Yellagonga Regional Park

Management Plan 2003-2013

MANAGEMENT PLAN 48

GOVERNMENT OF WESTERN AUSTRALIA

DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

CITY OF JOONDALUP

CITY OF WANNEROO

Yellagonga Regional Park

Management Plan

2003 - 2013

PLANNING TEAM

This plan was co-ordinated by a consultancy team led by Plan E working closely with the managers of Yellagonga Regional Park – the Department of Conservation and Land Management, the City of Joondalup and the City of Wanneroo. The Planning Team prepared the plan for the Conservation Commission of Western Australia.

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PREFACE

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

Regional parks were first proposed in the Stephenson - Hepburn Report of 1955, which later formed the basis of the Perth Metropolitan Region Scheme in 1963. Since then, State planning agencies have been acquiring suitable private 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 NPNCA, now the Conservation Commission of Western Australia. Eight regional parks were recognised as formal identities, with the co-ordination of their management 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 of the State and local governments to coordinate the management of Yellagonga Regional Park. The role of the Department of Conservation and Land Management in regional park management is two-fold. Firstly, it is to manage the areas of regional parks that are vested in the Conservation Commission of Western Australia. Secondly, it is responsible for coordinating the management of regional parks. The latter is initiated through the preparation of management plans for the parks.

The Yellagonga Regional Park is important in terms of both the conservation values and the recreational opportunities it provides within a highly urbanised environment. This Management Plan, which is based on previously prepared ecological, recreational and historical surveys, seeks to establish a clear vision for how this important public asset can best be managed and protected.

The Park faces a number of critical management challenges, many of which originate from the surrounding water catchment area and urban development such as storm water and groundwater pollution. Other management issues effecting the Park include the invasion of weeds, the occurrence of fire, rubbish dumping, the presence feral animals and pests, uncontrolled visitor access, poor control of domestic pets, degradation of heritage sites, fauna habitats and bushland areas as well as the demand for access to the Park by the community. The elongated boundaries of the Park also create management difficulties in attempting to minimise the overall impacts of external influences on the Park.

This management plan cannot solve all of the ecological problems affecting the Park, especially those that emanate from surrounding land uses and are whole of catchment issues. This plan is not a catchment management plan, however it identifies matters that are directly affecting the Park from within the catchment. Any planning for the catchment of the wetlands within the Park should complement this management plan. Presently, integrated catchment management for the wetlands within the Park is being undertaken through the Yellagonga Catchment Group and the Cities of Joondalup and Wanneroo.

Work by management authorities, which is supported by the local community, is already taking place in the Park. This management plan aims to protect the Park's conservation areas and provide a sound basis for planning to rehabilitate degraded areas, whilst allowing for recreational activities that will not compromise the natural assets of the Park.

ACKNOWLEDGMENTS

Numerous individuals and groups have contributed valuable ideas and information in the preparation of this Plan and their efforts are gratefully acknowledged.

In particular, the contributions of the Yellagonga Regional Park Community Advisory Committee are appreciated. Past and present Committee members who contributed to the preparation of this Plan include Mr Peter McKenzie (Chair); Mr Laurie Boylan; Dr Mike Bamford; Dr Hugo Bekle; Mr David Udy; Mr Trevor Moran; Mr David Stalker; Mr Luke Edwards; Mrs Dot Newton and Mr Bill Evans. The efforts of the consultancy team comprising, David White, Rod Safstrom, John Wood, John Tuzee, Bill James, and Linda Taman are also acknowledged.

NOMENCLATURE

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

CITY OF JOONDALUP AND CITY OF WANNEROO

The Cities of Joondalup and Wanneroo have worked closely with Department of Conservation and Land Management in the preparation of this Management Plan. In partnership with the Department of Conservation and Land Management, the Cities will use the Plan as a guide in managing the Park and the many issues that impact upon it.

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

All national parks, conservation parks, nature reserves, and other conservation reserves in Western Australia 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. A Draft Management Plan for Yellagonga Regional Park was prepared by the Department of Conservation and Land Management and issued for public comment in April 2000. Forty-five submissions were received and were considered in the preparation of this Final Plan prior to its approval by the Conservation Commission of Western Australia and the Minister for the Environment and Heritage.

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A. INTRODUCTION

1 - Purpose and Status of the Management Plan

PURPOSE OF THE PLAN

The purpose of this Management Plan ("the Plan") is to provide broad direction for the protection and enhancement of the conservation, recreation and landscape values of Yellagonga Regional Park ("the Park"). It will do this by developing strategies aimed at conserving the special features of the Park as well as anticipating 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 (refer Section 5 – Vision for the Park).

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 41). Examples of subsidiary plans include a weed management plan (Section 17), a rehabilitation plan (Section 21) and site development plans for specified Park areas (Section 28).

STATUS OF THE PLAN

This Plan provides statutory direction over all lands and waters of the Park vested in the Conservation Commission of Western Australia and managed by the Department of Conservation and Land Management. The Plan will act as an "umbrella" document coordinating existing plans for specific areas of the Park. Implementation of existing area plans, such as the Lake Goollelal Management Plan, 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 that complements the Yellagonga Regional Park Management Plan.

The Conservation Commission of Western Australia endorses this Plan and acknowledges that the Department of Conservation and Land Management has the responsibility for coordinating the management of the Park. In consultation with the Department of Conservation and Land Management, the Western Australian Planning Commission (WAPC) will use this Plan to assist with the assessment of development proposals on lands within and adjoining Yellagonga Regional Park.

The Cities of Joondalup and Wanneroo have worked closely with the Department of Conservation and Land Management in the preparation of this Management Plan. In partnership with the Department of Conservation and Land Management, the Cities will use the Plan as a guide in managing the Park and the many issues that impact upon the Park.

2 - Regional Parks

WHAT IS A REGIONAL PARK?

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

Regional parks may comprise of Crown land 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 could comprise collectively of lands with a variety of tenures and reserve purposes. They could be a package of multi-purpose, multi-vested reserves drawn together for coordinated management by the Department of Conservation and Land Management. Yellagonga Regional Park for example consists of land comprising Crown reserves vested in the City of Joondalup, City of Wanneroo, and the Conservation Commission of Western Australia as well as freehold land owned by the WAPC and private individuals.

Those lands that have been acquired by the WAPC for inclusion into the Park are now to be transferred to the Conservation Commission of Western Australia and the respective local governments for management as part of the 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 national parks or 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 by the Stephenson - Hepburn Report in 1955, which recommended that a statutory region plan be prepared for Perth which reserved private land required for future public purposes. In I963, 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.

The Environmental Protection Authority's (EPA) *Conservation through Reserves Report for Western Australia, The Darling System – System 6 (DCE, 1983)*, identified areas with regionally significant conservation, landscape and recreation value. It 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 which surrounded the Lakes of Joondalup and Goollelal (System Six Recommendation M7).

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 Department for Planning and Infrastructure (DPI) on behalf of the WAPC.

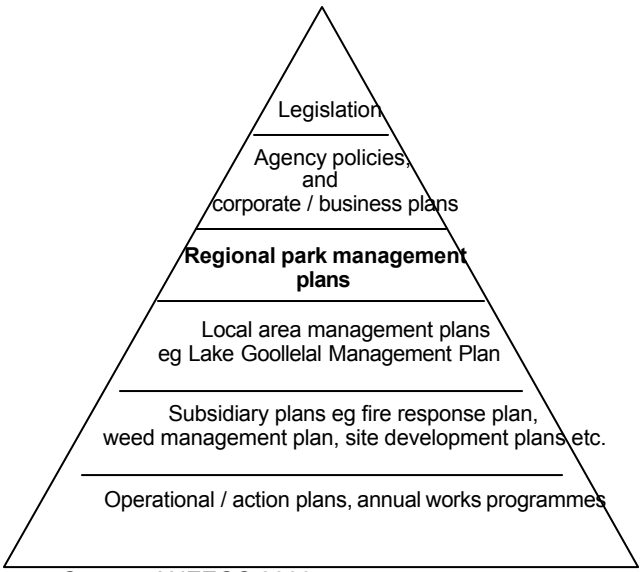
A task force report (1990) was prepared by the former Department of Planning and Urban Development (DPUD) and the Department of Conservation and Land Management outlining proposed administration, planning and management of regional open space.

The EPA's *Red Book: Status Report (1993)* 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 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.

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

Implementation of local area management plans such as the Lake Goollelal Management Plan plans will need to be consistent with the overall direction of this Plan.

The preparation and implementation of subsidiary plans are listed as specific strategies within the relevant sections of this plan.

Action plans, operational plans and annual works programmes will be prepared to guide maintenance and operational works within the Park.

The community is encouraged to become involved in aspects of planning for the Park by joining the Yellagonga Regional Park Community Advisory Committee or by contacting the managing agencies listed in Appendix 1.

3 - Yellagonga Regional Park

In 1975, most of the lands that now comprise Yellagonga Regional Park were reserved as "Parks and Recreation" in the MRS. Since that time most of the private lands within the Park have been acquired by State planning authorities through the Metropolitan Region Improvement Fund Tax, or ceded free of cost to the Crown as a condition of subdivision.

The Park was named Yellagonga Regional Park in 1990 to honour Yellagonga, the leader of the Mooro people who inhabited the region north of the Swan River at the time of European settlement.

The *Yellagonga Regional Park Planning Review (DPUD, 1992a)* identified the area of land to be included in the Regional Park and recommended steps for its establishment and administration. The Planning Review report suggested minor amendments to the MRS relating to the Park's boundaries, land acquisition and tenure arrangements as well as recommending that a Community Advisory Committee be formed to provide advice during the establishment phase.

The Planning Review report also proposed that a management plan for Yellagonga Regional Park be prepared by the Department of Conservation and Land Management in conjunction with relevant local governments and the Conservation Commission of Western Australia.

OVERVIEW

Yellagonga Regional Park is currently one of eight regional parks within the Perth metropolitan region. It is located approximately 20km north of Perth City and 6km from the Indian Ocean. It is approximately 13km long and varies in width from 1 to 1.5km. The Park comprises 1400 hectares and is primarily focussed on a wetland system that includes Lake Joondalup, Beenyup and Walluburnup Swamps, Lake Goollelal and the surrounding lands reserved in the MRS for "Parks and Recreation". It is of regional importance because of its natural, cultural and recreational resources in a rapidly growing suburban area. Additionally the Park provides an important (north/south) link with Neerabup National Park and

Yanchep National Park. Figure 2 shows the location of the Park.

The lakes and wetlands are the dominant landscape features of the Park. These lakes and wetlands are surface expressions of groundwater, which emerges in interdunal swales within the Spearwood Dune System as a chain of linear lakes and wetlands. This chain of lakes begins 21 kilometres to the north at Loch McNess in Yanchep and extend south to Lake Goollelal. Lake Joondalup, the largest of the water bodies, lies in the northern half of the Park. Walluburnup and Beenyup Swamps are located centrally within the Park, and Lake Goollelal is situated in the southernmost part of the Park.

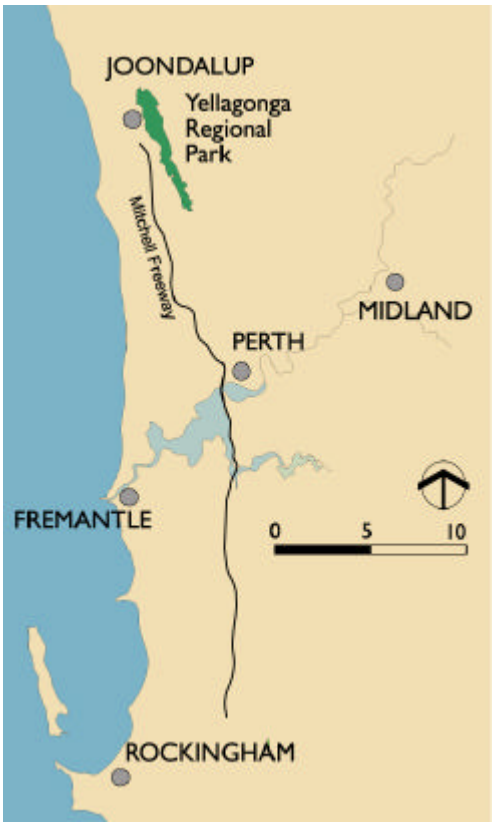


Figure 2 - Park Location

A wide range of recreational opportunities and facilities are available to Park visitors. Natural features such as Lake Joondalup and Lake Goollelal along with parkland settings at Neil Hawkins Park attract many people to the Park. The open space and water bodies provide significant conservation and amenity values within the rapidly developing surroundings. The lakes and wetlands also provide research and educational opportunities for better understanding urban lakes and wetlands, their ecosystems and groundwater interaction.

Yellagonga Regional Park adjoins the City Centre of Joondalup, the regional focus of Perth's North West Corridor. In 1996 the population of the former City of Wanneroo (now the City of Joondalup and the City of Wanneroo) was 213,368. The rapid growth in the City of Joondalup and the City of Wanneroo is expected to continue, with the population anticipated to grow to over 415,000 by 2021 (DPUD, 1992). The Park's regional focus will also attract visitors from a broad area within metropolitan Perth.

The pressures on the Park and challenges to the managing agencies will continue to grow over time. It will be the role of the Park managers with support from the community to implement this Plan to effectively manage and counter those pressures.

PARK VALUES

Natural Environment Value

Yellagonga Regional Park contains a wide variety of ecosystems from upland forest, fringing wetland and aquatic vegetation to open water bodies. This rich diversity and complexity of ecosystems has very high conservation value within a rapidly expanding urban setting. The wetlands within the Park are some of the last remaining freshwater wetland systems on the Swan Coastal Plain.

The vegetation communities found within the Park are significant as they are representative of communities once widespread on the Swan Coastal Plain but now significantly cleared. The vegetation on the upland areas surrounding the wetlands was once Jarrah - Marri - Banksia (*Eucalyptus marginata - Corymbia calophylla - Banksia attenuata*) Open Forest, and Tuart-Jarrah - Marri (*Eucalyptus gomphocephala - Eucalyptus. marginata - Corymbia calophylla*) Open Forest.

The wetlands of the Park serve as important breeding grounds for local birds and as a summer refuge for a diverse bird population, some of which are trans-equatorial migratory wading birds. The diversity of wetland and upland habitats comprising Fringing Paperbark Woodland (*Melaleuca rhaphiophylla*) and Flooded Gum Woodland (*Eucalyptus rudis*) provide habitat for a variety of waterbirds and bushbirds.

Lake Joondalup is considered of national significance and is listed on the Register of the National Estate.

Cultural Heritage Value

Yellagonga Regional Park has cultural and historical significance to both Aboriginal and non-Aboriginal people. There are seven listed Aboriginal sites within the Park known to the Department of Indigenous Affairs (DIA) and another four sites adjoining the Park. In addition, there are other possible sites, which are yet to be listed by the DIA.

Land comprising Yellagonga Regional Park is significant to the local Aboriginal people (Nyungars) because it was an important camping area used widely for watering, food-gathering, camping and tool-making, hunting and corroborees, and summer social life (Brittain, 1990).

In the Aboriginal seasonal cycle of camp movements, it was used as an east-west staging between the foothills and the ocean, and a north-south staging between Mt. Eliza and the Moore River. The lands of Yellagonga Regional Park comprised a significant camp due to its centrality within the Mooro district, its proximity to the ocean and other lakes and the abundance of food

including wildfowl, kangaroos and other marsupials (Brittain 1990).

According to Mr Ken Colbung, Yellagonga Regional Park is important to the present Nyungar people forming part of their Dreaming (DPUD 1992a).

The Park also contains historical remnants of early European settlement. Brittain (1990) notes 100 items, people, places or events that are of significance within and surrounding Yellagonga Regional Park.

Landscape Value

Yellagonga Regional Park provides significant landscape and amenity value to the region. The Park's landscape provides strong visual connections both within and into surrounding areas. Significant views of the major water features including the lake landscapes of Joondalup and Goollelal can be appreciated from many vantage points around the Park. These views are an important part of the Park's identity. The relationship of adjoining land uses to the Park's landscape can have a significant impact on the overall amenity of the Park.

Many landscape character types contribute to the overall high visual quality of the Park ranging from mature woodland areas to extensive views of open water (along with its wildlife) to well maintained areas of grassed parkland.

Recreational Value

Yellagonga Regional Park is of high recreational value as it provides opportunities for a wide range of passive and active recreation.

Of particular significance is the opportunity to recreate in natural environments that are relatively undisturbed yet close to urban areas. A wide variety of natural features such as the lakes, wetlands and bushland areas, provide visitors with a multitude of experiences and recreational opportunities. It is these features in a natural park setting that attract people to the Park.

There are many recreational opportunities available to Park visitors including picnicking, bushwalking, bird watching and general nature observation. Additionally, recreation pursuits such as bicycle riding will be catered for in the future.

Yellagonga Regional Park contains a number of smaller recreation nodes catering for informal recreation. They offer a variety of settings, facilities and recreation opportunities. Neil Hawkins Park, which is the main recreation node of the Park, caters for family picnics, large group activities and summertime outdoor concerts and performances. Picnic Cove Park and Banyandah Park are less developed, providing opportunities for small groups and informal recreational activities.

The eastern bank of Lake Joondalup caters for active sporting activities at Joondalup Park and Scenic Drive Park. Indoor sporting and community activities occur at Wanneroo Indoor Community Recreation Centre.

Yellagonga Regional Park also presents recreational value in terms of its rich cultural heritage and historical background. Two heritage trails are located within the Park. The Lake Joondalup Trail is a 27km self-guided walk/drive trail, which traces the development of Wanneroo around Lake Joondalup. The Yaberoo – Budjara Heritage Trail is a 28km walk trail which links Lake Joondalup and Yanchep National Park and highlights features of local Aboriginal and non-Aboriginal cultural significance in the area.

Perry's Paddock is the site for Wanneroo's Annual Picnic Day and provides a venue for other large-scale outdoor events. The annual picnic is an important social day for the people of Wanneroo.

Cockman House also offers recreational value for those interested in local history and its relationship to the Park. It provides an example of a typical limestone cottage of the early settlers to the area.

Commercial Value

There are opportunities for the establishment of commercial operations within Yellagonga Regional Park. These could range from hire facilities at activity nodes around the Park, to a kiosk or restaurant, to education facilities providing interpretation and information about the natural environment and cultural values of the Park. Such facilities should complement the values of the Park and so engage Park visitors to interact in new ways – without compromising or degrading the qualities of the environment. Operations that reinforce the natural or cultural values of the Park will be the most appropriate and valuable enterprises.

Research Value

Yellagonga Regional Park has significant research and scientific values. On one hand, it contains rich, dynamic ecosystems with seasonal and periodic variations, subject to considerable external pressures and inputs. On the other hand it has areas with high recreational demand equiring an understanding of changing social use of natural areas for recreation and landscape design.

In particular, the extraction of technical data on wetland ecosystems and water quality makes the Park an extremely valuable resource in gaining technical and managerial expertise that can be applied to other wetlands across the Swan Coastal Plain.

4 - The Management Plan and Community Involvement

This Management Plan has been 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 the Department of Conservation and Land Management, the Department for Planning and Infrastructure, the City of Joondalup and the City of Wanneroo provided advice on the development of the Plan.

3. The third phase involved presentation of the draft Plan for public comment. Its availability for review was widely advertised, the draft was open for public comment for a three month period.

4. Phase four involved the acknowledgement and analysis of public submissions.

5. The fifth phase involved the preparation of the Final Plan incorporating issues or comments raised within submissions. The revised Plan was submitted for adoption by the Conservation Commission of Western Australia and for approval by the Minister for the Environment and Heritage.

B. PRINCIPAL MANAGEMENT DIRECTIONS

5 - The Vision for the Park

The long-term vision for the Park is that:

"Yellagonga Regional Park will be a quality wetland system supported by healthy forest, woodland and parklands with sustainable community use that recognises Aboriginal and non-Aboriginal heritage in a visually harmonious environment."

GOALS

Goals have been set for each major part of the Plan, while objectives designed to achieve these goals have also been identified. The following management goals are proposed for the Park.

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

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

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 costs.

Research and Monitoring
Seek a better understanding of the natural, cultural and social environments, and the impacts of visitor use and Park management.

Community Relations
Promote informed appreciation of the Park's natural environment, cultural values 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 environmental enhancement 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, CJ,CW) [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 policies prepared by the Conservation Commission of Western Australia and the Department of Conservation and Land Management. These policies derive from legislation, principally the *Conservation and Land Management Act 1984* and the *Wildlife Conservation Act 1950*, and associated regulations. Policies are published and distributed throughout the Department as policy statements. They are available to the public on request. These policies, as they relate to this Park, cover aspects such as conservation, recreation and community involvement.

Local Government
The management actions of the City of Joondalup and City of Wanneroo should reflect the intent of this Plan. The local governments involved with the Park will adopt the principles outlined in this Plan as policy for managing their reserves within the Park.

Strategies

1. **Apply Department of Conservation and Land Management and Conservation Commission of Western Australia policies in the management of the Park. (Department of Conservation and Land Management) [Ongoing]**
2. **Prepare a local government policy statement for the management of the Park that reflects the principles outlined in this Plan. (CJ, CW) [High]**

7 - Land Tenure and Park Boundary

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

PARK BOUNDARY

The Yellagonga Regional Park boundary has been determined by the Department for Planning and Infrastructure (DPI) and is based on the boundary advocated by the State Planning Commission (now the WAPC) in 1992.

The existing Park boundary and land tenure at the date of this Plan is shown on Figure 3. The boundary reflects the existing Metropolitan Regional

Scheme (MRS) under which the entire Park is reserved as "Parks and Recreation".

LAND TENURE

Land within the Park consists of reserves administered under the *Land Administration Act 1997* and vested or managed by State government agencies and/or the Cities of Joondalup and Wanneroo, as well as unallocated Crown land and freehold land owned by government agencies and private individuals.

This Plan seeks to determine the most appropriate tenure arrangements for the land comprising the Park. The Plan seeks to reserve land and vest it in either:

- the Conservation Commission of Western Australia;
- the City of Joondalup;
- the City of Wanneroo; or
- the National Trust of Australia (WA)

Crown reserves will be created using the management areas outlined in the Plan's Park Management Zones as a guide (Section 9). New reserves created in the Park may have management orders under the *Land Administration Act 1997* requiring the relevant vested authority to comply with this Plan.

