table 3 - Floristic Community Types at Rockingham Lakes Regional Park**

| | |
|---|---|
| *Seasonal wetlands* | |
| 17 | *Melaleuca rhaphiophylla* seasonal wetlands |
| 19a | Sedgelands in Holocene dune swales |
| 19b | Woodlands over sedgelands in Holocene dune swales |
| *Upland communities* | |
| 21a | Central *Banksia attenuata - Eucalyptus marginata* woodlands |
| 24 | Northern Spearwood shrubs and woodlands |
| 25 | Southern *Eucalyptus gomphocephala – Agonis flexuosa* woodlands |
| *Upland communities centred on Quindalup Dunes* | |
| 29a | Coastal shrubs on shallow sands |
| 29b | Acacia shrublands on taller dunes |
| S13 | Northern *Olearia axillaris – Scaevola crassifolia* shrublands |
| S14 | *Spinifex longifolius* grassland and low shrubland |

Source: Adapted from Government of Western Australia, 2000.

Landforms, geology, soil age and type and proximity to the coast are all contributing factors that influence floristic community types (Gibson *et al.*, 1994).

For the purposes of this discussion, vegetation in the Park will be considered as seasonal wetland communities, upland communities and upland communities centred on Quindalup Dunes. The distribution of vegetation is illustrated in Figure 6.

**Seasonal Wetland Communities**

Most of the wetland vegetation in the Park is classified as floristic community types 17, 19a and 19b. These types occur around Lake Richmond, Lake Cooloongup, Lake Walyungup, Tamworth Hill Swamp, Anstey and Paganoni Swamps and the Becher wetlands at Port Kennedy.

Common species of community type 17 are Swamp Paperbarks (*Melaleuca rhaphiophylla*), Coast Saw-sedge (*Gahnia trifida*), *Lobelia alata*, Bare Twig-rush (*Baumea juncea*), *Lepidosperma longitudinale*, and Common Sowthistle (*Sonchus oleraceus*) (Gibson *et al.*, 1994).

Community types 19a and 19b are both classified as Threatened Ecological Communities that are "critically endangered". Typical and common native species in these communities are the shrubs Climbing Lignum (*Muehlenbeckia adpressa*), Golden Wreath Wattle (*Acacia saligna*) and Balga (*Xanthorrhoea preissii*) and herbs Bare Twig-rush (*Baumea juncea*), Knotted Club-rush (*Isolepis nodosa*), and *Poa porphyroclados* (Gibson *et al.*, 1994). Given their significant status, these communities are discussed in more detail in Section 17.

### Upland Communities

Upland plant communities are represented by floristic community types 21a, 24 and 25.

Woodlands dominated by Slender Banksia (*Banksia attenuata*) and Jarrah (*Eucalyptus marginata*) may be found at Paganoni Swamp.

Native Wisteria (*Hardenbergia comptoniana*), *Melaleuca acerosa*, *Phyllanthus calycinus* and Balga (*Xanthorrhoea preissii*) are common shrubs found around Lakes Cooloongup and Walyungup, Lark Hill and Paganoni Swamp.

Tall, open Tuart (*Eucalyptus gomphocephala*) forests are also common to the surrounds of Lakes Cooloongup and Walyungup, Tamworth Hill, Anstey and Paganoni Swamps. The moist soils support understorey species including Slender Banksia (*Banksia attenuata*). An overstorey of Swamp Banksia (*Banksia littoralis*) is situated at Lake Walyungup.

### Upland Communities centred on Quindalup Dunes

Foredune alliances to heath and shrublands on Quindalup dunes are represented by floristic community types 29a, 29b, S13 and S14. Surveys conducted by Goodale *et al.* (1998) and Bowman Bishaw Gorham (1994) indicate that common species found in predominantly coastal communities in the Park include: *Acanthocarpus preissii*; *Spinifex longifolius*; Coast Daisy Bush (*Olearia axillaris); Scaevola crassifolia*; *Jacksonia furcellata*; Golden Wreath Wattle (*Acacia saligna); Acacia cochlearis*; *Acacia lasiocarpa*; *Acacia rostellifera*; *Melaleuca acerosa;* Chenille Honeymyrtle *(Melaleuca huegelii);* Balga (*Xanthorrhoea preissii*); Two Leaf Hakea (*Hakea trifurcata*); and One-sided Bottlebrush (*Calothamnus quadrifidus*). Understorey species include Knotted Clubrush (*Isolepis nodosa*); *Lepidosperma angustifolium*; and Grey Cotton Heads (*Conostylis candicans*).

Species common to wind exposed dune environments around Lake Richmond were identified by Goodale *et al.* (1998). These included Coast Daisy Bush (*Olearia axillaris*), Berry Saltbush (*Rhagodia baccata*), Spyridium (*Spyridium globulosum*) and Prickle Lily (*Acanthocarpus preissii).*

## THREATS TO FLORA AND VEGETATION

The main threats to the flora and vegetation of the Park are:

- weeds (Section 19);
- wildfire (Section 20);
- plant diseases;
- insect borers; and
- urban interface issues and uncontrolled access by vehicles and pedestrians.

### Plant Diseases

Honey Fungus *(Armillaria luteobubalina)* occurs on coastal vegetation in the Quindalup and Spearwood Dune Systems and is one of the main diseases that threatens vegetation structure and communities within the Park. Up to 40% of coastal plant species are susceptible to Honey Fungus, including many of the dominant small trees and shrubs. Honey Fungus affects both the structure and composition of coastal dune vegetation by denuding large areas (Shearer *et al.* 1998).

Honey Fungus is present at Cape Peron and Lake Richmond. There is also a possibility that Honey Fungus could occur and affect vegetation species at Port Kennedy and various inland sections of the Park.

Although Honey Fungus occurs naturally in the south-west of Western Australia, its normally slow rate of spread by direct root contact may be exacerbated by the movement of infected root material associated with construction works or rehabilitation. The characteristic fruiting bodies generally grow in clumps on tree bases, stumps or roots, and appear in June/July each year. There are no known controls of the disease.

In comparison to Honey Fungus, Dieback (Phythopthora cinnamoni) is generally not found in the Quindalup Dune System on the coastal strip and is therefore not thought to be a major issue in most areas of the Park. However, Dieback may be an issue on the Spearwood Dune System and parts of Paganoni Swamp may be at risk of infection from Dieback.

### Insect borers

The native Tuart Longicorn Beetle *(Phoracantha impavida)* is a natural part of the Tuart ecosystem. This borer lays eggs in the upper branches of the Tuart and the larvae eat the cambium layer beneath the bark and thus ring-bark the branches leading to death of the limb. The tree can usually repair some damage by shooting from lower down, and by exuding sap, which engulfs the young larvae. Whilst a small level of insect attack is normal, repeated attack may ultimately cause the tree's death. Tuarts are more susceptible to borer attack when they are stressed.

This beetle has become an increasing threat over the last few years; the primary cause is likely to be a combination of environmental changes, including climate and fire frequency. Further research is required to understand this phenomenon and to determine appropriate control mechanisms.

### Urban interface issues and uncontrolled access

Maintaining the integrity of bushland habitats in urban areas raises many issues such as weed invasion, uncontrolled access, and rubbish-dumping. These issues are addressed in Sections 19, 31 and 34 respectively.

All native flora is protected by the *Wildlife Conservation Act 1950.* Incidences of wilful damage to vegetation in the Park will be investigated and appropriate action taken by the Department of Conservation and Land Management.

### Strategies

1. **Develop and implement a rehabilitation plan. The plan will include rehabilitation priorities and a detailed bushland condition assessment of the Park (Section 22). Special emphasis is to be placed on the Threatened Ecological Communities in the Park. (CoR, Department of Conservation and Land Management) [High]**

2. **Prepare and implement a weed control plan. This plan is to be integrated with the rehabilitation plan (Section 19). (CoR, Department of Conservation and Land Management) [High]**

3. **Develop and implement a targeted and integrated monitoring program of bushland condition, changes to vegetation communities and weed proliferation. (CoR, Department of Conservation and Land Management) [High]**

4. **Use local species for landscape and amenity plantings. If non-local species are required, they should not include invasive species. (Conservation and Land Management, CoR) [Ongoing]**

5. **Reduce the risk of introducing and spreading plant diseases in the Park by limiting access to areas sensitive to infection and by ensuring appropriate hygiene standards for machinery when undertaking works within the Park. Soil introduced to and being moved around the Park is to be free of disease. (CoR, Department of Conservation and Land Management) [Ongoing]**

6. **Reduce the frequency of wildfire, utilising strategies set out in Section 20. (CoR, Department of Conservation and Land Management) [Ongoing]**

7. **Establish a program to monitor the wood-boring beetle *Phoracantha impavida* and encourage research to understand the processes behind Tuart decline. (Department of Conservation and Land Management, Tuart Response Group, CoR) [Medium]**

8. **Provide information and interpretive material to the public that:**
   - **promotes an understanding and appreciation of the Park's flora and ecosystems; and**
   - **encourages the planting of local species in areas surrounding the Park (Section 43).**

   **(CoR, Department of Conservation and Land Management) [Ongoing]**

9. **Investigate any willful damage to vegetation in the Park and take appropriate action. (CoR, Department of Conservation and Land Management) [Ongoing]**

10. **Encourage the participation of volunteers, educational institutions and other organisations in research projects within the Park. (CoR, Department of Conservation and Land Management) [Medium]**

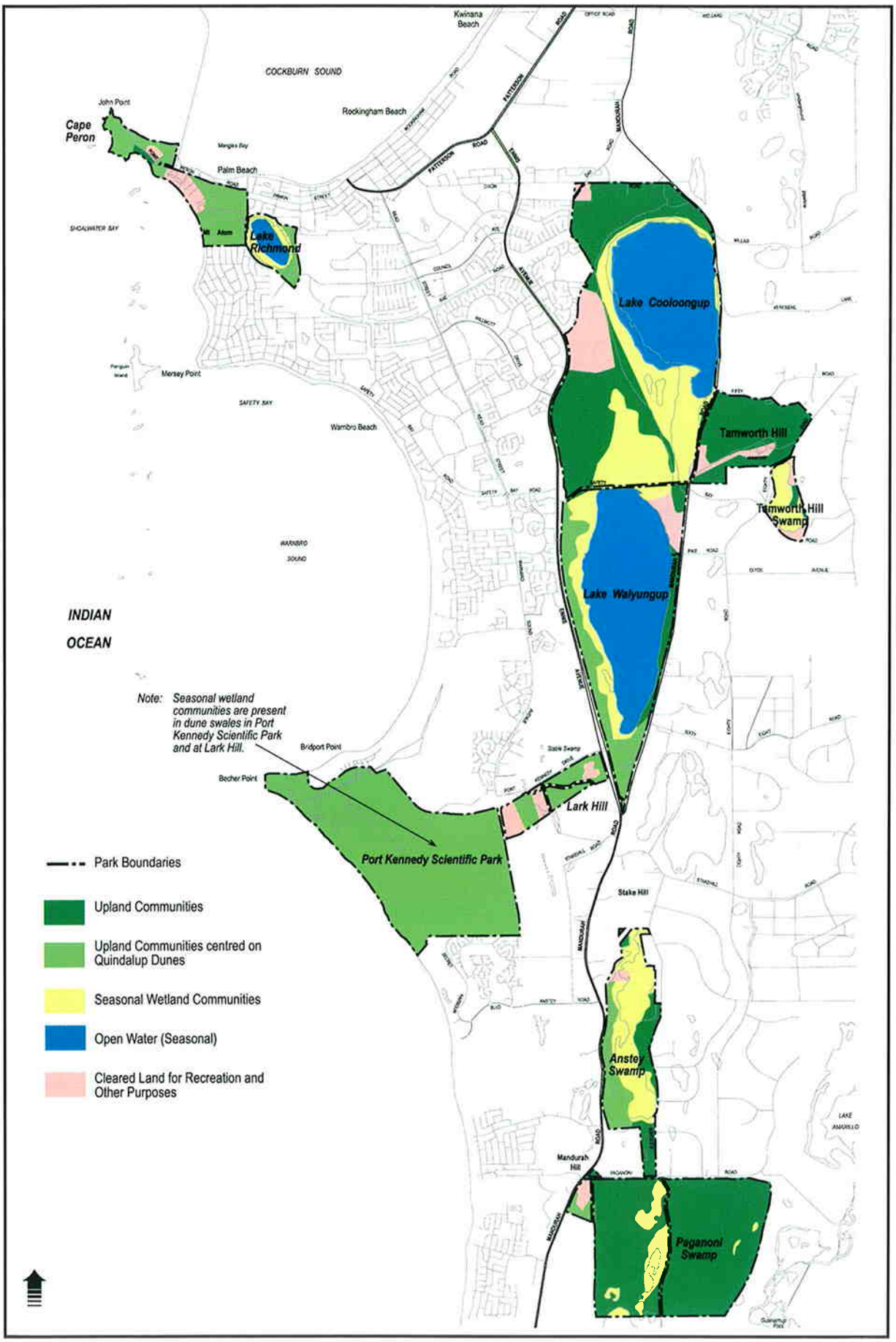



**Figure 6 – Indicative Vegetation Distribution**

## 17. Threatened Ecological Communities

*The objective is to maintain or improve the overall condition of the Threatened Ecological Communities within the Park.*

There are two Threatened Ecological Communities in the Park (see Glossary) which are discussed below. Both of these communities have been deemed "critically endangered". This signifies that each community has limited distribution and is facing severe modification or destruction throughout its range. The two Threatened Ecological Communities are listed as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and so receive additional recognition and protection.

### SEDGELANDS IN HOLOCENE DUNE SWALES

There are two components to the Holocene dune swales community: sedgelands in Holocene dune swales; and woodlands over sedgelands in Holocene dune swales (Government of Western Australia, 2000). The present known distribution of the communities is almost entirely within linear wetland depressions (swales) occurring between parallel sand ridges of the Rockingham - Becher Plain. Most of the occurrences of sedgelands in Holocene dunes do not have an overstorey of woodlands. Within the Park, communities of sedgeland occur in Port Kennedy Scientific Park and in the north west corner of Lake Walyungup. Woodlands over sedgeland communities occur around Lakes Cooloongup and Walyungup.

The Holocene dune swales community is significant not only because of its endangered status, but because it provides a unique record of wetland evolution and associated floral assemblages. There are examples of damplands and sumplands that formed 7,000 years ago, through to those that have been formed in the last 100 years (English, *pers. comm.*, 2002).

The primary determinant influencing the distribution, composition and characteristics of the sedgelands is water regime. The age of the wetland and proximity to the water table are related factors. It is unknown to what extent fire has influenced the present structure or composition of the community.

The actual assemblage of species varies between occurrences of the communities. Typical and common native species in the community are the shrubs *Muehlenbeckia adpressa, Acacia saligna* and *Xanthorrhoea preissii* and the herbs *Baumea juncea, Isolepis nodosa,* and *Poa porphyroclados* (Gibson *et al.*, 1994). Several weed species are found in this community but generally at low cover values.

Processes that have or may threaten the communities include:

- clearing of vegetation;
- hydrological changes;
- changes to groundwater quality;
- slashing of vegetation to clear unexploded ordnances;
- inappropriate fire regimes;
- increased weed invasion;
- grazing by rabbits; and
- erosion of coastal dunes.

The Western Australian Threatened Species and Communities Unit (Department of Conservation and Land Management) coordinates the development and implementation of recovery strategies that aim to address high impact pressures and threats to threatened communities such as sedgelands in Holocene dune swales. An Interim Recovery Plan, which addresses the above threatening processes, is currently in development for sedgelands in Holocene dune swales. This Plan includes occurrences of the communities outside of the Park.

### THROMBOLITES IN LAKE RICHMOND

Thrombolites are one of the three basic microbial structures which, along with Stromatolites, represent the oldest living organisms on earth. Thrombolites increased in abundance about 570 million years ago, whereas Stromatolites were most abundant between two billion and 600 million years ago. Thrombolites and Stromatolites are organo-sedimentary structures which are produced by the growth and metabolic activity of bottom-dwelling (or benthic) communities. They have similar external forms and sizes, although Thrombolites have a clotted internal framework while Stromatolites have laminated internal structures (Bowman Bishaw Gorham, 1999). Lake Richmond is one of the few places in the world where Thrombolites are found.

The Thrombolites of Lake Richmond are formed by complex associations of different types of bacteria and microalgae. They occur in an area about 15 metres wide in a rim around much of the Lake. Sunlight and fresh water rich in calcium, bicarbonate and carbonate are likely to be essential to the growth and survival of the Thrombolites. The source of calcium in the waters of Lake Richmond is probably groundwater that has passed through sand dunes that surround the lake (English, *pers. comm.*, 2002).

Other microbialite structures have been cited in Lakes Cooloongup and Walyungup, however these structures are no longer living (English, *pers. comm.*, 2002). Scientific study of these structures may assist in understanding the history of the Thrombolites in Lake Richmond.

The Thrombolites have been subject to historical and ongoing disturbance and threatening processes including:

- physical crushing by visitors;
- nutrient enrichment;
- alterations to groundwater throughflow or an increase in runoff, creating a reduction or increase in lake water levels, changes to lake hydrology or salt water intrusion;
- alterations to surrounding vegetation;
- smothering by weeds or sediment;
- dumping of rubbish; and
- risk of physical disturbance from development near the lake.

The Western Australian Threatened Species and Communities Unit (Department of Conservation and Land Management) coordinates the development of recovery strategies that address the threats to communities such as the Thrombolites including those that occur outside the Park. An Interim Recovery Plan is currently in development for the Thrombolites at Lake Richmond.

The Thrombolites occur in a reserve vested in the City of Rockingham. Strong cooperation between the City and Department of Conservation and Land Management is required for the protection of the Thrombolites.

**Strategy**

1. **Finalise and implement Interim Recovery Plans for the Threatened Ecological Communities in the Park. (Department of Conservation and Land Management) [High]**

## 18. Fauna

*The objective is to maintain the diversity of the indigenous fauna species in the Park and, if feasible, reintroduce species lost from the Park.*

The following sections provide information on the known fauna of the area and discuss the likelihood of the presence of other species. Past research indicates that the Park consists of a diverse array of habitats that support and cater for local and migratory birds as well as terrestrial fauna (Tingay and Associates, 1996). Given the conservation value of the Park, it is essential that habitat areas are protected, enhanced and conserved.

**Birds**

The Park is an important refuge for avian fauna (Tingay and Associates, 1996). The wetlands in the Park provide valuable habitat areas, especially Lake Richmond, which retains water throughout the summer months. Lakes Richmond, Cooloongup and Walyungup are habitats known to support bird species listed for protection under the Japan Australia Migratory Bird Agreement (JAMBA) and the China Australia Migratory Bird Agreement (CAMBA). Trans-equatorial migratory birds covered by these agreements are also protected under the Commonwealth *Environment Protection and Biodiversity Act 1999*.

A survey by Goodale *et al.* (1998) identified over 100 bird species around Lake Richmond. A number of species are trans-equatorial migratory birds that fly between Western Australia and Siberia. Other species at the lake include but are not limited to Musk Duck (*Biziura lobata*), Pacific Black Duck (*Anas superciliosus*), Black Swans (*Cygnus atratus*), Australasian Coot (*Fulicca atra*) and Reed Warbler (*Acrocephalus stentores*).

The habitats at Lakes Cooloongup and Walyungup support a number of species including White-Faced Heron (*Ardea novaehollandiae*), Grey Teal (*Anas gibberifrons*) and Greater Sand Plover (*Charadrius leschenaultii*). Trans-equatorial migratory waders using the lake include Red-necked Stint (*Calidris ruficollis*), Curlew Sandpiper (*Calidris ferruginea*) from Siberia and Common Sandpiper (*Tringa hypoleucos*) from Eurasia (Tingay and Associates, 1996). These species are protected under international agreements.

Anstey and Paganoni Swamps provide different habitats which are preferred by a range of waterbirds. The presence of birds less common in other wetlands in the area has been recorded at the two Swamp areas, such as Australasian Bittern (*Botaurus poiciloptilus*) and Little Bittern (*Ixobrychus minutus*) (Tingay and Associates, 1996). Swamp Harrier (*Circus approximans*), Egret (*Egretta* sp.), White-faced Heron (*Ardea novaehollandiae*), Australian White Ibis (*Threskiornis molucca*) and Cormorant (*Phalacrocorax* species) use Anstey and Paganoni Swamps for nesting (Tingay and Associates, 1996).

Birds of prey in the Rockingham area include the Osprey (*Pandion hallaetus*) and Peregrine Falcon (*Falco peregrinus*). Carnaby's Cockatoo (*Calyptorhynchus latirostris*) are also found in the area.

Peregrine Falcon, Australasian Bittern and Carnaby's Cockatoo are specially protected under the *Wildlife Conservation Act 1950* (see Glossary). Little Bittern are classified as Priority 4 Fauna (see Glossary).

**Mammals**

The open Tuart and Marri-Jarrah-Tuart forests at Lake Cooloongup and Tamworth Hill Swamp, support the Western Grey Kangaroo (*Macropus fuliginosus*) and Black-gloved Wallaby (*Macropus irma*). In 1992 and 1994, studies at the Port Kennedy area discovered that Wallaroo (*Macropus robustus*), Echidna (*Tachyglossus aculeatus*), Bush Rat (*Rattus fuscripes*) and Dunnart

(*Smithopsis* sp.) species were present. The Quenda (*Isoodon obesulus fusciventer*) is also present within the Park (Tingay and Associates, 1996; Bowman Bishaw Gorham, 1994). Quenda have been classified as Priority 4 Fauna (see Glossary).

### Amphibians and Reptiles

Amphibians found around the wetlands include Sand Plain Frog (*Crinia insignifera*), Moaning Frog (*Helioporus eyrei*), Glauert's Frog (*Crinia glauerti*), Marbled Burrowing Frog (*Helioporus psammophilus*), Western Banjo Frog (*Limnodynastes dorsalis*), Slender Tree Frog (*Litoria adelaidensis*) and Western Tree Frog or Motor Bike Frog (*Limnodynastes moorei*) (Bowman Bishaw Gorham, 1997).

The Long-necked Tortoise (*Chelodina oblonga*) may be present in Lakes Richmond, Cooloongup and Walyungup (Tingay and Associates, 1996).

The Perth Lined Lerista Lizard and the Black-striped Snake are also found in the region of Port Kennedy Scientific Park. Urbanisation is increasing pressure on the habitats of these species (Department of Conservation and Land Management, undated).

Carpet Python (*Morelia spilota imbricata*), Tiger Snake (*Notechis scutatus*), Dugite (*Pseudonaja affinis*), Gould's Monitor (*Varanus gouldii*), Racehorse Monitor (*Varanus tristis*), and various skinks, including Fence Skink (*Pogona minor*) have been recorded in the Park (Goodale *et al.*, 1998). The Carpet Python is specially protected in Western Australia under the *Wildlife Conservation Act 1950*.

It is acknowledged that the presence of venomous snakes may be a concern to some Park visitors and local residents, so it is proposed to provide contact details within the Park for wildlife carers and organisations that relocate dangerous fauna.

### Fish

Three fish species were identified at Lake Richmond during a survey in 1998 (Goodale *et al*, 1998). A native freshwater-tolerant species (*Psuedogobius* sp.) which is more commonly associated with estuarine and marine environments was recorded. The exotic freshwater species *Gambusia holbrooki* is an aggressive fish introduced to Australia from Central America to control mosquitos. It may have contributed to the demise of native fish, amphibians and aquatic invertebrates in the lake. The Sea Mullet was also identified and is thought to enter the lake through the outlet drain.

Lakes Cooloongup and Walyungup support the native fish species *Antherinosoma rockinghamensis* and Koonacs (*Cherax quinquecarinatus*) (Tingay and Associates, 1996).

### Invertebrates

Aquatic and terrestrial invertebrates represent a significant and important component of the wetland food web and are the major food sources for many species of waterbirds.