Reserves to be created and vested in the local governments comprise Areas 6, 9, 11 (City of Wanneroo) and 15 (City of Joondalup). The WAPC has agreed to a three-year lease to the National Trust of Australia (WA) for the conservation and interpretation of the State heritage- listed Luisini Winery. As part of this agreement, the National Trust of Australia (WA) will accept vesting of the lands comprising the winery when the lease expires. Additionally, as part of this management planning process, the National Trust of Australia (WA) has agreed to accept the vesting of Area 24 in its entirety. As such Area 24 will be created as a reserve and vested in the National Trust of Australia (WA) (see Figure 4).

The tenure arrangements for some areas of the Park will not change, for instance, Lot 1 Joondalup Drive is to remain vested in the Conservation Commission of Western Australia as a conservation park.

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 into reserves under the *Land Administration Act 1997* and vested in the Conservation Commission of Western Australia or the relevant local government and managed in accordance with this Plan.

Reserves created from WAPC freehold land and vested in the Conservation Commission of Western Australia will be afforded an appropriate purpose for the protection and enhancement of Park values and will be classified as class A under the *Land Administration Act 1997* (refer to Table 1).

As agreed to by the Cities of Joondalup and Wanneroo, reserves created from WAPC freehold and vested in the local governments will be reserved for the purpose of "Public Recreation" and afforded similar tenure arrangements as the reserves vested in the Conservation Commission of Western Australia.

Crown reserves and unallocated Crown land
Crown reserves now vested in the Cities of Joondalup or Wanneroo 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.

Existing Crown land reserved for utilities or services such as drainage will retain their existing reserve purpose and tenure arrangements.

The closure of road reserves considered unnecessary by planning and management agencies will be further investigated. Should road reserves be closed they will be included in the Park and afforded an appropriate reserve purpose and tenure arrangements consistent with the protection and enhancement of Park values (refer to Table 1).

Unallocated Crown land is to be created as reserves and transferred to either the Conservation Commission of Western Australia or the relevant local government. These reserves will also be afforded an appropriate reserve purpose and tenure arrangements consistent with the protection and enhancement of Park values.

Reserve 31048 – Lake Joondalup
Reserve Number 31048 (Lake Joondalup) is currently jointly managed by the City of Joondalup, City of Wanneroo and the Department of Conservation and Land Management. This management arrangement has been in place since October 1971 when the then Western Australian Wildlife Authority and the then Shire of Wanneroo agreed to manage the reserve as a board.

The reserve is to be vested solely with the Conservation Commission of Western Australia and managed by the Department of Conservation and Land Management. The reserve will cover the water body of Lake Joondalup. The wetland vegetation around the perimeter of the Lake will be included in separate reserves and managed in accordance with Table 1 and Figure 4.

The vesting of Reserve Number 31048 solely with the Conservation Commission of Western Australia will not affect the existing arrangements for the implementation of *The Midge Management Strategy for Lake Joondalup (2001)* (Section 19). Midge management will continue to be the responsibility of the City of Joondalup, City of Wanneroo and the Department of Conservation and Land Management given the issue emanates from the surrounding water catchment areas and requires the expertise and resources of the three agencies to be integrated.

Private property
This Plan is not the mechanism by which freehold land, held by private individuals or organisations, is to be acquired by the WAPC. The Department for Planning and Infrastructure on behalf of the WAPC will continue its voluntary land acquisition programme within regional parks. Additionally, the WAPC may require land to be ceded free of cost to the Crown as a condition of subdivision.

Until acquired by the WAPC these lands will remain protected under Perth's Metropolitan Region Scheme by their "Parks and Recreation" reservation.

This Plan will not dictate the management of privately owned freehold land held by individuals or organisations in the Park. However, when the land is acquired by the WAPC, management will be in accordance with the Plan's Park Management Zones (Section 9).

Access by Park visitors to areas of private property owned by individuals or organisations in the Park is not available until it is acquired by the WAPC. Negotiated settlements are required in order to obtain the remainder of private land within the Park boundary. In relation to Lot 102 Goollelal Drive, Kingsley, acquisition by the WAPC is subject to the restrictions imposed by the Deed of Compromise covering this property.

Strategies

1. **Adopt the Park boundary as shown on Figure 3. (Department of Conservation and Land Management, CJ, CW, DPI) [High]**
2. **Create reserves to be vested in the relevant managing agency in accordance with the Management Zones outlined in Table 1 and Figure 4. (DOLA, WAPC, DPI, Conservation Commission of Western Australia, Department of Conservation and Land Management, CJ, CW) [Medium]**
3. **Consider management orders for new reserves to be vested with the relevant local governments requiring compliance with this Plan. (DOLA) [Medium]**
4. **Seek to acquire the remainder of the private land within the Park as soon as practicable from willing landowners. (WAPC) [High]**
5. **Investigate the closure of road reserves within the Park that are considered unnecessary by planning and management agencies. (Department of Conservation and Land Management, DPI, CJ, CW) [Medium]**

8 - Interim Management and Legislative Amendments

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

INTERIM MANAGEMENT ARRANGEMENTS

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

The Department of Conservation and Land Management will coordinate the interim management of the Park by management agreements prepared for Crown reserves and freehold lands controlled by State and/or local government agencies involved in the Park.

A regional park management agreement for interim Park management may comprise either:

- a Section 16 Agreement of the *Conservation and Land Management Act 1984*;
- a Memorandum of Understanding;

Interim management of WAPC owned land
Section 16 of the *Conservation and Land Management Act 1984* allows the Department of Conservation and Land Management to enter into agreements for the management of private (freehold) land.

Following June 1997, when the management responsibility for regional parks was progressively transferred to the Department of Conservation and Land Management, the WAPC and the Department of Conservation and Land Management agreed to enter into a Section 16 agreement under the *Conservation and Land Management Act 1984*. This formal agreement has been finalised and acts as an interim management arrangement prior to the land being vested in the Conservation Commission of Western Australia or the relevant local governments.

The agreement includes all WAPC lands within regional parks with the exception of those leased to local governments or private individuals or organisations.

On lands owned by the WAPC, the Department of Conservation and Land Management can utilise the WAPC (Reserved Land) regulations administered by the Department for Planning and Infrastructure.

Interim management of Crown land and freehold land controlled by government agencies
Local governments and State government agencies will be responsible for managing lands under their control. An overall integrated approach to the interim management of Yellagonga Regional Park will be coordinated by the Department of Conservation and Land Management.

Interim management arrangements for private property

Where individuals or organisations hold private property within the Park, the owner is responsible for its management. The Department of Conservation and Land Management may seek formal management arrangements with individual private landowners within the Park. In relation to Lot 102 Goollelal Drive, Kingsley, should an agreement be sought, it would need to be done so in the context of earlier agreements between the WAPC and the owner.

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 may be included as a function of the Department of Conservation and Land Management in the Act.

Strategies

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

2. **Prepare interagency management agreements for interim park management for areas controlled by State or local government as required. (Department of Conservation and Land Management, Conservation Commission of Western Australia, CJ, CW) [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 protects 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 minimising existing and potential conflicts between uses and activities. They provide a guide to the public uses and management activities which are appropriate in certain areas and indicate which management objectives have priority in any area.

The management zones and areas for the Park are illustrated in Figure 4. They provide a guide for the future vesting of Park areas. However, given there are numerous service and utility reserves in the Park, they should not be used as a detailed schedule for changing land tenure arrangements in the Park.

Within Yellagonga Regional Park four management zones have been identified:

a) Conservation and Protection
b) Natural Environment Uses
c) Recreation
d) Sport and Recreation

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, when 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 (Figure 4). (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

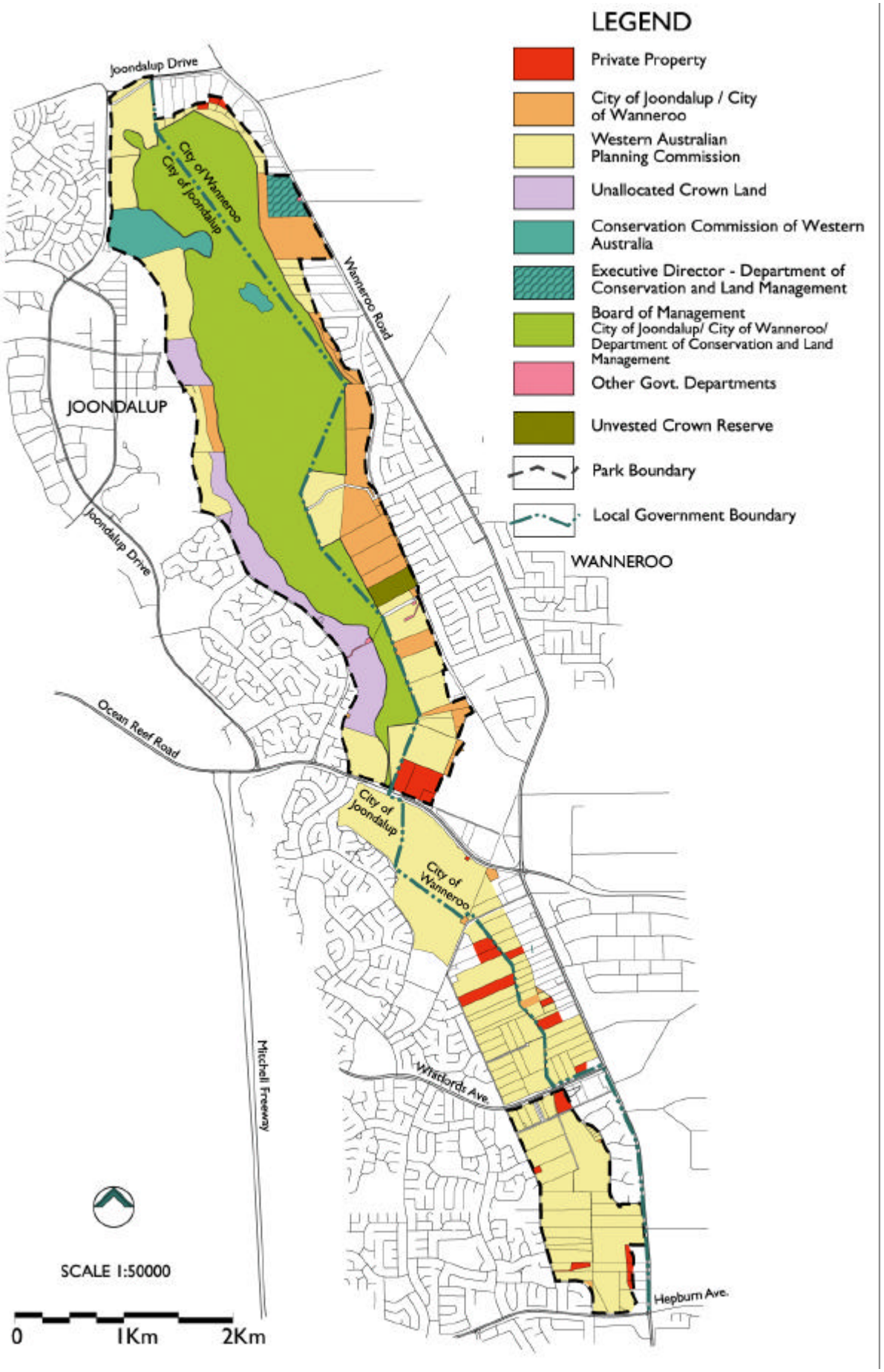


Figure 3 - Existing Land Tenure and Park Boundary

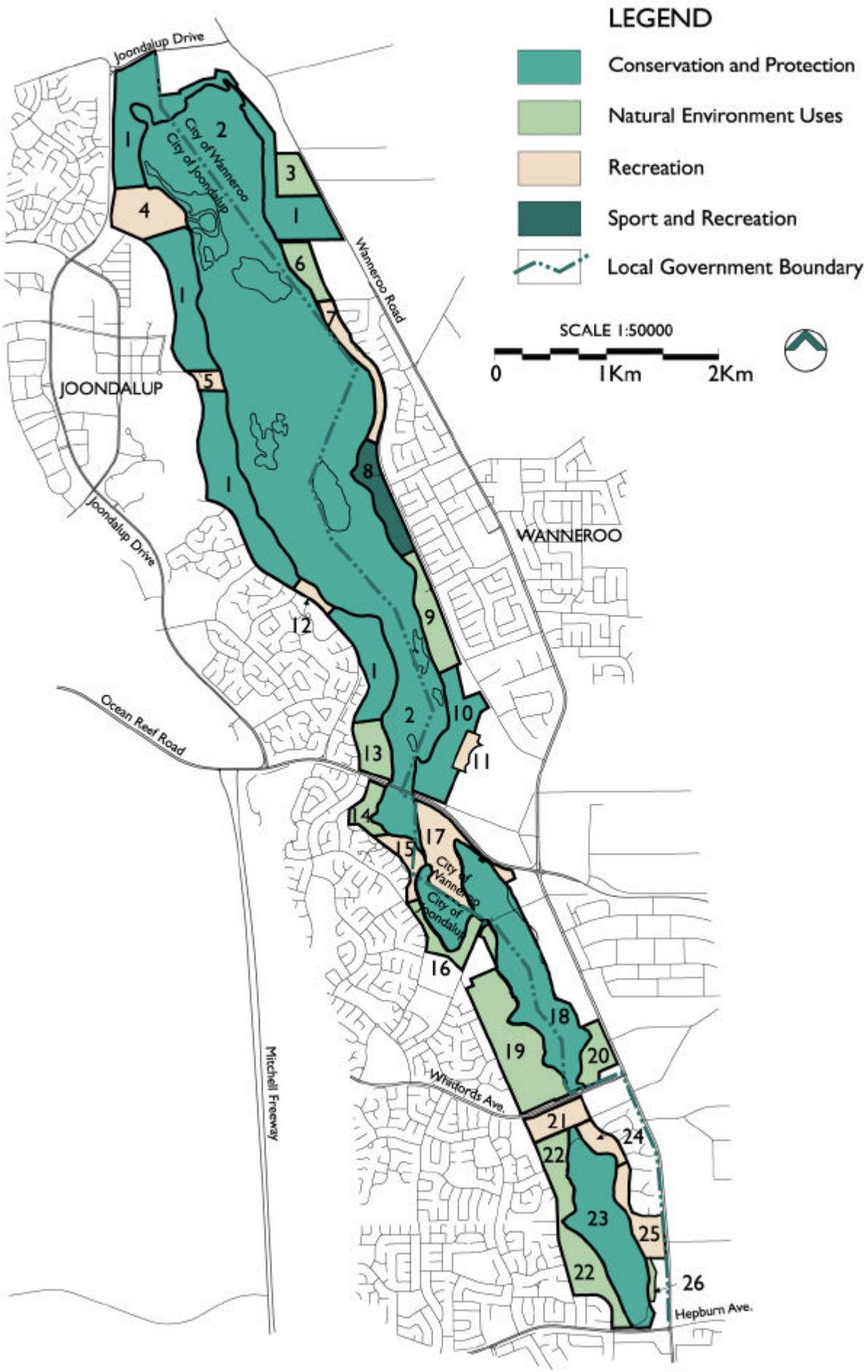


Figure 4 - Management Zones and Areas

Table 1 - Management Zones and Land Tenure

Management Zone	Plan Area	Management Agency	Reserve Purpose	Management Emphasis	Acceptable Uses and Facilities
Conservation and Protection	Area 1	CALM	Conservation Park	The management emphasis of this zone is to protect and where possible, enhance the conservation values and landscape qualities of the Park. Priority will be given to maintaining the natural state of Conservation and Protection Areas with a minimum of impairment. Visible evidence of management will be minimal.	Wetlands or Waterbodies: Restricted public access. Unauthorised watercraft and vehicles prohibited. Development of facilities, boardwalks and observation platforms are acceptable in certain locations (see Figure 8 -Recreation Masterplan). Protection and enhancement of natural habitats to ensure survival of wetland ecosystems is considered essential. Education and research uses allowed. Upland Areas: Public access restricted predominately to nature trails, cycle tracks and through access ways (in certain locations). Development of facilities such as observation platforms are acceptable in limited locations (see Figure 8 - Recreation Masterplan). Rehabilitation of vegetation. Habitat protection for bird species and other fauna is considered essential. Education and research uses allowed.
	Area 2	CALM	Nature Reserve - Conservation of Flora and Fauna		
	Area 10	CALM	Conservation Park		
	Area 18	CALM	Conservation Park		
	Area 23	CALM	Nature Reserve - Conservation of Flora and Fauna		
Natural Environment Uses	Area 3	CALM	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.	Areas are readily accessible by walking trails and cycle paths. Some development of facilities necessary. These may include education nodes and facilities (such as car parks) associated with visitor nodes. Commercial concessions compatible with the values of the area may be considered appropriate within this management zone. The provision of facilities will depend on the values of the area and the community demand for facilities. Rehabilitation and habitat protection will be necessary.
	Area 6	City of Wanneroo	Public Recreation		
	Area 9	City of Wanneroo	Public Recreation		
	Area 13	CALM	Conservation Park		
	Area 14	CALM	Conservation Park		
	Area 16	CALM	Conservation Park		
	Area 17	CALM	Conservation Park		
	Area 19	CALM	Conservation Park		
	Area 20	CALM	Conservation Park		
	Area 22	CALM	Conservation Park		
	Area 26	CALM	Conservation Park		
Recreation	Area 4	CALM	Conservation Park	The prime emphasis of management will be to provide a variety of recreation opportunities. The type and intensity of facility provision 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. Weed control and rehabilitation may be necessary. Visible evidence of management is likely to be high.	Public use may be high in these areas. Predominantly passive recreation pursuits, allowing for park and picnic facility development. Commercial concessions for visitor services may be considered appropriate within this management zone. Weed control, rehabilitation, landscaping and reticulation of areas may be necessary.
	Area 5	City of Joondalup	Recreation		
	Area 7	City of Wanneroo	Public Recreation		
	Area 11	City of Wanneroo	Public Recreation		
	Area 12	City of Joondalup	Recreation		
	Area 15	City of Joondalup	Public Recreation		
	Area 21	CALM	Conservation Park		
	Area 24	National Trust	Heritage Purposes		
	Area 25	CALM	Conservation Park		

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Management Zone	Plan Area	Management Agency	Reserve Purpose	Management Emphasis	Acceptable Uses and Facilities
Sport and Recreation	Area 8	City of Wanneroo	Public Recreation	Sport and Recreation allows for areas to be used for indoor and outdoor sporting activities. Given these areas are of high use, management will endeavour to minimise incompatibilities with surrounding Park areas. Management involves minimising the impact of visitor activities through the sensitive placement and provision of access and facilities. Weed control and rehabilitation may be necessary in certain locations. Visible evidence of management is likely to be high.	High use areas developed for active recreation pursuits. May include sporting ovals, car parking, buildings and reticulated and landscaped areas. Commercial concessions for visitor services may be considered appropriate within this management zone. Weed control, rehabilitation, landscaping and reticulation of areas may be necessary

10 - Integrated Management and Planning of the Park and Adjacent Areas

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, the City of Joondalup and the City of Wanneroo, and their areas of responsibility are set out in the previous section on Management Zones. It is proposed that once the final Plan is 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 the management of complex conservation and recreation areas. The Department of Conservation and Land Management is responsible for managing areas of the Park vested in the Conservation Commission of Western Australia and for the overall coordination of the Park's management. The Cities of Joondalup and Wanneroo will manage areas of the Park to be vested in them in accordance with the strategies outlined in this Plan.

Cooperation is required by the Park's managers and the community for this Plan to be implemented efficiently and effectively. Close liaison with the Cities of Wanneroo and Joondalup will occur regarding the management of the Park, with the Department of Conservation and Land Management meeting with the local governments on a formal basis as required. Strategic decisions will involve input and negotiation between the land management agencies. Joint working parties, comprising representatives from the Department of Conservation and Land Management, the local governments and relevant State government agencies, will be established to facilitate the preparation of detailed implementation plans for the Park. The different levels of planning are illustrated in Figure 1.

In relation to the management of wetland vegetation at Lake Joondalup, the City of Wanneroo and City of Joondalup will be responsible for the fringing wetland vegetation immediately adjacent to the upland areas under their control, and not for the wetland vegetation that extends into the water body of Lake Joondalup (see Figure 4).

A common management direction

The establishment of a management structure, common goals and agreement on priorities are necessary for safeguarding this regional resource where a number of land owners, the general public and interest groups are involved. This Plan has been written in conjunction with the proposed land managers, and comments were 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 wetlands within the Park emanate from surrounding land uses and activities from within the water catchment area.

Planning for areas surrounding the Park is determined at both the State and local government level. At the State level, the Western Australian Planning Commission (WAPC) is responsible for administering the Metropolitan Region Scheme (MRS). The MRS is a large-scale town-planning scheme for land use in the Perth metropolitan area. The Scheme defines the future use of land, 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 Metropolitan Region Scheme.

A threat to the wetlands in the Park is pollution and nutrient enrichment entering the wetlands and water bodies of the Park through groundwater, storm water and surface water runoff. While broad strategies dealing with inappropriate land uses within the catchment and upgrading sewerage infrastructure are raised in Section 14, 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 catchment of the Park needs to consider potential adverse environmental impacts on the wetlands within the Park. Planning and environmental assessment authorities should encourage and facilitate the relocation of adjacent land use practices, which lead to the leaching and run-off of nutrients and pollutants into the wetland system (Section 14).

As stated in the Preface, this Management Plan cannot solve all of the ecological problems affecting the Park, especially those that are whole of catchment issues. Planning for land uses within the catchment needs to occur on a whole of catchment basis. A comprehensive catchment management plan for the wetlands within the Park therefore needs to be prepared which integrates town planning and land use considerations, with the protection and enhancement of water resources (Section 14).

Presently, integrated catchment management for the wetlands within the Park is being undertaken through the Yellagonga Catchment Group and the Cities of Joondalup and Wanneroo. An integrated catchment management plan needs to build on the existing work completed by the Cities of Wanneroo and Joondalup such as the *Yellagonga Regional Park Drainage Study*, (Ove Arup and Partners, 1994) as well as work completed by the community (*Yellagonga Catchment Group Action Plan*, 2001). This plan should be prepared with the assistance of the Department of Environment, Water and Catchment Protection and the Department of Conservation and Land Management.

Strategies

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

2. **Consult with the other managing agencies when preparing the annual works programme and the five-year implementation programme. (Department of Conservation and Land Management, CJ, CW) [High]**

3. **Prepare a comprehensive water catchment management plan for the wetlands within the Park, which integrates town planning and land use considerations, with the protection and enhancement of water resources. (CJ, CW, DEWCP, Department of Conservation and Land Management) [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. 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 Yellagonga Regional Park are also 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, 2000) (see Table 2).

Key performance indicators underpin the audit process of this Plan (see Section 44 - 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 programme of survey, research and monitoring within the Park, focusing on the key performance indicators. (Department of Conservation and Land Management) [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 (Numbers refer to strategies listed in the Plan)	Timeline for Key Management Strategies
The Parks acts as an important fauna reserve, bird breeding ground for local birds and a summer refuge for a diverse bird population.	The objective is to maintain viable populations and the current diversity of indigenous fauna species in the Park. *(Department of Conservation and Land Management strategic direction 1).*	▪ Maintain the species diversity of selected indigenous fauna populations.	16.1 Prepare and implement a programme for fauna management within the Park. The programme will: ▪ establish baseline information to initiate selected fauna monitoring; and ▪ specify appropriate management actions for fauna and habitat protection.	To be prepared prior to the mid-term audit.
Vegetation communities in the Park are representative of communities once widespread on the Swan Coastal Plain but now significantly cleared.	The objective is to protect, conserve, rehabilitate and restore local and culturally significant flora and vegetation in the Park. *(Department of Conservation and Land Management strategic direction 1).*	▪ Maintain the range of vegetation communities. ▪ Reduce abundance and distribution of priority weed species.	15.3 Develop and implement a targeted and integrated monitoring programme of bushland condition, changes to vegetation communities and weed proliferation. 17.1 Prepare and implement a weed management plan in accordance with the *Environmental Weed Strategy for Western Australia*. 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; and ▪ integrate with the rehabilitation plan (Section 21). 21.1 Prepare and implement a rehabilitation plan for the Park prioritising proposed works.	To be prepared prior to the mid-term audit. To be prepared prior to the release of the Management Plan. To be prepared prior to the release of the Management Plan.

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Table 2 (continued) - Performance Assessment

Key Values	Key Objectives	Key Performance Indicators	Key Management Strategies (Numbers refer to strategies listed in the Plan)	Timeline for Key Management Strategies
The Park provides opportunities for a wide range of passive and active recreation. Of particular significance is the opportunity to recreate in natural environments that are relatively undisturbed yet close to urban areas.	To ensure that visitor use and behaviour is sustainable and minimises conflict with other Park visitors and values. *(Department of Conservation and Land Management strategic direction 2).*	▪ Increase visitor numbers subject to maintaining an overall positive trend of visitor satisfaction.	26.1 Develop and implement a visitor survey programme 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 programme. 26.2 Prepare a communication plan incorporating a sign system and sign plan as well as interpretive strategies and techniques. Interpretive material should be aimed at: ▪ 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. 27.1 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 mid-term audit. To be prepared within one year of the release of the Management Plan. Access and circulation aspects of the Masterplan to be completed prior to the end of term audit.
The opportunity to recreate safely in the Park while experiencing the diversity of Park settings.	To take all reasonable and practical steps to ensure the safety of visitors in the Park. *(Department of Conservation and Land Management strategic direction 2).*	▪ Remove or mitigate all identified high risk sites or facilities in the Park.	31.1 Prepare and implement a visitor risk management programme to ensure procedures are developed to manage and monitor all known risks.	To be prepared within one year of the release of the Management Plan.
The Park is a community asset.	To provide the community and other organisations with the opportunity to be effectively involved in the planning and management of the Park. *(Department of Conservation and Land Management strategic directions 3).*	▪ Involve the community in the planning and management of the Park.	39.1 Maintain active liaison with community groups involved in the Park.	Ongoing.

The Park's conservation, recreation and landscape values.	To provide for the effective involvement of both the managing agencies and the community in the management of the Park. *(Department of Conservation and Land Management strategic directions 3 and 4).*	▪ Ensure appropriate land tenure arrangements for the new reserves within the Park.	7.2 Create reserves to be vested in the relevant managing agency in accordance with the Management Zones outlined in Table 1.	To be completed prior to the end of term audit.

C. CONSERVATION

12 - Principal Conservation Directions

CONSERVATION GOAL

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

13 - Geology, Soils and Landform

The objective is to protect and conserve the existing geological structure and soil associations in the Park.

GEOLOGY AND SOILS

The rock classification of the Spearwood System is the coastal (Tamala) limestone. The Spearwood Dune System consists largely of coarse grained wind blown dune material, similar to beach sand, with a large fraction of shell and micro fossil material and a small fraction of rounded quartz grains.

The soils of the Park have been studied and described by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) (McArthur and Bartle, 1980). The Spearwood Sands predominate through the western and southern portions of the Park. The soil consists of a dark brown sandy surface grading into yellow brown or brown sand. Limestone usually occurs within a metre of the surface although depth tends to be variable. Limestone outcrops at the surface form interesting features on the western edge of Lake Joondalup where subterranean water flows have formed channels and caves through the limestone. The soil varies in fertility, from relatively fertile and moist on the western edges of Lake Joondalup, to freely draining sands which have low fertility on elevated slopes northwest of Lake Goollelal. The general lack of fertile soils in the Park is an important consideration in the methods and species used in rehabilitation programmes (see Section 21).

Karrakatta Sand (Yellow Phase) occurs on the eastern side of the Park and in pockets on the upper western slopes and neighbouring plateau. It consists of a grey-brown sandy surface which passes into bright yellow sand.

Beonaddy Sand occurs in the low-lying flats immediately adjacent to the Lakes and Swamps. The profile consists of a dark grey surface sand becoming lighter with depth. The water table is often within a metre of the surface in summer and may temporarily rise to the surface in winter.

Walluburnup Swamp is significant as an example of a Pleistocene (10,000 years before present) wetland, a feature that has not been recorded elsewhere on the Swan Coastal Plan. The wetland contains the oldest known peat fills on the Swan Coastal Plain, and thus is an important archive for Holocene climatic and vegetation history in this part of the Swan Coastal Plain. The stratigraphic record is therefore of regional scientific importance. Additionally, the vegetation assemblages are regionally unusual for wetlands of the Yanchep-Joondalup chain, and are therefore regionally significant (Semenuik, 1997).

LANDFORM

The lakes and wetlands of the Park lie in an interdunal swale of the Spearwood Dune System. The landform within the Park is representative of similar geological features found elsewhere on the Swan Coastal Plain, having been formed from large sand dunes that over time have become consolidated and stabilised with vegetation. The landform is characterised by relatively high elevation sloping dunes on the western side of the Park with generally more gentle slopes on the eastern side.

The eastern and southern portions of the Park are relatively flat with very gentle slopes leading down to Lake Goollelal and Walluburnup Swamp. The western slopes begin to steepen at Beenyup Swamp and increase in steepness towards the north-west portion of the Park with significant sections of this part of the Park having slopes greater than 10%. This has implications in relation to pathway construction and the effects of erosion from water run-off.

THREATS TO GEOLOGY, SOILS AND LANDFORM

Erosion and mining are considered the two main direct threats to the geology, soils and landforms of the Park.

Erosion

Erosion is a localised problem occurring at a number of upland and wetland areas within the Park where uncontrolled access is damaging vegetation.

Unrestricted pedestrian access has in the past created tracks and pathways in unsuitable locations, causing erosion of the surface by direct contact, but also opening the possibility of erosion

by water runoff, where vegetation cover has been reduced. Uncontrolled access in the Park will be managed by formalising and restricting access to areas at risk from erosion (see Section 29).

Given the steepness of the northwestern bank of Lake Joondalup, erosion has caused problems at fire access tracks in the past. The upgrading of pathways or fire access tracks in the area will need to consider the possible impacts of water erosion.

Mining
Mining is also considered a threat to the landform of the Park. The Minister for the Environment and Heritage is unlikely to support the mining and extraction of basic raw materials in the Park. Any applications for mining or extraction of basic raw materials will be processed in accord with the Regional Parks Mining Protocol, the *Minerals Exploration and Development MOU (1995)* and the *Western Australian Planning Commission's Statement of Planning Policy No. 10 (July 1999)* (see Section 35).

Strategies

1. **Restrict access to areas at risk from erosion by implementing the Recreation Masterplan (Figure 8) and providing signs and information (Sections 30 and 40) (CJ, CW, Department of Conservation and Land Management) [Ongoing]**

2. **Ensure the effects of erosion are considered when upgrading pathways or fire access tracks within the Park (CJ, CW, Department of Conservation and Land Management) [Ongoing]**

14 - The Lakes and Wetlands

The objective is to manage the Park in a manner that helps protect and enhance the wetland environments of the Park.

The wetlands in the Park are surface expressions of the groundwater and as such respond to events which cause variations to the quality and quantity of groundwater supply.

The water regimes of the wetlands respond to both natural processes such as rainfall, and to modified land uses within catchment areas (e.g. urban and industrial development, and groundwater extraction). In order to protect the wetland ecosystems and maintain public amenity, the impacts of existing and proposed land uses and activities, which influence the water regimes affecting the Park need to be understood and managed.

The wetlands in the Park are subject to recognition and protection at the State and national levels. All wetlands within the Park 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 and mining and drainage (Government of Western Australia, 2000).

The Australian Heritage Commission has listed Lake Joondalup on the Register of the National Estate as an area that has heritage values which should be conserved (Government of Western Australia, 2000).

THREATS TO THE WETLANDS IN THE PARK

The results of monitoring wetlands on the Swan Coastal Plain and particularly Lake Joondalup indicates that the main threats to the wetlands in the Park are:

- drainage, excavation and filling (discussed below);
- water level changes (discussed below);
- pollution including eutrophication (discussed below);
- aesthetic disruption (Section 23);
- aquatic or declared weeds (Section 17); and
- insect pest control (Section 19).

Additionally, other significant threats included new urban proposals in close vicinity to the wetlands, wildfires and uncoordinated recreation activities.

Drainage, excavation and filling
Land filling has occurred in sections of the Park (for example, the sporting fields located on the eastern side of Lake Joondalup). The management of drainage, excavation and filling works (including de-watering activities) associated with urban, industrial and infrastructure development is an issue that has concerned the Park managers and the community in the past. It is important that there are no physical impacts, either during or post construction, to the lands or waters that comprise the Park from developments that adjoin the Park. Additionally, where infrastructure projects occur within the Park, impacts should be minimised and disturbed areas restored or used for recreation purposes. This can be achieved by ensuring appropriate conditions are placed on the proponents of developments when planning approvals are being sought.

Water level changes
Lake Joondalup and Lake Goollelal, although shallow by world standards, are relatively deep (1.55m and 1.82m respectively) compared with other lakes on the Swan Coastal Plain (Water Authority of Western Australia, 1995).

An annual fluctuation in the depth of Lake Joondalup is approximately 1m and responds to a similar fluctuation in the water table. The annual

drying out leads to the reduction of nutrients from the system and is therefore an important process in the ecology of the Lake (Balla, 1994).

Water levels rise and fall with the seasons and with longer-term weather patterns. Extensive areas of Lake Joondalup, in particular, dry out after a drier than average winter (see Figure 5).

The management of water levels of the wetlands is one of the most fundamental issues facing the Park. The lowering or raising of wetland water levels is likely to cause long-term changes to the Park's wetland ecosystems. Changes to the cycle of water levels in the wetlands will influence the germination, survival and composition of particular wetland fringing vegetation associations. This will in turn alter the ecology and threaten the wildlife species that inhabit the wetland systems (DPUD 1992a).

The movement of water through the wetland system in the Park occurs in a south to north direction. A water level regulation devise placed at the Ocean Reef Road culvert between Lake Joondalup and the southern wetlands of the Park is helping to managed the water regimes of the wetlands to resemble the natural water cycle.

The main factors affecting the water levels of the wetland are:

- variations in water table;
- inputs from developing urban areas in the catchment which are likely to increase the water levels in the wetlands;
- water abstraction from private and public bores; and
- clearing of the Gnangara Pine Plantation.

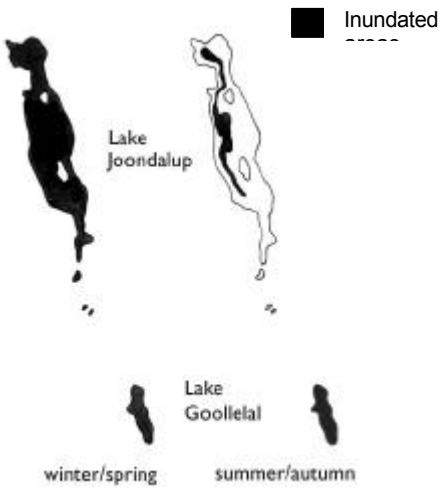


Figure 5 - Water Level Fluctuation

In respect to managing water level changes, the Minister for the Environment and Heritage (as part of the Pinjar Ground Water Scheme), has set environmental conditions on the Department of Environment, Water and Catchment Protection to maintain prescribed water levels in those wetlands that are nominated as having high social or environmental value.

Absolute minimum and preferred minimum water levels have been set by the Minister for the Environment and Heritage for Lake Joondalup and Lake Goollelal as well as other wetlands on the Gnangara Mound (DPUD 1992a).

The preferred minimum water level reflects the level at which maintenance of social and environmental values of the wetland would be ensured. A maximum period permitted below the preferred minimum water level is specified for each lake. The absolute minimum water level is that below which social and environmental values of the wetland would be significantly threatened. The minimum water levels of both Lake Joondalup and Lake Goollelal are reviewed periodically.

The statutory preferred minimum water level of Lake Joondalup is 16.7m Australian Height Datum (AHD), with an absolute minimum level of 16.45m AHD. The number of consecutive months permitted below the preferred level is four in any 12-month period. The preferred minimum water level for Lake Goollelal is 26.4m AHD, with an absolute minimum of 26.25m AHD. The number of consecutive months permitted below the preferred level is two in any 12-month period.

In order to comply with the Ministerial conditions, responsibility for monitoring water levels is undertaken on a monthly basis by the Department of Environment, Water and Catchment Protection. Regular monitoring records have been maintained since the early 1970s. The managers of the Park will support the Department of Environment, Water and Catchment Protection's continued monitoring and review of the water levels in the wetlands in the Park.

Pollution including eutrophication

Water quality has been studied at Lake Joondalup since the early 1970s. Data recorded by Congdon (1986) supports the claim that high nutrient levels first recorded in the main water body of Lake Joondalup in the 1970s are being maintained and may, in fact, be increasing if changes in water levels are taken into account (Kinear, Garnett, Bekle and Upton, 1997).

On the basis of nutrient levels (total phosphorous and total nitrogen) the wetlands have been assessed as eutrophic (Kinear *et al*. 1997). Kinear *et al*. (1997) indicate that Lake Joondalup has been receiving highly-nutrient enriched water via northerly flow from Walluburnup and Beenyup Swamps for over two decades.

Phosphorus has been identified as a key nutrient necessary for the production of algae within wetlands on the Swan Coastal Plain. Monitoring of the lakes within the Park indicates that phosphorus levels are higher than acceptable limits (they exceed the criteria for hypertrophy). The phosphorus loading of Lake Joondalup has increased over a period that corresponds with an increase in the direct discharge of storm water run off into the Park (Ove Arup and Partners, 1994). Algal blooms are occurring in the central section of Lake Joondalup throughout the year.

The adverse effects of nutrient enriched wetlands include algal blooms, plagues of non-biting midges, algal toxicity, loss of amenity through odours and fouling of the shoreline (see Sections 19 and 23). The major contributors of additional nutrients into the wetlands are storm water run off, septic tank leaching and agricultural and garden fertilisers. The City of Wanneroo commissioned a drainage study in 1994 that identified storm water outlets and associated problems. The *Yellagonga Regional Park Drainage Study* recommended strategies for reducing the adverse impact of urban storm water upon the water quality of the wetlands in the Park (see Section 32).

Semi-aquatic fringe vegetation helps to maintain water quality by reducing the influx of nutrients through filtration and storage.

The feeding of water birds especially at Neil Hawkins Park has localised effects on water quality. Birds congregate in large numbers, uneaten food and faeces sink to the bottom of the lake and nutrient loading in the local area increases. Artificial feeding also has adverse effects on bird health and populations and will be discouraged (see Section 16).

THE HEALTH OF THE WETLANDS IN THE PARK

The number of species of predatory invertebrate recorded at a wetland can be used as an indication of the state of the aquatic food chain (Rolls *et al*. 1990). An assessment of the health of the wetland ecosystems can be undertaken by considering higher taxonomic levels of invertebrates such as genus and family, rather than needing to identify organisms to the level of species.

This type of assessment (rapid bio-assessment) means the costs of assessing wetland health is reduced and allows for the possible involvement of community or school groups in assessment. Davis and Christidis prepared *A Guide to Wetland Invertebrates of Southwestern Australia (1997),* which provides appropriate taxonomic keys for assessment.

Given the concerns relating to condition of the wetlands in the Park, it is proposed that the following indicators of wetland health be used as performance indictors for any catchment management plans prepared for the wetlands.

- nutrients and chlorophyll-a concentrations;
- the presence of blue-green algae cells,
- macro-invertebrates and the avian community structure.

Strategies

1. **Implement the *Yellagonga Regional Park Drainage Study (1994).* (CJ, CW, DEWCP) [High]**
2. **Prepare and implement an integrated catchment management plan and promote the development of water sensitive design techniques on lands adjacent to the Park. (CJ, CW, WC, DEWCP) [High]**
3. **Adopt management practices throughout the Park that do not add nutrients and pollutants to the wetland systems, e.g. planting, fertiliser and irrigation management practices based on minimal nutrient loss and irrigation run-off. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
4. **Encourage the installation of reticulated sewerage in surrounding areas that currently have septic tank systems. (CJ, CW, WC) [Medium]**
5. **Protect and re-establish reedbeds and fringing vegetation in disturbed areas (Section 21). (Department of Conservation and Land Management, CJ, CW) [High]**
6. **Encourage and facilitate the relocation of adjacent land-use practices that lead to the leaching and run-off of nutrients and pollutants into the wetland system to more suitable locations (e.g. the poultry sheds adjacent to the Park). (DPI, CJ, CW) [High]**
7. **Ensure appropriate planning conditions are placed on proponents of developments that adjoin or are within the Park to minimise potential adverse physical impacts on the Park. (Department of Conservation and Land Management, WAPC, CJ, CW) [Ongoing]**
8. **Provide information and educational material to the community:**
   - **outlining the effects of pollution on the wetlands;**
   - **appropriate use of fertilisers; and**
   - **discouraging the feeding of water birds. (CJ, CW, Department of Conservation and Land Management) [High]**

15 - Flora and Vegetation

The objective is to protect, conserve, rehabilitate and restore local and culturally significant flora and vegetation in the Park.

Disturbance and subsequent weed invasion have modified large areas of local vegetation in the Park. The wetland vegetation is recognised as having high conservation value but, in many areas, is modified by weed invasion and altered water regimes. Woodlands of Flooded Gum (*Eucalyptus rudis*) and Freshwater Paperbark (*Melaleuca rhaphiophylla*) would once have encircled the wetland but are now fragmented with few intact

areas. The emergent aquatic vegetation of local and introduced rushes covers much of the shallow waters with open water beyond.

The Park is becoming increasingly isolated due to a loss of surrounding native vegetation and increased development. Past uses, roads and infrastructure have fragmented the Park, and disturbances and continuing weed invasion are steadily degrading natural ecosystems. Pressure on the Park is also increasing particularly for a variety of recreational pursuits as well as commercial development. The protection of all remnant native vegetation is considered a priority. Planning for corridors and links between the Park and other conservation or recreation areas is outlined in Section 24 – Greenway Corridors and Links.

Total flora within the Park has been recorded at 217 taxa with 103 weed taxa (DEP 1996, Tauss 1996).

No species of Declared Rare Flora have been recorded in the Park, however several taxa are considered to have significance. Significant flora within the Park includes *Jacksonia sericea*, *Conostylis bracteata*, *Hibbertia cuneiformis* (not known to occur naturally north of Port Kennedy), *Amyema miquelii* (uncommon on the Swan Coastal Plain), *Lechenaultia linarioides* and *Ricinocarpus glaucus* (Government of Western Australia, 2000).

The vegetation of the Park can be broadly described as :

1. upland vegetation communities and assemblages; and
2. wetland vegetation communities and assemblages.

A description of the vegetation communities and assemblages present in the Park is described below and illustrated in Figure 6.

THE UPLAND PLANT COMMUNITIES

The upland vegetation is adapted to the landforms of the Spearwood System with its low fertility and low water holding capacity and the wet winter, dry summer Mediterranean climate. There are few areas of intact upland vegetation remaining, mainly at the northern end of Lake Joondalup, with even these areas infested to varying degrees by weeds, particularly veldt grass (*Ehrharta calycina*). Significant areas of upland vegetation still retain a tree canopy but local understorey and ground layers are in poor condition with many areas mown and with a parkland appearance. There are three major upland vegetation communities.

- **Jarrah-Marri-Banksia Open Forest**
  The Jarrah-Marri-Banksia (*Eucalyptus marginata – Corymbia calophylla – Banksia* spp.) Open Forest mainly occurs on the south west and north east areas surrounding Lake Joondalup and in the south in remnant pockets mainly in the south east portions of the wetlands of Lake Joondalup. The mid-storey species usually comprise Banksias with *Banksia attenuata*, *Banksia menziesii* and *Banksia grandis* with the Sheoak (*Allocasuarina fraseriana)* sometimes present.

- **Tuart-Jarrah-Marri Open Forest**
  The Tuart-Jarrah-Marri (*Eucalyptus gomphocephala – Eucalyptus marginata – Corymbia calophylla*) Open Forest occurs mainly on the north east side of Lake Joondalup with remnant patches amongst previously cleared areas to the west of the wetlands north of Whitfords Avenue.