A survey of Lake Richmond (Goodale *et al.*, 1998) collected a total of 20 taxa of invertebrates. They are typical of species collected in wetlands on the Swan Coastal Plain. One species of the genus *Helisoma* is thought to be an introduced species. Other wetlands within the Park also support an array of invertebrate species.

Coastal areas within the Park are likely to be important breeding sites for the colourful Yellow Admiral Butterfly (*Vanessa itea*) (Powell, *pers. comm.*, 2003).

### Mosquitos

Wetlands in urban areas often require a management response to mosquito populations. Significant numbers of mosquitos may cause a nuisance to nearby residents as well as become a public health risk because some mosquito species can transmit diseases. Management of mosquito populations is the responsibility of the City of Rockingham.

In past years, there have been some seasonal problems with mosquitos, however these have been short lived. Mosquitos are generally not a problem within the Park and the City of Rockingham does not receive regular complaints in regards to mosquito problems. The City of Rockingham sets traps at Anstey and Paganoni Swamps at various times. At the present time, the mosquitos caught are, on average, significantly below nuisance or large population numbers. However, this may become a greater issue as urban development occurs around the Park.

## THREATS TO FAUNA

The main threats to fauna within the Park are:

- the loss and fragmentation of habitat that could result from wildfire (Section 20);
- the invasion of weeds (Section 19);
- loss of habitat from plant diseases (Section 16);
- competition and predation by introduced animals and pets (Section 21);
- the loss of native habitat surrounding the Park (Section 25);
- artificial feeding of native animals, particularly waterbirds; and
- the death or injury of native animals on transport corridors within and adjoining the Park.

### Artificial feeding of native animals

Artificial feeding of native animals can affect their health. Feeding of waterbirds can have localised effects on the nutrient input and water quality in a wetland system. Uneaten food and faeces can accumulate in areas where birds congregate, and enhance conditions for the development of botulism. Feeding of native animals will be discouraged.

### Impact of transport corridors on animals

A number of roads with high traffic volumes traverse sections of the Park, posing a threat to wildlife. Wildlife access tunnels have been constructed under Safety Bay Road, to facilitate wildlife crossing between Lake Cooloongup and Lake Walyungup. Fencing of proposed rail corridors adjoining the Park will help to reduce the risk to wildlife.

**Strategies**

1. **Develop and implement a program for fauna management within the Park. The program will:**
   - **establish baseline information to initiate selected fauna monitoring; and**
   - **specify appropriate management actions for fauna and habitat protection.**

   **(Department of Conservation and Land Management, CoR, Educational Institutions, WA Museum, Birds Australia) [High]**

2. **Identify seasonal mowing areas and areas not to be mown to preserve habitat and breeding sites. (Department of Conservation and Land Management and CoR) [Ongoing]**

3. **Provide interpretive material which:**
   - **promotes an understanding and appreciation of the Park's fauna;**
   - **discourages the artificial feeding of birds;**
   - **supports volunteer groups involved with the Park; and**
   - **informs the public about the adverse impacts of feral animals and domestic pets on native fauna in the Park (Section 43).**

   **(CoR, Department of Conservation and Land Management) [High]**

4. **Provide contact details in the Park of wildlife carers for the removal of injured fauna from the Park as well as organisations that relocate dangerous fauna from places where they may constitute a significant risk to people. (Department of Conservation and Land Management) [Medium]**

5. **Ensure recreation uses are consistent with the protection and management of fauna and fauna habitats. (CoR, Department of Conservation and Land Management) [Ongoing]**

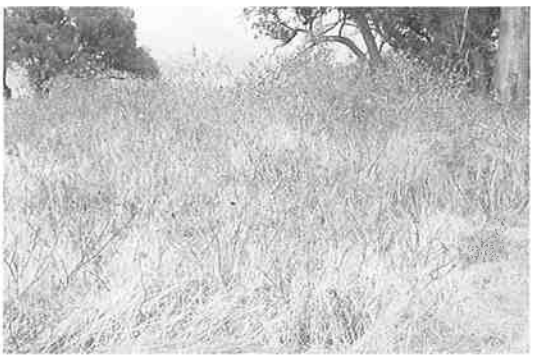
6. **Develop and implement a strategy to minimise wildlife deaths from roads within and adjoining the Park. (CoR, Department of Conservation and Land Management) [High]**

7. **Liaise with the developer at Port Kennedy to ensure the completion of the vermin proof fence at Port Kennedy. (Department of Conservation and Land Management, Department for Planning and Infrastructure) [Medium]**

8. **Consider the reintroduction of appropriate native wildlife into the Park and include feral animal control. (Department of Conservation and Land Management) [Low]**

## 19. Weeds

*The objective is to minimise the impact of environmental weeds on biodiversity within the Park using methods compatible with the conservation of the natural environment.*



Environmental weeds have been defined as plants that establish themselves in natural ecosystems (marine, aquatic, terrestrial) and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade (Department of Conservation and Land Management, 1999). Weeds are generally classified as plants that occur outside their normal geographic range, although they may also be plants that are native to an area, but begin to predominate or change the ecosystem in which they live because of some imbalance. Weeds may or may not be declared under the *Agriculture and Related Resources Protection Act 1976* (Department of Conservation and Land Management, 1999).

Many weeds, particularly grass species, grow fast and have abundant seeds that spread widely. Weeds compete for space, nutrients, water and sunlight, which often leads to a decline in native species diversity within native bushland. Weeds may also physically hinder plant regeneration and alter local nutrient recycling.

The invasion of weeds is a major threat to the conservation value of the Park and it is vital that measures be introduced to limit or control the degradation processes. There are many reasons for the presence of weeds in the Park including:

- land clearing;
- past land uses;
- soil disturbance from vehicle access;
- construction of paths and other facilities which allow weeds to establish themselves;
- frequent fires that promote the growth of weeds;
- the dumping of garden refuse in the Park which introduces many plants that vigorously compete with local vegetation;
- invasive species from adjoining areas, road verges and gardens;
- transportation of weed seeds by birds;
- grasses planted for amenity purposes in parkland settings invading bushland areas; and
- invasive weed species that have spread from lease and adjacent areas.

Weeds that are of particular concern in the Park include Victorian Tea Tree (*Leptospermum laevigatum*), Japanese Pepper (*Schinus terebinthifolia*), Fig (*Ficus carica*),

Cottonbush (*Gomphocarpus fruticosus*), False Caper (*Euphorbia terracina*), Buffalo Grass (*Stenotaphrum secondatum*), Pampas grass (*Cortaderia selloana*), and Kikuyu Grass (*Pennisetum clanderia*). Pelargonium (*Pelargonium capitatum*), Onion Weed (*Trachryandra divaricata*), Couch grass (*Cynodon dactylon*) and Bridal Creeper (*Asparagus asparagoides*) are also present.

**Bulrush control**

*Typha orientalis* or Bulrush is a weed that occurs at Lake Richmond and in the Becher wetlands (Tingay and Associates, 1996). This species is an aggressive coloniser especially following disturbance, often to the detriment and exclusion of local reeds and sedges. *Typha orientalis* creates an increased risk of fire because it dries out in summer. If not controlled, *Typha orientalis* can also invade and block constructed drains causing maintenance problems.

Although *Typha orientalis* is a non-local species, it does perform a number of valuable functions. It provides shelter, nesting sites and is a food source for some birds and other wildlife. It also traps nutrients and other pollutants in the wetland, so the removal of *Typha orientalis* stands may result in increased nutrient levels within the waters of the Park in the short term.

The removal of *Typha orientalis* from the Park needs to be carefully considered, and is likely to be particularly important in dampland and sumpland areas around Becher Point. The floral composition of these wetlands is significant and requires continual *Typha orientalis* control in conjunction with revegetation, in order to protect the natural diversity of species and other conservation values.

## WEED MANAGEMENT

All methods of weed control (chemical, physical, or biological) need to be considered for their appropriateness in the Park. Some forms of weed control may have side-effects on native plants, animals or habitats, which may prevent their application. There are also financial constraints on the amount of weed control that can be carried out.

Planning for weed control will consider the following priorities:

- recognition of weed potential;
- maintaining areas of the Park that have vegetation in good condition; and
- controlling weeds impacting on threatened species and communities.

Guidance for weed management in the Park is provided by *A Weed Plan for Western Australia* (State Weed Plan Steering Group, 2001), the *Environmental Weed Strategy for Western Australia* (Department of Conservation and Land Management, 1999) and *Weeds on Department of Conservation and Land Management Land, Policy Statement 14* (Department of Conservation and Land Management, 1986a). It is recognised, however, that more detailed planning is required to develop an integrated and coordinated approach to weed management in the Park.

The Department of Conservation and Land Management will prepare a weed management plan for the Park, which will be guided by the above State plan, strategy and policy. The Park's weed management plan will also outline the most effective methods for controlling priority weed species. It is important to promote an integrated weed control approach with landowners surrounding the Park.

Weed control can greatly benefit from community involvement. Managing agencies have limited resources and weed control can be very labour-intensive. The managing agencies gratefully acknowledge the considerable efforts by the community in undertaking works to control weeds. Volunteer groups, such as those associated with the Naragebup Rockingham Regional Environment Centre, have successfully undertaken weed control projects within the Park for some time.

Although the overall coordination of weed control within the Park is the responsibility of the managing agencies, volunteer groups and the agencies should establish co-operative arrangements with agreed processes and outcomes when undertaking projects for specific weed control. Where volunteer groups initiate a project, discussion shall occur with the relevant managing agency to ensure that activities are consistent with the annual works program, implementation plans and monitoring processes for the Park.

Members of the community wanting to be involved in weed control programs in the Park can do so by:

- joining the community volunteer groups within the Park; and
- participating in activities in the Park organised or coordinated by the managing agencies.

**Strategies**

1. **Prepare and implement a weed management plan in accordance with the *Weed Plan for Western Australia*, *Environmental Weed Strategy for Western Australia* and *Weeds on Department of Conservation and Land Management Land, Policy Statement 14*. The plan will:**
   - **assess bushland condition;**
   - **prioritise and control weed species according to invasiveness, distribution and environmental impacts;**
   - **assess changes to vegetation communities;**
   - **identify areas largely free of weeds, maintain these areas, and conduct weed control works out from these areas;**
   - **specify appropriate control techniques and timing for removal;**
   - **integrate with the rehabilitation plan (Section 22).**

   **(Department of Conservation and Land Management) [High]**

2. **Consult with the Water Corporation and the City of Rockingham to control weed infestations in drains that flow into the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Set boundaries for grass areas used for recreation and control the spread of grasses outside these areas. (CoR, Department of Conservation and Land Management) [High]**

4. **Use interpretive and educational material to inform Park visitors, lessees and park neighbours about the impacts of dumping weeds, rubbish and garden refuse in the Park. (CoR, Department of Conservation and Land Management) [Medium]**

5. **Encourage and coordinate volunteer community groups to become involved with weed control in the Park. (CoR, Department of Conservation and Land Management) [Ongoing]**

6. **Monitor the extent, distribution and abundance of priority weeds in the Park as part of monitoring bushland condition. Relate results to previous studies to monitor weed spread. (Department of Conservation and Land Management) [Ongoing]**

## 20. Fire

*The objective is to protect the biodiversity and cultural values of the Park as well as people and property, by minimising the impact of wildfire.*

Wildfire is a significant threat to the Park and the incidence of wildfire needs to be reduced. Wildfires can threaten biodiversity, human life, property and cultural values of the Park. Increasing urbanisation and visitor use of the Park is likely to increase the probability of wildfire. It is recognised however that restricting access to high risk areas can reduce the incidence of wildfire.

The Park is regularly affected by wildfire, and most are deliberately lit. Fires have significantly affected the vegetation type and composition in the Park, especially on the Becher Plain. For example, fire activity encourages the invasion of *Typha orientalis* in wetlands areas, which regenerates far quicker than native rushes. Fires in *Typha orientalis* are difficult to control and can cause damage to fringing Paperbark vegetation. In 1995, it was identified that approximately 50% of flora species present at Port Kennedy Scientific Park were either re-seeders or annuals, which are sensitive and vulnerable to frequent fires (Tingay and Associates, 1996).

The responsibility for fire suppression is dependent on whether the fire is within or outside a gazetted fire district. The Rockingham Gazetted Fire District covers Cape Peron, Lake Richmond, Port Kennedy Scientific Park and the north west section of Lake Cooloongup (Figure 7). Fire suppression in these areas is the responsibility of the Fire and Emergency Service Authority (FESA) in liaison with the managing agency of the land. In other areas of the Park, the responsibility for fire suppression rests with City of Rockingham Bushfire Brigade, in liaison with the managing agency of the land.

Pre-suppression and post-suppression works in the Park are the land managers' responsibilities. An important consideration in these works is the protection of environmentally sensitive areas, and measures should be initiated to prevent the spread of plant diseases and weeds.

When managing fire, the Department of Conservation and Land Management is guided by the *Bushfires Act 1954* and *Policy Statement No. 19 - Fire Management* (Department of Conservation and Land Management, 1987).

A Fire Response Plan for the Park has been developed by the Department of Conservation and Land Management in conjunction with FESA and the City of Rockingham to help ensure effective response to wildfire by the responsible agencies. It outlines practices such as:

- protecting environmentally sensitive areas from wildfire;
- undertaking pre-suppression activities including reducing fuel loads by mowing or slashing large open grassed areas. Mown or slashed areas should be delineated so that mowing practices do not adversely affect natural regeneration and fauna habitat;
- maintaining a fire record system of all fires in the Park including date and cause; and
- ensuring an effective network of firebreaks are maintained.

Selective prescribed burning may be considered for the protection of Park values and the protection and enhancement of biodiversity.

**Strategies**

1. **Implement and periodically update the Park's Fire Response Plan. (CoR, Department of Conservation and Land Management) [High]**

2. **Coordinate rehabilitation works with fire prevention requirements. Fire management will be considered in the preparation of the rehabilitation plan (Section 22). (CoR, Department of Conservation and Land Management) [High]**

3. **Initiate measures in pre-suppression works and post-suppression follow-up works to minimise the spread of plant diseases and weeds in the Park. (CoR, Department of Conservation and Land Management) [High]**

4. **Ensure that recreation planning takes into account fire prevention requirements. For example when constructing or upgrading paths in the Park consider building them to a standard that will carry fire control vehicles,**

**so that access is improved for fire management (Section 31). (CoR, Department of Conservation and Land Management) [Ongoing]**

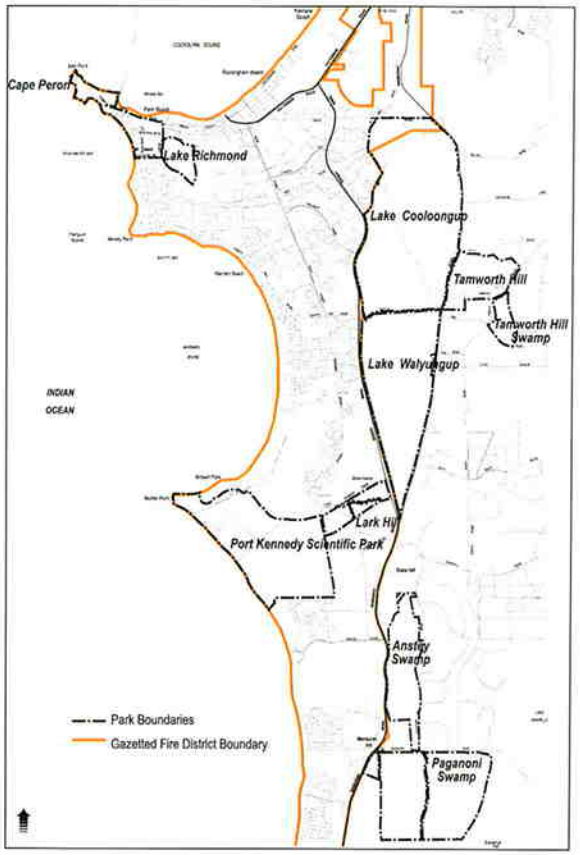



**Figure 7 – Gazetted Fire District**

## 21. Pets and Introduced Animals

*The objective is to minimise the environmental and social impact of pets and introduced animals in the Park.*

### PETS

The presence of domesticated animals in, or in close proximity to the Park may impact on the natural environment of the Park.

Non-indigenous animals are not permitted on land managed by the Department of Conservation and Land Management, under Conservation and Land Management Regulations. However, provisions can be made to allow dogs and horses in certain designated areas if they are controlled and managed. Nature reserves are areas where dogs and horses are prohibited.

### Cats

Domestic cats from nearby residences may hunt for birds, reptiles and other animals. Cat owners should be encouraged to keep cats at home, especially at night, and have them de-sexed to help control feral populations. The City of Rockingham currently provides an information pamphlet called "Cats in the Community", which covers sterilisation, identification and confinement.

The City of Rockingham should also consider the introduction of a Local Law for controlling cats. The City of Stirling has introduced *The Keeping and Control of Cats Local Law (1999)*. The objectives of the Local Law are to:

(a) control the number of cats kept on premises; and
(b) protect native fauna.

*The Keeping and Control of Cats Local Law (1999)* enables Stirling City Council to declare:

- A Cat Prohibited Area by designating areas on which cats are prohibited from entering or remaining; and
- A Fauna Protection Buffer Zone, which is land extending 200m from the boundary of a Cat Prohibited Area and includes all of the properties within that buffer zone. A person shall not keep more than one cat on any premises in a Fauna Protection Buffer Zone except in accordance with a valid permit in relation to those premises.

The implementation of a similar Local Law within the municipality of Rockingham is likely to have significant benefits to the Park and the native fauna residing and breeding within the Park and nearby areas.

### Dogs

The City of Rockingham is responsible for administering and enforcing the *Dog Act 1976* within its municipality. The Act states that "a dog shall not be in a public place unless it is:

(a) held by a person who is capable of controlling the dog; or
(b) securely tethered for a temporary purpose;

by means of a chain, cord, leash or harness of sufficient strength and not exceeding the prescribed length."

A dog is exempt from the above requirements if it is in an area specified by a local government as a Dog Exercise Area. Within a Dog Exercise Area, dogs are permitted off-lead so long as the owner is in reasonable proximity to the dog. The owner is also required to carry and be capable of attaching a leash for the purpose of controlling the dog. The City of Rockingham has designated gazetted Dog Exercise Areas under the provisions of the *Dog Act 1976*.

Dogs are currently allowed off-lead in the gazetted Dog Exercise Areas at Cape Peron: bounded on the east by Hymus Street and extending around the coast generally in a westerly direction and then in a southerly direction and bounded on the south by Boundary Road. There is a demand and expectation for this use to continue.

Port Kennedy Scientific Park is a nature reserve and therefore dogs are prohibited.

In the remainder of the Park, given the high conservation values and the need to protect the Park's native fauna, dogs will only be permitted in the Park on leads and under control. Dogs are not permitted in the Park's wetlands.

**Horses**
Agistment of horses is not considered appropriate in the Park. Horse riding does occur in some areas, namely Anstey and Paganoni Swamps. Horses can impact on the Park by spreading Dieback pathogens, introducing weeds, causing accelerated erosion of tracks, trampling and browsing on vegetation, and therefore horse riding is not appropriate in the Park. Horse riding is discussed further in Section 31.

## OTHER INTRODUCED ANIMALS

Introduced animals such as feral cats, foxes, rabbits, deer, sheep, ducks, bees and others occur in the Park and all have a detrimental effect on environment values. The control and removal of these animals will help protect the native fauna and flora of the Park.

Feral cats, dogs and foxes are known to attack native fauna.

Rabbits, deer and sheep reduce the survival rate of native seedlings by grazing, thereby denuding areas of vegetation. Deer and sheep have been a problem at Paganoni Swamp, where they have escaped from surrounding rural properties.

Hybridisation and competition between domestic and native ducks is believed to interfere with native duck species. Flocks of Chestnut-breasted Manikins (*Lonchura castaneothorax*), a northern Australian species, occur around the Park and compete for habitat and resources with local birds in the Park. This species has most likely escaped from aviaries. Park users will be discouraged from feeding ducks and other birds through educational signs.

The introduced honeybee (*Apis mellifera*) is present in the Park and can have detrimental effects on native insects, hollow-using animals and vegetation. Competition between honeybees, native bees and other native pollinators for flora resources usually favours the more aggressive foraging of the introduced bee, resulting in a decline of native insects. Other possible consequences are inefficient pollination of some local plants, destruction of flowers and hybridisation of some native plant species by cross-pollination of different native species. Removal of beehives containing introduced species will occur in accordance with operational priorities.

The Department of Conservation and Land Management is investigating the management of introduced animals in the Park. This involves determining the extent and impacts of introduced animals and then where appropriate, implementing control options. The use of bait such as 1080 poison for feral cats and foxes may not considered appropriate in some areas due to the close proximity of domestic pets in residential areas that would be susceptible to the poison.

**Strategies**

1. **Use interpretive material to inform the community about the adverse effects of pets and introduced animals on native fauna. Include information explaining restrictions on pet access and encouraging responsible pet ownership in interpretive material (Section 43). (CoR, Department of Conservation and Land Management) [High]**

2. **Consider introducing a Local Law for controlling cats and protecting native fauna. Use the City of Stirling Local Law - *The Keeping and Control of Cats Local Law (1999)* as a model. (CoR) [High]**

3. **Allow dogs to be exercised off-lead at Cape Peron within the gazetted Dog Exercise Areas. (CoR, Department of Conservation and Land Management) [Ongoing]**

4. **Exclude dogs and other pets from Port Kennedy Scientific Park and the wetland areas of the Park. In other areas, ensure that dogs are on a lead and under effective control at all times. (CoR, Department of Conservation and Land Management) [Ongoing]**

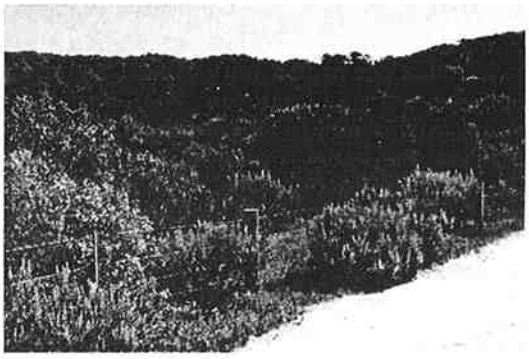
5. **Exclude horse agistment from the Park. (Department of Conservation and Land Management) [High]**

6. **Develop and implement a control plan for introduced pests and animals within the Park. (Department of Conservation and Land Management) [High]**

7. **Remove hybrid and introduced ducks from the Park. (Department of Conservation and Land Management, CoR) [High]**

## 22. Rehabilitation

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



Weeds, wildfires, the provision of roads, access ways, utilities and service corridors have resulted in modifications to vegetation communities, necessitating rehabilitation where possible. Rehabilitation is the establishment of a stable, self-regulating ecosystem following disturbance, consistent with the purpose for which the area is managed. Ongoing issues of pests, erosion, infertile soils and unconsolidated sand dunes make rehabilitation challenging in the Park.

Rehabilitation methods and techniques will vary according to the level of degradation that has occurred, the proposed use of an area and the type of vegetation

community to be reinstated. It is difficult to restore severely degraded sites to a natural habitat, however considerable conservation gains can be made if a wide range of local overstorey and understorey species is used for revegetation.

The Park contains a number of areas that have been extensively degraded by past land uses and fire. Generally, the rehabilitation of areas fringing the lakes and wetlands will be given a high priority. Fringing vegetation helps to create a more natural habitat as well as reduce nutrient inputs through filtration and storage.

Where possible, plant material used during rehabilitation should be sourced from within the boundaries of the Park or the nearest viable source, so as to maintain the genetic integrity of the area. This includes seeds, cuttings and brushing. Seed collection from within the Park will generally be permitted only for rehabilitation projects within, or directly impacting upon the Park. It is important that mulch and soil used in rehabilitation works does not contain unwanted weed seeds or plant disease.