- **Scattered Tuarts**
  Scattered Tuarts occur with an understorey of exotic grasses to the east of Walluburnup and Beenyup Swamps and to the north east of Lake Goollelal (Department of Planning and Urban Development, 1992a).

THE WETLAND PLANT COMMUNITIES

- **Fringing Wetland Vegetation**
  The local wetland vegetation on permanently moist soils consists of Flooded Gum (*Eucalyptus rudis*) and freshwater paperbark woodland (*Melaleuca rhaphiophylla*). Sub-storey species include *Acacia cyclops* and *Acacia saligna* with rushes extending beneath the overstorey in relatively undisturbed areas. The fringing woodland vegetation once would have encircled the wetland but is now fragmented with the best examples found on the western and north western shores of Lake Joondalup. Flooded Gum woodland is restricted to one of the islands in Lake Joondalup.

  Aggressive grass weeds such as Kikuyu (*Pennisetum clandestinum*), Buffalo (*Stenotaphrum secundatum)* and Couch (*Cynodon dactylon*) are vigorously invading wetland fringes in many areas (Section 17).

- **Emergent Aquatic Vegetation**
  The emergent aquatic vegetation comprises local rushes often invaded by the non-local Bulrush (*Typha orientalis*). The main emergent aquatic communities comprise:
  a) *Baumea articulata* occurs in monospecific stands 1-2 metres tall, usually dense when in the open and occurs mainly on inlets within Lake Goollelal and in the north of Lake Joondalup.
  b) *Baumea articulata* is mixed with the non-local Bulrush in various proportions in Beenyup Swamp and on the north east fringes of Lake Goollelal.
  c) *Typha orientalis* is mixed with the local rush *Schoenophlectus validus,* in dense stands 1.5 to 3 metres tall, to the south and south east of Lake Joondalup and for much of Walluburnup Swamp and the wetlands south to Whitfords Avenue.
  d) Stands of mixed *Baumea articulata* and *Schoenoplectus validus* occur to the south of Lake Goollelal.
  e) *Typha orientalis* occurs in pure stands on the south east fringe of Lake Joondalup. Bulrush appears to be increasingly impacting on local rush communities.

THREATS TO FLORA AND VEGETATION

The threats to flora and vegetation within the Park are:

- the management of water levels and water quality (Section 14).
- weeds (Section 17);
- unplanned fire (Section 18);
- *Phytophthora* dieback (discussed below);
- urban interface issues and uncontrolled access by vehicles, pedestrians and horses (discussed below).

***Phytophthora* Dieback**

Phytophthora dieback refers to the plant disease caused by the fungal pathogen *Phytophthora cinnamomi* and other related species. The disease is considered to be a threat to the Park given the existing upland plant communities in the Park contain a number of susceptible species, for example Jarrah, Banksias and Grasstrees (*Xanthorrhoea)*.

Phytophthora dieback could have an impact on revegetation programmes in the Park if the species planted are vulnerable to the disease. The risk of impact from *Phytophthora* dieback can be reduced by modifying activities that spread the pathogen, or by controlling access to highly susceptible areas. Modifying activities may involve cleaning machinery, vehicles or footwear, scheduling activities for dry soil conditions, and using materials that are free of *Phytophthora cinnamomi.* Controlling access may involve track rationalisation, upgrading tracks, or restricting off-road and management vehicles access (Dieback Working Group, 2000). Training aimed at minimising the threat of *Phytophthora* dieback should be provided for volunteers working within the Park.

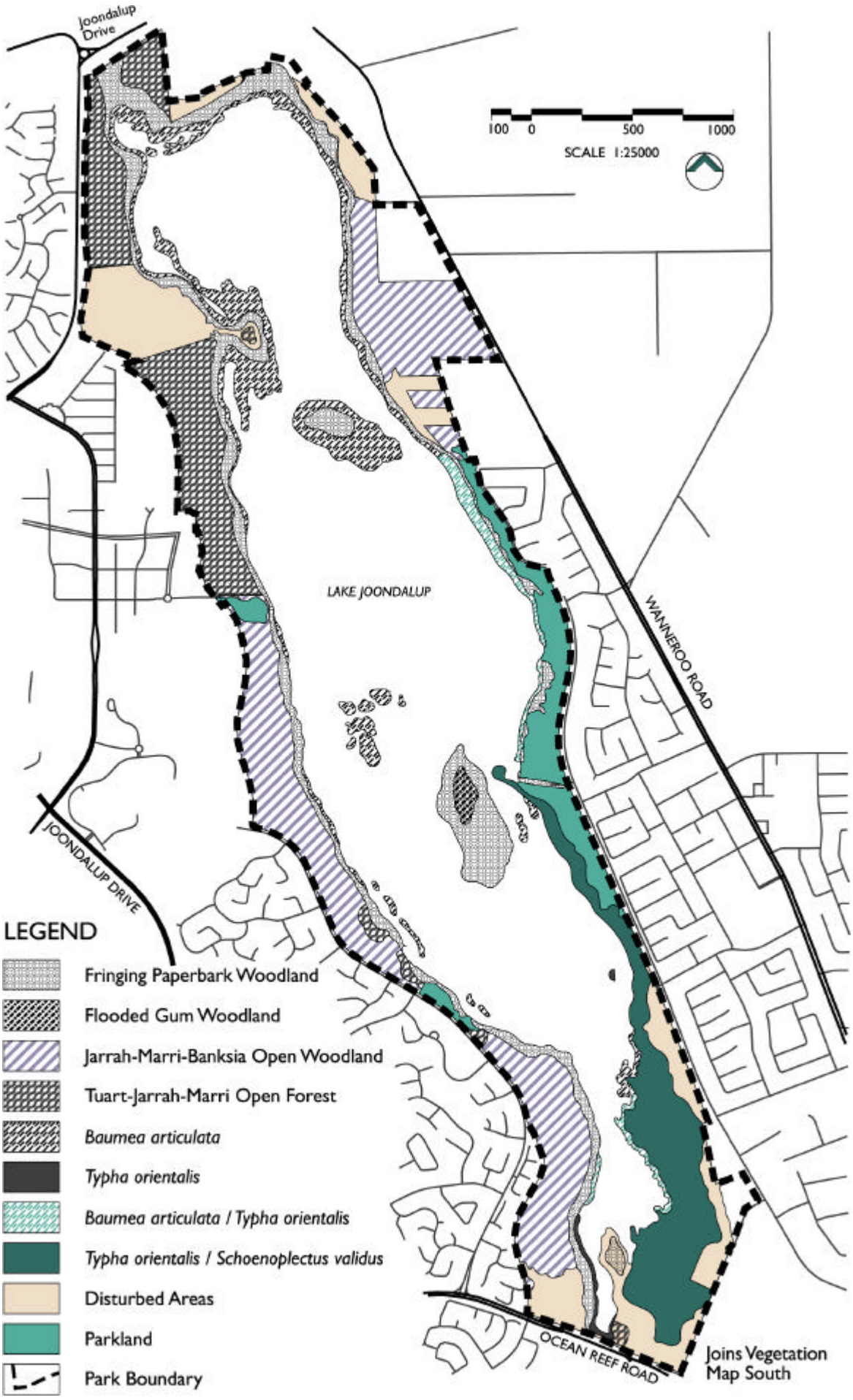
Urban interface issues and uncontrolled access

Maintaining the integrity of bushland adjoining urban areas raises many issues such as weed invasion, uncontrolled access, and rubbish dumping. These issues are addressed in Sections 17, 29 and 32 respectively.

The inappropriate clearing of vegetation and willful damage to vegetation in upland areas has been a problem in the past. All native flora is protected by the *Wildlife Conservation Act 1950.* Any incidences of willful 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 21). (Department of Conservation and Land Management, CJ, CW) [High]**
2. **Prepare and implement a weed management plan. This plan is to be integrated with the rehabilitation study and not carried out in isolation (Section 17). (Department of Conservation and Land Management, CJ, CW) [High]**
3. **Develop and implement a targeted and integrated monitoring programme of bushland condition, changes to vegetation communities and weed proliferation. (Department of Conservation and Land Management, CJ,CW) [High]**
4. **Reduce the frequency of fire, utilising strategies set out in Section 18. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
5. **Investigate any willful damage to vegetation in the Park and take appropriate action. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
6. **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. (Department of Conservation and Land Management, CJ, CW) [High]**
7. **Ensure local species are used for landscape and amenity plantings. If non-local species are required they should not include invasive species. Department of Conservation and Land Management, CJ, CW) [Medium]**
8. **Identify and protect culturally significant plants within the Park. (Department of Conservation and Land Management, CJ, CW) [Low]**
9. **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.**
   - **(CJ, CW, Department of Conservation and Land Management) [High]**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OCEAN REEF ROAD
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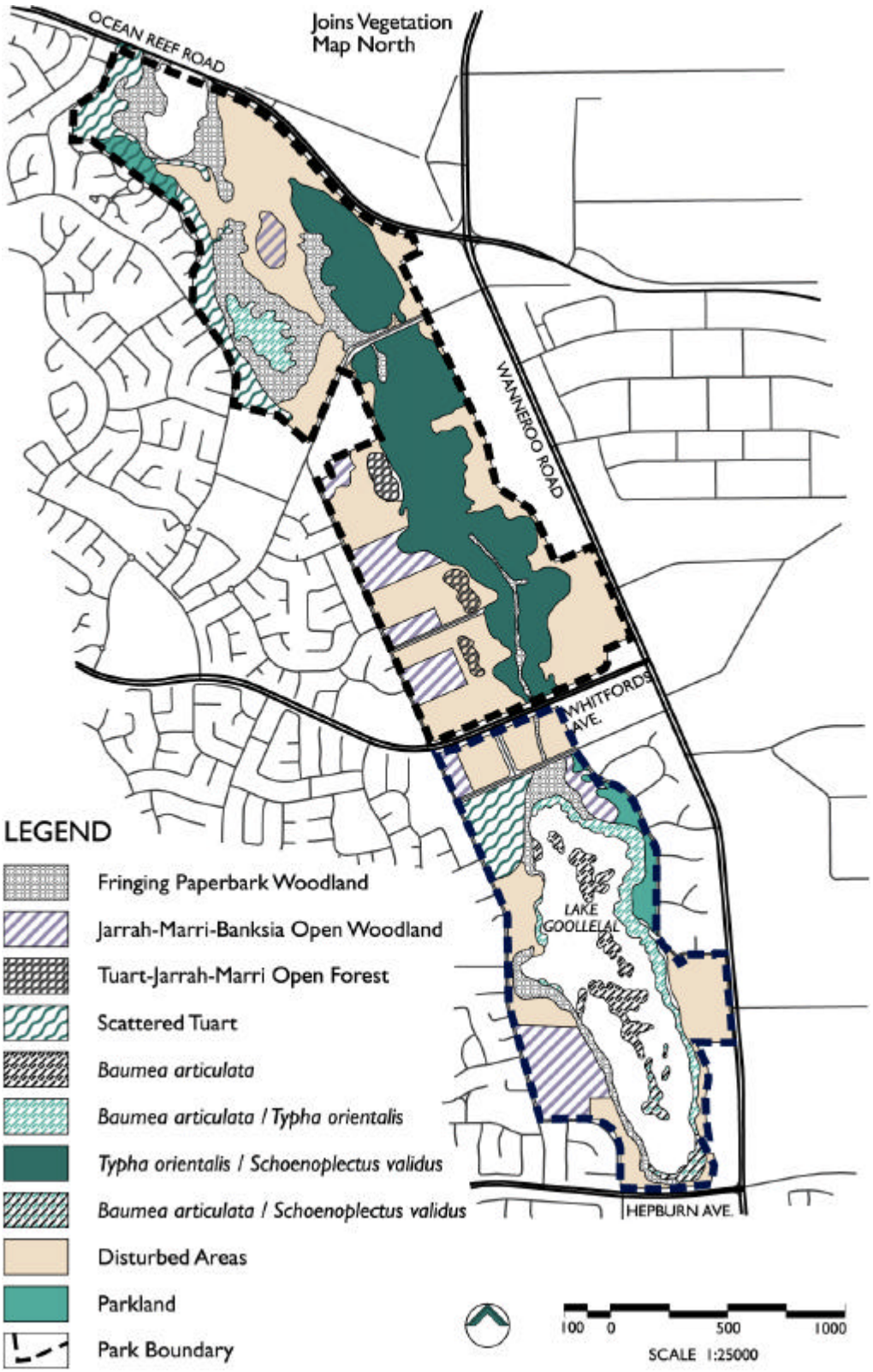
LEGEND
Fringing Paperbark Woodland
Flooded Gum Woodland
Jarrah-Marri-Banksia Open Woodland
Tuart-Jarrah-Marri Open Forest
Baumea articulata
Typha orientalis
Baumea articulata / Typha orientalis
Typha orientalis / Schoenoplectus validus
Disturbed Areas
Parkland
Park Boundary



Source: Yellagonga Regional Park Final 1992a

Figure 6 - Vegetation

16 - Fauna

The objective is to maintain viable populations and the current diversity of indigenous fauna species in the Park.

AVIAN FAUNA

Many birds inhabit the woodland and wetland areas of the Park. Of the 122 species recorded in the Park 18 are known to breed in the area (Royal Australasian Ornithologists Union (RAOU) survey 1996D, Bamford and Bamford 1990).

The wetlands in the Park serve as an important breeding ground and summer refuge for a diverse bird population, some of which are trans-equatorial migratory wading birds. When shallow inland breeding grounds begin to dry out in spring and summer, large concentrations of up to 4600 birds have been present in the Park (Kinnear *et al*. 1997). The Park's woodlands also provide habitat for a diversity of bushbirds.

A number of migratory birds listed under the Japan-Australia Migratory Birds Agreement (JAMBA) and the China-Australia Migratory Birds Agreement (CAMBA) have been sighted at the Park. Australia is a signatory to these two international agreements that support the conservation of migratory birds and their habitats. Trans-equatorial migratory birds covered by these agreements are also protected under the Commonwealth *Environment Protection and Biodiversity Act 1999*.

Significant populations of Blue-billed Duck (*Oxyura australis*), Musk Duck (*Biziura lobata*), Hardhead (*Aythya australis*), Splendid (*Malurus splendens*) and Variegated Fairy-wrens (*Malurus lamberti*), Broad-tailed (*Acanthiza apicalis*), Western (*Acanthiza inornata*) and Yellow-rumped Thornbills (*Acanthiza chrysorrhoa*), Weebill (*Smicrornis brevirostris*), Scarlet Robin (*Petroica multicolor*), Golden Whistler (*Pachycephala pectoralis*) and Grey Shrike-thrush (*Colluricincla harmonica*) have all been recorded in the Park (RAOU survey 1996 D).

Three avian fauna species recorded in the Park, Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Australasian Bittern (*Botaurus poiciloptilus*) and Peregrine Falcon (*Falco peregrinus*) are specially protected under the *Wildlife Conservation Act 1950*.

In relation to waterbirds within the Park, Kinnear *et al*. (1997) recommend that:

- the mudflats and littoral habitats of the eastern shoreline of Lake Joondalup (north of Ocean Reef Road) be protected as an important feeding ground for a wide diversity of waterbird species, including trans-equatorial waders; and
- the protective seclusion of the important roosting site for the Australian White Ibis (*Threskiornis molucca*) on the north-west shoreline of Lake Joondalup should be protected.

TERRESTRIAL FAUNA AND AQUATIC FAUNA

Reptiles and Amphibians

Bamford and Bamford (1990) undertook a preliminary survey of reptiles and amphibians in the Park. Six frog species have been documented in the Park they are the Sandplain Froglet *(Crinia insignifera),* Glauert's Froglet *(Crinia glauertii),* Moaning Frog *(Heleioporus eyrei),* Western Banjo Frog *(Limnodynastes dorsalis),* Slender Tree Frog *(Litoria adelaidensis)* and the Western Bell Frog *(Litoria moorei)*. The Western Tiger Snake *(Notechis scutatus occidentalis)* and Carpet Python (*Morelia spilota imbricata*) have also been recorded in the Park. The Carpet Python is specially protected under the *Wildlife Conservation Act 1950*. Four lizard species have been sighted in the Park although many more are expected to be present. The Oblong Tortoise (*Chelodina oblongata*) has also been recorded in the Park.

The Western Tiger Snake, is now considered uncommon in the metropolitan area and is an important species in the wetland ecosystems in the Park. The presence of this species within the Park is important in conservation terms and should be included in education programmes and interpretive material to help develop an appreciation for wildlife. It is also acknowledged that the presence of the Western Tiger Snake (which is venomous) is a concern to some Park visitors and local residents. It is therefore proposed to provide contact details, within the Park, of wildlife carers and organisations that relocate dangerous fauna.

Mammals

Significant mammal species sighted in the Park include the Quenda or Southern Brown Bandicoot (*Isoodon obesulus fusciventer*), the Echidna (*Tachyglossus aculeatus*), and the Western Brush Wallaby (*Macropus irma*) (Friend 1996D). The native Rakali or Water Rat (*Hydromys chrysogaster)* is also present in the Park (Bamford and Bamford 1990). Other native mammals known to occur in the Park include the Western Grey Kangaroo (*Macropus fuliginosus*) and the Brush-tailed Possum (*Trichosurus vulpecula*). The presence of foxes in the Park is having an impact on native mammals. The management of introduced animals is addressed in Section 20 – Pets and Introduced Animals.

Fish

There are four fish species found in the wetlands of the Park - the Native Goby (*Pseudogobius olorum*) and Pygmy Perch (*Edelia vittata*) (Western Australia Water Authotity, 1995) and two introduced

species, the Mosquito Fish (*Gambusia holbrooki*) and the European Carp (*Cyprinus carpio).*

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 such as waterbirds and tortoises (Murdoch 1994).

Kinnear *et al*. (1997) studied the water chemistry and aquatic fauna of the wetlands in the Park. A total of 133 invertebrate taxa were identified in the study. The study also identified 12 species of microcrustacean species within the wetlands, with the southern section of Lake Joondalup and Beenyup Swamp having the highest species richness, which is linked to tolerance of eutrophic conditions. A total of 121 macroinvertebrate taxa were identified from the wetlands in the Park, an underestimate of the true species diversity, with substantial differences in the distribution of taxa between the wetland sites. The diversity of macro invertebrates is at least partly, if not largely, a result of nutrient enrichment (Kinnear *et al*. 1997).

The number of species of predatory invertebrates recorded at a wetland can be used as an indication of the state of the aquatic food chain (Rolls *et al*. 1990). Reductions in invertebrate species diversity, or changes in the presence or absence of particular groups of organisms has been shown to reflect a deterioration of the overall wetland environmental quality (Western Australia Water Authority, 1991)(see Section 14).

Strategies

1. **Prepare and implement a programme for fauna management within the Park. The programme 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, CJ, CW, Educational Institutions, WA Museum, Birds Australia) [High]
2. **Identify seasonal mowing areas and areas not to be mown to preserve bird, reptilian, marsupial and other fauna habitat and breeding sites. (Department of Conservation and Land Management, CJ, CW) [High]**
3. **Ensure the management of wetland water levels in the Park takes into consideration waterbird and other fauna habitats and reflects historical regimes of inundation. (DEWCP, Department of Conservation and Land Management, CJ, CW) [High]**
4. **Provide interpretive material which:**
   - **promotes an understanding and appreciation of the Park's fauna, particularly waterbirds and the Western Tiger Snake;**
   - **discourages the artificial feeding of birds;**
   - **educates local residents about the effects of the dumping of 'exotic' animals and fish in the wetlands systems;**
   - **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 40). (Department of Conservation and Land Management, CJ, CW) [High]**
5. **Ensure recreation uses are consistent with the protection and management of fauna (e.g. dog walking Section 26). (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
6. **Provide the contact details of wildlife carers for the removal of injured fauna from the Park or dangerous fauna from places where they constitute a significant risk to people. (Department of Conservation and Land Management) [Medium]**
7. **Promote the survey and study of fauna in the Park, especially the study of invertebrate species (Department of Conservation and Land Management) [Medium]**
8. **Develop and implement a strategy to minimise wildlife deaths on roads adjoining the Park. (Department of Conservation and Land Management, CJ, CW) [High]**

17 - 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 and 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 may originate from interstate or overseas and may or may not be declared under the *Agriculture and Related Resources Protection Act 1976*.

The presence of weeds is a major problem within the Park. The area occupied by weeds continues to grow and unless controlled will lead to the eventual demise of the local vegetation.

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

- past land uses such as clearing and developing pasture for grazing;
- soil disturbance from vehicle access;
- construction of paths and other facilities or drainage channels which allow weeds to establish;
- frequent fires which promote the growth of weeds;
- drainage outlets that carry storm water from adjoining areas and promote the spread of weeds in wetland areas
- the dumping of garden refuse in the Park which introduces many plants that vigorously compete with local vegetation;
- invasive species being planted in adjoining gardens;
- increased nutrient levels;
- transportation of weed seeds by birds; and
- grasses planted for amenity purposes in parkland settings invading bushland areas.

Weeds appear to be spreading and are impacting on most native ecosystems in the Park. In particular Veld Grass (*Ehrharta calycina*) is impacting on many of the upland areas within the Park where some sections of the understorey have been largely replaced by the weed. Other major weeds in upland areas include Wild Oat (*Avena fatua*), Cape Tulip (*Homeria miniata*), Bridal Creeper (*Asparagus asparagoides*), Caltrop (*Tribulus terrestris*), Giant Reed (*Arundo donax var. donax*), Geraldton Carnation Weed (*Euphorbia terracina*), Mossman River Grass (*Cenchrus echinatus*) and Fennel (*Foeniculum vulgare*).

With regard to the wetland areas of the Park, aggressive grass weeds such as Kikuyu (*Pennisetum clandestinum*), Buffalo (*Stenotaphrum secundatum)* and Couch (*Cynodon dactylon*) are vigorously invading wetland fringes in many areas. Additionally, Arum Lily (*Zantedeschia aethiopica*), Blackberry *(Rubus fruticosus)* Castor Oil (*Ricinus communis*), Pampas Grass (*Cortaderia selloana*) and Cape Tulip (*Homeria flaccida*) have the potential to significantly impact on the wetland areas of the Park. A survey of weeds found in Yellagonga Regional Park has been carried out (Sage 1997).

As with many of the wetlands on the Swan Coastal Plain, the non-local Bulrush *(Typha orientalis)* is impacting on native ecosystems in the Park. This species is an aggressive coloniser, especially following disturbance, often to the detriment of various local reeds and sedges including *Typha domingensis*. It is important that fringing wetland areas free of *Typha orientalis* are identified, maintained and expanded. There are significant rush beds within Lake Goollelal and the northern part of Lake Joondalup which are currently largely weed free or have a low incidence of *Typha orientalis*. These areas are considered to have high nature conservation value.

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 avian fauna and other wildlife. Removal of *Typha orientalis* stands may result in increased nutrient levels within the waters of the Park with consequent implications for algal blooms and subsequent impacts on waterfowl. Efforts to keep its presence to a minimum would allow the native species to return, and would provide benefits both ecologically and aesthetically. The removal of *Typha orientalis* from the Park needs to be carefully considered.

All methods of weed control (chemical, physical, or biological) need to be considered for their application in the Park. Ecological considerations place constraints on weed control, as side effects such as those on native plants or habitat, or the pollution of water bodies, may rule out the use of some techniques. There are also financial constraints on the amount of weed control that can be carried out.

Guidance for weed management in the Park is provided by the *Department of Conservation and Land Management Policy Statement 14* (Department of Conservation and Land Management 1986a) and *The Environmental Weed Strategy for Western Australia* (Department of Conservation and Land Management, 1999). It is recognised however, that more detailed planning is required to develop an integrated and coordinated approach to weed management in the Park. As such the Department of Conservation and Land Management will prepare a weed management plan for the Park.

The weed management plan will use the principles of weed control as outlined in the *Environmental Weed Strategy for Western Australia (1999).* Planning for weed control will consider the following priorities:

- recognise weed potential;
- maintain areas of the Park that have vegetation in good condition; and
- control weeds impacting on threatened species and communities

Weed control can greatly benefit from community involvement. The involvement of the community in park management is critical to the successful implementation of this Plan. Managing agencies have limited resources and weed control can be very labour intensive. The managing agencies acknowledge the considerable efforts by the community in undertaking weed control works within the Park. Volunteer groups have completed weed control projects successfully within the Park for a significant 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 specific weed control projects. Where volunteer

groups initiate a project, discussion should occur with the relevant managing agency to ensure that activities are consistent with the Park's annual works programme, implementation plans and monitoring processes.

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

- joining the community volunteer groups active 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 *Environmental Weed Strategy for Western Australia*. The plan will:**
   - **assess bushland condition;**
   - **prioritise and control weed species according to invasiveness, distribution and environmental impacts;**
   - **assess changes to vegetation communities;**
   - **identify largely weed free areas, 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 21) and not carried out in isolation.**

   (Department of Conservation and Land Management) [High]

2. **Consult with the Cities of Wanneroo and Joondalup to control weed infestations in drains that flow into the Park. (Department of Conservation and Land Management, CJ, CW, Department of Conservation and Land Management) [Ongoing]**

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

4. **Use interpretive and educational material to inform Park visitors and neighbours about the effects of dumping rubbish and garden refuse in the Park. Park neighbours will be informed that dumping aquarium contents in the local drainage system may lead to the proliferation of aquatic weed problems. (CJ, CW, Department of Conservation and Land Management) [Medium]**

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

6. **Coordinate community involvement in weed control works within the Park. (CJ, CW, Department of Conservation and Land Management) [Ongoing]**

7. **Monitor the extent of priority weed distribution and abundance 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]**

18 - Fire

The objective is to protect the biodiversity of the Park as well as people and property, by minimising the impact of unplanned fire.

Wildfire is a significant risk within Yellagonga Regional Park. Large areas of local upland vegetation and a pine plantation adjoining Lake Joondalup to the north comprise significant fire hazards. In wetland areas, heavy infestations of Bulrush (*Typha orientalis*) constitute a significant fire hazard. Fires in Bulrush are extremely difficult to control and can cause severe damage to fringing paperbark vegetation.

Increasing urbanisation and visitor use of the Park are likely to increase the incidence of unplanned fire, as has been experienced in other bushland areas in the Perth metropolitan area. It is however recognised that well controlled visitor access can reduce the incidence of unplanned fire (see Section 29).

Wild fires need to be avoided in the Park because they threaten human life, property, biodiversity and the cultural values. Frequent wild fires in wetland areas will prevent the establishment of paperbark vegetation and lead to an even greater dominance of non-local bulrush. Fire activity encourages the invasion of bulrush in a wetland area because it regenerates far quicker than other local rush species. Bulrush is highly flammable in late summer and early autumn when most of the mature leaves have died. If a fire occurs during this period permanent damage to stands is minimal since the plants are dormant.

The number of wildfires that occur in the Park needs to be reduced and fires that occur in the Park need to be quickly controlled. Given the Park is located within the gazetted Metropolitan Fire District, fire suppression is the responsibility of the Fire and Emergency Service Authority (FESA). Staff from the Department of Conservation and Land Management are available to assist FESA in fire suppression as required.

Pre-suppression works and post-suppression follow-up works in the Park are the land managers' responsibility. 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).

An important consideration in pre-suppression works and post-suppression follow-up works should be the protection of environmentally sensitive areas. Measures should be initiated to help ensure the spread of plant diseases and weeds are minimised.

A Fire Response Plan has been developed by the Department of Conservation and Land Management in conjunction with FESA and the Cities of Joondalup and Wanneroo to help ensure effective response to unplanned fire by the responsible agencies. The Fire Response Plan outlines practices such as:

- fire control actions and strategies that protect environmentally sensitive areas from unplanned fire;
- 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;
- ensuring an effective network of firebreaks is maintained.

Selective planned burning may be considered for the protection of Park values and the protection of the special reproductive characteristics of fire sensitive plants and to enhance biological diversity.

Strategies

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

2. **Co-ordinate rehabilitation works with fire prevention requirements. Fire management will be considered in the preparation of the Park's rehabilitation plan (Section 21). (CJ,CW, 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. (CJ, CW, 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 28). (CJ,CW, Department of Conservation and Land Management) [Ongoing]**

19 - Midge and Mosquito Control

The objective is to minimise the negative effects of mosquito and midge populations in a manner that has minimal environmental and social impacts.

MIDGES

Midges inhabit the wetlands of Yellagonga Regional Park and have been known to be a nuisance to surrounding residents. Research shows that, while midges are a natural component of aquatic ecosystems of Swan Coastal Plain wetlands, nutrient enrichment promotes higher densities of midge larvae and midge problems are partly a sympton of a disturbed system (Pinder, Trayler, Davis, 1991). Poor water quality can be attributed to factors occurring throughout the catchment of the wetlands in the Park (see Section 14).

Lund, Brown and Lee (2000) studied the ecology and distribution of midge larvae at the wetlands in the Park in an effort to improve control strategies at both Lake Joondalup and Lake Goollelal. A summary of the finding is as follows:

Lake Joondalup

- There are two main nuisance species found at Lake Joondalup (*Chironomus occidentalis and Polypedilum nubifer*).
- A series of 'hotspots' areas with high midge densities were identified. The reasons for the patchy distribution of midge larvae could not be determined as it is probable that individual species are responding to different habitat requirements. Effectively the 'hotspot' areas for the two main nuisance species coincide and lie between Neville Drive and Ariti Avenue. This hotspot is most significant on the eastern side of the lake but extends right across the lake to the western shore. Note: Midge monitoring following Lund *et. al.* (2000) indicates that significant midge breeding locations are also situated along the western portion of Lake Joondalup.
- The nutrient data suggests that the storm water drains on the eastern side are a major contributor to nutrient enrichment of the lake. Other possible sources include the landfill site and fertilising of sports fields adjacent to the lake.

Lake Goollelal

- Lake Goollelal had low midge larvae compared to Lake Joondalup and no problems with midges were reported. However, given the current expansion of urban areas around the lake, eutrophication is a threat and the lake could quickly become a major source of midges.

To help address the midge problems occurring at Lake Joondalup a *Midge Management Strategy for Lake Joondalup (2001)* was prepared by the Cities of Wanneroo and Joondalup, the Department of Conservation and Land Management, and the Department of Environment, Water and Catchment Protection. The strategy includes long-term management solutions based on research and monitoring as well as short-term abatement.

Importantly, the strategy sets a framework for coordinating the management of midge, by establishing a steering committee between the Cities of Wanneroo and Joondalup and the relevant State government agencies. As part of this coordination role the steering committee will help focus landowners, managers and community groups towards the overall care of the catchment of the wetlands in the Park as well as enhance liaison and partnerships with other midge research groups.

The steering committee has agreed on a nuisance reduction treatment programme and will introduce research and monitoring initiatives in an effort to improve efficiency and knowledge. Additionally, the production of public information on midge management has been identified as a priority.

The vesting of Reserve Number 31048 (Lake Joondalup) solely with the Conservation Commission of Western Australia will not affect the existing arrangements for the implementation of *The Midge Management Strategy for Lake Joondalup (2001)*. Midge management will continue to be the responsibility of the City of Joondalup, City of Wanneroo and the Department of Conservation and Land Management given the issue emanates from the surrounding water catchment areas and requires the expertise and resources of the three agencies to be integrated.

The Cities of Joondalup and Wanneroo have established a community based Integrated Catchment Management Group called the Yellagonga Catchment Group (Inc.). The objectives of the Yellagonga Catchment Group (Inc.) are:

- To facilitate an integrated catchment management process for the wetlands in the Park.
- To protect, rehabilitate and enhance the natural ecosystems and biological diversity of the wetlands in the Park.
- To facilitate community participation in catchment planning and management at the local level.
- To encourage sustainable use of the natural environment.
- To minimise the effects upon the wetlands and the community of the currently degraded and polluted wetland environment.

The Group has prepared an Action Plan that outlines how the above objectives will be met on the ground. On-ground works that can be undertaken by the managing agencies include:

- Revegetation (with local species) on the eastern edge of the lake. This will help reduce nutrients in the lake as well as providing a buffer against adult midge (see Section 21 – Rehabilitation).
- Stopping the use of fertilisers on lawns adjacent to the lake edge.

As stated by Lund, Brown and Lee (2000) the nutrient load into Lake Joondalup needs to be substantially reduced to improve water quality within the Lake, which in turn should make the Lake less able to support high midge densities. The

formation of a Yellagonga Catchment Management Group plus nutrient reduction measures such as the conversion of storm water outfalls to incorporate water-sensitive urban design principles, and continued improvement of fertiliser regimes on open space areas adjacent to Lake Joondalup is a positive beginning. Continued community involvement in catchment management plus additional on-ground works to reduce nutrients entering Lake Joondalup is the only viable long-term approach to dealing with the midge problem.

MOSQUITOES

Mosquitoes are also present around Yellagonga Regional Park. The City of Joondalup and City of Wanneroo undertake mosquito monitoring by trapping throughout the Park and on occasions, trapping has yielded large numbers of *Culex annulirostris* and *Coquillitedia linealis* (over 100 specimens per trap per night). When appropriate, the City of Joondalup and City of Wanneroo undertakes mosquito spraying. Both species of mosquitoes are common around freshwater lakes and have been shown to be vectors of Ross River Virus.

The Health Department of WA administers a mosquito control programme that subsidises Contiguous Local Authority Groups (CLAGs) that have been identified as having locally contracted mosquito-borne viruses, to control mosquitoes and protect from viruses. The Cities of Joondalup and Wanneroo would have to demonstrate known cases of locally contracted mosquito borne disease before qualifying for this assistance.

The effectiveness of the mosquito control programme however does have ramifications for the natural environment. Constant monitoring of breeding sites requires vehicle access to many sensitive sections of the Park. Constant access can cause areas to degrade and may contribute to creation of breeding habitat for mosquitoes.

The Conservation Commission of Western Australia also has a policy on mosquito control. The Commission opposes in principle mosquito control on nature reserves, RAMSAR wetlands and other wetlands with high conservation value. However, it does recognise that mosquito control adjacent to residential areas, to reduce the risk of mosquito borne diseases or to reduce an extreme nuisance, is sometimes necessary.

Strategies

1. **Implement the *Midge Management Strategy for Lake Joondalup (2001)*. The strategy will:**
   - **coordinate the midge management efforts of the managing agencies;**
   - **outline midge reduction treatments (i.e. short-term abatement);**
   - **develop research and monitoring programmes aims at improving efficiency and knowledge;**
   - **produce public information on midge management (Section 40).**

   (CJ,CW, Department of Conservation and Land Management) [High]
2. **Continue to support the activities of the Yellagonga Catchment Group and other community volunteer groups involved in catchment management for the Park. (CJ, CW, Department of Conservation and Land Management) [Ongoing]**
3. **Ensure midge management is considered when developing the Rehabilitation Plan for the Park (Section 21). (Department of Conservation and Land Management) [High]**
4. **Stop the use of phosphorus based fertilisers on lawns abutting the wetlands within the Park (Section 14). (CJ, CW) [High]**
5. **Investigate whether mosquitoes are a significant nuisance to surrounding residents. If they are a significant nuisance, implement a control strategy. (HDWA, CJ, CW) [Medium]**
6. **Review mosquito control practises annually for effectiveness in reducing pest numbers. (HDWA, CJ, CW) [Ongoing]**
7. **Continue to seek alternatives to chemical pest control that are compatible with the ecological values of the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

20 - Pets and Introduced Animals

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

PETS

Pets such as dogs, cats and horses are impacting on the natural environment within the Park.

Cats from nearby residences are impacting on native fauna and need to be controlled. Given domestic cats are likely to hunt for birds, reptiles and other fauna, they are not permitted in the Park. Cat owners should be encouraged to keep them at home, especially at night and have them de-sexed to help control feral populations.

The Cities of Joondalup and Wanneroo should consider the introduction of Local Laws for controlling cats. The City of Stirling has introduced *The Keeping and Control of Cats Local Law (1999).* The objectives of the 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 1 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 municipalities of Joondalup and Wanneroo is likely have significant benefits to the Park and the native fauna residing and breeding within the Park.

Dog walking is a common activity within the Park and is legitimate in certain areas and under specified conditions.

The City of Joondalup and City of Wanneroo are responsible for administering and enforcing the *Dog Act 1976* within their municipalities. The Dog Act states –

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.

The *Dog Act 1976* enables local governments to make local laws in relation to dogs. Both the City of Joondalup and Wanneroo established an *Animals Local Law* in 1999. Along with other matters, the laws establish Dog Exercise Areas and Prohibited Places.

All public reserves vested in the Cities of Joondalup and Wanneroo (excluding road and street reserves and other specified reserves which are listed in Schedule 2 of the respective Laws) are designated as Dog Exercise Areas.

Within a Dog Exercise Area, dogs are permitted off leashes 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.

Currently, the only Prohibited Place for dogs within the Park is Neil Hawkins Park (Reserve Number 28544). All other reserves within the Park vested in the local governments are designated Dog Exercise Areas.

Given the Park's high conservation value and the need to protect the Park's native fauna, dogs and other pets will not be permitted in the lakes and wetlands of the Park – Areas 2, 18, 23 and a large portion of Area 10 (see Figure 4 – Management Zones and Areas). Other areas of the Park where dogs will not be permitted are as follows:

- Area 5 – Neil Hawkins Park, dogs will not be permitted for the conservation of fauna and nuisance to Park visitors.
- Area 19 – dogs will not be permitted for the conservation of Park fauna - namely the population of Western Grey Kangaroos (*Macropus fuliginosus*).

Additionally, the Cities of Joondalup and Wanneroo should review the appropriateness of existing gazetted dog exercise areas within the Park.

In relation to the areas of the Park managed by the Department of Conservation and Land Management, dogs will only be permitted if they are on a leash and under effective control at all times.

Horses are degrading the environment around areas where they are agisted and they therefore need to be removed. Horses have been agisted in the central portion of the Park for many years. Because of the temporary nature of this land use, the quality of facilities such as stables and shelters are poor and present a very dilapidated appearance. Wetland areas extend through the centre of the agistment area at Della Road, and the horses are adversely impacting on the remnant wetland vegetation. Additionally, soil disturbance caused by the horses is contributing to the proliferation of weeds.

An existing trotting training track located adjacent to Woodvale Drive is used by a local horse trainer. With the removal of horse agistment from the Park, there is likely to be little demand for the on-going use of the trotting track. Future use of the site will require further investigation by the Park's managing agencies. A site plan outlining proposed future concepts for the site as well as the integration of the trotting track with the old dairy will be prepared by the Department of Conservation and Land Management (see Section 28).

INTRODUCED ANIMALS

Introduced animals such as feral cats, foxes, rabbits, fish and others occur in the Park but precise numbers are not known. All these animals have a detrimental effect on the Park's environment and their control and removal will help protect the Park's fauna and flora.

Hybridisation and competition between domestic and native ducks is believed to interfere with native duck species. Park users will be discouraged from feeding ducks and other birds through educational signs (see Section 40). Artificial feeding encourages greater numbers of birds than can be naturally supported. Uneaten food such as bread also increases nutrients (in already nutrient-rich lakes) and decaying bread can also allow botulism to spread in bird populations.

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 native bees and honeybees 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 effects 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 for the Park.

With regard to the removal of introduced animals in the Park, the managing agencies will need to determine the extent and impacts of introduced animals and then, where appropriate, implement control options. The Department of Conservation and Land Management will develop and implement a control plan for introduced pests and animals within the Park.

Strategies

1. **Remove horse agistment from within the Park. (Department of Conservation and Land Management) [High]**
2. **Exclude dogs and other pets from the lakes and wetlands of the Park as well as areas 5 and 19. (CJ, CW, Department of Conservation and Land Management) [High]**
3. **Review the current gazetted dog exercise areas and prohibited dog places within the Park in consultation with the Department of Conservation and Land Management and in light of strategies within this Plan. (CJ, CW) [Medium]**
4. **Provide dog excreta bins and signs in the Park where appropriate. (CJ, CW Department of Conservation and Land Management) [Medium]**
5. **Use interpretive material to inform the community about the adverse affects of pets and introduced animals on native fauna. Include information explaining restrictions on pet access and encouraging responsible ownership in interpretive material (Section 40). (Department of Conservation and Land Management, CJ, CW) [High]**
6. **Investigate the introduction of 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. (CJ, CW) [High]**
7. **Develop and implement a control plan for introduced pests and animals within the Park. (Department of Conservation and Land Management) [High]**
8. **Remove hybrid and introduced ducks from the Park. (Department of Conservation and Land Management, CJ, CW) [High]**

21 - Rehabilitation

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

Yellagonga Regional Park is extensively degraded by past uses. A number of previously developed, or rural areas have been included in the Park particularly in the south of the Park near Walluburnup and Beenyup Swamps, and Lake Goollelal. Extensive areas of exotic grasslands as well as the provision of roads, utilities and service corridors have resulted in modifications to vegetation communities and weeds have also become a major problem. It is difficult to restore severely degraded sites to natural habitat, however, considerable conservation gains can be made if a full suite of local overstorey and understorey species are used for revegetation.

A variety of techniques are available for landscape rehabilitation with the most appropriate being determined by the specific circumstances encountered.

Where possible, plant material or seed used in rehabilitation works should originate from within the Park or the nearest viable seed source, in order to conserve the genetic integrity of the vegetation communities. It is important that mulch and soil used in rehabilitation works does not contain unwanted weed seeds, plant disease (for example *Phytophthora* dieback) or pollutants.

Seed collection from the Park will generally only be permitted for rehabilitation projects within, or directly impacting upon the Park.

Given the Park's urban surroundings, an important consideration in Park rehabilitation will be the maintenance of views. Where possible, views will be maintained, however, the principles of conservation should not be compromised. Lower vegetation types will be used to maintain views over the wetlands. Local residents will be informed of significant revegetation works proposed for the Park.

Local residents, community groups and education institutions should be encouraged to be actively involved in rehabilitation works. These activities are to be coordinated by the joint managers of the Park through the preparation of a rehabilitation plan for the Park.

The rehabilitation plan will be in accordance with the *Policy Statement 10 – Rehabilitation of Disturbed Land* (Department of Conservation and Land Management 1986b) and will provide a guide for the long-term restoration of degraded areas within the Park. The plan will identify major disturbance sites within the Park and priorities for their restoration to a condition resembling the natural environment.

Rehabilitation of areas fringing the lakes and wetlands will be given a high priority. Local fringing vegetation helps create a more natural habitat and nutrient inputs are reduced through filtration and storage (see Section 14). Additionally, revegetating wetland fringing vegetation will provide buffers to help reduce the adverse effects of nuisance midges on residents living near to the Park. Other matters which need to be considered in prioritising rehabilitation works within the Park include bushland condition, weed control areas, disturbed areas (e.g. by fire), aesthetics, drainage lines and community involvement.

The managing agencies acknowledge the considerable efforts by volunteer groups in completing rehabilitation works within the Park, particularly the Friends of Yellagonga (Inc.). In undertaking rehabilitation projects volunteer groups should establish agreed processes and outcomes with the managing agencies. All activities should be consistent with the planning and operations for the Park.

Strategies

1. **Prepare and implement a rehabilitation plan for the Park prioritising proposed works. (Department of Conservation and Land Management, CJ, CW) [High]**
2. **Co-ordinate rehabilitation with weed control, fire protection and recreation facility and trail development at the planning, design and implementation stages. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
3. **Co-ordinate rehabilitation works between all the land managers and relevant community groups. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
4. **Inform local residents neighbouring the Park when proposing to undertake significant rehabilitation works within the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
5. **Use locally collected seed (where possible) for propagating plants or for direct seeding (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
6. **Encourage members of the local community and schools to participate in rehabilitation works and seek external funding to achieve these works where possible. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

7. **Ensure mulch and soil used in rehabilitation works does not contain unwanted seeds or plant disease. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
8. **Where appropriate, allow licensed seed collection from within the Park for rehabilitation projects within, or directly impacting upon the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

22 - 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

Research undertaken by Seddon (1972) shows that the Perth region supported three districts prior to European occupation. The land north of the Swan River was the Mooro District, its people the Oor-dal-kalla, were a family group of 28 people led by Yellagonga (Brittan 1990).