A rehabilitation plan will provide a guide for the long-term restoration of degraded areas within the Park and will be developed in accordance with *Rehabilitation of disturbed land, Policy Statement No. 10* (Department of Conservation and Land Management, 1986b). The plan will identify major disturbance sites within the Park and priorities for their restoration to a condition resembling the natural environment.

The managing agencies acknowledge the considerable effort by volunteers in completing rehabilitation works within the Park in the past. For instance, considerable rehabilitation work has been undertaken at Lake Richmond with over 8,000 seedlings being planted by the Naragebup Rockingham Regional Environment Centre (Goodale *et al.*, 1998).

Local residents, community groups and education institutions should be encouraged to be actively involved in rehabilitation works. In undertaking rehabilitation projects volunteer groups should establish agreed processes and outcomes with the managing agencies. Rehabilitation activities are to be coordinated by the joint managers of the Park through the preparation of the rehabilitation plan, and all activities should be consistent with the planning and operations for the Park.

**Strategies**

1. **Prepare and implement a rehabilitation plan for the Park that prioritises proposed works. (Department of Conservation and Land Management, community groups) [High]**

2. **Coordinate rehabilitation works between the land managers and relevant community groups. (CoR, Department of Conservation and Land Management) [Ongoing]**

3. **Coordinate rehabilitation with weed control, fire protection and recreation facility and trail development at the planning, design and implementation stages. (CoR, Department of Conservation and Land Management) [Ongoing]**

4. **Use locally collected seed, where possible, for propagating plants or for direct seeding. Where locally collected seed is not available, seed should be obtained from local provenance. (CoR, Department of Conservation and Land Management) [Ongoing]**

5. **Encourage members of the local community and schools to participate in rehabilitation works and seek external funding to achieve these works where possible. (CoR, Department of Conservation and Land Management) [Ongoing]**

6. **Ensure mulch and soil used in rehabilitation works does not contain unwanted seeds or plant diseases. (CoR, Department of Conservation and Land Management) [Ongoing]**

7. **Where appropriate, allow licensed seed collection from within the Park for rehabilitation projects within, or directly affecting the Park. (CoR, Department of Conservation and Land Management) [Ongoing]**

## 23. Park Aesthetics and Landscape Amenity

*The objective is to maintain and enhance the natural and cultural landscape qualities of the Park.*

Management of the landscape is a key consideration in the overall management of Rockingham Lakes Regional Park. The following guidelines provide a practical framework for management of the landscape within the Park.

- Alterations to the natural landscape should be subtle, remaining subordinate to natural elements by borrowing extensively from line, form, colour texture and scale found commonly in the surrounding landscape.
- Site-specific visual resource factors should be carefully identified and evaluated before any management activities are undertaken.
- Where appropriate, degraded landscapes such as disused access tracks should be rehabilitated.
- Roads, management tracks and firebreaks should follow the natural landform, or land use patterns.

- Prescribed burning operations (if required) should incorporate prescriptions and techniques that minimise the visual impact.
- Where structures are required they should be sympathetic in design, materials and colour to surrounding landscape elements and be carefully sited away from major natural focal points, out of viewer sight-lines and where appropriate, screened by vegetation or landform.

### LANDSCAPE DESCRIPTION

The Park lies within the Swan Coastal Plain landscape character type (Department of Conservation and Land Management, 1994). The Park is situated on two major geomorphic landforms: the Quindalup and the Spearwood Dune Systems. Within the Quindalup System, the Rockingham-Becher Plain is a distinct feature characterised by linear, parallel dunes and swales. The wetlands are situated in a series of low lying areas, the locations of which are influenced by the dune systems, which are roughly parallel to the coast. The vegetation on the dunes ranges from coastal heath and scrub to Banksia and Eucalyptus woodlands.

### LANDSCAPE QUALITY

The Park landscape encompasses areas that can be described as being of high, medium, or low visual quality. Generally in the Park there is a direct correlation between the intactness of natural elements (vegetation, landform and waterbodies) and high scenic quality. The rural north-east corner of Lake Walyungup and the recreation camps of Cape Peron can also be described as having scenic values as cultural heritage landscapes. Areas of low scenic quality are generally highly disturbed, for example, areas at Lark Hill degraded by off-road vehicle use.

Several of the major roads adjacent to the Park, particularly Ennis Avenue and Mandurah Road, offer enjoyable scenic experiences, with close proximity to the Park and extensive views often taking in a variety of the Park's special landscape characteristics. Future railway development east of Ennis Avenue is likely to reduce scenic viewing opportunities from the road, although rail passengers will be able to enjoy views across the Park. The scenic-drive value of Mandurah Road should be maintained where possible.

Maintaining or improving the natural and cultural landscapes of the Park is an integral component of the effective management of the Park. While this means protecting natural areas, in other instances this involves rehabilitating modified landscapes of the Park. View corridors, incorporating the use of low vegetation, should be considered in rehabilitation planning. Planting of non-local species may be allowed at historical sites where those non-local species have cultural significance, provided that they are non-invasive species.

### LANDSCAPE CHARACTER

The diverse and distinctive landscape character types represented in the Park are integral to its scenic value, and they offer visitors a range of scenic experiences. They include rural, wetland, woodland and cultural landscape types. Understanding the different landscape character types helps Park managers to preserve them, and enhance visitors' enjoyment of them through the provision of scenic viewing facilities and interpretation.

**Strategies**

1. **Classify landscape features in the Park according to the Department of Conservation and Land Management's Visual Management System in order to assess the form and location of all facilities and services within the Park. (Department of Conservation and Land Management) [Low]**

2. **Identify and protect important landscapes within the Park. (CoR, Department of Conservation and Land Management) [Medium]**

3. **Ensure recreation facilities and park furniture are of a high standard and suited to the surrounding landscape. Facility provision should be planned and agreed to by the joint managers of the Park. (CoR, Department of Conservation and Land Management) [Ongoing]**

4. **Ensure that new infrastructure and developments within or adjacent to the Park are designed to minimise impacts on visual quality and include a landscape plan demonstrating integration with the surrounding area. Liaise with DPI, Water Corporation, and other infrastructure providers before works affecting the Park are undertaken. (CoR, Department of Conservation and Land Management) [Ongoing]**

5. **Identify sites of low visual quality (e.g. unsealed parking areas and roads, as well as degraded and weed infested areas) and undertake appropriate remedial action. (CoR, Department of Conservation and Land Management) [Low]**

6. **Consider view corridors when undertaking rehabilitation works within the Park. (CoR, Department of Conservation and Land Management) [Ongoing]**

## 24. Cultural Heritage

*The objective is to identify, protect and appropriately manage sites with Aboriginal and non-Aboriginal cultural heritage value within the Park.*

### ABORIGINAL ASSOCIATION AND USE

The Aborigines of the Rockingham area are part of the Nyoongar people. It has been recognised that Nyoongars that lived in the South-west of Western Australia had a close relationship to their land and an intimate knowledge of what it contained (Berndt, 1979). The Rockingham region holds much significance and many sacred sites for Aboriginal people (Walley, *pers. comm.*, 2002), although there is little recorded information about Aboriginal association and use of lands in the Park.

Nyoongar people traditionally lived a nomadic hunter-gatherer lifestyle, travelling to and from destinations and meeting areas throughout the seasons (Hayden and Hayden, 2002). Food resources such as wild fruits and fish were plentiful and generally reliable for Aboriginal people who lived in the South-West (Lofgren, 1975; Hammond, 1980).

Wetlands and waterways in the Park are likely to have ethnographic significance for Aborigines. These were sources of abundant food throughout the year, as well as places of ceremony and trade.

Bowman Bishaw Gorham (1997) state that Lake Richmond was identified as a site of significance to Nyoongars due to its use for food and water, a camping site and its general spiritual significance. Camping would have occurred away from the water's edge so as not to disturb local wildlife (Draper, 1997). Stone arrangements near the lake are the subject of research to determine their origin and significance, with one theory suggesting the arrangements are the remains of fish traps used by Nyoongars.

Lakes Cooloongup and Walyungup also hold special Dreaming significance as places where the Sea Waugal laid her eggs (Walley, *pers. comm.*, 2002). Both of these names are Nyoongar in origin (Draper, 1997). Cooloongup means *place of children* and Walyungup means *place where Nyoongars talk* (Walley, pers. comm., 2002). Lake Cooloongup could be thought of as a place for children, whereas Lake Walyungup is a place for adults. Karnup refers to the area around Paganoni Swamp, and this name means *place of Dreaming*. It may be thought of as a place for spiritual beings (Walley, *pers. comm.*, 2002).

The Park still holds significance for Aboriginal people. Local Nyoongars maintain the Aboriginal link and traditions to the land and to the Park (Walley, *pers. comm.*, 2002).

There are 15 Aboriginal sites near Rockingham Lakes Regional Park listed by the Department of Indigenous Affairs, with three sites located in the Park itself, namely: Lake Richmond (site S02964); Baldivis (site S02784); and Stake Hill Burial (site S02223). It is likely that there are other sites in the Park that have not yet been entered into the Aboriginal Sites Register held by the Department of Indigenous Affairs.

A key issue in the management of the Park is to ensure that Aboriginal sites within the Park are protected from damage that may occur during maintenance operations or works projects. It is therefore the responsibility of the managing agencies to ensure that obligations are fulfilled according to the Commonwealth *Native Title Act 1993* and the *Aboriginal Heritage Act 1972*, before any planning or public works take place.

Additionally, it is important that local Aboriginal people are provided the opportunity to be involved in projects and the management of the Park. There may be opportunities for Aboriginal eco-tourism and nature-based activities within the Park. An Aboriginal training and interpretive centre has been suggested. This would be consistent with the objectives of the Park. Should any such proposal be formalised, it will be subject to further environmental and business planning and community liaison.

***Native Title Act 1993***

The lands that comprise Rockingham Lakes Regional Park are subject to two native title claims, which directly cover the Park area. There is a third native title claim adjacent to the Park, which may potentially interact with the Park because it extends to the low water mark at Cape Peron.

In accordance with the Commonwealth *Native Title Act 1993*, notification in writing is required for public works constructed on all reserved lands and waters managed by the Department of Conservation and Land Management. Parties that require notification are:

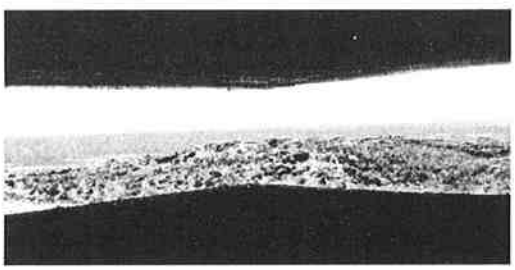
- representative Aboriginal bodies; and
- registered native title bodies (corporate) and registered native title claimants for reserved lands and waters managed by the Department of Conservation and Land Management on which the operations are to be carried out.

These parties need to be given the opportunity to comment on the proposed public works. A "public work" is defined in the *Native Title Act 1993* to include buildings, structures which are fixtures, roads, bridges, wells, bores and major earthworks constructed or established on behalf of the Crown. Additionally, a management plan for any national or state park intended to preserve the natural environment of an area must be notified in the same manner as for public works. The Act's intention to preserve the natural and cultural environment will probably cause conservation parks, regional parks, nature reserves, conservation/recreation purpose Section 5(h) reserves, marine reserves and marine nature reserves to be included in this requirement.

***Aboriginal Heritage Act 1972***

Under the *Aboriginal Heritage Act 1972*, it is an offence to damage, alter or destroy any Aboriginal sites unless written consent has been obtained from the Minister for Indigenous Affairs. This includes sites not yet registered with the Department of Indigenous Affairs.

## NON-ABORIGINAL HERITAGE



The first European exploration of the Rockingham area occurred between 1801 and 1804 by a French expedition under Commodore Nicolas Baudin (Fall, 1979). Baudin named a number of significant features along the coastline, including Cape Peron, Ile Buache (later renamed Garden Island) and Ile Bertollett (later renamed Carnac Island) (Draper, 1997).

The name Rockingham commemorates an unfortunate ship, which ran aground in stormy conditions opposite

the present location of Governor Road in 1830 (Fall, 1972).

Farmers settled the eastern parts of Rockingham in the earliest days of European settlement in Western Australia, many moving south to the area to find more arable soils than those near the failed settlement of Clarence, adjacent to Woodman Point (Fall, 1972).

As settlement in the area continued, Mangles Bay was determined a suitable port for the shipment of timber, which was a growing and important industry to the colony. A new waterfront townsite was marked out by Surveyor-General Roe, and declared open for selection and sale of lots in 1847 (Fall, 1972). In 1870, several jetties were built in Mangles Bay and in 1872, a railway was completed along with a deep sea jetty (State Government of WA, 1979). For many years, the port at Rockingham was connected to the plentiful timber supplies of the Darling Range by the Rockingham-Jarrahdale railway. These developments founded the importance of Rockingham as a port and assured the associated development of the town.

In the early years of the twentieth century, Rockingham declined as a favoured port for timber export. This was related to a number of factors, including the increasing appeal of Bunbury port with the opening of the Perth-Bunbury railway and Bunbury's proximity to the larger timber supplies of the south-west; the opening of the inner harbour and associated modern facilities at Fremantle; and the increase in the size of ships which had difficulty in traversing Parmelia Bank to access Rockingham (Fall, 1972). In addition, with the expansion of the timber industry in the south-west, the market for Jarrahdale timber changed from export to local, removing a large amount of business from Rockingham port (Fall, 1972). Thus, the port ceased to exist and Rockingham became a small seaside resort.

During the Second World War, the HMAS Stirling Naval Base at Garden Island was developed as a prominent centre of military and naval operations. Garden Island and Cape Peron gun emplacements were in the planning stages from early in 1942, and plans were expedited with the fall of Singapore. By March 1943, the first guns were in position and had been "proof fired". Following the Second World War the base continued to operate predominantly for army training (Draper, 1997). The Cape Peron Battery Complex is now listed on the Rockingham Municipal Heritage Inventory and is also registered on the Register of the National Estate.

Improvement to transport and infrastructure systems lead to an increase of visitors and residents to the Rockingham area. Significant industrial growth occurred in the region in the early 1950s, particularly in Kwinana, directly to the north. Rockingham has since continued to experience growth in commercial, light industry and residential sectors. Despite the development that has occurred, numerous historic buildings and sites relating to early European settlement have been retained in Rockingham and in the Park.

***Heritage of Western Australia Act 1990***

Sites of cultural heritage significance are protected under the *Heritage of Western Australia Act 1990*. The Heritage Council of Western Australia maintains a Register of Heritage Places according to this act. There are no sites within the Park listed on the State register.

Local governments are required by the *Heritage of Western Australia Act 1990* to maintain a heritage inventory, and they have the power to protect these sites by including them in the local town planning scheme. There is one site within the Park listed on the City of Rockingham Municipal Heritage Inventory - the Cape Peron Battery Complex. The site is significant because it was part of the Second World War coastal defence system (Cox, Howlett and Bailey, 1996).

With respect to non-Aboriginal heritage sites, key issues that need to be addressed include general maintenance and management of sites in the Park and development of appropriate processes to involve interested parties in restoring and utilising sites of cultural significance. The *ICOMOS Burra Charter*, as revised in 1999 and adopted by the Australian International Council on Monuments and Sites, provides the basis for management of places of cultural significance. It defines conservation principles, processes and practices for application to places of cultural significance.

**Strategies**

1. **Ensure management obligations are fulfilled according to the *Native Title Act 1993* and the *Aboriginal Heritage Act 1972* before any planning or public works take place. (CoR, Department of Conservation and Land Management) [Ongoing]**

2. **Incorporate information on Aboriginal and non-Aboriginal history of the Park into interpretive material where appropriate (Section 43). (CoR, Department of Conservation and Land Management) [High]**

3. **Liaise with Aboriginal and historic groups to determine their interests and possible involvement in the Park. (CoR, Department of Conservation and Land Management) [Medium]**

4. **Nominate significant sites for heritage listing on either the City of Rockingham Municipal Heritage Inventory, or State and National Heritage Registers. (CoR, Department of Conservation and Land Management) [Medium]**

5. **Develop management guidelines for historic sites in accordance with the ICOMOS Burra Charter and in consultation with other appropriate conservation bodies, such as the Heritage Council of Western Australia, Western Australian Museum, National Trust, Australian Heritage Commission and historical societies. (CoR, Department of Conservation and Land Management) [Medium]**

## 25. Regional Ecological Linkages and Greenways

*The objective is to encourage appropriate management of corridors and linkages between the Park and other conservation or recreation areas.*

The objective of ecological linkages is to connect natural areas, preferably with continuous corridors of native vegetation, in ways that allow both fauna and flora (pollen and seeds) to move between these areas to access resources and suitable habitat for survival and reproduction.

Regional ecological linkages aim to link protected, regionally significant natural areas by retaining the best condition local natural areas available between them that can act as stepping stones for flora and fauna. This increases the long term viability of the regionally significant natural areas as well as the local natural areas in the link.

The term "greenways" has also been used to define "networks of land containing linear elements that are planned, designed and managed for multiple purposes including ecological, recreational, cultural, aesthetic, or other purposes compatible with the concept of sustainable use" (Ahern, 1995). It is a generic term that has been applied to a wide range of landscape planning strategies, concepts and plans (Tingay and Associates, 1998).

Regional ecological linkages or greenways are essential features of urban areas as they have a conservation role; provide protection for water quality; may contain vegetation which can sequester greenhouse gases and have an educational and aesthetic value (Tingay and Associates, 1998).

Rockingham Lakes Regional Park is situated on the edge of the rapidly expanding southwest corridor of Perth. It is important to maintain and improve regional ecological linkages and greenway corridors between the Park and adjoining areas of ecological significance. This is necessary to help maintain the diversity and vigour of the ecological systems of the Park and to help integrate the Park within the broader urban and industrial landscapes.

Within the Park, regional ecological linkages are needed to link the discrete and separated areas of the Park from the coast through to the Stakehill wetlands and from Cape Peron and Port Kennedy through to Lakes Cooloongup and Walyungup.

A study of Perth's Greenways identified proposed greenway corridors linking the Park internally and to external areas (Figure 8).

The type of interface between the Park and adjoining land uses plays a major role in either insulating the Park from, or exposing it to, undesirable impacts of these land uses. The spread of invasive weed species can be minimised by the creation of appropriate buffers and by planting local species in existing buffers and road reserves.

**Strategies**

1. **Liaise and develop partnerships with the landowners involved with proposed regional ecological linkages near Rockingham Lakes Regional Park to develop a coordinated approach to management. (Department of Conservation and Land Management, CoR, DPI) [Medium]**

2. **Encourage future providers of transport to adopt "wildlife friendly" designs, and management practices. (Department of Conservation and Land Management, CoR) [Medium]**

3. **Develop a list of Park compatible plants to be provided to Park neighbours and infrastructure providers. Local plant species should be used in landscaping road reserves near the Park. (Department of Conservation and Land Management, CoR) [Medium]**

4. **Liase with the Department for Planning and Infrastructure so that future development proposals adjoining the Park incorporate appropriate interface treatments (eg. a road or dual use path edge) with the Park (CoR, DPI, Department of Conservation and Land Management) [Ongoing]**

5. **Implement Greenways proposals for linkages within the Rockingham Lakes Regional Park as indicated in Figure 8. (DPI, CoR) [Ongoing]**

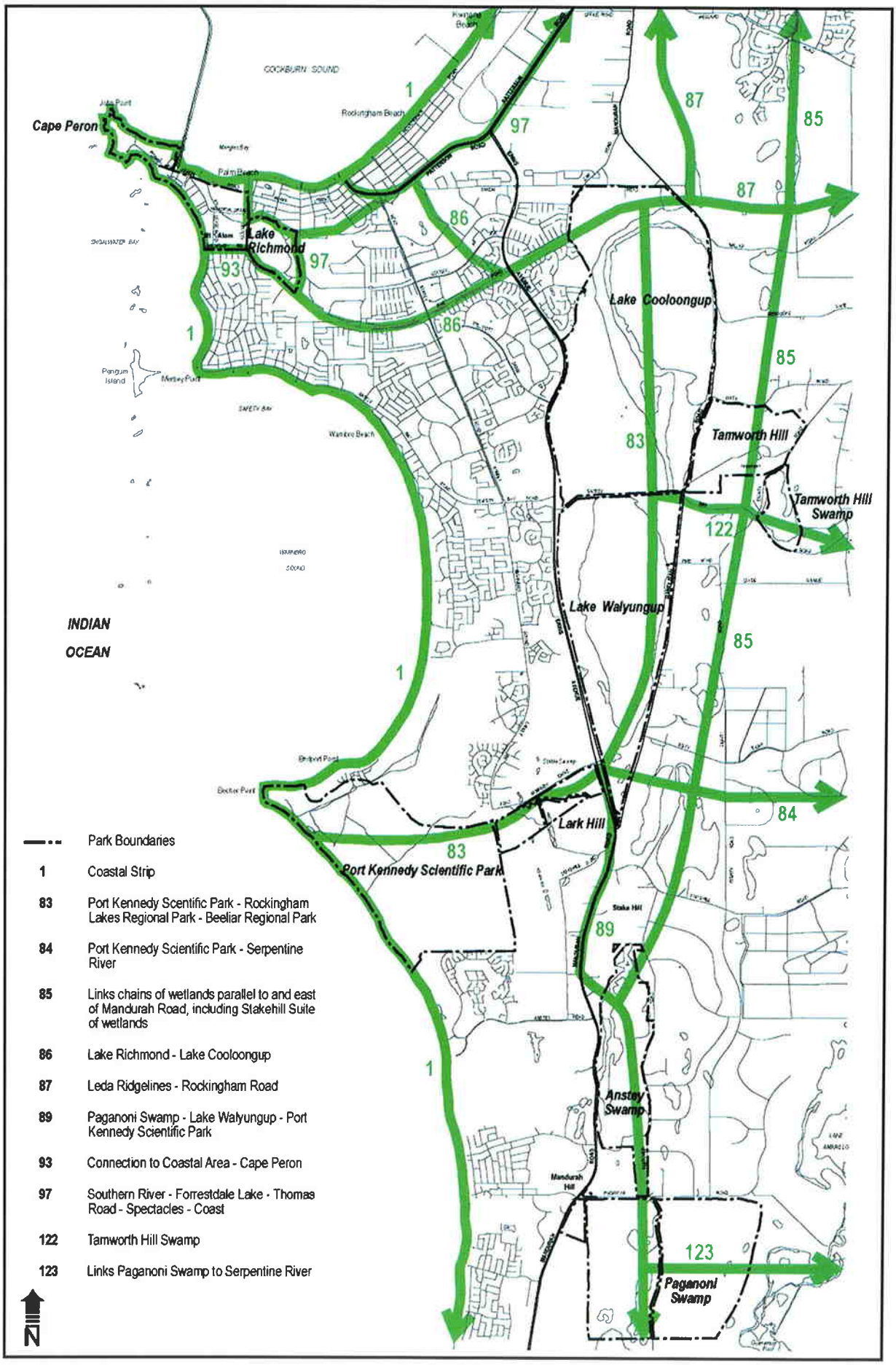



**Figure 8 - Greenway Corridors and Links**

# D. RECREATION

## 26. Recreation Goal and Guiding Principles

### RECREATION GOAL

Provide and manage for recreation, tourism and leisure in a manner that minimises conflict between visitors, and is consistent with other management objectives and Park values.

### GUIDING PRINCIPLES FOR RECREATION

**1. Preserving the Value of the Land Itself**
Natural systems (including landscapes, natural processes, the ecosystems of particular sites and biota) should be able to sustain the recreation that occurs or is proposed. The intensity of recreation activities may need to be controlled to maintain the amenity of the Park and the enjoyment of visitors.

**2. Consistency of Recreation with Reserve Purpose**
Recreational activities must be compatible with the assigned purpose of reserves within the Park. Reserves in the Park will be assigned an appropriate purpose for the protection and enhancement of Park values 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 which enhance the values of the Park.