At the time of settlement of Perth in 1829, the main camp for the Mooro people was at Mt. Eliza, undoubtedly the community would have moved through the district in search of food.

The extent of the Mooro district stretched from the coast in the west to Ellen Brook in the east, and from the Swan River in the south to Gingin Brook or lower Moore River in the north (Bourke, 1987).

Yellagonga's brother was Midgegooroo the leader of the Beeliar people whose district was immediately south of the Swan River. Midgegooroo's son was Yagan (Brittain 1990).

Yellagonga has been described as follows.

Of all the leaders mentioned, Yellagonga is the most distinguished for a humane, peaceful disposition. And yet he is a man of the most distinguished martial courage. When he is fully roused no warrior not even Yagan dare stand before him (Lyon in Green 1979)

The arrival of European settlers displaced the Mooro people north from their head camp at Mt. Eliza. Yellagonga and his people initially retreated to Lake Monger and set up camp there. Later they withdrew to Lake Joondalup (Brittain 1990).

Brittain suggests the coming together of the two cultures was a soul shattering experience for the Aborigines. It marked the destruction of one society by another in which the beliefs and spirituality of the Aborigines were almost overwhelmed by the British settlers.

In the early period of settlement, relationships between the two communities were good. However, the inevitable cultural misunderstandings and competing demand for the land ultimately led to conflict. After an attack on the Aborigines in 1833 by a settler, Yellagonga's nephew, Yagan, began attacking settlers and their property. Outlawed, he sought refuge in Yellagonga's territory, possibly around Lake Joondalup (Brittain 1990).

With the rapid demise of the Aboriginal lifestyle between 1829 and 1835, the subdivision of Lake Joondalup's shores from 1838, the establishment of the Wesleyan Mission Farm in 1844, and droving from 1850, it was unlikely that the area surrounding the wetlands in the Park would have remained an Aboriginal camp for long (Brittain 1990).

Yellagonga died on 10 June 1843 (Brittain 1990). Green (1984) comments that he died without the anguish of witnessing the total disintegration and disposition of his people, who by the mid-nineteenth century had lost all rights within Perth town precincts. The generation that followed Yellagonga retreated to the permanent waterholes on the outskirts of the town (Green 1984).

Native Title Act 1993

Some of the lands that comprise Yellagonga Regional Park are subject to two native title claims. In accordance with the Commonwealth *Native Title Act 1993* future public works constructed on all reserved lands and waters managed by the Department of Conservation and Land Management will need to be notified in writing.

Parties that require notification are:

- representative Aboriginal bodies;
- registered native title bodies (corporate) and registered native title claimants for the Department of Conservation and Land Management land/waters 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 Act 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, nature reserves, conservation/recreation purpose Section 5 1 (g and 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 Aboriginal Affairs. This includes sites not yet registered with the Department of Indigenous Affairs.

Aboriginal sites within and adjoining Yellagonga Regional Park

Aboriginal sites registered with the Department of Indigenous Affairs within and adjoining Yellagonga Regional Park are:

- S00160 – Lake Joondalup West;
- S01288 – Lake Joondalup North-West;
- S02187 – Lake Joondalup;
- S02321 – Lake Joondalup South-West;
- S02538 – Joondalup Caves;
- S02186 – Lake Goollelal;
- S0437 – West Walluburnup Swamp;
- S02539 – Bonorin Hill;
- S02279 – Wanneroo Scar Tree;
- S02572 – Joondalup Waugal Egg; and
- S02573 – Joondalup Drive Trees.

NON-ABORIGINAL HERITAGE

The area around Yellagonga Regional Park attracted the attention of the settlers as colonists set out to find land to cultivate. Brittain (1990) notes that John Butler passed east of Lake Joondalup in 1834 observing that the land was worth surveying. This was carried out in 1838 and the land was subsequently leased.

Lieutenant George Grey explored the area in 1838 and camped at a lake fifteen miles from Perth, which was called Mooloore by the Aborigines. He encountered Aborigines and noted how they "fired the bush", hunted the wild animals and made such handicrafts as 'bark baskets'. He also "saw some very good land, and in addition … plenty of good feed for cattle (Russo 1998).

Grey was visited by Aborigines who informed him that 'although the lake is called Mooloore, the name of the land we are sitting on is called 'Doondalup' (Daniel and Cockman, 1979).

The east side of Lake Goollelal became the site for the Wesleyan Mission Farm from 1844 to 1852. The aim of the Farm was to encourage the Aboriginal people to learn agricultural skills. By 1852 the Mission had failed and taken up better opportunities in York, though the Mission Farm remained occupied. Aboriginal people who died whilst on the Mission were buried on the high ground to the west side of Lake Goollelal, the exact location however is no longer known (Brittain, 1990).

James Cockman and his wife are believed to have been among the first settlers in Wanneroo around 1850. In about 1850 – 1852 James Cockman built their first house near Walluburnup Swamp. Aborigines still gathered there for corroborees (Brittain 1990). The first Cockman House, however became vermin infested (Daniel and Cockman 1979) and was burnt down. The existing Cockman House near the corner of Wanneroo Road and Ocean Reef Road was built around 1870 (DPUD, 1992a).

The area, called Wanneru, became a gazetted district of the Perth Roads Board in 1871 and road construction began using jarrah blocks. Pastoral leases with a minimum of 1240 hectares were taken up in the 1880s to protect stock grazing. In 1889 the Sorrento to Dongara Stock Route was gazetted. The route was approximately 800m wide and passed to the west of Lake Joondalup. This formalised the established route by which cattle and sheep were being brought to the Perth markets from the Wanneroo area (DPUD, 1992a).

In 1906, land beside Lake Joondalup was acquired by the State government and subdivided into eighty, one-hectare blocks and gazetted as the town of 'Waneru'. The Wanneroo area became important for market gardening and vineyards. Many of the market gardens were established around the wetland system where the soils were more fertile and water readily available. Some market gardening still exists immediately adjacent to the Park (DPUD, 1992a).

Wanneroo Township was supplied with electricity in 1954 and the area grew rapidly with urban expansion from the south. Wanneroo was proclaimed a city in 1986. Further historical information is contained in Brittain (1990).

With respect to non-Aboriginal heritage sites, key issues that need to be addressed include the general maintenance and management of sites in the Park, as well as developing appropriate processes for interested parties prepared to restore and utilise sites of cultural significance.

Three places within the Park have been listed on the Western Australian Heritage Register, they are listed as follows:

1. Cockman House;
2. Perry's Paddock; and
3. Luisini Winery.

Registration of a place is official recognition by the community of its cultural significance to the heritage of Western Australia. The main implications of the registration is that the places are given legal protection under the *Heritage of Western Australia Act 1990* and that development proposals which may affect the places are required to be referred to the Heritage Council of Western Australia for its advise.

The International Council on Monuments and Sites (ICOMOS) Burra Charter, adopted by the Australian International Council on Monuments and Sites as revised in 1999, provides the basis for management of places of cultural significance. It defines conservation principles, processes and practises for application to places of cultural significance.

Non-Aboriginal historical sites within and adjoining Yellagonga Regional Park

- Neil Hawkins Park – this land once formed part of a stock route which was pioneered in 1854 and passed along the western side of Lake Joondalup.
- Quarry Ramble Lookout – during the 1920s the site was quarried for limestone used in building and road construction. Limestone was also

extracted to improve the soil quality for agriculture.

- Perry's Paddock – named after Jack Perry, a grazier, who bred racehorses on the property at the turn of the 20th century. The site became a popular venue for big sports, horse races and picnic days. The limestone ruins on the site include a two-storey shed and single room attached cottage (in the English vernacular style) as well as a cottage that has been restored. In 1992, the City of Wanneroo relocated the Wanneroo Primary School to Perry's Paddock.
- Cockman House – is the oldest surviving residence in Wanneroo. The limestone homestead was built in the early 1870s and has 450mm thick walls.
- Buckingham House – named after John Buckingham who constructed the four bedroom, limestone cottage in the 1880s. Buckingham lived on his 40ha property for some years before being granted legal title. Today the house operates as a "Pioneer Activity Centre" for local school children.
- Chitty House – this limestone dwelling was built in the 1870s by Mr H.W. Clarkson. He was one of the first settlers and an office holder in the early years of the Agricultural Society. Chitty House is not open to the public.
- Ashby House – was constructed for Charles Ashby and his family between 1910 and 1915. Similar to Buckingham House, it is typical of limestone cottages of the era. Charles Ashby was elected as a member of the Wanneroo Road Board on four occasions between 1915 and 1940.
- Luisini Winery – built in 1929, provides an example of the early wine industry, which reflects the predominant activity in the area prior to urban expansion.
- The Wesleyan Mission Farm – established by the Reverend John Smithies was built on the eastern shore of Lake Goollelal in 1844. The aim of the Mission was to encourage the Aboriginal people to learn agricultural skills.

Heritage Trails within Yellagonga Regional Park

There are two Aboriginal heritage trails located within the Park:

- Lake Joondalup Trail – A 27km self-guided walk/drive trail, begins at Neil Hawkins Park and traces the development of Wanneroo around Lake Joondalup.
- Yaberoo – Budjara Heritage Trail – A 28km walk trail from Lake Joondalup in Wanneroo through Neerabup National Park, highlights features of Aboriginal and non-Aboriginal cultural heritage significance. The trail is based on the movement of local Aboriginal people including Yellagonga. Trails used by the group link the lakes and wetlands of the Swan Coastal Plain, and were later used as a stock route.

Given Yellagonga Regional Park holds significance to both Aboriginal and non-Aboriginal people it is crucial that management protects the dual association of two radically different peoples. Where appropriate, areas of cultural heritage value will be presented to Park visitors so they can appreciate the rich cultural and historical background of the Park (see Section 40).

Strategies

1. **Ensure management obligations are fulfilled according to the *Aboriginal Heritage Act 1972, Native Title Act 1993 and the Heritage of WA Act 1990* before any planning or public works take place. (Department of Conservation and Land Management, CJ,CW) [Ongoing]**
2. **Incorporate information on Aboriginal and non-Aboriginal history of the Park into interpretive material where appropriate (Section 40). (Department of Conservation and Land Management, CJ, CW) [High]**
3. **Incorporate the Heritage Trails where possible into the proposed path network (Figure 8). (Department of Conservation and Land Management, CJ, CW) [High]**
4. **Liaise with Aboriginal and historic groups to determine their interests and possible involvement in the Park. (Department of Conservation and Land Management, CJ, CW) [Medium]**
5. **Nominate significant sites for heritage listing on either the Municipal Heritage Inventory, or State and National Heritage Registers. (CJ, CW, Department of Conservation and Land Management) [Medium]**
6. **Manage historic sites in accordance with the ICOMOS Burra Charter and in consultation with other appropriate conservation bodies, such as the WA Heritage Council, WA Museum, National Trust, Australian Heritage Commission and historical societies. (Department of Conservation and Land Management, CJ, CW, HCWA) [Medium]**

23 - Park Aesthetics and Landscape Amenity

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

The management of the landscape is a key consideration in the overall management of the

Park. The following guidelines provide a practical framework for the management of the landscape within Yellagonga Regional 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.
- Planned 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 complement surrounding landscape elements and be carefully sited away from major natural focal points, out of viewer sight-lines and where vegetation or landform screening can be used.
- Where possible views from surrounding roads should be protected and enhanced.

The landscape description, landscape quality and landscape character of the Park are described in the following subsections.

LANDSCAPE DESCRIPTION

The Park lies within the Swan Coastal Plain landscape character type (Department of Conservation and Land Management, 1994). The Coastal Plain gently slopes westwards from the Darling Scarp to the Indian Ocean. The Park is located approximately 6 kilometres from the coastline.

Landscapes range from the open water bodies of Lake Joondalup and Lake Goollelal to dense woodland areas, fringing paperbark forests and open parkland.

Cultural landscapes such as Perry's Paddock, Luisini Winery and Cockman House also provide stimulating contrasts to the surrounding urban development. Additionally, most areas of the Park fronting onto open waters have extensive views that are enjoyed and appreciated by Park visitors and local residents.

LANDSCAPE QUALITY

The Park landscape encompasses areas that can be described as being of high, medium, or low visual quality. These categories can be mapped using the Department of Conservation and Land Management's Visual Landscape Management System 1989. Once mapped, any modifications within and adjacent to the Park can be assessed according to:

(a) the scenic quality rating;
(b) the assessment of public sensitivity levels; and
(c) seen area assessment.

The Visual Landscape Management System is essentially a composite of all of the assessment factors and values which helps determine what level of change is acceptable at a particular landscape and the ability of that landscape to incorporate the proposed change.

There are many areas of high scenic quality. Most of these occur in areas zoned Conservation and Protection and include natural areas with water as a major element. Other areas of high scenic quality include well maintained parkland areas.

Using the Visual Landscape Management System, Perry's Paddock has been assessed by the Department of Conservation and Land Management as an area with high visual quality, high public sensitivity and sensitive foreground viewing distances from key use areas and travel routes. This means that the visual management objective for Perry's Paddock is to maximise the retention of visual quality.

The high scenic quality of Perry's Paddock should be conserved as it is representative of a rural and pastoral landscape which is now rare in the urban context of Wanneroo. The landscape has rich cultural and historical values to both Aboriginal and non-Aboriginal people, and the landscape has sensitive foreground viewing distances from key use areas and travel routes. Therefore key strategies at Perry's Paddock for the protection of its landscape values are:

(a) avoid alteration to the landscape which will lead to a major change in visual/scenic quality;
(b) protect the existing visual landscape values of the site. In particular protection should be afforded to the open rural and pastoral landscape which is now rare in the urban context of Wanneroo and the rich cultural and historical Aboriginal and non-Aboriginal landscape values of the site; and
(c) ensure landscape alterations are low as the site is least accommodating to visual change.

Areas in the Park of low visual quality would include, large cleared areas, highly disturbed areas (with dumped rubbish or weed infestation) built structures such as drainage outlets, back fences of houses, power lines and other utilities in the Park. Degraded and/or inappropriate structures are found within the Park. These structures detract from the enjoyment of the lakeside environment and need upgrading, replacing or screening to contribute positively to park amenity. Other areas of the Park are visually impacted by incompatible adjacent land uses or disturbed by past land use and are in need of rehabilitation.

The provision of adequate shade is also an issue that has a impact on the quality of visitor experience and landscape amenity. Where appropriate, recreation facilities will be located in shaded areas or have structures built to provide shade.

LANDSCAPE CHARACTER

Maintaining or improving the natural and cultural landscapes of the Park are integral components of the effective management of the Park. While this

means protecting natural areas, in other instances this involves rehabilitating modified landscapes of the Park. Rehabilitation works should use local plant species grown from locally collected seed or from the nearest viable seed source. The created landscape should resemble the character of the original landscape even if it has not been possible to replicate the landscape due to lack of technology or resources. Maintaining view corridors by incorporating the use of low vegetation should be considered in rehabilitation planning (see Section 21). Planting only local plant species does not apply to historical sites provided that selected plant species are not invasive.

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. (Department of Conservation and Land Management, CJ, CW) [Medium]**

3. **Protect the landscape values of Perry's Paddock by:**
   - **avoiding alteration to the landscape which will lead to a major change in visual/scenic quality;**
   - **conserving the visual landscape values of the site. In particular protection should be afforded to the open rural and pastoral landscape which is now rare in the urban context of Wanneroo and the rich cultural and historical Aboriginal and non-Aboriginal landscape values of the site; and**
   - **ensure landscape alterations are low as the site is least accommodating to visual change. (Department of Conservation and Land Management) [High]**

4. **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. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

5. **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 Western Power, Water Corporation, and other infrastructure providers before works are carried out in the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

6. **Identify sites of low visual quality (e.g. drainage outlets, degraded and weed infested areas) and undertake appropriate remedial action. (Department of Conservation and Land Management, CJ, CW) [Low]**

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

24 - Greenway Corridors and Links

The objectives are to manage Yellagonga Regional Park consistently with "greenway" principles and to encourage appropriate management of corridors and linkages between the Park and other conservation or public open space areas.

Greenways is a generic term that has been applied to a wide range of landscape planning strategies, concepts and plans (Tingay and Associates, 1998). It has been defined as "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).

Yellagonga Regional Park is a relatively thin lineal strip of land situated within the rapidly expanding northern urban corridor of Perth. With a substantial Park perimeter in relation to area, relatively undisturbed landscapes within the Park are particularly vulnerable to the pressures of adjacent land uses. Linkages between and within the Park, to adjoining areas of ecological significance are important to maintain (or develop as necessary). This is necessary to ensure the diversity and vigour of the Park's ecological systems and to help integrate the Park within the broader urban landscape.

Major arterial roads limit linkages between various parts of the Park. Major roads divide the Park at Ocean Reef Road, Whitfords Avenue and at Woodvale Drive. Burns Beach Road forms a barrier between Neerabup National Park and Yellagonga Regional Park. Hepburn Avenue is located on the southern boundary of the Park.

In the regional context, there are a number of "green" areas within close proximity of the Park. To the north are Neerabup and Yanchep National Parks. To the east are Mariginiup Lake, Jandabup Lake, Gnangara Park and Whiteman Park. To the south are Kingsway Reserve and Marangaroo Golf Course. And to the west are the Woodvale Nature Reserve, Craigie Open Space and Pinaroo Valley Memorial Park.

A study of Perth's Greenways has identified a number of proposed greenway corridors linking to Yellagonga Regional Park. They are as follows:

Link No.	Link Name
2	Northwest Wetland Strip
4	Burns Beach Road
5	Ocean Reef Road – Marmion Avenue
6	Badgerup Lake – Gnangara Lake
9	Mitchell Freeway / Railway
10	Hepburn Avenue – Alexander Drive – Coast
17	Lake Mariginup – Yellagonga Regional Park
41	Yellagonga Regional Park – Melaleuca Park

Figure 7 - Greenway Corridors and Links

The use of local plants in landscaping road reserves together with purpose-designed animal underpasses and fauna warning signs can assist to minimise the impact of major roads on the movement of fauna.

The type of interface between the Park and adjoining land uses plays a major role in insulating or exposing (as the case may be), the Park to undesirable impacts. The spread of invasive weed species can be minimised by the creation of appropriate buffers where none exist and by the planting of local species in existing areas. Park managers should liaise with the landowners involved with proposed Greenways near the Park to develop a coordinated approach to their management.

Where development is to occur adjacent to the Park, it is preferable that the following provisions are observed.

- A road is constructed between the development site and the Park, to separate the different land uses.
- Invasive exotic plant species are not planted in close proximity to the interface of the Park. Where possible, local native plant species should be used in landscape planting schemes at the interface of the Park.
- Provisions for drainage (such as drainage sumps) are contained within the development site.
- That appropriate fire management requirements are contained within the development site in accordance with the Fire and Emergency Services Authority Guidelines
- Appropriate fencing or other barriers should be provided at the interface of the Park prior to construction of the development.

Strategies

1. **Develop a list of park compatible plants to be provided to the local community who live nearby the Park and the Cities of Joondalup and Wanneroo. Discourage the planting of invasive introduced plants near the Park. (Department of Conservation and Land Management, CJ, CW) [Medium]**
2. **Encourage future providers of transport and power services to adopt "wildlife friendly" designs, and management practices. (Department of Conservation and Land Management, CJ, CW) [Medium]**
3. **Liaise with the Department for Planning and Infrastructure so that future development proposals adjoining the Park incorporate appropriate interface treatments (e.g. a road separating the Park and the development) with the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
4. **Complete structure planning for areas surrounding the Park. (DPI, CJ, CW) [High]**
5. **Liaise with adjoining landowners involved with proposed Greenways near Yellagonga Regional Park to develop a coordinated and complementary approach to management. (Department of Conservation and Land Management, CJ, CW, DPI) [Medium]**

D. RECREATION

25 - Principal Recreation Directions

RECREATION GOAL

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

RECREATION GUIDING PRINCIPLES

1. Preservation of the Values 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 is occurring or proposed. Recreation should be focused in public use areas of the Park. The intensity of recreational activities may need to be controlled to ensure it does not destroy the value and nature of the activity.

2. Consistency of Recreation with Reserve Purpose
Recreational activities should be compatible with the assigned purpose and management zoning of reserves within the Park. Reserves within 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 (ROS) is a planning tool that enables managers to provide for the greatest possible range of opportunities in a given area, while limiting unintended incremental development (Stankey and Wood 1982). Principles of the ROS have been utilised in developing the Recreation Masterplan (Figure 8).

26 - Visitor Use

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

Visitor use is concentrated at a number of recreation nodes particularly Neil Hawkins Park, Joondalup Park and the Wanneroo Community Recreation Centre which adjoins Lake Joondalup. Neil Hawkins Park is the most popular destination due to its proximity to the Joondalup City Centre and quality recreation facilities. Additionally, important recreational and social events occur within the Park including the annual Perry's Paddock Picnic Day.

A visitor survey was undertaken at the Park by Colmar Brunton in 2001 to quantify the number of visitors to specified Park areas as well as qualify the attitudes and satisfaction of Park visitors. The results of this survey provide a basis for understanding visitor requirements and demand in the Park.

Colmar Brunton (2001) listed a number of recreational activities that are popular at the Park, including:

- walking
- observing wildlife
- riding bikes
- walking the dog
- picnicking/BBQs;
- exercise/fitness;
- relaxation; and
- family outings.

Two sites were surveyed by Colmar Brunton:
1. the Yaberoo – Budjara Heritage Trail north of Neil Hawkins Park; and
2. Perry's Paddock and Beenyup Park.

An estimated 55,000 visits to Yaberoo – Budjara Heritage Trail occur annually, and walking is by far the dominant recreational activity. Jogging and walking the dog were also popular activities. At

Perry's Paddock and Beenyup Park, similar use trends were recorded and it was estimated that 61,000 visits occurred per year (Colmar Brunton, 2001).

In relation to visitor use, 83% of visitors to the Yaberoo – Budjara Heritage Trail lived locally with the remainder living within the Perth metropolitan area. Approximately one-quarter (26%) of the visits to the location used vehicles to access the Park. In comparison, at Perry's Paddock and Beenyup Park, 93% of visitors to the area lived locally and the most popular mode of access was by foot (85%); only 3% of visits accessed the area by private vehicle.

The majority of Park users surveyed by Colmar Brunton (2001) visited the Park weekly at the Yaberoo – Budjara Heritage Trail, and daily at Perry's Paddock and Beenyup Park. Averaged over both sites, 92% of users were repeat visitors, and the majority of visits were between 15 minutes to 1 hour in duration.

The estimated total number of visits to the areas managed by the Department of Conservation and Land Management within Yellagonga Regional Park is close to 193,000 per year (Colmar Brunton, 2001). This does not include the visits to popular recreation areas managed by the local government such as Neil Hawkins Park, Joondalup Park or the Wanneroo Community Recreation Centre.

This high level of visitation, plus the increasing residential development in the north-west corridor of the metropolitan area suggests that existing and future recreation facilities in the Park will continue to be in strong demand. As such specific visitor use surveys will be necessary prior to any significant recreation developments occurring in the Park.

Strategies

1. **Develop and implement a visitor survey programme to gain a greater 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 programme. (Department of Conservation and Land Management, CJ,CW) [High]**

2. **Prepare a communication plan incorporating a sign system and sign plan as well as interpretive strategies and techniques. Interpretive material should be aimed at:**
   - **promoting visitor use and activities which 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]**

27 - Recreation Masterplan

A Recreation Masterplan (Figure 8) has been prepared to help ensure that a variety of recreation opportunities are offered in the Park. The Masterplan will also help coordinate recreation developments within the Park and allocate appropriate facilities and services to those areas of the Park best able to accommodate them in a sustainable manner. Developments, where possible, will utilise already degraded sites.

The Masterplan reflects the Park management zones and land uses described in Section 9 of this Plan. The four management zones (Conservation, Natural Environment Use, Recreation, and Sport and Recreation) provide a guide to acceptable facilities and uses at a given site (see Table 1). The Recreation Masterplan considers access, internal circulation and the type of facilities to be provided within the Park.

The Conservation and Protection areas of the Park will have access limited to boardwalks, nature trails and cycling paths with an emphasis being on the enjoyment of nature.

The Natural Environment Use areas will have greater access with an emphasis on rehabilitation, education and interpretation. Provision of some facilities within these areas is anticipated.

The Recreation as well as Sport and 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.

Strategy

1. **Implement the Recreation Masterplan (Figure 8) 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, CJ, CW) [High]**

28 - 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.

Although Yellagonga Regional Park provides for a range of recreation opportunities, of particular significance is the opportunity to recreate in a natural environment within an urban area. Maintaining this experience will be a key consideration in providing for recreation sites and facilities within the Park as it is this experience that attracts many people to the Park.

In the past there has been limited direction for the coordinated development of recreation sites within the Park. This has lead to a proliferation of facilities some of which are poorly located, while others

could be considered inappropriate or surplus to demand. Conversely, there are areas in the Park that could sustain greater public use provided appropriate facilities are developed. These include:

- Lot 1 Joondalup Drive Joondalup;
- the Pine Plantation on Wanneroo Road;
- Perry's Paddock;
- the old dairy and trotting track on Woodvale Drive;
- the area between Hocking Road and Whitfords Avenue;
- the west side of Lake Goollelal;
- the east side of Lake Goollelal.

(refer to the Recreation Masterplan, Figure 8).

The provision of adequate shade at recreation sites is also a key consideration for Park management. In siting new recreation facilities under existing mature trees, management agencies need to be cognisant of safety issues such as falling branches. Additionally, when developing shade structures in conjunction with recreation sites, management agencies need to consider the potential impacts that structures can have on the quality of visitor experience and landscape amenity.

SITE DEVELOPMENT PLANS

Seven site development plans are to be prepared for areas within the Park managed by the Department of Conservation and Land Management. The plans will be consistent with the Recreation Masterplan (Figure 8) and will provide more detailed direction for the development of each site. The plans will be prepared in consultation with the community and the other managing agencies involved in the Park. The site plans are discussed below:

Lot 1 Joondalup Drive, Joondalup
Lot 1 Joondalup Drive, Joondalup is readily accessible from Lakeside Drive, is close to relatively undisturbed conservation areas and provides extensive open spaces and views across Lake Joondalup. Due to the variety of landscape settings spread over a large area there is potential to integrate development within the existing landscape without compromising the visual and environmental qualities of the site. The scope of the site plan for Lot 1 is dependent on the outcomes of a development feasibility study for the site.

Pine plantation on Wanneroo Road
The proposed urban expansion for east Wanneroo will substantially increase the demand for recreation facilities in the area. The Recreation Masterplan (Figure 8) proposes a recreation node to be developed within the pine plantation on Wanneroo Road. The site development plan for the area will consider facilities such as picnic facilities and a feature lookout. Planning will also consider the number of pine trees to be retained on site.

The old Wanneroo school building - Perry's Paddock (Lot 1 Ocean Reef Road, Woodvale)
A site plan will be prepared for the old school building at Perry's Paddock. The plan will investigate future use options including public access requirements, heritage issues, whether it is appropriately located at Perry's Paddock, management responsibilities and roles, costs associated with managing the buildings and necessary ancillary facilities to cater for public use.

The old dairy and trotting training track on Woodvale Drive
With the removal of horse agistment from the Park and increasing urban development surrounding the Park, there is likely to be little demand for the on-going use of the trotting track as a training facility. A site plan outlining proposed future concepts for the site as well as its possible integration with the old dairy will be prepared. The heritage value of the old dairy need to be assessed prior to any planning for the site.

The area between Hocking Road and Whitfords Avenue (Lot 1, Lot 48, Lot 50 and Lot 51 Hocking Road, Kingsley
Residential leases administered by the Western Australian Planning Commission currently exist on the three parcels described above. It is considered inappropriate that residential leases will remain within the Park. As part of the site plan for the area, the residential properties will be assessed and recommendations presented for their future use.

Lake Goollelal (west side)
A site plan detailing a low-key recreation node on the west side of Lake Goollelal is to be prepared. The plan will define the location of paths that will connect to the existing dual use path south of Astley Place. Other facilities to be considered by the plan include interpretation signs and a lookout. On street parking or parking on the verge is likely to be sufficient. The owners of Lot 102 Goollelal Drive, Kingsley will be consulted in the site planning exercise.

Lake Goollelal (east side)
A site plan will detail the establishment of a recreation node at the intersection of Kingsway and Wanneroo Road. Traffic planning in the past has identified the need for traffic lights to be installed at the intersection in the future. Should this occur, there is potential to develop access into the area at the controlled intersection. With residential development to the immediate south of the area, there will be demand for some recreation facilities in the near vicinity. As such, facilities may include pathways, shelters and seats, and interpretation signs.

Strategies

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

2. **Where appropriate make adequate shade provisions at recreation sites and facilities. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

3. **Provide suitable and safe facilities guided by Australian standards. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

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

29 - Park Access and Circulation

The objective is to provide safe and convenient access to and within the Park that is consistent with the protection of Park values.

ROAD ACCESS AND PARKING

Safe and convenient access to and within the Park is a major management issue. Access to the Park by private vehicles is from several major arterial roads adjoining or dissecting the Park. Ocean Reef Road and Whitfords Avenue dissect the Park east-west while Wanneroo Road and Joondalup Drive flank the Park on the east and west. Joondalup Drive also bounds the Park to the north while Hepburn Avenue borders it to the south.

Vehicle access is an important consideration for the Park. Access to the main recreation areas is via suburban streets, particularly: Boas Avenue, Edgewater Drive, Banyandah Boulevard, Scenic Drive, Timberlane Drive, Woodvale Drive, Duffy Terrace, Mooro Street, Hocking Road, Lakeway Drive, Goollelal Drive and Bindaree Terrace.

As additional recreation facilities are developed in the Park and the number of people visiting the Park increases, it may be necessary to develop additional parking areas to facilitate access. Additionally, traffic calming and designated on-street parking bays may be required in certain locations.

The provision of additional parking facilities is conceptually illustrated in the Recreation Masterplan (Figure 8). Further site planning for recreation nodes as described in Section 28 – Recreation Sites and Facilities, will consider the design and location of parking facilities within and adjoining the Park as well as traffic calming measures (if required).

PUBLIC TRANSPORT

Joondalup City Centre is a focal point for public transport with bus and rail services operating frequently. Other train stations within two kilometres of the Park are Currambine, Edgewater and Whitfords. TransPerth operates bus services to

areas surrounding the Park with many routes adjoining the Park.

CYCLE AND PEDESTRIAN ACCESS

The many quiet neighbouring suburban streets provide local residents with a good opportunity to access the Park by cycling and walking.

Generally, however, trails and pathways within the Park are limited. The lack of formed pathways restricts circulation and connectivity throughout the Park. Pedestrians are currently using firebreaks and management tracks to walk throughout the Park. Cyclists are restricted to dual use paths and formed limestone tracks.

An example of the poor condition of paths within the Park is the Yaberoo-Budjara Heritage Trail along the west bank of Lake Joondalup which is degraded in sections and difficult to traverse due to its sandy nature.

Increased visitor pressures on the Park and the lack of a structured pathway system result in the creation of informal paths by people seeking new experiences, which result in greater disturbances to bushland areas and lake and wetland edges.

An effective path system should have minimal impact upon the natural values of the Park, whilst allowing visitors to experience the diverse recreation opportunities within the Park.

Proposed Park access is shown on Figure 8 – Recreation Masterplan.

ACCESS FOR ALL

Access for people with disabilities requires improvement within the Park. In many Park areas, access for people with mobility problems is restricted due to the undeveloped nature of the pathways. However, at the more intensive recreation areas in the Park, for example, Neil Hawkins Park, wheelchair access is better developed.

Appropriate pathways and ramps will need to be provided to allow those with disabilities to experience the diverse settings within the Park. All future developments should consider the needs of disabled people in design criteria. This includes access to conservation and recreation areas.

ACCESS FOR MAINTENANCE VEHICLES

Boundary access for maintenance vehicles is provided at many points throughout the Park, including access for fire vehicles and those carrying out mosquito control works. As far as practicable these vehicles should use existing pathways, fire access tracks and fire breaks.

PRIVATE VEHICLES AND MOTORBIKE ACCESS

Private vehicles, trail bikes and motor bikes are restricted to designated parking areas and access roads. Access outside these areas may endanger other Park users, adversely affect wildlife and cause damage to the landscape.

ANIMALS

Riding horses or other animals in the Park is considered to be incompatible with Park values and usage and will generally not be permitted. Community events, such as the Perry's Paddock Picnic Day, which may involve horse riding, may be approved by the relevant managing agency. In such cases horses are prohibited from areas of the Park zoned Conservation and Protection.

WATERCRAFT

Unauthorised watercraft will be prohibited from accessing the wetlands and water bodies of the Park. The use of motorised and non-motorised recreation and tourism watercraft (such as boats and canoes) is considered inappropriate within the Park given the potential adverse impacts on native fauna and wetland vegetation.

Watercraft used for educational, research or monitoring purposes may be permitted with the expressed permission of the relevant managing agencies. Additionally, watercraft used for management purposes (such as a hovercraft) will be permitted.

Strategies

1. **Implement the Recreation Masterplan (Figure 8). The Masterplan will:**
   - **co-ordinate access and circulation allowing visitors to move safely and conveniently throughout the Park. Park access should be integrated with surrounding community and regional path networks;**
   - **provide appropriate recreation facilities and services;**
   - **provide adequate parking facilities at major recreation nodes;**
   - **provide sensitively located and designed shoreline access to selected wetlands (e.g. boardwalks and viewing platforms); and**
   - **help restrict private vehicles to designated car parks and access roads. (Department of Conservation and Land Management, CJ, CW, Bikewest,) [High]**
2. **Provide for emergency response within the Park and ensure new paths allow for emergency vehicle access (Sections 28 and 29). (Department of Conservation and Land Management, CJ, CW) [Medium]**
3. **Rehabilitate existing informal trails that are identified as unsuitable for access (Section 21). (Department of Conservation and Land Management, CJ, CW) [Low]**
4. **Consider the needs of disabled people when designing recreation facilities within the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
5. **Restrict private vehicles, trail bikes and motorbikes to designated parking areas and access roads. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
6. **Prohibit the riding of horses or other animals in the Park except at community events where approval has been obtained by the relevant managing agency. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
7. **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, CJ, CW) [Ongoing].**

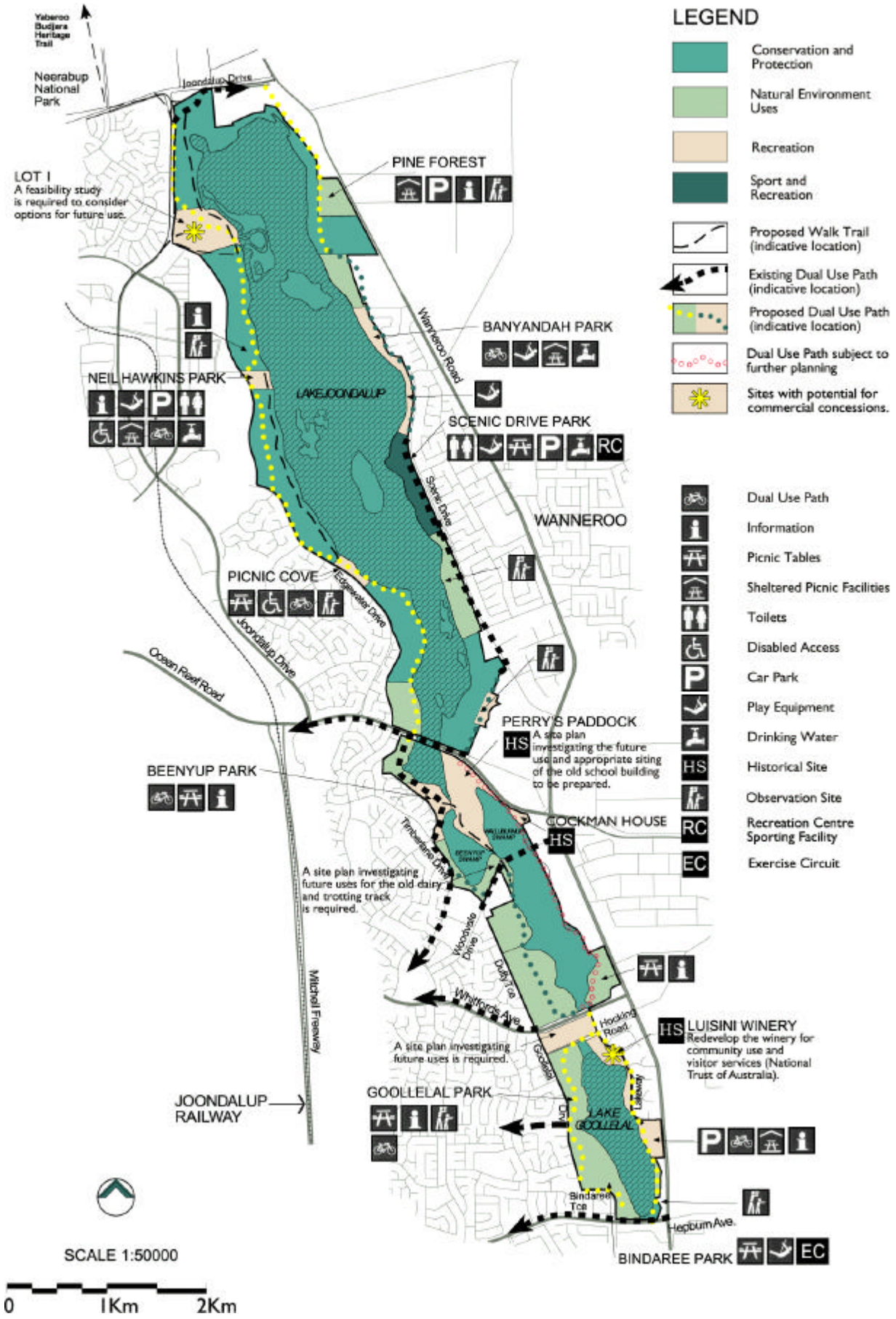


Figure 8 - Recreation Masterplan

30 - Signs

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

Signs play an important role, both notifying Park visitors about the way in which the Park can be accessed and used, as well as communicating information about the Park's identity and values. Signs need to be designed to provide messages about the Park in a consistent way and without compromising the quality of the area in which they are sited.

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 Yellagonga Regional Park brand image will be used on a number of sign types to enhance public recognition of the Park.

The Cities of Joondalup and Wanneroo will be encouraged to adopt the regional parks signs system and brand image for signs in areas of the Park under their control.

Sign Plan
The sign system will be implemented at Yellagonga Regional Park according to a park-specific plan. The sign plan will direct 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 park sign system as the standard for signs in the Park. (Department of Conservation and Land Management, CJ, CW) [High]**

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, CJ, CW) [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, CJ, CW) [Ongoing]**

31 - 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. Visitor safety will also be an integral component in undertaking works programmes and capital developments within the Park. Recreation facilities and amenities for visitors will be developed and maintained in accordance with relevant Australian Design Standards. 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.

When managing risk, the Department of Conservation and Land Management is guided by *Policy Statement No.53 Visitor Risk Management* (Department of Conservation and Land Management, 1996).

Strategies

1. **Prepare and implement a visitor risk management programme to ensure procedures are developed to manage and monitor all known risks. (Department of Conservation and Land Management) [High]**

2. **Ensure visitor safety is an integral component in undertaking works programmes and capital developments within the Park. (Department of Conservation and Land Management, CJ, CW) [High]**

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

32 - Services and Utilities

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

Services such as electricity, water, sewer, gas and telephone are available at locations within the Park. Future recreational, commercial, educational or managerial facilities within the Park may require services at additional locations within the Park.

SEWERAGE AND REGIONAL DRAINAGE INFRASTRUCTURE

Sewerage and drainage infrastructure exists in a number of locations within the Park. Where it is necessary to construct sewerage and drainage facilities within the Park, infrastructure providers will be required to either:

1. rehabilitate or make good the areas affected by construction activities through an approved rehabilitation plan; or
2. provide recreation facilities (such as dual use paths) as well as rehabilitation of the areas affected by construction.

The Water Corporation is proposing a trunk sewer to be constructed along the eastern boundary of the Park from Ocean Reef Road in the north to Lake Goollelal in the south. An easement would be formed over the sewer allowing the Water Corporation to undertake maintenance as required.

Given the lack of paths on the eastern side of the Park in that area (Figure 8 - Recreation Masterplan) and the need for maintenance access at specified points along the trunk sewer alignment, there is an opportunity to construct a dual use path (with appropriate rehabilitation) along the sewer easement. Further investigation of these opportunities will occur in consultation with the Water Corporation.

LOCAL STORM WATER AND DRAINAGE OUTLETS

The City of Joondalup and City of Wanneroo manage the local drainage system leading into the Park. Local drains divert storm water runoff from the surrounding catchment area into the wetland system. Nutrient enrichment and altered water regimes from storm water runoff threaten the natural values of the wetlands.

There are many local storm water outlets and drainage facilities within the Park. The two main issues associated with drainage facilities are:

- Ecological impacts (Section 14 – The Lakes and Wetlands, Section 15 – Flora and Vegetation, and Section 17 -Weeds).
- Aesthetic and visual impacts (Section 23 - Park Aesthetics and Landscape Amenity).

The ecological impacts associated with storm water drainage can be reduced and requires cooperation and consultation between the managing agencies. The management of storm water entering the Park's wetlands is a catchment wide issue, and controls need to be implemented at that level. The Cities of Joondalup and Wanneroo have endorsed initiatives of integrated catchment management. However, there is a need to consolidate these initiates through a comprehensive catchment management plan for the wetlands in the Park (Sections 10 and 14).

All new developments adjoining the Park will be required to dispose of storm water appropriately within the development site. No additional drainage outfalls, sumps, swales or connection of any newly constructed drains to existing outfalls will be permitted from developments adjoining the Park.

Existing storm water drainage outfalls within the Park will be reviewed in order to improve the quality of water entering the Park. In accordance with the *Yellagonga Regional Park Drainage Study* (Ove Arup and Partners, 1994) it may be necessary to develop wet detention basins or constructed wetlands. All storm water upgrade works will be undertaken in accordance with best management practises as prescribed by the Department of Environment, Water and Catchment Protection. The extent of upgrade works should not only comprise "end-of-pipe" control measures (i.e. wet detention basins) but should include in-transit measures when opportunities for retro-fitting existing infrastructure present themselves. Other measures such as gross pollutant traps should be installed at all drains entering the Park.

Additionally, many storm water outlets are unattractive and more attention to detail is necessary so that they blend with their natural surroundings. Consideration should be given to their appearance and function by battering back walls and planting sides with local vegetation. This would have the effect of improving existing outlets and stripping nutrient from storm water before it reaches the wetlands within the Park. Together with modifications to their alignment these treatments should lead to utilities that remain functional and yet merge into their surroundings.

ROADS

Roads will only be constructed in the Park if they are for management purposes or are servicing a recreation facility. Where possible, facilities should be located near the boundaries to reduce the need to place roads within the Park. Where new urban

development occurs adjacent to the Park, the construction of a roadway between the development and the Park will provide a well-defined barrier clearly separating differing land uses. Appropriate fencing to control access should also be considered during the development process.

PARKLAND SERVICING AND MAINTENANCE

Parkland and recreational areas will need regular maintenance that will predominantly be the responsibility of the City of Joondalup and City of Wanneroo. Maintenance of parkland areas is the responsibility of the managing agency that controls that area. The collection of rubbish, maintenance and provision of toilet facilities and general maintenance operations within the Park will require regular access.

Existing and proposed toilets within the Park are to be connected to sewer outlets or other environmentally acceptable disposal systems. The use of septic tanks is to be avoided except in conjunction with alternative treatment units. Any additional toilets will need to meet approved design criteria. In particular siting and design should minimise the environmental and visual impacts to the area and adjoining properties.

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.

POWER LINES

It is advocated that all new power lines be placed underground to minimise the visual impact of power supply to facilities within the Park. 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 for Park lighting.