The Recreation Opportunity Spectrum is a planning tool that enables Park managers to provide for the greatest possible range of recreation opportunities in a given area, while limiting unintended incremental development (Stankey and Wood, 1982).

The Recreation Opportunity Spectrum involves classifying areas according to their conservation status, and then providing for appropriate uses within each area. It aims to ensure that high quality recreation opportunities are available through the provision of a diversity of settings (Byrne and Vize, 1990). In this way, the community has access to a range of recreation opportunities, whilst ensuring that conservation values are preserved. The principles of the Recreation Opportunity Spectrum have been applied in developing the Recreation Masterplan for the Park.

## 27. Visitor Use

*The objective is to ensure that the level of visitor use and behaviour is sustainable and minimises conflict with other Park visitors and values.*

Areas managed by the Department of Conservation and Land Management within Rockingham Lakes Regional Park receive an estimated 68,000 visits per year (Colmar Brunton, 2001). Cape Peron is by far the most visited site within the Park, with an estimated 50,000 visits per year (Colmar Brunton, 2001). The implication is that other sites within the Park have low, and probably localised visitor use, whereas Cape Peron is a regionally significant recreation site.

Recreation activities undertaken in the Park include:

- authorised aero-model flying (Lake Walyungup);
- authorised land yacht sailing (Lake Walyungup);
- boat/jet-ski/ windsurfer launching (Cape Peron);
- exercise/ walking/ jogging;
- fishing (Cape Peron and Port Kennedy);
- golf (Rockingham Golf Course);
- nature observation;
- picnicking/barbecues;
- relaxation;
- snorkelling/ scuba diving (Cape Peron); and
- swimming (Cape Peron and Port Kennedy).

As parts of Lake Cooloongup, Lake Walyungup, Port Kennedy and Lark Hill have recently been identified as potentially contaminated with unexploded ordnance (UXO), some of the above activities are not currently being undertaken and the affected sections of the Park are closed to all visitors and management staff. The Department of Conservation and Land Management is investigating mitigation options for UXO contamination, including a clearance survey of tracks, firebreaks and the designated aero model flying/ land yachting area at Lake Walyungup, which should allow controlled public access to these areas. This is also discussed in Section 33.

Visitor surveys were undertaken in 2001 to gain an understanding of patterns and type of use at two sites in the Park, namely Cape Peron and Paganoni Swamp (Colmar Brunton, 2001). The results of the survey are discussed below.

The majority of visitors to Cape Peron visit by themselves or in couples, although the presence of the

recreation camps at the Cape means that large groups (including groups of 20 or more) may commonly use the site. Most visitors arrive at Cape Peron by private vehicle. Popular activities at Cape Peron are fishing and walking, and other activities include walking dogs, diving, swimming and picnicking. Most visitors surveyed in 2001 had been to the Cape previously, with 57% being local residents. A relatively large proportion of visitors surveyed: 32%, were visiting from other parts of the Perth metropolitan area (Colmar Brunton, 2001).

Paganoni Swamp, in comparison to Cape Peron, has a low level of visitor usage. No visitors were recorded at the site during the 2001 survey, however it is understood that walking and more commonly, horse riding occur (Colmar Brunton, 2001).

The results of the 2001 visitor survey demonstrate that the level of visitor use varies greatly within the Park. Due to the lack of formal access and facilities, visitor use in the wetland and eastern areas of the Park is limited. Cape Peron has a greater profile, with established access and facilities and as such it attracts visitors from a larger catchment.

It is expected that visitation to the Park will increase over time, given its location in a rapidly growing urban area. The population in the City of Rockingham is predicted to increase from the 2001 level of 72,000 to 113,200 in 2016 (WAPC, 2000). The Rockingham tourism industry is also experiencing growth, particularly in the daytrip market (Backshall and TourCorp, 1999). Urban growth and tourism development in the region will have implications for visitor use of the Park.

**Vandalism and other forms of antisocial behaviour**

Vandalism and thefts from cars are known problems at Cape Peron, Lake Richmond, Dixon Road parking area and other isolated bushland sites in the Park. This may be addressed in part by redesigning recreation sites to improve the circulation of traffic and increase the visibility of parked cars. The Department of Conservation and Land Management and the City of Rockingham will consider this issue when designing or re-designing recreation facilities and sites.

**Strategies**

1. **Develop and implement a visitor survey program to gain an understanding of visitor use, numbers and satisfaction within the Park. Use the Department of Conservation and Land Management's VISTAT (a quantitative system for recording and monitoring visitor levels) as a basis for the program. (CoR, Department of Conservation and Land Management) [High]**

2. **Implement and periodically update the Regional Park Communication Plan. The plan provides direction on:**
   - **community education;**
   - **community involvement; and**
   - **interpretive strategies and techniques.**

   **(Department of Conservation and Land Management) [High]**

3. **Investigate and implement site design measures to reduce anti-social behaviour in the Park. (Department of Conservation and Land Management) [High]**

## 28. Recreation Masterplan

A Recreation Masterplan (Appendix A) has been prepared to help guide the provision of a range of appropriate recreation opportunities in the Park. The Masterplan helps coordinate recreation developments and allocate suitable facilities and services to those areas of the Park best able to accommodate them in a sustainable manner. The Masterplan also considers access and internal circulation.

The Masterplan reflects the management zones and land uses described in Section 9 of this Plan. The five management zones (Conservation and Protection; Natural Environment Use; Recreation; Infrastructure and Services; and Area subject to further planning) provide a guide to acceptable facilities and uses at a given site (see Table 1).

The "Conservation and Protection" areas of the Park will have access limited to some walk and cycle paths with an emphasis on habitat protection while providing opportunities for the enjoyment of nature, interpretation and education.

The "Natural Environment Use" areas will have greater access than Conservation and Protection areas. The provision of some facilities within these areas, including low-key recreation and education nodes is anticipated. Habitat rehabilitation may be undertaken.

The "Recreation" areas will be the most intensively used and modified sections of the Park. The emphasis will be on providing well-designed recreation areas without detracting from the natural or cultural values of the Park.

"Infrastructure and Services" areas are operationally outside of the Park because they are managed for purposes other than conservation, recreation and visitor services. There is no public access to these areas.

Current uses and facilities will be maintained in the "Area subject to further planning", pending the outcomes of further planning and Government decisions on the proposed boat harbour at Mangles Bay.

Whilst the Recreation Masterplan provides strategic direction for the provision of recreation sites and facilities, more detailed planning will be undertaken at each site to determine visitor requirements and resolve site-specific issues.

**Strategy**

1. **Implement the Recreation Masterplan that allocates appropriate facilities and services to those areas of the Park best able to accommodate them in a sustainable manner. (Department of Conservation and Land Management, CoR) [High]**

## 29. Recreation Sites and Facilities

*The objective is to provide and manage a range of quality recreation sites and facilities that allow for a diversity of recreation opportunities without conflicting with other Park values.*

There is scope for improvement and/ or expansion of facilities that will sustain increased visitor use in some areas of the Park, such as Cape Peron and Lake Richmond, and minimise the impacts of uncontrolled visitor access in others. Recreation sites and facilities in areas of the Park are discussed below.

### 1. Cape Peron

Cape Peron is notable for the breadth of coastal recreation opportunities it offers and for its scenic diversity. The exposed southern shore of the Cape combines rugged limestone cliffs and reefs with sandy beaches, while the northern shore offers a more enclosed, sheltered setting.

The Cape's accessibility and high scenic values make it a favourite sightseeing destination, while it is also popular for activities including fishing, walking, exercising dogs, diving, swimming, picnicking and windsurfing. Facilities currently provided include trails, a lookout and parking areas, however some of these facilities are in need of upgrading. A boat ramp is situated on the north side of the Cape, near the Garden Island Causeway. Toilets and car parking are available near the boat ramp.

Cape Peron constitutes a fragile coastal environment, and as such visitor access needs to be directed away from sensitive areas. However, facilities and interpretive information in selected areas will be improved to enhance visitor experiences.

The Recreation Masterplan aims to enhance recreation and aesthetic values through facility upgrades and rehabilitation of degraded areas. The Masterplan proposes improvements to the walk trails around the Cape as well as the development of a shared pedestrian/cycle path linking the Cape to Safety Bay Road. Upgrades to existing parking areas and roads are proposed, as is the provision of a toilet at the Mangles Bay parking area.

The Recreation Masterplan also indicates the potential for an interpretive snorkelling trail on the near-shore reefs of Shoalwater Islands Marine Park to encourage visitors to explore and develop an understanding of the marine environment. Other interpretive information is proposed to be located along trails, at lookouts and at parking areas, describing the cultural history and environmental distinctiveness and sensitivity of the area.

The recreation camps are prominent features of the Cape; it is intended that the recreation camps will remain at Cape Peron (discussed in Section 37). The potential for a caravan park at one of the former recreation camp sites is also discussed in Section 37.

Detailed planning has been completed specifically for Cape Peron, which includes site design plans, as well as landscape management and development guidelines, which outline ways of preserving and enhancing the area's landscape values.

### 2. Lake Richmond

Lake Richmond is an attractive expanse of water in an urban setting, as well as an important ecosystem particularly for Thrombolites and waterbirds.

Lake Richmond is used for walking, bird watching and nature observation. Picnic tables and a barbecue are located in the north west corner of the reserve. A walk trail borders part of the lake, and leads to a boardwalk on the northern shore.

The Naragebup Rockingham Regional Environment Centre is located adjacent to Lake Richmond on Safety Bay Road, on land vested in the City of Rockingham. The Centre plays an important role in providing visitors with educational and scientific information on the Rockingham Lakes Regional Park.

The foremost recreation management issue at Lake Richmond is ensuring that visitor use and facilities do not adversely affect the Threatened Ecological Community of Thrombolites. This is particularly relevant given the residential development occurring near the Lake, which will increase the number of people living in proximity to the Lake. It is expected that use of the Lake as a recreation resource will also increase.

The City of Rockingham has proposed a dual-use path surrounding the lake, to connect to the Rockingham local bike network. Other proposals include increasing the provision of interpretive signs, with particular emphasis on the Thrombolite community and an observation platform in the northern portion of the reserve.

There is a need for further recreation planning at Lake Richmond to coordinate facility development in a timely manner.

### 3. Lake Cooloongup

Lake Cooloongup is a visually and spatially dominant feature of the Rockingham landscape. The lake, with its sparsely vegetated margins and surrounding woodlands, offers opportunities for trail-based recreation opportunities in a natural setting of high scenic quality.

There is currently limited recreational use of Lake Cooloongup, partly because of limited access and facilities. Residential areas near the lake are expanding rapidly, posing the likelihood of substantial increases in demand for recreation opportunities at Lake Cooloongup.

A parking area currently located off Dixon Road provides access to informal walking tracks and firebreaks that traverse the woodlands north of the lake. There are pedestrian accessways at several locations around the lake.

The Masterplan proposes the development of several trails, including a shared pedestrian/cycle path and low-key walk trails, linking where appropriate to trails outside the Park. Parking and trail-head facilities are proposed near Elanora Drive to facilitate access to the lake and woodlands. This will replace the existing parking areas at Dixon Road, which is likely to be removed because of development associated with transport infrastructure. Interpretation of the area's special natural values is also proposed.

The City of Rockingham proposes to establish a heritage precinct in the north-west corner of Lake Cooloongup. Plans for this area are yet to be finalised.

It should be noted that the potential contamination of the southern portion of Lake Cooloongup by unexploded ordnance may constrain opportunities for recreation.

**4. Lake Walyungup**

Similar to Lake Cooloongup, Lake Walyungup is an extensive landmark, highly visible from adjoining roads. The north-east corner of Lake Walyungup is cleared, former farm land that, as urban development in the area continues, may become an important remnant rural landscape.

Lake Walyungup is used to a limited extent for walking and bird watching, as well as for model aeroplane flying and land yacht sailing, which are authorised under permits from the Department of Conservation and Land Management on a seasonal basis. These permits are discussed further in Section 30. The current lack of access and facilities at the lake has limited the level and diversity of recreational use. A small parking area and several pedestrian gates are located at the northern end of the lake.

The Recreation Masterplan focuses on preserving the natural character of the area. The Masterplan indicates the potential for the development of a walk trail, shared pedestrian/cycle path, lookout and interpretive information north of the lake. The Masterplan also indicates a link between the proposed railway station and associated trails within the Park.

It should be noted that the potential contamination of Lake Walyungup by unexploded ordnance may constrain opportunities for recreation.

**5. Tamworth Hill and Tamworth Hill Swamp**

The Tamworth Hill area is notable for its diversity of landform and vegetation. At 76 metres Australian Height Datum (AHD), Tamworth Hill provides for scenic viewing and strenuous walking. The relatively good condition of the Tamworth Hill woodlands, as well as the presence of a significant kangaroo population, offers opportunities for nature study.

There is little existing recreational use of Tamworth Hill and Tamworth Hill Swamp, however it is likely that residential development will lead to increased use and a demand for facilities. There are no existing recreation facilities in the Tamworth Hill and Tamworth Hill Swamp areas. Uncontrolled access could create a number of management issues including damage to vegetation, erosion and weed invasion. Presently, firebreaks are used by walkers to access bushland areas.

The Recreation Masterplan emphasises trail-based recreation, proposing a series of paths to allow visitor use without disturbing sensitive areas. While the area offers scenic and physically challenging walking, its steep slopes and sandy soils make it vulnerable to erosion. Paths would need to be appropriately hardened. A trail-head parking area, walk trail links to nearby residential areas as well as interpretive information are proposed.

A draft management plan for the southern portion of Tamworth Hill Swamp was developed by the City of Rockingham as a planning condition of the Baldivis Town Centre rezoning (Bowman, Bishaw, Gorham, 2000). The draft management plan for Tamworth Hill Swamp will be implemented where it is consistent with this Plan. There is a need for further recreation planning at Tamworth Hill Swamp to coordinate facility development in a timely manner.

**6. Anstey and Paganoni Swamps**

Anstey Swamp is a densely vegetated area that is visible from Mandurah Road. The inaccessibility of the Swamp enhances its natural character. Paganoni Swamp incorporates a variety of landforms and vegetation communities, making it an interesting bushland setting.

The proposed Perth to Mandurah Railway will proceed along the western side of Anstey and Paganoni Swamps, blocking views to these areas from Mandurah Road.

There are no existing recreation facilities at Anstey and Paganoni Swamps. Although some people use these areas for walking, the main existing recreational use is horse riding. Horse riding is considered inappropriate at Anstey and Paganoni Swamps, as discussed in Section 31.

The Recreation Masterplan indicates that there is potential for walk trails at Anstey and Paganoni Swamps, which reflects the natural character of these areas. There is also potential for these trails to link to proposed railway stations. This would facilitate access to the Park from the railway, as well as enable people to enjoy a longer walk between stations and complete a circuit by returning to their starting point on the train.

**7. Port Kennedy Scientific Park**

Port Kennedy Scientific Park has been created for the purpose of conservation of flora and fauna. Scientific research, science education and low-impact recreation, where they do not adversely impact the purpose of the reserve, are considered complementary uses.

Port Kennedy Scientific Park contains a sequence of geomorphic and wetland features that provide a record of sea level changes and coastal evolution. These features provide opportunities for nature study. Pedestrian access is allowed via a series of informal walk trails.

Given the conservation purpose of this area, the Masterplan proposes walk trails and the provision of interpretive material at Port Kennedy Scientific Park. The location of these will be the subject of further site planning.

It should be noted that the potential contamination of Port Kennedy Scientific Park and Lark Hill by unexploded ordnance may constrain opportunities for recreation.

**Strategies**

1. **Prepare and implement site plans for significant works within the Park. The plans will be prepared in consultation with the community and other managing agencies. (Department of Conservation and Land Management, CoR) [Ongoing]**

2. **Undertake further recreation planning for Lake Richmond and Tamworth Hill Swamp to coordinate facility development in a timely manner in consultation with the community and Department of Conservation and Land Management. (CoR) [High]**

3. **Provide suitable and safe facilities, guided by Australian standards to cater for existing and anticipated future demands. (Department of Conservation and Land Management, CoR) [Ongoing]**

4. **Develop facilities and structures in a manner that is sympathetic to the surrounding landscape. (Department of Conservation and Land Management, CoR) [Ongoing]**

## 30. Recreation Activities at Lake Walyungup

*The objective is to manage approved recreation uses subject to certain conditions, and ensure they do not adversely impact on the values of the Park.*

The wide, flat expanse of Lake Walyungup makes it an attractive location for certain recreational activities. Model aero flying and land yacht sailing has been undertaken at the lake on approval from the Department of Conservation and Land Management. Model aero flying and land yachting have occurred at Lake Walyungup for at least 30 years and it is recognised that Lake Walyungup offers unique recreational opportunities in the metropolitan area.

It should be noted that parts of Lake Cooloongup, Lake Walyungup, Port Kennedy and Lark Hill have recently been identified as potentially contaminated with unexploded ordnance (UXO). As such, model aero flying and land yachting are currently prohibited at Lake Walyungup and all potentially-affected areas of the Park are closed to visitors and management staff (refer Section 33).

In the past, model aero flying has been conducted mainly in summer when the lake bed is dry and the weather conditions are conducive to flying the light model aircraft. Aside from the UXO risk, Lake Walyungup is an ideal location for this activity because of the large area available for take-offs and landings and distance from residential areas.

Land yacht sailing has also occurred mainly in summer when the dry lake bed is able to be driven on. The land yachts typically have three wheels and a sail for wind-propulsion. The land yacht club has held regular meets at Lake Walyungup, with race events around designated courses on an area of the lake.

The Department of Conservation and Land Management gives approval to undertaken the recreational activities under the *Conservation and Land Management Act 1984*. Applications to undertake the activities are submitted annually, and approval is subject to certain conditions to manage environmental impacts on the lake. Model aero flying and land yachting have only been permitted in a designated area under dry lake bed conditions. Other requirements have included the provision of a toilet during meets and a ban on activities on days of extreme fire danger.

Whilst the Department has aimed to manage potential environmental impacts of the recreational activities on the lake by requiring that certain conditions are met, a better understanding of the long-term environmental impacts of the activities is required. Given the conservation significance of the lake, pending mitigation of the UXO risk, a program of monitoring will be established to assess the impacts of the activities, including impacts on the lake's flora, fauna, geomorphology and Park visitation.

Pending the mitigation of the UXO risk, the Department of Conservation and Land Management will continue to manage the recreation activities and will annually review applications to undertake them. The existing recreation activities undertaken by approved individuals and clubs will be allowed to continue at present levels of use, however should it be determined that these activities are creating unacceptable environmental impacts, approval will be withdrawn. Until the environmental impacts of existing activities on Lake Walyungup are better understood, there will be a presumption against allowing new activities on the lake.

**Strategies**

1. **Prohibit access to Lake Walyungup until the unexploded ordnance risk has been mitigated. (Department of Conservation and Land Management) [High]**

2. **Pending mitigation of the unexploded ordnance risk, establish a program to monitor environmental impacts of recreational activities on Lake Walyungup, including impacts on flora, fauna, geomorphology and Park visitation. (Department of Conservation and Land Management) [High]**

3. **Pending mitigation of the unexploded ordnance risk, continue to manage current recreation activities undertaken by approved individuals and clubs at Lake Walyungup at existing levels of use and**

**review them annually against the outcomes of the monitoring program. (Department of Conservation and Land Management) [Ongoing]**

## 31. Park Access and Circulation

*The objective is to provide safe, convenient and structured access to and within the Park that is consistent with Park values.*

Access to and within the Park is a major issue. The Park is well-serviced by arterial roads, however local access points into the Park need to be improved in some areas. Additionally, transport corridor reserves traversing or adjoining the Park act as barriers to visitor and management access. For example, the Fremantle-Rockingham Controlled Access Highway and the proposed South West Metropolitan Railway will create a barrier between Lakes Cooloongup and Walyungup and the residential areas to the west of the lakes (see Section 34).

Whilst access to the Park for recreation and education purposes is a legitimate use, uncontrolled vehicle and pedestrian access has degraded some areas. Effective control of vehicle and pedestrian access is essential.

Park access and circulation are key components of the Recreation Masterplan (Appendix A). A more detailed discussion of access issues occurs below.

### ROAD ACCESS

The majority of visitors arrive at the Park by private vehicles from several major arterial roads adjoining or dissecting the Park. Ennis Avenue and Mandurah Road are located on either side of Lakes Cooloongup and Walyungup, and Mandurah Road also connects to Anstey and Paganoni Swamps in the south. Tamworth Hill and Tamworth Hill Swamp are adjacent to Safety Bay Road, a major east-west link. Port Kennedy Drive runs west from Ennis Avenue towards Port Kennedy Scientific Park. Access to Cape Peron is via local roads.

Whilst the presence of regional roads makes driving to the Park relatively easy, the high speeds and large volumes of traffic on these roads can create safety issues at entrance and egress points to the Park. There is a need to ensure safe access to the Park.

An assessment of existing entry and egress to the Park will be undertaken to identify and mitigate risks. The use of deceleration and turning lanes, as well as the relocation of some entry and egress points, may be strategies used in improving vehicle access into the Park. Appropriate directional signage is also required to orientate and direct visitors.

New roads will only be constructed in the Park if they are for management purposes or are servicing a recreation facility.

### PARKING

Parking areas are currently located at Cape Peron, at Naragebup Rockingham Regional Environment Centre, in the northern portion of Lake Cooloongup, and in the north western part of Lake Walyungup.

Three key issues relating to parking are:

1. providing safe and convenient parking to facilitate access;
2. reducing the undesirable effects of uncontrolled parking and access; and
3. reducing the level of antisocial behaviour such as car theft and vandalism at parking areas in the Park.

The provision of additional parking facilities as well as upgrading and redesigning the existing parking areas can help in addressing the above problems. Additions or upgrades to parking facilities in the Park proposed in the Recreation Masterplan include the following:

- Cape Peron at Mangles Bay Beach;
- Lake Cooloongup, off Elanora Drive; and
- Tamworth Hill, off Fifty Road.

The parking area at Dixon Road, north of Lake Cooloongup will not be maintained due to impacts of the South West Metropolitan Railway.

The provision of a parking area at the northern boundary of Port Kennedy Scientific Park will be investigated to enable pedestrian access to Becher Point and the coast south of the Point. This should also discourage unauthorised vehicles from traversing the Park to access the beach, which cause erosion and damage to vegetation. The parking area would need to be located to avoid Threatened Ecological Communities and would be subject to environmental planning and the above design considerations.

### BICYCLE AND PEDESTRIAN ACCESS

Generally, trails and pathways within and between Park areas are limited. This restricts circulation and connectivity throughout the Park. An effective path system should have minimal impact upon the values of the Park, whilst allowing visitors to experience the diverse recreation opportunities within the Park. Existing and proposed access and circulation between areas of the Park is shown in the Recreation Masterplan (Appendix A).

The City of Rockingham has recently commissioned the preparation of a local bike plan that will include the implementation of Bikewest's Perth Bicycle Network commuter routes and a prioritised implementation program for local bicycle routes. Access and circulation planning for the Park will be undertaken in consultation with Main Roads WA, Bikewest and the City of Rockingham.

A dual-use path is proposed for construction around Lake Richmond by the City of Rockingham and it will be connected to the Local Bike Network. Likewise, dual use paths are proposed in a number of locations in the Recreation Masterplan, including Safety Bay Road, Lake Cooloongup and Point Peron Road. This will improve access to the Park for pedestrians and cyclists.

An opportunity exists to provide walk trails in a number of areas in the Park with different design standards to help create a variety of visitor experiences.

## ACCESS FOR ALL

Access for people with disabilities is currently limited in the Park because many of the existing paths are undeveloped. Wherever possible, new paths should be designed so as to meet disabled-accessibility standards. The Recreation Masterplan aims to provide equitable access to a range of recreation facilities.

## UNAUTHORISED VEHICLE ACCESS

Unauthorised vehicle access is prohibited in the Park. This has been an issue throughout the Park, where unauthorised vehicles have driven on pathways and other recreation areas, or have traversed the Park to access adjoining beaches. Private vehicles, including trail bikes, are prohibited except for on designated roads and parking areas, as access outside of these areas may endanger other Park visitors, cause damage to the landscape and adversely affect wildlife. Information on alternative, authorised areas for off-road vehicles may be obtained from the City of Rockingham.

Lark Hill, an area to the east of Port Kennedy and west of Lake Walyungup, has been used for off-road vehicles, particularly trail bike riding. This is inconsistent with this Plan, which zones this area for Conservation and Protection (Figure 4). The site has been recently fenced, and rehabilitation has commenced.

Unauthorised vehicle access has also been an issue in Port Kennedy Scientific Park and on adjacent beaches where it has caused erosion and damage to the landscape and vegetation. Unauthorised vehicles are prohibited in Port Kennedy Scientific Park. The provision of a parking area at the northern boundary of Port Kennedy Scientific Park will be investigated to enable pedestrian access to Becher Point and the coast south of the Point, and also to discourage unauthorised vehicles from traversing the Park to access the beach. The parking area would be subject to environmental planning and design and would need to be located to avoid Threatened Ecological Communities. Continuing cooperation between the Department of Conservation and Land Management, City of Rockingham and the developer at Port Kennedy is required to manage this issue.

## ACCESS FOR MAINTENANCE VEHICLES

Boundary access for maintenance vehicles is provided at many points throughout the Park. Vehicle use within the Park must be justified and appropriately controlled. Where possible, maintenance vehicles should use existing pathways and firebreaks.

## BOAT LAUNCHING

Boat launching facilities are located at Cape Peron, adjacent to the Garden Island Causeway. There are no other boat launching facilities proposed for the Park.

A proposed boat harbour complex on land to the east of the Garden Island Causeway in Mangles Bay would increase the use of the waterways around the Park considerably, should it proceed. This is discussed in Section 35.

The Department for Planning and Infrastructure is responsible for safety and navigation in the coastal waters surrounding the Park. All boats are restricted to a speed of 8 knots within 100 metres of the shore around Cape Peron and Port Kennedy.

Unauthorised boating is prohibited on all wetlands in the Park.

## HORSES AND OTHER ANIMALS

The managing agencies recognise that horse riding occurs in areas of the Park, namely at Anstey and Paganoni Swamps. Horse riding needs to be considered in the context of conservation and recreation values of the Park. The following issues are important to consider:

- possible damage caused by horses such as spreading Dieback pathogens, erosion, trampling and browsing of vegetation, introduction of weeds;
- potential safety conflicts with other Park visitors (Ecoscape, 2002).

Investigation of the appropriateness of horse riding at Anstey and Paganoni Swamps was undertaken during the preparation of this Plan. This investigation included consideration of opportunities and constraints to horse riding, including:

- collation and synthesis of information to allow the assessment of the suitability of horse riding with the conservation and recreation values of the Park;
- identification of the demand for horse riding activity in the Park.

Major environmental constraints to horse riding at Anstey and Paganoni Swamps include:

- the presence of conservation category wetlands;
- the presence of regionally significant bushland;
- risk of introducing and spreading pathogens such as Dieback pathogens and weeds;
- fauna habitat areas; and
- sites of Aboriginal heritage significance.

In addition to the above, major land use constraints to horse riding at Anstey and Paganoni Swamps include:

- existing and proposed urban areas, particularly south of Paganoni Swamp, which may be incompatible with horse riding; and
- potential conflicts between horse riders and other recreational users.

At the present time, horse riding is occurring on specified tracks at Anstey and Paganoni. A visitor survey and ongoing field observation has indicated that there is a relatively low level of horse riding at Paganoni Swamp (Colmar Brunton, 2001). The Department of Conservation and Land Management believes that horse

riding activity is localised, and that few, if any, people float horses to the area to ride in the Park.

Given the conservation values of Anstey and Paganoni Swamps, horse riding is considered an inappropriate activity in the Park. Furthermore, the Department considers that the existing low level of use of the area for horse riding does not justify the provision of horse riding facilities. In addition, it may be expected that continuing urban development in the area is likely to lead to even less demand than currently exists for horse riding areas in the medium to long term. Consequently, the riding of horses or other animals is considered to be in conflict with the conservation values of the Park, and is not permitted.

**Horse exercising at Port Kennedy Beach**
Although located outside the Park boundaries, it is relevant to mention that horse riders and trainers have, in the past, used the beach south of Port Kennedy as a venue for horse exercise. Access to Port Kennedy beach for horse riding was disallowed by Rockingham City Council on 25 June 2002.

**Strategies**

1. **Implement the Recreation Masterplan, that will:**
   - **coordinate access and circulation allowing safe and convenient access for visitors to and within the Park. Park access should be integrated with surrounding community and regional path networks;**
   - **provide appropriate recreation facilities and services;**
   - **provide adequate parking facilities; and**
   - **help restrict private vehicles to designated car parks and access roads. (CoR, Bikewest, Department of Conservation and Land Management) [High]**

2. **Review entry and egress points to the Park to identify and reduce safety risks and identify the most appropriate access points. (Department of Conservation and Land Management) [High]**

3. **Allow for emergency response within the Park and where appropriate, ensure new paths provide emergency and management vehicle access. (CoR, Department of Conservation and Land Management) [High]**

4. **Rehabilitate existing vehicle and pedestrian tracks that are identified as unsuitable for access. (CoR, Conservation and Land Management) [Low]**

5. **Where appropriate, provide access for people with disabilities in accordance with Australian Standards. (CoR, Department of Conservation and Land Management) [Ongoing]**

6. **Prohibit use of unauthorised off-road vehicles in the Park, particularly trail bike riding in the Lark Hill area and four wheel drive vehicles in Port Kennedy Scientific Park. (Department of Conservation and Land Management) [High]**

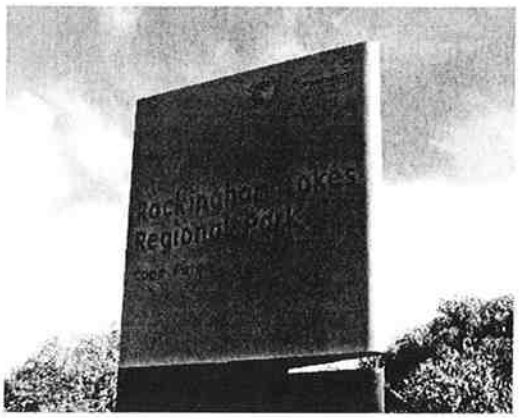
7. **Investigate the provision of a parking area to provide pedestrian access to Becher Point and the coast and to discourage unauthorised vehicle access through Port Kennedy Scientific Park. (Department of Conservation and Land Management, CoR, Port Kennedy Board) [Low]**

8. **Prohibit the riding of horses and other animals in the Park, unless expressly approved by the managing agencies. (Department of Conservation and Land Management, CoR) [Ongoing]**

9. **Prohibit unauthorised watercraft from accessing the wetlands and water bodies of the Park. Watercraft used for educational, research, monitoring or managerial purposes may be permitted for use within the Park with the expressed permission of the relevant managing agencies (Department of Conservation and Land Management, CoR) [Ongoing].**

## 32. Signs

*The objective is to provide a system of signs that communicates the location of the Park features, provides orientation assistance, identifies hazards, illustrates appropriate visitor behaviour and helps communicate information about the Park.*



Signs play an important role in notifying visitors about access and use, and communicating information about the Park's identity and values. 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.

Existing sign styles vary between those located in areas under the management of the City of Rockingham and those managed by the Department of Conservation and Land Management.

**Sign System**

The Department of Conservation and Land Management has developed a sign system for Perth's regional parks to help ensure signs are designed and located appropriately. The regional parks sign system is a sub-system of the Department of Conservation and Land Management corporate sign manual.

The regional parks sign system includes detailed design specifications for all signs provided in the Park. It aims to introduce a suite of signs that are of a high standard, are robust and have a consistent and contemporary style. The signs system includes directional and orientation signs, management signs, risk warning signs and interpretive signs. The sign system also includes a brand image or logo for each park. The Rockingham Lakes Regional Park brand image will be used on a number of sign types to enhance public recognition of the Park.

The City of Rockingham will be encouraged to adopt the regional parks signs system and brand image for signs in areas of the Park managed by the City.

**Sign Plan**

The sign system will be implemented at Rockingham Lakes Regional Park according to a park-specific plan. The sign plan directs the placement of signs within the Park to optimise the effectiveness of signs and ensure that an appropriate level of visitor information is provided.

**Strategies**

1. **Use the regional parks sign system as the standard for signs in the Park. (Department of Conservation and Land Management) [Ongoing]**

2. **Implement the Park sign plan to direct the placement of directional, management and interpretive signs within the Park. (Department of Conservation and Land Management, CoR) [High]**

3. **Liaise with other authorities that have jurisdiction within the Park to ensure consistency of signs within the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

## 33. Visitor Safety

*The objective is to take all reasonable and practical steps to ensure the safety of visitors in the Park.*

There is always an element of risk in outdoor recreation activities. Nevertheless, all reasonable and practical efforts will be taken to minimise risks to visitors.

Visitor safety will be promoted through information and education about potential problems and dangers. Management actions to reduce safety hazards should, if possible, be consistent with the values of the Park and should not intrude unduly on the experience of visitors. Visitor safety will also be considered in the design of recreation sites and facilities. Visitor safety will be an integral component in undertaking maintenance and capital developments within the Park.

When managing risk, the Department of Conservation and Land Management is guided by *Visitor Risk Management Policy, Policy Statement 53* (Department of Conservation and Land Management, 1996).

**Unexploded Ordnance risk (UXO)**

It has recently been brought to the attention of the Department of Conservation and Land Management that the southern part of Lake Cooloongup, and all of Lake Walyungup, Port Kennedy and Lark Hill estates are potentially contaminated with unexploded ordnances. These areas were used as an artillery range by the Department of Defence around the time of World War II.

These sections of the Park are currently closed to all visitors and management staff. The Department of Conservation and Land Management is working with Fire and Emergency Services Authority, City of Rockingham, Department of Defence and local police to determine the exact extent of the UXO risk and to consider mitigation options.

The Department of Conservation and Land Management is investigating the cost and feasibility of undertaking a clearance survey of tracks, firebreaks and the designated aero model flying/ land yachting area at Lake Walyungup as a priority, which should allow controlled public access to these areas.

**Strategies**

1. **Implement the visitor risk management program to ensure procedures are developed to manage and monitor all known risks. (Department of Conservation and Land Management, CoR) [High]**

2. **Ensure visitor safety and risk management are an integral component in design of sites and facilities and in undertaking works programs, capital developments and facility maintenance within the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Provide information to visitors that highlights potentially hazardous areas, activities and appropriate preventative actions and emergency procedures. (Department of Conservation and Land Management, CoR) [Medium]**

4. **Identify the extent of UXO risk in the Park, and implement appropriate mitigation strategies. (Department of Conservation and Land Management, FESA, CoR, Department of Defence, local police). [High]**

5. **Investigate the cost and feasibility of undertaking a UXO clearance survey of strategic tracks, firebreaks and the approved aero model flying/ land yachting area at Lake Walyungup as a priority. (Department of Conservation and Land Management). [High]**

## 34. Utilities, Park Services and Infrastructure Proposals

*The objective is to provide cost-efficient, effective and safe services and utilities within the Park in a manner that minimises environmental impact.*

### UTILITIES AND SERVICES

Services such as electricity, water, sewerage and telecommunications are available at various locations in the Park. Future recreational, commercial, educational or management facilities may require services at additional locations within the Park.

### POWER SUPPLY INFRASTRUCTURE

To minimise the visual impact of power lines within the Park it is advocated that all new power supply within the Park be placed underground. Mains power lines should be placed so that there is minimal visual impact. Where feasible, power supplies should be from alternative energy sources, for example solar power.

### WATER SUPPLY INFRASTRUCTURE

A Water Corporation reservoir is located at Tamworth Hill. A chlorination buffer exists around the area, for a chlorination plant that is located immediately outside of the Park boundary. The chlorination buffer has restricted access under the Metropolitan Region Scheme, and the area is fenced accordingly.

The Water Corporation is to be notified of any planned developments or works that will cross pipeline easements or affect the reservoir, and approval is to be gained prior to commencement of works.

### WASTE WATER TREATMENT INFRASTRUCTURE

A wastewater treatment plant is located at Cape Peron. The facility has recently been upgraded, and it is expected to continue operation for at least the next ten to fifteen years, depending on the establishment of a wastewater treatment plant in East Rockingham.

The former Port Kennedy wastewater treatment plant at Lark Hill has been decommissioned. The site includes a self-contained buffer that follows the plant boundaries. The Water Corporation remains the owner of the land, although there are no specific plans for it in the foreseeable future.

The Water Corporation is to be notified of any planned developments or works that will cross pipeline easements or affect the Cape Peron wastewater treatment plant, and approval from the Water Corporation is required prior to the commencement of works.

### STORMWATER FACILITIES AND DRAINAGE OUTLETS

Stormwater drainage outlets are located at Lake Richmond. These are the responsibility of the Water Corporation and the City of Rockingham. The drains divert stormwater and surface water runoff from the surrounding catchment into the wetland. Works were recently performed on the Lake Richmond Main Drain. The Water Corporation and Naragebup Rockingham Regional Environment Centre have undertaken monitoring of Lake Richmond. The main issues associated with drainage entering Lake Richmond are discussed in Section 15.

All new developments adjoining the Park will be required to dispose of stormwater appropriately within the development site. No additional direct drainage outfalls are permitted in the Park. In the longer term, existing stormwater outfalls will be reviewed to assess the viability of improving water quality entering the Park.

Drainage outlets may be unattractive and efforts should be made to blend them with the natural surroundings, for instance, by battering back walls and planting the sides with vegetation. Planting of vegetation would also have the effect of stripping nutrients from the stormwater before it reaches the wetland, although this would need to be maintained in order that the drain remains functional.

## PARKLAND SERVICING AND MAINTENANCE

Parkland and recreational areas need regular maintenance, which is the responsibility of the managing agency that controls each area. The collection of rubbish, maintenance and provision of toilet facilities and general maintenance operations within the Park requires regular management access.

Existing and proposed toilets within the Park are illustrated in the Recreation Masterplan (Appendix A). Existing and proposed toilets will need to meet approved design criteria, and are to be connected to the sewer system, or other environmentally acceptable disposal systems if this is not possible. The siting and design of toilets should minimise the environmental and visual impacts to the area and adjoining areas.

The provision of bins will be minimised and visitors encouraged to take their rubbish home. The dumping of rubbish has been a management issue in some areas of the Park. This will require the enforcement of the relevant local laws relating to rubbish dumping.

## MAJOR INFRASTRUCTURE PROPOSALS AFFECTING THE PARK

Being located within a developing urban area and in close proximity to the Rockingham city centre, the Park will continue to be subjected to infrastructure proposals that threaten its values.

It is important that the managers of the Park liaise with service providers so that, where possible, future development services are located outside the Park boundary. Additionally, there should be no physical impacts, either during or post construction to the lands or waters that comprise the Park from infrastructure developments that adjoin the Park. This can be achieved by ensuring appropriate conditions are placed on the proponent of developments when they are seeking planning approvals.

Where service corridors are required within the Park, they should be rationalised by combining utility requirements. Where possible, Park developments such as service roads and firebreaks should be developed along these corridors.

Four major transport infrastructure proposals have the potential to adversely affect the Park; they are discussed further below.

### South West Metropolitan Railway

The proposed South West Metropolitan Railway will link Mandurah and the south west metropolitan area to the Perth central business district. In relation to the Park, the railway corridor alignment identified in the MRS traverses the north west corner of Lake Cooloongup and follows Ennis Avenue along the western boundary of Lakes Cooloongup and Walyungup. It is proposed that stations will be located at the intersection of Rae Road and Ennis Avenue, the intersection of Safety Bay Road and Ennis Avenue, and the intersection of Paganoni Road and Mandurah Road.

The Department of Conservation and Land Management is working with Western Australian Government Railways to identify and address impacts on the Park and other issues during the environmental planning process for the project. Issues include protection of flora and fauna, management of noise and visual amenity. Importantly, east-west access across the railway will be limited, and this creates issues associated with visitor, emergency and management access.

### Proposed Fremantle-Rockingham Controlled Access Highway

The proposed Fremantle-Rockingham Controlled Access Highway would be a strategic link servicing the industrial areas in the south west metropolitan area of Perth. The road reserve is identified in the MRS and largely follows the alignment of the South West Metropolitan Railway through the Lake Cooloongup area, ending at the intersection of Rae Road and Ennis Avenue. A "controlled access highway" means that there would be no property access from the highway.

At the time of writing, the State government was undertaking a review of the freight movement network in the Perth metropolitan area. The review will consider whether the proposed Fremantle-Rockingham Controlled Access Highway will proceed, and if so, whether the alignment is appropriate.

A management issue created by the alignment of both the Fremantle-Rockingham Controlled Access Highway and the South West Metropolitan Railway (discussed above) is the barrier the infrastructure will place on management, emergency and visitor access to sections of the Park.

Should the proposed highway proceed, issues that need to be considered include protection of flora and fauna and recreation use, as well as noise and visual amenity.

### Garden Island Highway

The proposed Garden Island Highway will connect the Fremantle-Rockingham Controlled Access Highway at the intersection of Rae Road and Ennis Avenue, to Garden Island Causeway. The reservation adjoins Lake Richmond, and traverses the eastern portion of Cape Peron. Although originally identified as a "Primary Regional Road" in the Metropolitan Region Scheme, the reservation has been downgraded to "Other Regional Road".

The proposal was initially established to serve the naval base on Garden Island. Although there are no immediate plans to commence construction of Garden Island Highway, the City of Rockingham recognises the need for improved access to Garden Island and has indicated that it is likely to proceed at some future time. The exact road reserve and alignment are yet to be determined.

The Garden Island Highway will increase vehicle access to Cape Peron. Issues that will need to be addressed include protection of flora and fauna, particularly the

Threatened Ecological Community of Thrombolites at Lake Richmond, as well as noise and visual amenity.

**Gilmore Avenue/ Dixon Road Bus Transitway**
This transitway forms part of the Rockingham to Fremantle Dedicated Transitway, which aims to provide a fast, efficient public transport link for the southwest corridor of the metropolitan area (Halpern Glick Maunsell, 2001). A section of the transitway, from Dalrymple Drive to Dixon Road, will potentially remove a small section of the Park, at the northern boundary of Lake Cooloongup. The transitway alignment follows the South West Metropolitan Railway and Fremantle-Rockingham Controlled Access Highway alignments through the Park.

This development may restrict management, emergency and visitor access to the Park from Dixon Road. The Department of Conservation and Land Management is liaising with the Department of Transport to address potential management issues.

**Strategies**

1. **Where appropriate, ensure a detailed rehabilitation program accompanies service works that occur in the Park. (Section 22). (Department of Conservation and Land Management, CoR) [Ongoing]**

2. **Place power lines within the Park underground to improve aesthetics. (Department of Conservation and Land Management, CoR) [Low].**

3. **Review existing drainage facilities to improve water quality entering the Park and to improve the aesthetics of the outlets. (CoR) [Low]**

4. **Prevent the construction of additional stormwater drainage outlets in the Park. (CoR, Water Corporation, Department of Conservation and Land Management) [Ongoing]**

5. **Ensure existing or proposed toilets within the Park are connected to sewer outlets or other environmentally acceptable disposal units. (Department of Conservation and Land Management, CoR) [Ongoing]**

6. **Promote "take it home" rubbish education. (Department of Conservation and Land Management, CoR) [Medium]**

7. **Request that appropriate conditions that ensure protection of Park values are placed on the proponents of infrastructure developments when they are seeking environmental and planning approval. (CoR, Department of Conservation and Land Management) [Ongoing]**

## 35. Development Proposals Affecting the Park

*The objective is to ensure that developments do not adversely affect the values of the Park.*

The following proposed major developments may have impacts on the Park from an environmental, landscape and recreational perspective.

**Lark Hill Regional Sporting and Equestrian Complex**
The City of Rockingham, in conjunction with the Western Australian Planning Commission, and with advice from the Department of Sport and Recreation, is preparing a masterplan for the Lark Hill Regional Sporting and Equestrian Complex. The proposed site adjoins the Park, south of the east-west link between Port Kennedy and Lake Walyungup. Once the complex has been completed, the area is to be vested in the City of Rockingham.

Demand for this recreation facility was recognised in regional structure planning undertaken in 1980 and 1993. A number of feasibility studies have been undertaken, which have indicated the viability of the development based on projected population growth of the area (Tingay and Associates, 1999).

The area subject to development as part of the Lark Hill Regional Sporting and Equestrian Complex contains Bush Forever sites and wetlands listed on the Register of the National Estate. The City of Rockingham has prepared an Environmental Management Strategy for the area that details a management approach for retention and protection of wetlands (Tingay and Associates, 1999). The City of Rockingham is also required to meet requirements outlined by the Environmental Protection Authority on the impacts of the use of groundwater at the site and the effects of this use on wetlands.

The east-west link between Port Kennedy Scientific Park and Lake Walyungup, which is located directly north of the complex site, will be maintained (Tingay and Associates, 1999). The Department of Conservation and Land Management and the City of Rockingham will liaise to ensure that planning and management of the link and complex site are integrated. It is important that the Park is not adversely affected by the development and that the link is maintained.

The masterplan for the complex is currently being completed.

**Port Kennedy Resort and Proposed Marina**
The Port Kennedy Resort and Proposed Marina are located on the north coast of Port Kennedy, adjacent to the Park.

The Resort is being progressively developed by private developers under agreement with the State Government. The agreement is ratified by the *Port Kennedy Development Agreement Act 1992*. Under the Act, the management of the Port Kennedy Scientific Park is shared by three bodies, namely the Department of Conservation and Land Management, the proponent and the Port Kennedy Board. Accordingly, the Department of Conservation and Land Management is responsible for overall management of the Scientific

Park, as a nature reserve under the *Conservation and Land Management Act 1984*. The proponent is responsible for environmental management of the development area, and fulfilment of specified Ministerial conditions and commitments in relation to managing the impacts of development on the terrestrial and wetland values of the nature reserve. This includes implementation of a number of management plans specified within the Ministerial conditions (discussed further below). The Port Kennedy Board is responsible for implementing the Conservation Management Plan under Ministerial Condition 15, and fulfilling the functions of the Board as defined in the *Port Kennedy Development Agreement Act 1992* (Bowman, Bishaw, Gorham, 1994).

The Resort has been planned to include:

- 18 hole public golf course and clubhouse;
- 225 room beachfront resort hotel;
- golf course and beachfront resort villas and apartments;
- sports centre;
- marina and facilities;
- town centre, commercial and administration area;
- beachfront and marina holiday rental units;
- marina resort villas and apartments;
- marina hotel site; and
- health and fitness resort site (Department for Planning and Infrastructure, 2002).

At the time of writing, an entry road, car park, picnic area, golf course, public change room facility, the majority of headworks infrastructure, and approximately 30 villas and townhouses had been constructed. The original developer has withdrawn from the agreement and the development rights have been assigned to a new developer. Negotiations between the State Government and the newly assigned developer will continue to ensure the provisions of the agreement are met, including the completion of the fauna exclusion fence around Port Kennedy Scientific Park, as well as any new provisions.

The Port Kennedy development may lead to increased pressure on the Scientific Park, through greater numbers of visitors to the area. This will be managed by restricting pedestrian access to walkways and installing interpretive materials that promote conservation of the area.

**Proposed boat harbour at Mangles Bay**

There is a proposal to locate a boat harbour at Mangles Bay, at the eastern end of Cape Peron. Should it proceed, the harbour may require land to be excised from the Park and given a new zoning in the Metropolitan Region Scheme (as discussed in Section 7). The development has the potential to create a range of conservation, recreation and landscape impacts. The Department of Environment has indicated that a formal environmental assessment is likely to be required.

The eastern end of Cape Peron would be substantially altered by the location of an inland boat harbour, the development of the Garden Island Highway, and any subsidiary development as a result of the change in land use. As well as the physical environmental and landscape impacts of the proposal, the harbour will ostensibly increase the number of visitors to the Cape and surrounds and consequently, create increased pressure on the area's natural environment and recreation resources. These issues would need to be carefully managed.

The resources required by the Department of Conservation and Land Management to manage issues resulting from a harbour development would be considerable and ongoing. In the case that the harbour proceeds, adequate compensation for the loss of regional park estate would be sought and appropriate mitigation to minimise environmental impacts would be required.

**Strategies**

1. **Request that appropriate conditions (which help protect the values of the Park) are placed on the proponents of developments when seeking planning and environmental approvals. (CoR, Department of Conservation and Land Management) [Ongoing].**

2. **Ensure planning and management of the Lark Hill east-west link and the Regional Sporting and Equestrian Complex is integrated. (Department of Conservation and Land Management, CoR, DSR) [Ongoing]**

3. **Liaise with the developer at Port Kennedy to ensure Ministerial conditions and proponent commitments relating to the development are met. (DPI, Department of Conservation and Land Management) [High]**

4. **Seek adequate compensation in the event of loss of regional park estate as a result of developments. (Department of Conservation and Land Management, CoR) [Ongoing]**

# E. COMMERCIAL CONCESSIONS

## 36. Commercial Goal and Guiding Principles

### COMMERCIAL GOAL

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

### COMMERCIAL GUIDING PRINCIPLES

**1. Consistency of Commercial Use with Reserve Purpose**

Commercial 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).

**2. Preservation of the Values of the Park**

Commercial 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 the tendering process and development assessment process, proponents of significant developments within the Park will be required to assess the environmental impacts of the proposed commercial use.

**3. Equity**

Commercial use within the Park should be of a nature that promotes multiple use by Park visitors. Commercial uses that impair other forms of acceptable use or jeopardise safety of visitors should be specifically managed, directed to more appropriate locations or not permitted at all. Priority will be given to commercial uses that incorporate features aimed at increasing the awareness, appreciation and understanding of the Park's values. All development applications will be assessed in terms of the overall commercial requirements for the Park.

**4. 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.

**5. 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. Revenue generated by all commercial use within the Park will be used to help meet the overall cost of managing regional parks.

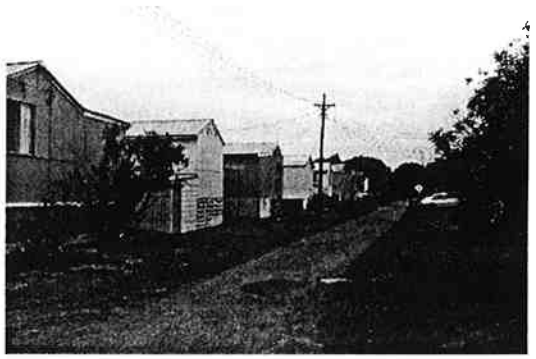
**6. Management Compliance**

Activities and facilities must comply with the requirements of the managing authorities. An open and transparent tendering process for proponents of commercial concessions within the Park will be applied by the managing agencies.

If effective management of commercial facilities or activities cannot be provided they should be restricted to appropriate levels, relocated or removed from the Park.

## 37. Leases and Licences

*The objectives are to ensure that leases and licences are consistent with the values of the Park, enhance visitor satisfaction and help offset regional park management costs.*



Commercial concessions (leases and licences) may be granted on lands within the Park to provide appropriate facilities and services for visitors. A lease allows the lessee to occupy a particular area of land, whereas a licence allows the licensee to enter and use the land.

Leases and licences provide a mechanism to bring additional facilities and management expertise into visitor services. Concessions need to be carefully designed and managed to ensure they do not detract from the conservation and landscape values of the Park. Appropriate concessions can generate income to help offset regional park management costs and can significantly enhance public access and enjoyment of the Park.

The Department of Conservation and Land Management and the City of Rockingham, as managers of the Park, shall assess leasing and commercial operations according to the goals and objectives set out in this Plan. Commercial concessions must be consistent with the purpose of the reserve and the protection of its values. Commercial concessions on Department of Conservation and Land Management estate will be established and managed in accordance with *Recreation, Tourism and Visitor Services Policy Statement No. 18* (Department of Conservation and Land Management, 1991). The tendering process for proponents of commercial concessions within the Park will be consistent with State and local government tendering processes. Leases for recreation camps, clubs and associations are not subject to the same tendering processes.

According to the *Conservation and Land Management Act 1984*, the Executive Director of the Department of Conservation and Land Management may grant a lease on land vested in the Conservation Commission of Western Australia, subject to consultation with the Commission and approval of the Minister for the Environment. The Executive Director may apply terms and conditions as appropriate and the term of the lease may not exceed 21 years, but may include an option or options to renew that lease for a further term or terms not exceeding, in the aggregate, 21 years. The lease must be tabled before each House of Parliament within 14 sitting days of its execution by all parties to the grant or renewal.

Under the same Act, the Executive Director of the Department of Conservation and Land Management may grant a licence in writing to any person to enter and use certain land.

Leases and licences pertaining to City of Rockingham land require approval from the City of Rockingham.

Advertising within the Park requires the approval of the relevant managing agency.

## EXISTING CONCESSIONS FOR VISITOR SERVICES

### LEASES

Existing leases for visitor services are as follows:

- Cape Peron Recreation Camps (currently ten leases);
- Rockingham Volunteer Sea Rescue Group Inc., off Point Peron Road;
- Department for Planning and Infrastructure boat shed, off Point Peron Road;
- Naval Association of Australia, Rockingham Subsection, off Point Peron Road;
- Naragebup Rockingham Regional Environment Centre Inc., Safety Bay Road;
- Rockingham Golf Course, Elanora Drive; and.
- Lakeside Deli, Mandurah Road.

**Recreation Camps at Cape Peron**

With the creation of regional parks, the Department of Conservation and Land Management agreed to manage the land vested in the Recreation Camps and Reserve Board (RCRB) at Cape Peron. The Department of Sport and Recreation (DSR) previously managed this land.

In November 2001, DSR resumed management of a small portion of RCRB land on the north side of Point Peron Road containing two recreation camps (RSL Perth and AIW Recreation Centre Inc.). It was not considered appropriate for the Department of Conservation and Land Management to continue managing this land as it is outside the Park in an area zoned "Port Installations" under the Metropolitan Region Scheme.

The land managed by the Department of Conservation and Land Management at Cape Peron contains eleven camps used for short stay accommodation. Ten camps are leased to private groups and the Department of Education occupies one camp.

Private lease-holders for the recreation camps at Cape Peron are as follows:

- Apex Holiday Centre Inc;
- Australian Post-Tel Institute (WA) Inc;
- Boans Sporting and Social Club Inc;
- L & S Recreation Centre Inc;
- Point Peron Aquatic Youth and Family Association;
- RSL Rockingham;
- Maritime Union of Australia (two leases);
- Uniting Church in Australia Property Trust (WA); and
- Colin Ross Bullock on behalf of the Blinded Soldiers of St Dunstan's WA.

A lease for the camp operated by the Department of Education will be negotiated between the Department of Conservation and Land Management and the Department of Education.

In considering the future of the privately-leased camps, two key issues need to be addressed:

1. the appropriateness of the privately-leased camps at Cape Peron; and
2. if the leases are to remain at the Cape, the terms on which leases should be granted to the tenants.

*1. The appropriateness of the camps at Cape Peron*

In determining the appropriateness of the camps at the Cape, consideration of the historical background of the camps, previous government planning as well as public access to the camps and surrounding areas is required.

The Commonwealth Government leased most of the land at Cape Peron to the State Government in 1956. In 1964, the State Government purchased the area from the Commonwealth on the understanding that it was to be used for recreation and parkland purposes, and subject to the (then) existing recreation camp leases. Those leases expired in 1972. Further leases of 21 years were granted; these expired on 31 October 1993. Then a further five two-year leases were granted, with the existing lease due to expire on 31 October 2003.

Previous State government planning that needs to be considered for the recreation camps at Cape Peron includes:

- *Cape Peron Study, A Framework for Future Tourist/Recreational Use* (WAPC, 1992); and
- *Mangles Bay Boat Harbour Evaluation Report, Revised Draft* (Mangles Bay Boat Harbour Steering Committee, 1998).

The *Cape Peron Study, A Framework for Future Tourist/Recreational Use* (WAPC, 1992) considered the private leases to be an impediment to the objectives of using Cape Peron for regional coastal recreation and protecting its conservation and educational values. The study recommended that the recreation camp leases be renewed on an annual basis only, pending specific proposals for redevelopment to provide public accommodation and visitor facilities. The Study did not support the long-term retention of the recreation leases other than the Apex lease and the Department of Education camp. The recreation camps have remained on short-term leases since 1993, pending development proposals. At the time of writing, no firm development

proposals for public accommodation or visitor facilities on the leased sites at Cape Peron had been submitted to the WAPC.

As discussed in Section 7, the *Mangles Bay Boat Harbour Evaluation Report, Revised Draft* (Mangles Bay Boat Harbour Steering Committee, 1998) was commissioned by the previous State Cabinet to guide the formulation and evaluation of a concept plan to develop an inland boating harbour at Cape Peron. The report considered a number of development options, with the recommended option suggesting that leaseholders within the regional park could remain at the Cape, with a review of lease terms and payments for leaseholders that do not serve a wider community or charitable purpose.

To date, draft management plans for regional parks do not preclude private concessions, however, there needs to be a significant and tangible benefit to the park or park management such as paying an appropriate rent to the Department, which in turn can be used in resourcing park management.

There is a concern that the camps restrict public access to Shoalwater Bay Beach, both physically and visually. However, if the lessees pay an appropriate rent, this will help resource the development of visitor access and recreation nodes at Cape Peron (particularly at the western end of the Cape). There may also be an opportunity for a low-key public caravan park or camping area to be established on the former Swan Brewery Camp lease site, which has now been vacated. This would also enhance public access and accommodation at Cape Peron.

The suggestion that some lessees can stay while others should be "moved on" is not equitable. It is important that the State Government treats all of the lessees at Cape Peron in a fair and equitable manner.

It is therefore considered appropriate that all nine private groups currently leasing recreation camps be offered the opportunity to remain operating at Cape Peron under appropriate lease terms.

*2. Appropriate lease terms*

In accepting the management of the leases, the Department of Conservation and Land Management acknowledges that the current lease arrangements (terms and conditions) are considered unacceptable by both the tenants and the Department.

The existing lease term is for a period of two years with a "peppercorn" rent arrangement whereby the tenant pays the Recreation Camps and Reserve Board $2 per annum.

These arrangements are not considered acceptable as:

- the tenants do not have security of tenure and are therefore unwilling to expend funds on capital upgrades of the camps (some of which are in a state of disrepair); and
- the Department of Conservation and Land Management cannot recoup the costs it is incurring in administering the leases as well as charge a fair rent for private groups controlling holiday style accommodation on land it manages.

The Department of Conservation and Land Management has investigated arrangements, which could satisfy both parties and provide significant benefits to Rockingham Lakes Regional Park. Providing greater security of tenure to the lessees in exchange for an appropriate Crown land rental is seen as the most appropriate arrangement. In addition, income from the camp leases would provide an important form of revenue for management and upgrade of Park facilities, which would otherwise need to be sourced from the Department of Conservation and Land Management's budget or external funding.

In determining an appropriate rental value for each of the camps, the Department of Conservation and Land Management will commission the Valuer General's Office to provide a rental valuation. Consideration will be given to "not-for-profit" organisations and other groups or institutions providing a community service.

It is therefore proposed that the Department of Conservation and Land Management provide greater security of tenure for the existing leaseholders, through offering longer-term leases to the current tenants. The leases will be for no longer than 10 years in total (five years with a five year renewal option). If leases are not renewed, lessees will be required to make good the site, and no new leases for recreation camps or private accommodation will be granted for vacated sites.

It is recommended that the leases should not halt significant Government-endorsed developments at the Cape. Therefore the new leases for the camps will be prepared in a manner that allows development to proceed.

An issue to be resolved in negotiations with the lessees is the prohibition of exclusive use of cottages by individuals. While most of the recreation camps operate on a short stay booking system, three lessee organisations operate by allocating cottages on a permanent basis for the exclusive use of individual members. Individual members of these organisations are allocated "custodianship" over individual cottages.

Custodianship over cottages is not considered appropriate on Crown land within a recreation lease. Therefore custodianship or exclusive use will be prohibited for all Cape Peron leases. To assist the lessees adapt to the new condition, organisations will be required to introduce a booking system to promote equitable use of the cottages (with an exemption for caretakers' residences) by the end of the initial five-year lease term. Any organisation that does not wish to continue on the non-exclusive basis after the first five years will be required to vacate and make good its site.

Future leases will also include the existing Recreation Camps and Reserve Board regulation which specifies that no person may stay longer than 6 weeks in any 6-month period.

Additionally, during the first five-year term, the lessee organisations will be required to upgrade the premises to comply with appropriate public accommodation, health and safety standards, as determined by the City of Rockingham and environmental standards as determined

by the Department of Conservation and Land Management.

Whenever any portion of a lease is renegotiated, it will be conditional upon the lease being converted to a standard Department of Conservation and Land Management format. This will help ensure that the leases are contemporary documents that reflect the land management principles of the Department. Included within the leases will be conditions specifying the responsibility of lessees in relation to paying rates, taxes and outgoings.

Should current tenants choose not to accept the terms and conditions offered under the lease, they will be asked to vacate and to make good the site.

**Rockingham Volunteer Sea Rescue Group Inc.**
The Rockingham Volunteer Sea Rescue Group leases a building on Reserve 39475, which is jointly vested in the City of Rockingham and the Recreation Camps and Reserve Board. An adult day centre is located in the same building under a sub-lease.

The City of Rockingham will be assuming sole vesting of Reserve 39475, and will therefore be the lessor once the transfer takes place.

**Department for Planning and Infrastructure boat shed lease**
The Department for Planning and Infrastructure (formerly the Department of Transport) leases an area of Reserve 39475, which is jointly vested in the City of Rockingham and the Recreation Camps and Reserve Board. The leased area contains a boat shed which houses the Department's patrol boat.

The City of Rockingham will be assuming sole vesting of Reserve 39475, and will therefore be the lessor once the transfer takes place.

**Naval Association of Australia, Rockingham Subsection**
The Naval Association of Australia, Rockingham Subsection leases a building on Reserve 39475, which is jointly vested in the City of Rockingham and the Recreation Camps and Reserve Board. The building is used as a cadet training centre.

The City of Rockingham will be assuming sole vesting of Reserve 39475, and will therefore be the lessor once the transfer takes place.

**Naragebup Rockingham Regional Environment Centre Inc.**
Naragebup Rockingham Regional Environment Centre is located on Safety Bay Road, and operates on a lease for Reserve 45307, managed by the City of Rockingham.

The Centre plays a valuable role in providing information on the Park and surrounding region, as well as education resources. The Centre has also been involved in environmental monitoring and rehabilitation in the Park, and has coordinated volunteer work in the Park.

**Rockingham Golf Course**
The Rockingham Golf Course is located on Reserve 38812 and it operates on a lease managed by the City of Rockingham.

**Lakeside Deli**
Lakeside Deli is located on Lot 11 Mandurah Road, east of Lake Walyungup. The leased premises include a small delicatessen and a house.

The area is under short-term lease managed by the Department for Planning and Infrastructure, on behalf of the WAPC. The Department of Conservation and Land Management will assess the long-term appropriateness of the lease prior to the transfer of WAPC-owned lands to the Conservation Commission of Western Australia.

## OPPORTUNITIES FOR NEW COMMERCIAL CONCESSIONS FOR VISITOR SERVICES

**Accommodation at Cape Peron**
Given Cape Peron's appeal as a holiday destination, an opportunity may exist to develop low-key and/ or eco-tourism accommodation, on the former Swan Brewery Social Club lease site. This area is already disturbed, and sensitive siting and design of chalets or a camping area would minimise impacts to surrounding areas.

If the proposal for low-key accommodation were to proceed, expressions of interest would be sought in accordance with State Supply Commission guidelines. An environmental and planning assessment, feasibility study and comprehensive business plan would be required before the development could proceed.

**Mobile food and bicycle hire outlets**
Businesses such as ice cream vans, mobile food outlets or bicycle hire may operate in the Park, subject to the issuing of an appropriate licence by the managing authorities. Such activities must comply with the managing authorities' requirements, including the City of Rockingham's health requirements, and be compatible with the Park's values.

**Community and Special Events**
From time to time there may be a demand for use of areas of the Park for community and special events. The appropriateness of such events within the Park will be assessed by the managing agency controlling the respective area. Gatherings requiring sole use of a site will 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.

Management agencies should use the guiding principles established for recreation and commercial uses as a means of determining the appropriateness of proposed activities. The Department of Conservation and Land Management should be consulted in the assessment of community events, as the coordinating agency for regional parks. The City of Rockingham's requirements must also be met.

**Rockingham Off-shore Fishing Club Inc. facilities proposal**

The Rockingham Off-shore Fishing Club Inc. has submitted a proposal to lease a section of Reserve 39475 for the establishment of club rooms/ hall. As the City of Rockingham will be assuming sole vesting of this reserve, a decision on the proposal rests with the Rockingham City Council. The Department of Conservation and Land Management does not object to the proposal given it is consistent with the purpose of the reserve, which is "Recreation, Parking and Sea Rescue".

## CONCESSIONS FOR PURPOSES OTHER THAN VISITOR SERVICES

Commercial concessions for purposes other than visitor services are generally not considered appropriate within the Park unless there is a considerable benefit to the Park.

**Grazing lease**

There is one grazing lease in the Park, at Lot 334 Mandurah Road, Baldivis. The Department for Planning and Infrastructure has managed the lease on behalf of the WAPC. Given the area is public open space that has been acquired by the WAPC for Parks and Recreation, grazing leases are not considered an appropriate land use in the Park.

**Residential lease**

There is one residential lease within the Park at Lot 336 Mandurah Road, Baldivis. In the long term, residential leases are not considered appropriate within regional parks because they are public open space that has been acquired by the WAPC for Parks and Recreation.

There are residences attached to a number of commercial leases that provide visitor services in the Park, including Lakeside Deli and the recreation camps at Cape Peron, however these are caretakers residences, which are considered necessary for managing the leases.

**Strategies**

1. **Establish and manage any commercial operations in accordance with Department of Conservation and Land Management *Policy Statement No 18 Recreation, Tourism and Visitor Services*. Concessions in the Park may be permitted if they are consistent with the purpose of the relevant reserve and approved under the provisions of the *Conservation and Land Management Act 1984*. Proceeds from commercial operations are to be used for regional park management. (Department of Conservation and Land Management, CoR) [Ongoing]**

2. **Ensure any commercial activities are consistent with the commercial guiding principles, conditions are fulfilled by concession holders and an appropriate fee is paid that contributes an income to regional park management. (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Ensure proponents of major commercial activities complete an appropriate expression of interest. (Department of Conservation and Land Management, CoR) [Ongoing]**

4. **Where appropriate, allow for activities of community organisations and clubs that are consistent with the reserve purpose. (Department of Conservation and Land Management, CoR) [Ongoing]**

5. **Manage the recreation camp leases and provide a greater security of tenure for the existing leaseholders, through offering long-term leases to the current tenants. Charge an appropriate Crown land rental for the leases based on the methodology used by the Office of the Valuer General. (Department of Conservation and Land Management) [High]**

6. **Offer greater security of tenure for the recreation camps at Cape Peron on the provision that the new leases for the camps are prepared in a manner that allows Government-endorsed development plans (for example, the boat harbour at Mangles Bay) to proceed. (Department of Conservation and Land Management) [High]**

7. **Assess all leases in the Park on land owned by the WAPC regarding their appropriateness and future use. (Department of Conservation and Land Management) [High]**

8. **Conduct a pre-feasibility study into the establishment of a caravan and camping park at Cape Peron. (Department of Conservation and Land Management) [Low]**

9. **Assess community and special events on an as needs basis in relation to the guiding principles for commercial use of the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

10. **Consider the Rockingham Off-shore Fishing Club Inc. proposal for facilities on Reserve 39475. (CoR) [High]**

11. **Develop management guidelines for advertising within the Park. (Department of Conservation and Land Management, CoR) [Medium]**

## 38. Mining and the Extraction of Basic Raw Materials

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

There is a strong presumption against mining and the extraction of basic raw materials in Rockingham Lakes Regional Park, as these activities are inconsistent with the conservation and recreation values of the Park.

Mining has occurred in areas of the Park in the past at Lake Walyungup and Paganoni Swamp, however there are no longer any mining or extraction activities undertaken there.

### EXTRACTION OF BASIC RAW MATERIALS

Depending on the land tenure involved there are different legislative requirements for extraction or mining of basic raw materials.

On freehold land, basic raw materials including sand, limestone, limesand, clay, gravel and hard rock, are not defined as "minerals" under the *Mining Act 1978* and commercial extraction is subject to Extractive Industry Licences under the *Local Government Act 1995*. Any freehold property in the Park that is subject to an extractive industry licence will be processed under the *Local Government Act 1995*.

Basic raw materials sought on land managed by the Department of Conservation and Land Management or crown land will be processed under the *Mining Act 1978*. Any proposals to access basic raw materials on conservation reserves for "public works purposes" will be considered by the Department in accord with the Conservation Commission of Western Australia's *Basic Raw Materials Policy Statement No. 5* (Conservation Commission of Western Australia, 1994).

Agreement has been reached with the Department of Conservation and Land Management for the City of Rockingham to extract sand from the marine area adjacent to the boat ramp at Cape Peron and to stockpile the sand on Reserve 39475, for use in other areas.

New applications for the extraction of basic raw materials from within the Park are unlikely to be environmentally acceptable and any such proposals will be referred to the EPA.

### MINING

Applications for mining within the Park will be processed in accordance with:

1. the *Mineral Exploration and Development Memorandum of Understanding* between the Environmental Protection Authority and the Department of Minerals and Energy (now Department of Mineral and Petroleum Resources [DMPR]) (1995) for applications occurring in any conservation reserves in the Park (also refer to Department of Minerals and Energy, 1986); and

2. the Regional Park Mining Protocol currently being developed by the Department of Conservation and Land Management and Department of Mineral and Petroleum Resources for all other land tenure in the Park including unallocated Crown land, local government reserves and other crown reserves vested in authorities other than the Department of Conservation and Land Management.

Mineral exploration in Class A nature reserves, national parks and conservation parks (South West of Western Australia) is subject to the concurrence of the Minister for the Environment and the Minister for State Development. The Conservation Commission of Western Australia may refer proposals that may cause significant environmental disturbance to the EPA. Approval for mining will require the consent of both Houses of Parliament and the EPA.

**Strategies**

1. **Finalise the Regional Park Mining Protocol. (Department of Conservation and Land Management, DMPR) [High]**

2. **Refer any new proposals for mining or the extraction of basic raw materials from the Park to the Environmental Protection Authority and assess them with consideration of:**
   - **Department of Conservation and Land Management and Conservation Commission of Western Australia policies;**
   - **the *Mineral Exploration and Development Memorandum of Understanding*;**
   - **the Regional Park Protocol; and**
   - **Department of Environment *Statewide Policy No. 1 Guidelines and Policy for Construction and Silica Sand Mining Public Drinking Water Source Areas.***

   **(WAPC, LGAs, Department of Conservation and Land Management, Conservation Commission of Western Australia) [Ongoing]**

# F. RESEARCH AND MONITORING

## 39. Research and Monitoring Goal

### RESEARCH AND MONITORING GOAL

Seek a better understanding of the natural, cultural and social environments, and the impacts of visitor use, with particular emphasis on the Threatened Ecological Communities in the Park.

## 40. Research and Monitoring

*The objective is to further develop and maintain knowledge in regard to visitor use, natural processes and other external influences on the Park.*

### RESEARCH

There are many opportunities for research within the Park. Research needs to be integrated to maximise the outcomes and application of knowledge.

The Threatened Ecological Communities are unique and of ecological and scientific importance. The Rockingham-Becher Plain and Becher Suite of wetlands are also significant, and offer unparalleled opportunities for research on wetland evolution and Holocene sea level fluctuations. These areas are considered priorities for ongoing scientific research. The Western Australian Threatened Species and Communities Unit (Department of Conservation and Land Management) and the Semeniuk Research Group have conducted seminal research in these areas.

Additionally, there is a need to research and monitor the wetland environments in the Park to assess water quality, water levels, groundwater interaction and salinity.

Visitor impacts, management impacts and external influences all need to be subject to continual evaluation. Since accepting management responsibility of the Park, the Department of Conservation and Land Management has undertaken two studies into visitor use in areas of the Park – Barnes (1998) and Colmar Brunton (2001). These studies provide information to allow more informed management decisions regarding recreational use of the Park.

The involvement of educational institutes, community groups such as the Naragebup Rockingham Regional Environment Centre and individual researchers should be encouraged so as to promote community ownership while also gaining valuable knowledge for use in the management of the Park. The involvement of such groups also reduces the cost of research and monitoring for the managing agencies and enables projects that possibly would not be given priority or consideration to be undertaken.

### MONITORING

The priorities for monitoring in the Park have been defined by the key performance indicators (Section 11). Priorities for monitoring are:

- the species diversity of indigenous fauna populations;
- the range of vegetation communities;
- the abundance and distribution of priority weed species;
- the status of the Threatened Ecological Communities;
- the landscape linkages that preserve geomorphic features;
- visitor numbers and visitor satisfaction;
- visitor risk management;
- community involvement;
- land tenure arrangements.

Individual sections of this Plan provide strategies concerning research and monitoring that is required.

Other monitoring in the Park is conducted by the Water Corporation, which monitors the quality of water entering Lake Richmond. The Naragebup Rockingham Regional Environment Centre has also undertaken monitoring of water quality in Lake Richmond and the ocean outlet drain. In addition, the developers of Port Kennedy resort undertook to conduct monitoring of groundwater levels and quality as a condition of development approval (Bowman, Bishaw, Gorham, 1994).

A project jointly managed by the Department of Conservation and Land Management, the Regional Herbarium, and the Naragebup Rockingham Regional Environment Centre called "Surveying Western Australia's Littoral Ecology (SWALE)" has been initiated in Port Kennedy Scientific Park. The project is funded by Coastwest-Coastcare and involves flora survey of permanent transects in coastal areas. The sites within the Port Kennedy Scientific Park include the threatened wetlands, beach ridge plain and Becher Point.

Community groups can play a valuable role in research and monitoring and should be encouraged and trained in environmental practices.

All research and monitoring undertaken in the Park is to be approved and coordinated by the Department of Conservation and Land Management to ensure an integrated approach. A scientific purposes licence is required for the taking of flora and/ or fauna from the Park for research purposes.

**Strategies**

1. **Develop an integrated program of survey, research and monitoring based on the key performance indicators (Section 11). (Department of Conservation and Land Management, CoR) [High]**

2. **Support and where possible seek grant applications to encourage scientific research and monitoring within the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Encourage the participation of volunteers, educational institutions and other organisations in research projects within the Park. (Department of Conservation and Land Management, CoR) [High]**

# G. COMMUNITY RELATIONS

## 41. Community Relations Goal

### COMMUNITY RELATIONS GOAL

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

## 42. Interaction with the Community and Other Organisations

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

**Community Involvement in the preparation of the Management Plan**

The community was made aware of the preparation of this Management Plan through liaison, newspaper advertising, articles and publications produced by the Park's managing agencies.

A community workshop was held in May 1999 as part of the management planning process. The workshop was attended by people representing broad community interests as well as representatives from the City of Rockingham and the Department of Conservation and Land Management.

The Department of Conservation and Land Management undertook specific consultation in the preparation of the plan, with the City of Rockingham and key stakeholder groups such as lessees of recreation camps at Cape Peron, Naragebup Rockingham Regional Environment Centre and individuals and clubs undertaking approved recreation activities at Lake Walyungup. The Rockingham Lakes Regional Park Community Advisory Committee commented on the draft plan prior to its release for public comment.

**Rockingham Lakes Regional Park Community Advisory Committee**

The Rockingham Lakes Regional Park Community Advisory Committee provides a forum at which issues affecting the Park are discussed. A call for nominations to the committee was advertised during October 1998, and the committee was established in February 1999. The committee consists of community members, and representatives from the Department of Conservation and Land Management and the City of Rockingham. The committee's role is to assist in the development of the management plan and to provide advice in regard to the ongoing management of the Park. The existing Community Advisory Committee's role, composition and structure will be reviewed periodically.

The community will play an important role in implementation of this Management Plan, as discussed in Section 43.

**Strategies**

1. **Periodically review the role and composition of the Rockingham Lakes Regional Park Community Advisory Committee. (Department of Conservation and Land Management, CoR) [Ongoing]**

2. **Maintain active liaison with community groups involved in the Park (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Provide opportunities for the community to be involved in developing subsidiary plans for the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

## 43. Information, Interpretation and Education

*The objectives are 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 implementing this Plan.*

An effective communication plan and program 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 of the natural environment. Additionally, it fosters

appropriate behaviour so that adverse impacts on the environment are minimised.

A communication plan for the eight regional parks in Perth has been completed by the Department of Conservation and Land Management. The communication plan and program has three integrated parts:

- information – providing an overview of recreation opportunities and details of facilities, activities and regulations;
- interpretation – explaining natural and cultural features; and
- education – providing detailed materials and programs designed to facilitate learning, focussing on target groups (e.g. school groups, community groups).

The communication program will be implemented by way of signs, displays, publications (such as brochures and Park notes) and guided activities.

An interpretation plan will also be completed for Rockingham Lakes Regional Park. This will include information to help visitors plan their visit, enhance their enjoyment and appreciation of the Park's values and to assist them to recall their experience when they depart. The Park's characteristics offer many opportunities for developing an enriching body of interpretive material. Key areas for interpretation and education include:

- flora and fauna;
- Threatened Ecological Community of Thrombolites at Lake Richmond;
- Threatened Ecological Community of sedgelands in Holocene dune swales;
- geomorphic evolution and significance of the Rockingham-Becher Plain;
- cultural influences (both Aboriginal and non-Aboriginal peoples);
- recreational opportunities;
- the regional park entity, its management and evolution; and
- responsible use of the Park.

The development of the interpretation plan should be undertaken in a coordinated way to ensure the most effective use of available resources and to present a well integrated, consistent body of information about the Park.

Involvement of the community in Park management, ongoing liaison with community groups and the provision of interpretive and educational materials will be important for maintaining the values of the Park and to maximise its use as an educational resource.

**Existing Park Information, Interpretation and Education**

At present there is information and interpretive material available at Naragebup Rockingham Regional Environment Centre and Lake Richmond including information on Thrombolites; wetland flora; fauna; and wetland ecology.

The Park is fortunate to have the resources of the Naragebup Rockingham Regional Environment Centre established near Lake Richmond. The Centre provides information on the Park and surrounding region, as well as education resources. It is funded predominantly by the City of Rockingham, and has strong community support. The role of the Naragebup Rockingham Regional Environment Centre will be included in the information, interpretation and education program for the Park.

At Port Kennedy, information is available on coastal dune formation; threatened and uncommon species and habitats; the international significance of the wetlands; coastal wildlife; and feral animal control.

The Department of Conservation and Land Management will develop further opportunities for Park information to be presented, consistent with the communication plan for regional parks and the interpretation plan for Rockingham Lakes Regional Park.

**Strategies**

1. **Implement and periodically update the Regional Park Communication Plan. The plan provides direction on:**
   - **community education;**
   - **community involvement; and**
   - **interpretive strategies and techniques.**

   **(Department of Conservation and Land Management) [High]**

2. **Develop and implement an interpretation plan for Rockingham Lakes Regional Park. Interpretive material should be aimed at:**
   - **promoting the values of the Park;**
   - **promoting visitor use and activities that are consistent with the protection and promotion of Park values and minimise conflicts between Park visitors; and**
   - **providing information about the recreation and interpretation opportunities available in the Park. (Department of Conservation and Land Management) [High]**

3. **Continue to liaise with interest groups to ensure a coordinated approach to information provision, interpretation and education in the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

4. **Continue to support the Naragebup Rockingham Regional Environment Centre and its role in providing information and education resources. (CoR, Department of Conservation and Land Management) [Ongoing]**

# H. PLAN IMPLEMENTATION

## 44. Priorities, Funding and Staff

*The objective is to manage the Park according to the priorities developed for implementation.*

### PRIORITIES AND TIMELINES

The priorities for managing the Park have been established by the joint managers of the Park and appear in brackets behind each strategy in the Plan. They represent the priorities at the time of writing and will be reviewed in reference to changing circumstances during the term of the Plan. Some of the strategies outlined in this Plan are guidelines, while others are prescriptions for specific actions. The City of Rockingham and the Department of Conservation and Land Management will implement this Plan within the framework of available resources.

The Key Management Strategies and timelines listed in Table 2 represent those strategies with the highest priority in the Plan.

**Subsidiary plans and implementation programs**
In implementing the priorities of the Plan, more detailed subsidiary plans will be prepared prior to significant works taking place within the Park (see Section 2).

Subsidiary plans to be (or that have been) prepared as part of the Rockingham Lakes Regional Park planning process include:

- Weed Management Plan (Section 19);
- Fire Response Plan (Section 20);
- Rehabilitation Plan (Section 22);
- Visitor Survey Program (Section 27);
- Recreation Masterplan (Section 28);
- Recreation Site Plans (Section 29);
- Sign System and Sign Plan (Section 32);
- Visitor Risk Management Program (Section 33);
- Regional Park Mining Protocol (Section 38);
- Communication Plan for Regional Parks (Section 43);
- Interpretation Plan (Section 43) and
- Volunteer Information Package (Section 45).

Additionally, an annual works program will be prepared to guide the implementation of this Management Plan. The City of Rockingham and other agencies involved in the management of the Park will be consulted by the Department of Conservation and Land Management in the preparation of the Park's annual works program.

### STAFFING

The City of Rockingham currently manages Council reserves within the Park using staff from the Engineering and Park Services Division and Planning Department, and contractors as required. The Department of Conservation and Land Management services its management obligations with staff from the Regional Parks Unit and contractors.

### FUNDING ARRANGEMENTS

The City of Rockingham and the Department of Conservation and Land Management will finance and manage their respective land areas (Figure 4). The Department of Conservation and Land Management has been allocated a recurrent budget for the maintenance of regional parks from State Treasury. Additionally, a capital budget has been provided by the Western Australian Planning Commission (WAPC) for the future planning and development of facilities within regional parks. Funding for local governments involved in regional parks is available through the Area Assistance Grants Scheme, administered by the WAPC.

**Strategies**

1. **Prepare and implement an annual works program, taking into account the priorities identified in this plan in conjunction with the City of Rockingham. Consult with the appropriate management agencies involved in the Park when preparing the program. (Department of Conservation and Land Management, CoR) [High]**

2. **Seek corporate sponsorship and other funding arrangements for the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

## 45. Community Involvement in the Implementation of this Management Plan

*The objective is to actively encourage as much community involvement as possible in implementing this Plan.*

The public is formally involved in the implementation of this plan through membership of the Rockingham Lakes Regional Park Community Advisory Committee (see Section 40).

It is important that the community is actively involved in implementing the Management Plan. This encourages a sense of ownership of the Park by the community and encourages interested people to become involved in the Park's future planning and management. To facilitate community involvement in the Park, the Department of Conservation and Land Management has prepared a Regional Park Volunteer Information Package.

Residents who live in close proximity to the Park can have a great impact on the Park. It is important to seek the cooperation and involvement of nearby landowners to protect the values of the Park. This can be done through educational programs, which promote responsible use of the Park and inform the community of management roles and responsibilities.

There are a number of different ways members of the public can be involved in assisting with the implementation of this Plan including:

- joining community volunteer groups;
- joining the Department of Conservation and Land Management's Bush Rangers Program;
- joining the Rockingham Lakes Regional Park Community Advisory Committee or liaising with members to discuss particular management issues;
- reporting problems and issues to the managing agencies;
- involvement in clean-up days (e.g. Clean-up Australia Day); and
- using the community service program to assist in Park management.

It is important that all works carried out are carefully planned and coordinated by the managing agencies. Activities need to be consistent with the planning and operations of the managing agencies. Volunteer works should be developed in consultation with community groups and need to be consistent with the Park's annual works program.

**Strategies**

1. **Encourage community groups to be involved in the implementation of this management plan and subsidiary plans (Department of Conservation and Land Management, CoR) [Ongoing]**

2. **Coordinate all activities of volunteers in the Park through liaison with community groups. (Department of Conservation and Land Management, CoR) [Ongoing]**

3. **Encourage and support the activities of community groups, schools and associations interested in the Park (Department of Conservation and Land Management, CoR) [High]**

4. **Continue to encourage, promote and support the local volunteers with essential resources to carry out their activities. (Department of Conservation and Land Management, CoR) [Ongoing]**

5. **Facilitate community involvement in the Park by implementing the Regional Park Volunteer Information Package. (Department of Conservation and Land Management) [Ongoing]**

6. **Promote responsible use of the Park and keep the community and other organisations informed of management actions, programs and developments within the Park. (Department of Conservation and Land Management, CoR) [Ongoing]**

## 46. Term of the Plan

This plan will help progress the Park towards its long-term vision (outlined in Section 5). In doing so it will be subject to a series of conditions and reviews to ensure its appropriateness and effectiveness.

The term of this plan is ten years. If the Plan does not require revision after ten years, it will continue to provide management direction. Section 61 of the *Conservation and Land Management Act 1984* provides for the Plan to be amended as required. If major changes to the Plan are proposed, the revised Plan will be released for public comment.

## 47. Performance Assessment

The Conservation Commission of Western Australia has overall responsibility for monitoring the implementation of the Plan. The effectiveness of the Plan will be reviewed through a formal auditing and review process, assessing the key performance indicators outlined in Table 2.

The Plan will be subject to:
- an annual review; and
- a five year and ten year audit.

The difference between the two processes is described below.

**Annual review**

The purpose of the annual review is to assess the implementation progress of the Plan prior to preparing the operations program for the following year. The annual review will be undertaken by Park management and the Park's Community Advisory Committee, and should identify which strategies have been achieved since the last review and facilitate target setting for the next year. Major milestones and achievements should be noted for updating the Plan and informing the Conservation Commission of Western Australia.

**Five year and ten year audit**

The Plan will be audited after five and ten years by the Conservation Commission of Western Australia. This will include a re-assessment of the overall direction of the Plan (including the need for a replacement management plan) in light of what has been achieved, changes in surrounding land uses, community aspirations, funding and relative priorities.

Overall management performance will be audited assessing the key performance indicators and key management strategies (Table 3).

**Strategies**

1. **Review the implementation of the management plan annually to identify strategies that have been achieved and to what degree any new information may affect management. (Department of Conservation and Land Management, CoR, Rockingham Lakes Regional Park Community Advisory Committee) [Ongoing]**

2. **Audit the management plan after five and ten years. (Department of Conservation and Land Management, Conservation Commission of Western Australia) [Ongoing]**

## REFERENCES AND BIBLIOGRAPHY


Ahern J. (1995) Greenways as a Planning Strategy, J. Landscape Urban Planning. 33: 131 – 156.

ANZECC (2000) Best Practice in Protected Area Management Planning, ANZECC Working Group on National Parks and Protected Area Management Benchmarking and Best Practice Program.

Arnold, J. (1990) Jenny Arnold's Perth Wetlands Resource Book, Bulletin 266, EPA and Water Authority of WA, Western Australia.

Australian Heritage Commission (2003) Register of the National Estate Database [Online] available: www.ahc.gov.au.

Australian National Committee ICOMOS (1999) Australian ICOMOS Burra Charter, South Australia.

Backshall, P. and TourCorp Pty Ltd (1999) Accommodation and Convention Property Feasibility Study for the Southwest Corridor of Perth, WA, Report prepared for the Department of Employment, Workplace Relations and Small Business, the Rockingham Economic Development Committee, the Rockingham City Council and the South West Group.

Barnes S. (1998) Visitor Survey of Designated Regional Parks, Department of Conservation and Land Management, Perth.

Beer, T. (1997) Environmental Oceanography, CRC Press, Boca Raton.

Berndt, R. (1979) "Aborigines of the South-West" in Berndt, R. And Berndt, C. (ed.), Aborigines of the West - their past and their future, University of Western Australia Press, Perth.

Blyth, J. (2003) Western Australian Threatened Species and Communities Unit, Department of Conservation and Land Management, Personal communication.

Bowman, Bishaw, Gorham (1994) Conservation Management Plan, Port Kennedy Regional Recreation Centre Stage 1.2. Second compliance and progress report, Volume VI, Prepared for Fleuris Pty Ltd, Subiaco.

Bowman Bishaw Gorham (1997) Consultative Environmental Review: Cape Peron Estate, Unpublished, Perth.

Bowman Bishaw Gorham (1999) Environmental Management Plan: Parks and Recreation Reserve, Part Lot 402, Rae Rd, Location 16, Rockingham, Unpublished, Perth.

Bowman, Bishaw, Gorham (2000) Baldivis Town Centre Tamworth Hill Swamp Draft Management Plan, City of Rockingham, Rockingham.

Byrne, N. and Vize, R. (1990) An Inventory of Recreation Opportunity Setting on Major Areas of Public Land in Victoria. Department of Conservation and Environment, East Melbourne.

City of Rockingham (2000) City of Rockingham Community Services-2001. Unpublished, Perth.

City of Rockingham Ranger Services (2002) Personal Communication, Interview conducted 24th April.

CoastWise (2001) Rockingham Foreshore Strategy (Draft) Prepared for the City of Rockingham, Perth.

Colmar Brunton (2001) CALM Regional Parks Usage Survey 2001, Research Report prepared for the Department of Conservation and Land Management.

Conservation Commission of Western Australia (1994) Basic Raw Materials Policy Statement No. 5. Perth, Western Australia.

Davis, J.A. (1990) "How do wetlands work - and how do we manage them to maintain healthy aquatic ecosystems?" in: Wetlands of the South West: The role of local government and land owners in the management of wetlands in the South West of Western Australia. South West Development Authority, WA.

Department for Planning and Infrastructure (undated) Coastline Movements, Cape Peron to Robert Point, Book Number 568.

Department for Planning and Infrastructure (2002) www.dpi.wa.gov.au

Department of Conservation and Environment (1983) Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority – 1983, The Darling System - System Six, Report No. 13, Department of Conservation and Environment, Perth.

Department of Conservation and Land Management (1986a) Weeds on CALM Land, Policy Statement No. 14, Perth, Western Australia.

Department of Conservation and Land Management (1986b) Rehabilitation of Disturbed Land, Policy Statement No. 10, Perth, Western Australia.

Department of Conservation and Land Management (1987) Fire Management Policy, Policy Statement No. 19, Perth, Western Australia.

Department of Conservation and Land Management (1991) Recreation, Tourism and Visitor Services Policy Statement No 18, Perth, Western Australia.

Department of Conservation and Land Management (1994) Reading the Remote, Landscape Character Types of Western Australia, Perth, Western Australia.

Department of Conservation and Land Management (1996) Visitor Risk Management Policy, Statement No 53, Perth, Western Australia.

Department of Conservation and Land Management (1999) Environmental Weed Strategy for Western Australia, Perth, Western Australia.

Department of Conservation and Land Management (2002) Corporate Plan, Perth, Western Australia.

Department of Conservation and Land Management (undated) Port Kennedy Scientific Park, Information Pamphlet, Perth, Western Australia.

Department of Environmental Protection (1992) Environmental Protection (Swan Coastal Plain Lakes) Policy, Department of Environmental Protection, Perth.

Department of Minerals & Energy (1986) Environmental Geology Series - Perth, Department of Minerals and Energy, Perth, Western Australia.

Department of Planning and Urban Development (1992) Beeliar Regional Park – Proposals for Establishment, Administration and Use, Perth, Western Australia.

Draper, R. (1997) Rockingham- the visions unfold, City of Rockingham, Perth.

Ecoscape (2002) Environmental assessment of horse riding in Jandakot Regional Park, Report for the Department of Conservation and Land Management, Perth, Western Australia.

Ecoscape (Australia) Pty Ltd (2002) South West Metropolitan Railway Environmental Management Plan, Department for Planning and Infrastructure, Perth.

English, V. (2002) Western Australian Threatened Species and Communities Unit, Department of Conservation and Land Management, Personal communication.

Environment Australia (2000) Revision of the Interim Biogeographic Regionalisation for Australia and Development of Version 5.1, Summary Report, Environment Australia, Canberra.

Environment Australia (2001) Directory of Important Wetlands in Australia [Online] available: www.ea.gov.au/water/wetlands/database/index.html.

Environmental Protection Authority (1993a) Red book : status report : on the implementation of Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority (1976-1984), Environmental Protection Authority, Perth.

Environmental Protection Authority (1993b) Mangles Bay Marina, Department of Marine and Harbours. Report and recommendation of the Environmental Protection Authority, Bulletin 693, Environmental Protection Authority, Perth.

Environmental Protection Authority and the Department of Minerals and Energy (now Department of Mineral and Petroleum Resources) (1995) Mineral Exploration and Development Memorandum of Understanding, Unpublished.

Fall, V.G. (1972) The Sea and the Forest; a history of the port of Rockingham, Western Australia, University of Western Australia Press, Nedlands, Western Australia.

Gibson, N., Keighery, B.M., Keighery, G., Burbidge, A. and Lyons, M. (1994) A floristic survey of the Southern Swan Coastal Plain, Unpublished Report for the Australian Heritage Commission prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).

Goodale, B., Moore, L., Rose, T., Cale, D., Davie, J. And Wilson, S. (1998) Lake Richmond: Flora and Fauna Study, Unpublished, Rockingham Regional Environment Centre, Rockingham. Funded by the World Wildlife Fund for Nature Australia.

Government of Western Australia (2000) Bush Forever, Perth, Western Australia.

Gozzard, J. (1983) The Rockingham Part Sheets 2003 III 2003 II, Perth Metropolitan Region Environmental Geology Series, Geological Survey of WA.

Green, B. (1997) Rehabilitation and Management Plan for the Haliotis Bay Headland, Point Peron, Produced for the Recreation, Camps and Reserve Board and Ministry for Sport and Recreation, Unpublished, Perth.

Halpern, Glick, Maunsell (2001) Gilmore Avenue/ Dixon Road Bus Transitway Environmental Referral Document, Department of Transport, Perth, Western Australia.

Hammond, J. (1980) Winjan's People: The story of the South-west Australian Aborigines, Imperial Printing Company Limited, Perth.

Hayden, C. and Hayden, J. (2002) Doorum Nyoongah Advisory Group Aboriginal Community Economic Development and Management Proposal. Unpublished, Doorum Nyoongah Advisory Group Aboriginal Corporation, Rockingham, Western Australia.

Hill, A., Semeniuk, C., Semeniuk, V. and Del Marco, A. (1996) Wetlands of the Swan Coastal Plain. Volume 2b. Wetlands Mapping, Classification and Evaluation, Wetland Atlas, Government of Western Australia.

Keighery, B.J., Gibson, N. and Keighery, G.J. (1997) "The regional significance of the flora and vegetation of Garden Island", Proceedings of the Royal Australian Navy Energy and Environment Conference, 14/15 April 1997.

Le Provost, Semeniuk and Chalmer (1987) Environmental significance of wetlands in the Perth to Bunbury Region, Volume 1, Report to the Western Australian Water Resources Council, Perth, Western Australia.

Lofgren, M. (1975) Patterns of Like: The Story of the Aboriginal People of WA, Trustees of the WA Museum, Perth.

Mangles Bay Boat Harbour Steering Committee (1998) Mangles Bay Boat Harbour Evaluation Report, Revised Draft, Landcorp, Perth, Western Australia.

O'Connor, R., Quartermaine, G. and Bodney, C. (1989) Report on an investigation into Aboriginal significance of wetlands and Rivers in the Perth –Bunbury region, Western Australian Water Resources Council, Perth.

Powell, R. (2003) Department of Conservation and Land Management, Personal communication.

Ramsar Convention Bureau (2002) www.ramsar.org.

Regional Parks Task Force (1990) Task Force Report on the Administration, Planning and Management of Region Open Space and Regional Parks in Perth, Western Australia, Report to Cabinet, Department for Planning and Urban Development and Department of Conservation and Land Management, Perth.

Rippey, E. and Rowland, B. (1995) Plants of the Perth Coast and Islands, University of Western Australia Press, Perth.

Searle, D., Semeniuk, V. and Woods, P. (1988) "Geomorphology, stratigraphy and Holocene history of the Rockingham-Becher Plain, South-western Australia" in Journal of the Royal Society of Western Australia, 70(4): 89-109.

Semeniuk Research Group (1991) Wetlands of the City of Rockingham: their classification, significance and management. A report to the City of Rockingham and the Western Australian Heritage Committee, The Group, Warwick, Western Australia.

Stankey, G. H. and Wood J. (1982) "The Recreation Opportunity Spectrum: An Introduction" in Australian Parks and Recreation.

State Government of Western Australia (1979) Rockingham Yesterday, Today and Tomorrow, State Government of Western Australia, Perth.

State Weed Plan Steering Group (2001) A weed plan for Western Australia, Department of Agriculture, Perth.

Stephenson, G. and Hepburn, J. (1955) Plan for the Metropolitan Region Perth and Fremantle Western Australia, Government Printer, Perth.

Tingay, A. and S.R. (1977) The Lakes Regional Open Space: biological survey for the Shire of Rockingham.

Tingay and Associates (1997) Proposed Port Kennedy and Rockingham Parks Management Framework, Western Australian Planning Commission, Port Kennedy Board of Management, City of Rockingham and the Department of Conservation and Land Management, Perth.

Tingay and Associates (1998) A Strategic Plan for Perth's Greenways, Final Report, Perth, Western Australia.

Tingay and Associates (1999) Lark Hill Regional Sport and Recreation Complex Management Strategy, City of Rockingham.

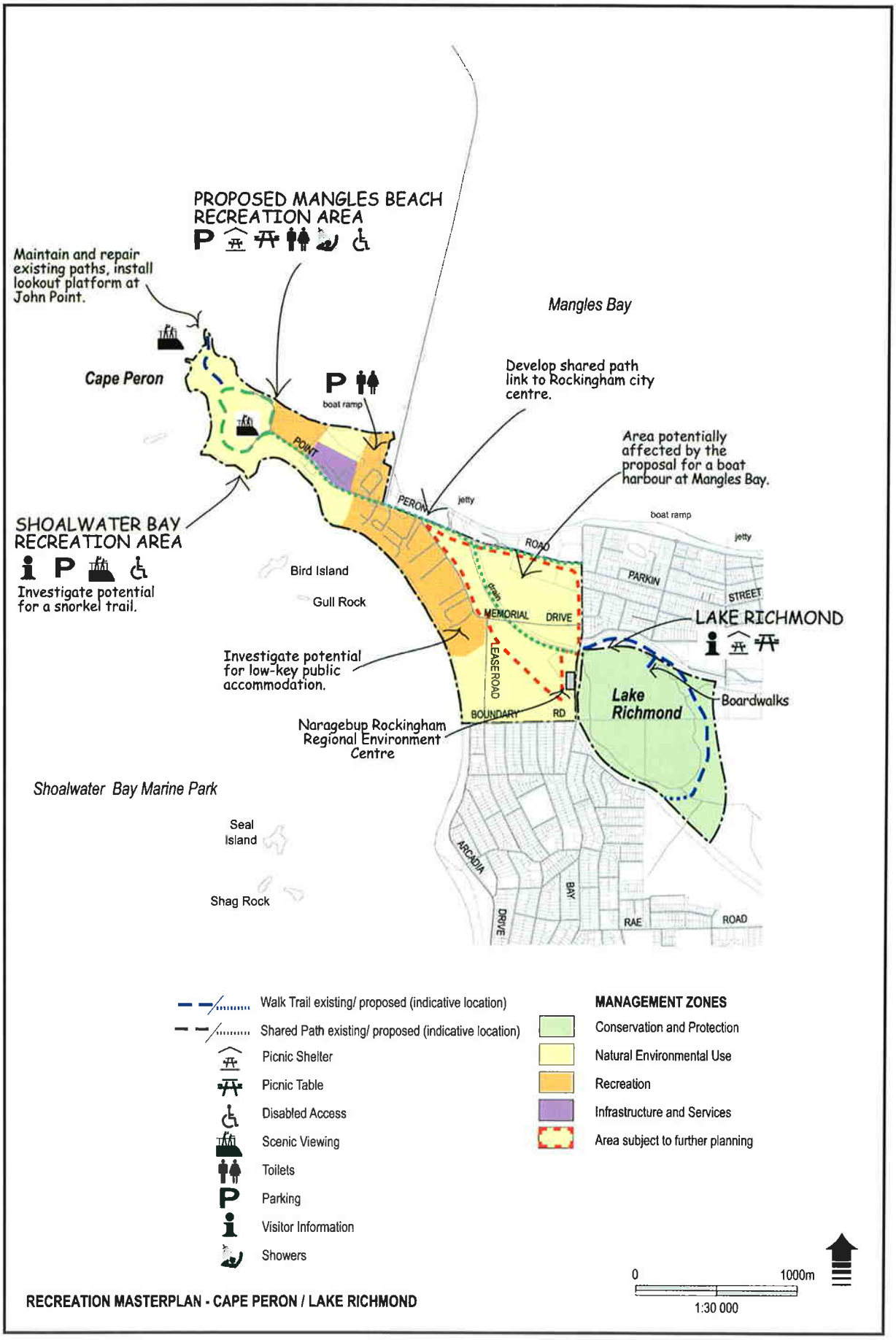
Walley, T. (2002) Department of Conservation and Land Management, Personal communication.

Western Australian Planning Commission (2000) Western Australia Tomorrow: Population Projections for the statistical Division, Divisions, Planning Regions and Local Government Areas of Western Australia, Western Australian Planning Commission, Perth.

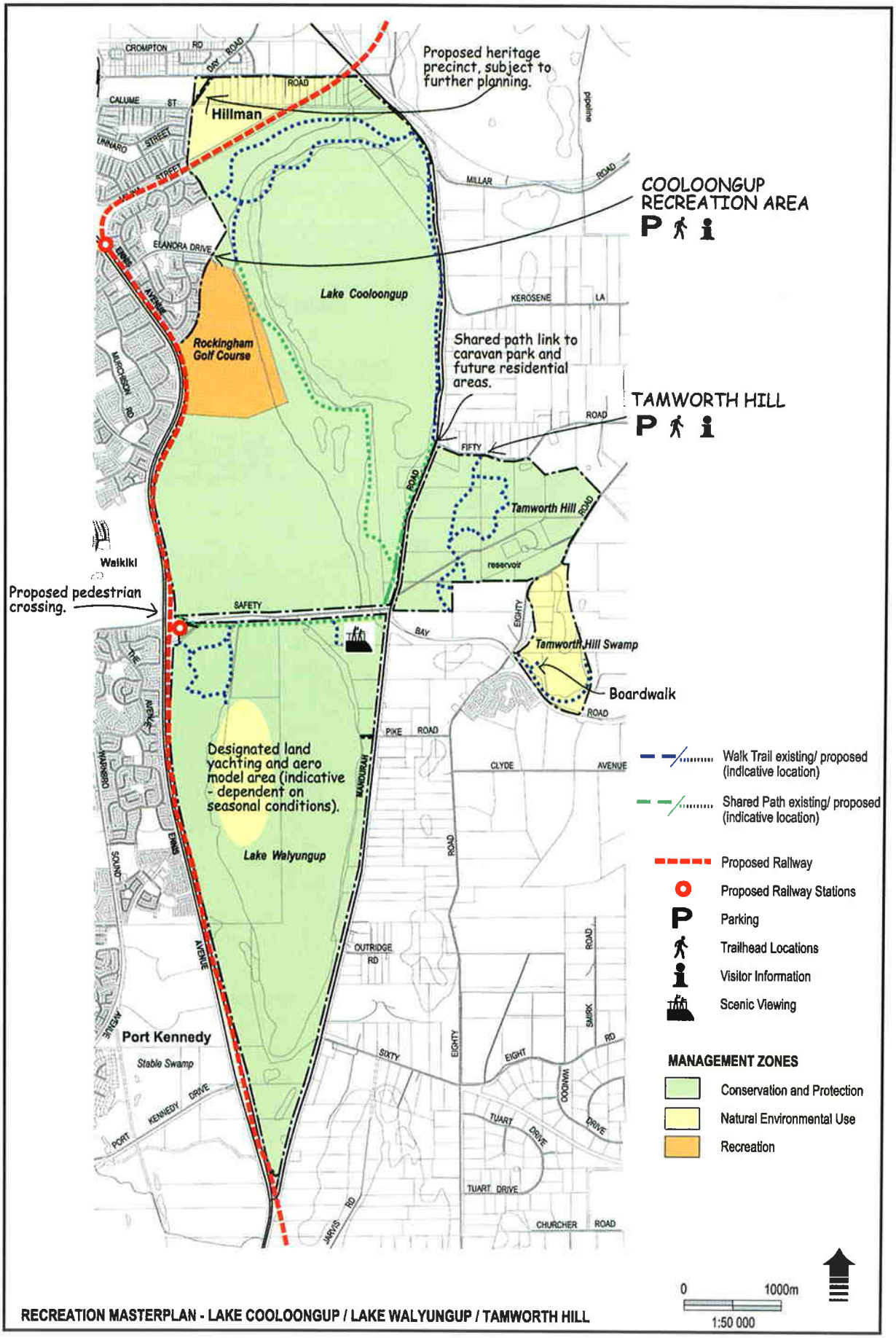
Western Australian Planning Commission (1992) The Cape Peron Study, A Framework for Future Tourist/Recreational Use, Western Australian Planning Commission, Perth.

Woods, P. (1988) Rockingham Coastal Study, State Planning Commission, Perth.

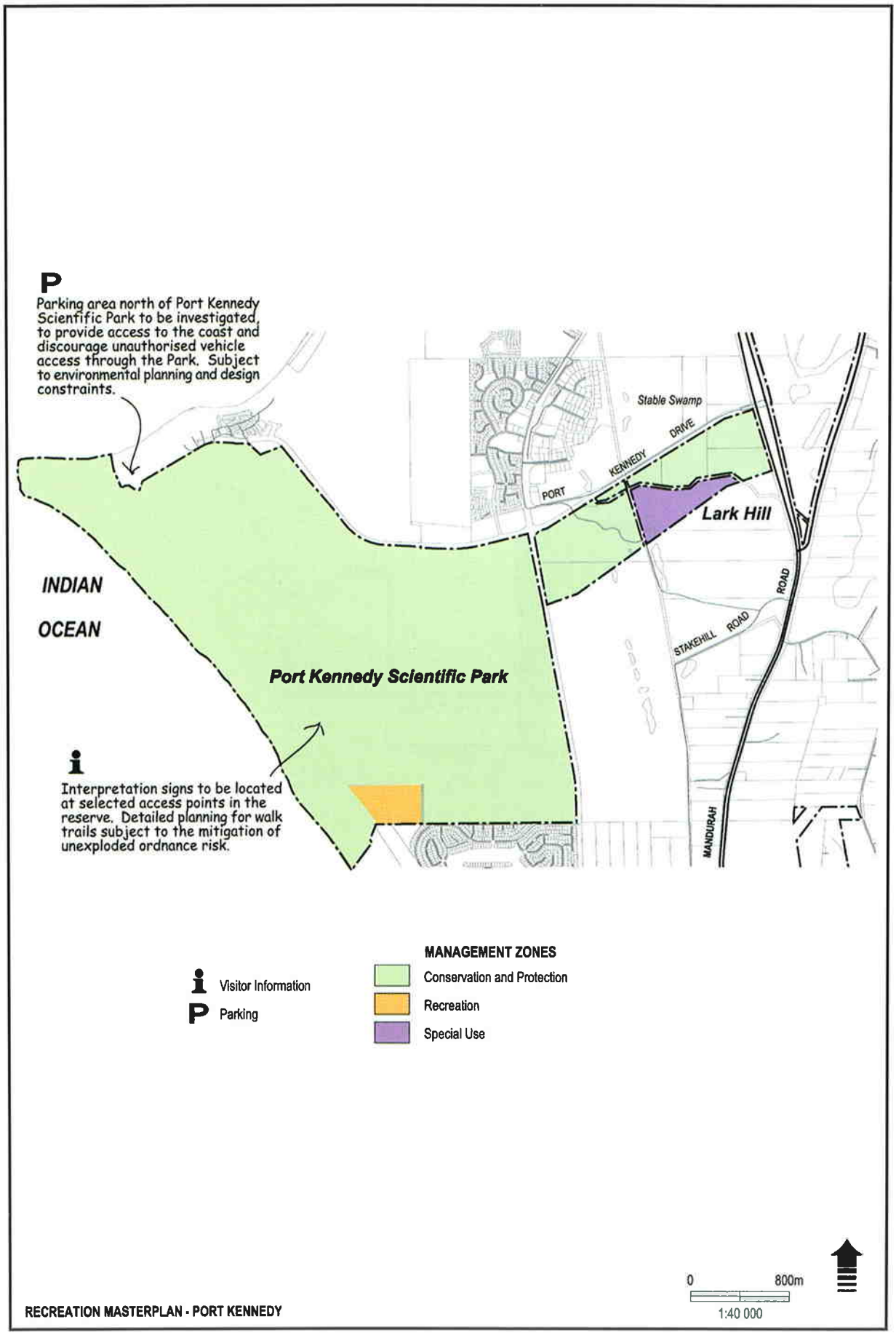
**Appendix A – Recreation Masterplan**



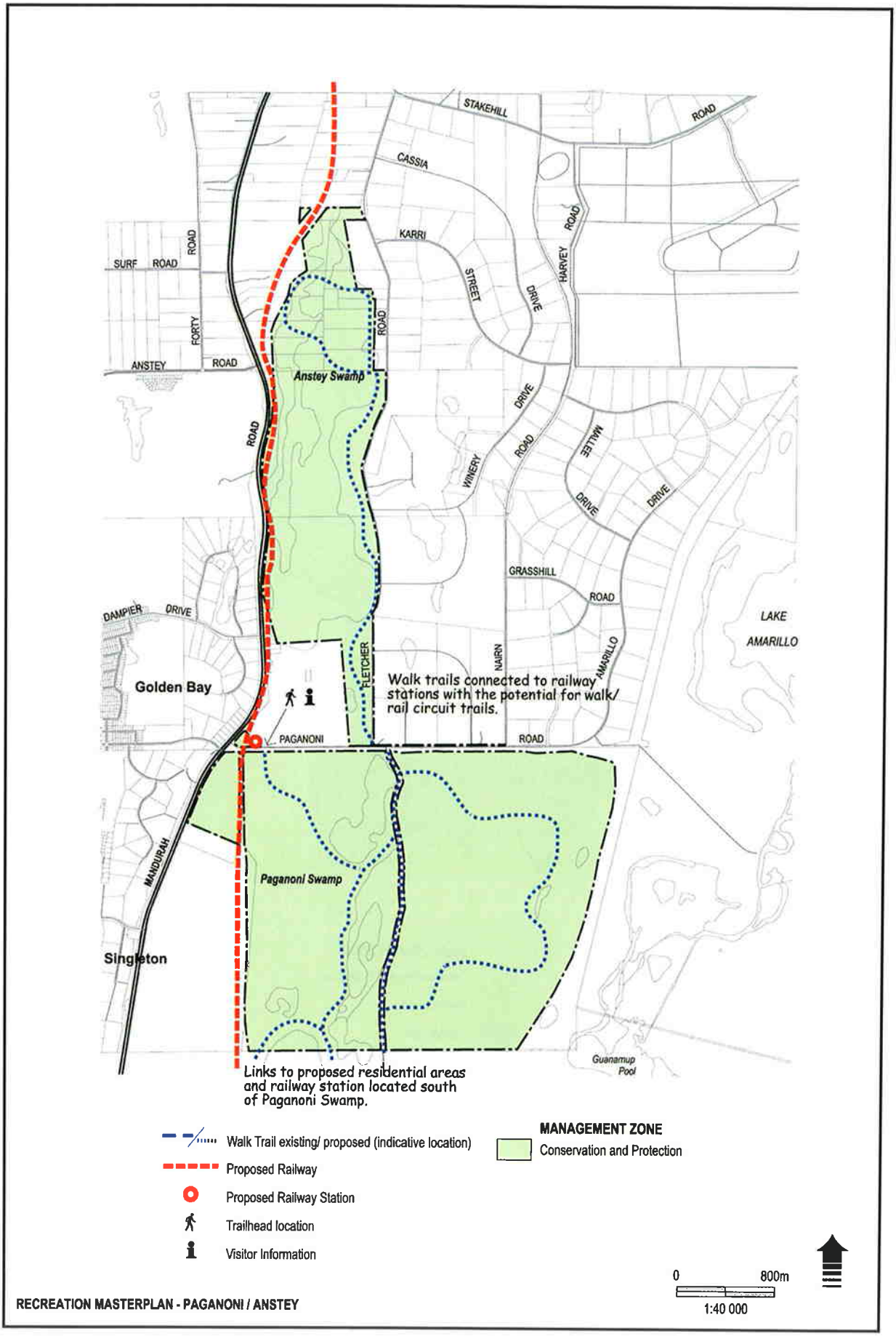
## Appendix A – Recreation Masterplan



## Appendix A – Recreation Masterplan



## Appendix A – Recreation Masterplan



## Appendix B - Acronyms used in the Plan

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|---|---|
| AHD | Australian Height Datum |
| DCLM | Department of Conservation and Land Management |
| CAMBA | China Australia Migratory Bird Agreement |
| CoR | City of Rockingham |
| CCWA | Conservation Commission of Western Australia |
| DMPR | Department of Minerals and Petroleum Resources |
| DoE | Department of Environment (amalgamation of the Department of Environmental Protection and Water and Rivers Commission) |
| DPI | Department for Planning and Infrastructure (incorporating the administration of *Land Administration Act 1997*, including administration of Crown Land, formerly undertaken by Department of Land Administration) |
| DSR | Department of Sport and Recreation |
| EPA | Environmental Protection Authority |
| FESA | Fire Emergency Service Authority |
| ICOMOS | International Charter for the Conservation of Monuments and Sites |
| JAMBA | Japan Australia Migratory Bird Agreement |
| MRS | Metropolitan Region Scheme |
| RCRB | Recreation Camps and Reserve Board |
| UXO | Unexploded Ordnance |
| WAPC | Western Australian Planning Commission |

## Appendix C - Glossary

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|---|---|
| Class A Reserves | Under Section 42 of the *Land Administration Act 1997*, the Minister for Lands may by order classify a reserve as a class A reserve, for one or more purposes in the public interest. The Act outlines special procedures that apply to certain changes to class A reserves and conservation reserves.<br>(*Land Administration Act 1997*, Sections 41, 42 and 43) |
| Declared Rare Flora | Declared Rare Flora describes threatened flora; plant species that are declared rare under Section 23F of the *Wildlife Conservation Act 1950* as flora likely to become extinct or which are rare or otherwise in need of special protection. To be declared rare, plant species must meet well-defined criteria, which include the thoroughness of searches for the species, its rarity and the danger of extinction. A number of criteria are used to define Declared Rare Flora. These are related to the taxon being well defined and readily identifiable and the extent to which the taxon's distribution in the wild has been recently determined by competent botanists. The status of a threatened plant in cultivation has no bearing on the matter.<br>(Government of Western Australia, 2000) |
| Fauna "Specially Protected" under the *Wildlife Conservation Act 1950* | Under the *Wildlife Conservation Act 1950* the Minister for the Environment may declare species of fauna to be "Specially Protected" if they are likely to become extinct, or are rare, or are birds protected under and international agreement, or are otherwise in need of special protection. These species are considered threatened fauna and receive special consideration in management by the Department of Conservation and Land Management.<br>(Government of Western Australia, 2000) |
| High Water Mark | In relation to tidal waters, means ordinary high water mark at spring tides.<br>(*Land Administration Act 1997, Section 3*) |
| Priority Fauna | The Department of Conservation and Land Management maintains a list of Priority Fauna. Taxa may be assigned one of four categories, as follows:<br>▪ Priority One: taxa with few, poorly known populations on threatened lands;<br>▪ Priority Two: taxa with few poorly known populations on conservation lands;<br>▪ Priority Three: taxa with several, poorly known populations, some on conservation lands;<br>▪ Priority Four: taxa in need of monitoring.<br>(Government of Western Australia, 2000) |
| Priority Flora | Priority Flora are taxa that are under consideration for declaration as 'rare flora' but are in need of further survey or continued monitoring (see Declared Rare Flora). A "Declared Rare Flora and Priority Flora List" is published each year by the Department of Conservation and Land Management. The list recognises four categories of Priority Flora.<br><br>Priority 1 – Poorly known taxa (1) refers to taxa that are known from one of a few (generally less than five) populations which are under threat, either due to small population size, or being on lands under immediate threat (eg. urban areas) or the plants are under threat (eg. from disease). May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as "rare flora" but are in urgent need of further survey.<br><br>Priority 2 – Poorly known taxa (2) refers to taxa that are known from one or a few (generally less than five) populations, at least some of which are not believed to be under immediate threat (ie. not currently endangered). Such taxa are under consideration for declaration as "rare flora" but are in urgent need of further survey.<br><br>Priority 3 – Poorly known taxa (3) refers to taxa that are known from several populations, and are not believed to be under immediate threat (ie. not currently endangered). Such taxa are under consideration for declaration as "rare flora" but are in urgent need of further survey.<br><br>Priority 4 – Rare Taxa (4) refers to taxa that are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5 - 10 years.<br>(Government of Western Australia, 2000) |

## Appendix C – Glossary (continued)

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| Threatened Ecological Community | The Western Australian Threatened Species and Communities Unit (Department of Conservation and Land Management) has developed a procedure for identifying "Threatened Ecological Communities". Ecological communities are defined as "naturally occurring biological assemblages that occur in a particular type of habitat". Threatened Ecological Communities are those that have been assessed and assigned to one of four categories related to the status of the threat to the community. The categories are:<br>▪ presumed totally destroyed;<br>▪ critically endangered;<br>▪ endangered;<br>▪ vulnerable.<br><br>The Threatened Ecological Communities in Rockingham Lakes Regional Park are all assigned "critically endangered" status. This category refers to an ecological community which has been adequately surveyed and found to have been subject to a major contraction in area and/ or which was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.<br><br>Some Threatened Ecological Communities are listed as "endangered" under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The Threatened Ecological Communities in Rockingham Lakes Regional Park all have this status. This means that actions that are likely to have a significant impact on the Threatened Ecological Communities require Commonwealth environmental impact assessment and approval under the Act.<br>(Government of Western Australia, 2000) |
| Ramsar Convention | The Ramsar Convention provides a framework for international cooperation in the conservation and wise use of wetlands. Wetlands listed under the Ramsar Convention are specially protected under the Commonwealth *Environment Protection and Biodiversity Act 1999* and are also listed on the Directory of Important Wetlands in Australia.<br>(Ramsar Convention Bureau, 2002) |

## Appendix D - Contacts

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