INFRASTRUCTURE ADJOINING THE PARK

Being located within a developing urban area and in close proximity to the city centres of Joondalup and Wanneroo the Park will continue to be subjected to infrastructure proposals that threaten its values.

Currently, underground sewerage and drainage lines cross the Park at various locations, while services associated with roads also traverse the Park. 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 and environmental 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.

Strategies

1. **Where appropriate, ensure a detailed rehabilitation programme accompanies service works that occur in the Park (Section 21). (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
2. **Prevent additional direct drainage outlets from being constructed in the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
3. **Review existing drainage facilities to improve water quality entering the Park and to improve the aesthetics of the outlets (Section 14). (CJ, CW) [Low]**
4. **Liaise with the Department for Planning and Infrastructure so that future development proposals adjoining the Park:**
   - **contain storm water within the development site;**
   - **incorporate appropriate interface treatments (e.g. a separating road). (DPI, Department of Conservation and Land Management, CJ,CW) [Ongoing]**
5. **Construct roads within the Park for approved recreation or management purposes only (Section 29). (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
6. **Promote "take it home" rubbish education. (CJ, CW, Department of Conservation and Land Management) [Medium]**
7. **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, CJ, CW) [Ongoing]**
8. **Place new power lines to facilities and amenity lighting underground, to improve aesthetics of the Park. (Department of Conservation and Land Management, CJ, CW) [Low]**
9. **Request that appropriate conditions (which help protect the values of the Park) are placed on the proponents of infrastructure developments when they are seeking planning and environmental approvals. (Department of Conservation and Land Management, CJ, CW, WAPC, EPA) [Ongoing]**

E. COMMERCIAL CONCESSIONS

33 - Principal Commercial Directions

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 costs.

COMMERCIAL GUIDING PRINCIPLES

1. Consistency of commercial use with reserve purpose
Commercial activities must 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 land itself
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 of the Park. Through the tendering 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 the safety of other visitors should be specifically managed, directed to more appropriate places or not permitted. All development applications will be assessed in terms of the overall commercial requirements for the Park.

4. Leased or owned by the State or relevant local government
Commercial activities within the Park should be either through a lease or license arrangement, or where the State or relevant local government owns and operates the facility.

5. Financially viable
Through a 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 commercial concessions on land managed by the Department of Conservation and Land Management within the Park will be used to help meet the overall cost of managing regional parks.

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

34 - Leases and Licences

The objective is to ensure that commercial operations and leases are consistent with this Plan and that any leases and commercial operations help offset Park management costs.

Commercial concessions (leases and licences) may be granted on lands or waters managed by the Department of Conservation and Land Management to provide appropriate facilities and services for visitors. A lease allows the lessee to occupy a particular area of land or waters, whereas a licence allows the licensee to enter and use the land.

Leases and licences provide a mechanism to bring private capital and management expertise into visitor services in natural areas. Concessions need to be carefully designed and managed, or they may detract from the conservation and landscape values of the Park. Appropriate concessions can generate income to help offset Park management costs and can significantly enhance public access and enjoyment of the Park.

The Department of Conservation and Land Management, the City of Joondalup, the City of Wanneroo and National Trust of Australia (WA) should assess leasing and commercial operations according to the goals and objectives as set out in this Plan. Concessions must be consistent with the purpose of the reserve and the protection of its values. Commercial concessions on land managed by the Department of Conservation and Land Management within the Park will be established and managed in accordance with the Department of Conservation and Land Management's *Policy Statement No 18 - Recreation Tourism and Visitor Services* (Department of Conservation and Land Management 1991).

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. 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.

If the land is subject to a Section 16 agreement under the *Conservation and Land Management Act 1984*, the approval of the owner and consent of the occupier is required before a lease can be granted.

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 land managed by the Cities of Joondalup and Wanneroo require the approval of the relevant local government.

All development proposals on land reserved as "Parks and Recreation" in Perth's Metropolitan Region Scheme require approval from the Western Australian Planning Commission (WAPC). The WAPC in association with the Department of Conservation and Land Management will use this Plan as a mechanism for guiding development proposals within the Park or which impact upon the Park. Additionally, any commercial development proposed in the Park should be advertised appropriately to allow for consultation with the community.

A tendering process for proponents to be involved in the Park will be consistent with State and local government tendering processes.

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

PROPOSALS FOR COMMERCIAL VISITOR SERVICES

Sites within the Park that are subject to proposals for commercial visitor services include:

Lot 1 Joondalup Drive, Joondalup
Lot 1 (Lot 1 Joondalup Drive, Joondalup) offers considerable scope for the development of community facilities and commercial visitor services. The site is readily accessible from Lakeside Drive, is close to relatively undisturbed conservation areas and provides extensive open spaces and views across Lake Joondalup. Due to the variety of landscape settings spread over a large area there is potential to integrate development within the existing landscape without compromising the visual and environmental qualities of the site.

Over the past decade, various proposals for an environment centre at Lot 1 have been prepared by government, education institutions and the community. These include the original proposal by Landcorp in 1992, the Yellagonga Environment Centre (Inc.) and the West Coast College of TAFE - Joondalup Campus.

During the preparation of this management plan it became evident that:

- the Department of Conservation and Land Management does not have the resources to contribute the funding required to establish and manage such a facility;
- while there is still support for an environment centre at the site, requests for the project have not been regular or high in number; and
- other development proponents have identified Lot 1 Joondalup Drive as a site suiting their requirements.

In addition, the proposed re-development of the Luisini Winery by the National Trust incorporates a number of community facilities, including a community environment centre. The centre is to include a meeting room use for environmental and educational purposes, an externally accessed storeroom for tools and equipment (to be used by volunteer groups working in Yellagonga Regional Park) as well as toilets and showers for the public using the facility and those visiting the Park.

The National Trust has undertaken considerable consultation with local residents and stakeholders involved with the Park. The proposed environment centre at the Luisini Winery has the support of local community volunteer groups involved with Yellagonga Regional Park such as the Yellagonga Regional Park Community Advisory Committee.

Funding for the redevelopment of the Luisini Winery is to be provided by the Western Australian Planning Commission and ongoing management of the facility is to be coordinated by the National Trust.

Given the information ascertained through the preparation of this Management Plan and the proposal to provide a community environment centre within the Luisini Winery, it is now appropriate that the next stage in considering future uses of Lot 1 Joondalup Drive will involve the completion of a land use feasibility study. The study will investigate the feasibility of development options and will consider community aspirations for the site, environmental constraints, business and operations planning as well as the required funding and resources. An assessment of "no development" or doing nothing at this stage will also be considered.

Importantly, as part of the feasibility study, there is a need to further consult with the community about possible changes in land use at the site. Should it be considered viable for community or commercial development to proceed at Lot 1, a site development plan will be prepared that will outline proposed concepts for the site. Expressions of interest would then be sought to facilitate development of the site.

Any development proposals would need to conform to the planning requirements of the City of Joondalup and the Western Australian Planning Commission and environmental review requirements of the Environmental Protection Authority (EPA).

Perry's Paddock (Lot 1 Ocean Reef Road, Kingsley)
The area known as Perry's Paddock has strong historical and cultural significance to both Aboriginal and non-Aboriginal people.

For local Aboriginal (Nyungar) people, the area is important as it forms part of their Dreaming. To non- Aboriginal people, the area was important in the development of Wanneroo with some of the first

settlers of Perth taking up land at the site and commencing farming, later turning to market gardening. Additionally, a number of significant artefacts remain including a bunkhouse and cottage/stables, partly in ruins.

The Heritage Council of Western Australia entered Perry's Paddock on the Register of Heritage Places in 2000, in recognition of its historic, scientific and social value. In its assessment the Heritage Council indicated that Perry's Paddock has cultural heritage significance for the following reasons:

- the place is located on the first land grant in Wanneroo (surveyed in 1838), and largely retains its original spatial and functional characteristics;
- the place has scientific value to Western Australia as an intact archaeological site that covers a long period of rural development. The collection of original limestone buildings, together with their setting, are important evidence of the early settlement and occupation of the district;
- due to the variety of views and spatial qualities provided from within and outside the group, the place has landscape qualities which include contrasts between exposed, sparse elevated areas and sheltered, verdant and enclosed places, picturesque views of open water and fringing woodland;
- the place is representative of the occupation of the locality and reflects many of the processes that were part of its original development as an agricultural (grazing) property;
- the place represents the characteristic "parkland cleared" rural landscapes of the Perth Coastal Plain and of the modest planting associated with early rural properties;
- the place was owned by the prominent Shenton family and the Perry and Duffy families, early settlers and long time residents in the district;
- the place was the site for the Picnic Race Days, which were held in the 1920s and were a social focus for what was then a relatively isolated community. The stand of indigenous trees on the northern boundary are associated with the Picnic Race Days; and
- the place includes Perry's Cottage, a good representative example of a simple structure built circa 1850 and based on a vernacular Georgian model from England, adapted to local conditions and built from local materials.

In addition to the cultural heritage assessment by the Heritage Council, the landscape value of Perry's Paddock has been assessed by the Department of Conservation and Land Management. The landscape assessment (Section23) described Perry's Paddock as an area with high visual quality, high public sensitivity and sensitive foreground viewing distances from key use areas and travel routes.

The high scenic quality of Perry's Paddock should therefore be conserved, as it is representative of a rural landscape that is now rare in the urban context of Wanneroo. The landscape has rich cultural and historical values to both Aboriginal and non-Aboriginal people, and the landscape has sensitive foreground viewing distances from key use areas and travel routes.

Considering both the cultural heritage value and landscape assessment for Perry's Paddock, the area should be managed to maximise the retention of visual quality as well as the historical, scientific and social values of the site. Future use of the site should reinforce the heritage significance of existing structures with the open paddocks and expansive views across the site being maintained.

The tourist development (which includes a model village and restaurant) that has been proposed at Perry's Paddock is not considered appropriate as it is likely to have significant adverse impacts on the landscape, historical and scientific values of the site. Given the proposal is considered inappropriate, the Department of Conservation and Land Management will not enter into a lease with the proponent of the development to allow the proposal to proceed.

Wanneroo School Building (Perry's Paddock)
Through the preparation of this Plan, the Conservation Commission of Western Australia will accept vesting of Perry's Paddock. The old Wanneroo School, which is owned by the City of Wanneroo, was relocated to Perry's Paddock in 1992 and remains on the site. A site plan for the school building to determine its future use and appropriateness at Perry's Paddock will be prepared in consultation with the City of Wanneroo and the community (Section 28).

Duffy Terrace
A proposal for a botanic garden at Duffy Terrace in the south west portion of the Park by the Western Australian Horticultural Council (Inc.) outlined the creation of a highly modified landscape incorporating a variety of garden styles and spaces in contrast to the natural landscape character of the Park.

Although the existing site has been significantly modified due to past land uses there is potential for the proposal to cause significant adverse impacts on the nearby wetland and bushland areas, including:

- further nutrification of groundwater and surface water;
- disturbance to groundwater regimes;
- possible weed infestations into other areas of the Park; and
- disturbance of native fauna habitats.

Given the above matters the proposal is not considered appropriate.

Luisini Winery
A Heritage Conservation Plan prepared for the Luisini Winery by the City of Wanneroo and WAPC indicated the winery's buildings and equipment have significant heritage value and are worthy of heritage listing. Following the City of Wanneroo's decision not to proceed with a Conservation Plan, the National Trust of Australia (WA) entered into a three-year lease arrangement with the WAPC to conserve and interpret the State heritage-listed Luisini Winery.

As part of this agreement the WAPC will provide funding to assist the National Trust with the winery's redevelopment. The National Trust will accept vesting of the winery following the expiry of the lease.

The lease between the WAPC and the National Trust covers Lots 41, 42, 43, 44, 45 Lakeway Drive, Kingsley. The National Trust will also accept the vesting of the north eastern portion of Lot 82 Lakeway Drive, Kingsley (which comprises Area 24) as part of the land tenure changes resulting from this Plan.

With a Conservation Plan having already been prepared, the National Trust is currently investigating future use options as well as interpretation of the winery. A Redevelopment Study and Recommendations document has been completed and included extensive consultation with residents from the immediate area, community groups and the broader community.

The Redevelopment Study and Recommendations (Asset Research, 2001) document considers three options for the future use of the winery:
1. full development of the site;
2. open as a museum only at limited times; or
3. do nothing.

The Redevelopment Study recommended redeveloping the winery as a cultural and commercial facility and would include at its core a museum supplemented with a mix of commercial and educational activities (Asset Research, 2001).

The National Trust is also aware of the environmental needs of Lake Goollelal and the area surrounding the Luisini Winery as part of the Yellagonga Regional Park. To this end, the National Trust is planning to incorporate an environment centre at the winery. The centre, which will utilise sustainable building technologies, will be of a scale to accommodate up to 50 persons including community and school groups. It is planned that the centre will be a separate building to the winery and would include a meeting room used for environmental and educational purposes, an externally accessed storeroom for tools and equipment (to be used by volunteer groups working in Yellagonga Regional Park) as well as toilets and showers for the public using the facility and those visiting the Park.

The protection of Lake Goollelal's physical, cultural and landscape resources will be important in the overall development plans for the Luisini Winery. The National Trust will seek to develop an integrated environmental programme that will compliment the conservation and interpretation of the Luisini Winery and provide protection for Lake Goollelal and its environment, as well as enhancing its flora and fauna. The Trust will achieve this by working together with the Department of Conservation and Land Management, the Yellagonga Regional Park Community Advisory Committee and local community groups to ensure that the conservation and interpretation of the Luisini Winery will be in keeping with the Yellagonga Regional Park Management Plan.

ADDITIONAL OPPORTUNITIES FOR COMMERCIAL VISITOR SERVICES

There are opportunities for commercial activities that could provide Park visitors with the scope to learn about and explore the Park in new ways. These could include approved ecotourism activities. Commercial operations in the Park are not precluded and provide the opportunity to offer services to the public and the opportunity to raise revenue to assist in the management and provision of facilities in the Park.

Examples of commercial activities that may occur within the Park are as follows:

Restaurant, Café or Kiosk
An opportunity may exist to develop a restaurant, café or kiosk within the Regional Park. With the close proximity of the Park to the Joondalup and Wanneroo city centres and the anticipated growth in the north west corridor of Perth, it is likely pressure will increase in the future for additional facilities and services in the Park.

The sensitive siting and design of the building would enable Park visitors to interact with the environment, without significant impacts upon the conservation values of the Park. Revenue generated from lease arrangements will be used to assist in the management of the Park.

A restaurant, café or kiosk would be best located in an already disturbed or developed area. Sites, which require further investigation regarding such a development, include Lot 1 Joondalup Drive, Joondalup and the Luisini Winery. A restaurant (or similar development) at Perry's Paddock is not considered appropriate as it is likely to have significant adverse impacts on the landscape, historical and scientific values of the site.

For the development of a café or restaurant to proceed in the Park, expressions of interest should be sought through a State or local government tendering process. An environmental review, feasibility study and business plan would be required before the development could proceed.

Bicycle Hire
The provision of cycling facilities is consistent with the management objectives of the Park and should be encouraged. This may include a licence to operate a hire business issued to approved operators and which would be subject to license conditions.

Ice cream vans or fast food outlets
These businesses might operate in the Park subject to the issuing of an Itinerant Vendors Licence or Stall Holders Licence by the City of Joondalup or City of Wanneroo. The vendors must comply with the relevant management agencies requirements, including not conflicting with other Park visitors. These businesses would not operate in areas zoned Conservation and Protection.

Guided Tours
There is the possibility for tour operators to undertake guided tours within the Park. These tours could take a range of forms including:

- Aboriginal and non-Aboriginal cultural heritage tours and activities; and
- nature observation tours and activities.

Commercial guided tours would require the permission of the relevant management agencies under a licence arrangement.

CONCESSIONS FOR PURPOSES OTHER THAN VISITOR SERVICES

Developments and concessions other than those for visitor services are generally not considered appropriate within regional parks, unless there is a considerable benefit to the Park.

A number of primary production and residential leases exist within the Park, which are outside the scope of visitor services.

Primary Production Leases
The primary production lease over Lot 75 Wanneroo Road, Wangara was considered inappropriate and has been removed from the Park.

Residential Leases
Five residential leases exist within the Park. These are located at Lot 1, Lot 48, Lot 50 and Lot 51 Hocking Road, Kingsley as well as at Lot 19 Goollelal Drive, Kingsley. Residential leases are considered inappropriate within the Park. The residential properties will be assessed and recommendations presented for their future use.

COMMUNITY OR SPECIAL EVENTS

From time to time there may be demand for use of areas of the Park for community and special events. The appropriateness of community or special 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 (licence or permit) 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 the Park. The requirements of the Cities of Joondalup and Wanneroo must also be met.

Strategies

1. **Establish and manage any commercial operations in accordance with the Department of Conservation and Land Management's *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. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
2. **Ensure any commercial activities are consistent with the commercial guiding principles. Conditions are to be fulfilled by concession holders and an appropriate fee is paid that contributes an income to the management of regional parks. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
3. **Ensure proponents of major commercial activities complete an appropriate expression of interest. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
4. **Prepare a land use feasibility study for development options at Lot 1 Joondalup Drive, Joondalup. The study is to consider community aspirations for the site, environmental constraints, business and operations planning as well as the required funding and resources (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
5. **Refuse a lease (or other tenure arrangements) for the proposed tourist development at Perry's Paddock on the grounds that it is considered likely to have significant adverse impacts on the landscape, historical and scientific values of the site. (Department of Conservation and Land Management, Conservation Commission of Western Australia) [High]**
6. **Decline the proposal for a botanic garden at Duffy Terrace given it would be likely to cause significant adverse impacts on the nearby wetland and bushland areas. (Department of Conservation and Land Management) [High]**
7. **Assess all leased residential properties in the Park owned by the WAPC regarding their future use. (Department of Conservation and Land Management) [High]**
8. **Develop management guidelines for advertising within the Park. (Department of Conservation and Land Management, CJ, CW) [Medium]**
9. **Assess community and special events in relation to the guiding principles for commercial and recreation use of the Park. 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. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

35 - 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 (BRM) in Yellagonga Regional Park.

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 targeted on land managed by the Department of Conservation and Land Management or other Crown land will be processed under the *Mining Act 1978*. Any proposals to access basic raw materials on Department of Conservation and Land Management land for "public works purposes" will be considered in accord with the Conservation Commission of Western Australia's Basic Raw Materials Policy Statement No. 5.

Mining of basic raw materials from within the Park is unlikely to be environmentally acceptable and such proposals will be referred to the Environmental Protection Authority (EPA).

MINING

Applications for mining within the Park will be processed in accordance with:

1. *The Mineral Exploration and Development Memorandum of Understanding* (MOU) between the Environmental Protection Authority and the Department of Mineral and Petroleum Resources Energy (DMPR) (1995) for applications occurring in any conservation reserves in the Park (refer DMPR Information Series No 11); and

2. The Regional Park Mining Protocol currently being developed by the Department of Conservation and Land Management and DMPR for all other land tenure in the Park including freehold property, unallocated Crown land, local government reserves and Crown reserves vested in authorities other than Department of Conservation and Land Management.

Mineral exploration in 'A' Class 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 Mines. The Conservation Commission of Western Australia may refer proposals causing significant environmental disturbance to the EPA. Approval for mining will require the consent of both Houses of Parliament and EPA assessment.

Strategies

1. **Finalise the Regional Park Mining Protocol. (Department of Conservation and Land Management, DMPR) [High]**

2. **Assess all requests to access basic raw materials within the Park are in accord with:**
   - **Department of Conservation and Land Management and Conservation Commission of Western Australia policies;**
   - **the Regional Park Mining Protocol; and**
   - **the *Mineral Exploration and Development Memorandum of Understanding*.**

(Department of Conservation and Land Management, CJ, CW) [Ongoing]

F. RESEARCH AND MONITORING

36 - Principal Research and Monitoring Directions

RESEARCH AND MONITORING GOAL

Seek a better understanding of the natural, cultural and social environments, and the impacts of visitor use and Park management.

37 - 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

Effective management of the Park requires more accurate information about the many issues and pressures affecting the Park and its values. There have been a number of studies on the wetland system, particularly for Lake Joondalup, which indicate the wetlands are under threat from pollution and increasing nutrients, and further information is required. Details of these studies are contained in the References and Bibliography.

It is desirable that research projects involve as wide a range of people as possible. The involvement of volunteers, educational institutions and individual researchers can reduce research and monitoring costs and assist in providing information to management bodies and the broader community (see Section 40).

Community groups and schools can also play an important role in scientific research and monitoring. The Friends of Yellagonga Regional Park (Inc.) and the Yellagonga Catchment Group (Inc.) have in the past undertaken a groundwater monitoring, demonstrating the valuable role community groups can play in Park research and monitoring.

Additionally, the Park is situated in close proximity to the Joondalup campus of Edith Cowan University and the West Coast College of TAFE – Joondalup Campus. The Department of Conservation and Land Management's Woodvale Wildlife Research Centre is located to the west of the Park and includes a library and excellent resources for people involved in, and interested in, the management of natural areas.

MONITORING

The priorities for monitoring in the Park have been defined by the key performance indicators (Section 11).
Key performance indicators for the Park are:

- the species diversity of indigenous fauna populations;
- the range of vegetation communities;
- the abundance and distribution of priority weed species;
- visitor numbers and visitor satisfaction;
- visitor risk management;
- community involvement; and
- land tenure arrangements.

Individual sections of this Plan provide strategies concerning research and monitoring that is required.

It is important that the Department of Conservation and Land Management coordinates all research undertaken in the Park. This will help ensure an integrated approach to research and monitoring, which avoids duplication and allows projects to be assigned priorities.

Strategies

1. **Develop an integrated programme of survey, research and monitoring based on the Key Performance Indicators (Section 11). (Department of Conservation and Land Management, CJ, CW) [High]**
2. **Encourage the participation of volunteers, educational institutions and other organisations in research projects within the Park and promote research programmes that address the Key Performance Indicators. (Department of Conservation and Land Management, CJ, CW) [High]**
3. **Support and where possible seek grant applications to encourage scientific research and monitoring within the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

G. COMMUNITY RELATIONS

38 - Principal Community Relations Directions

COMMUNITY RELATIONS GOAL

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

39 - 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 this 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 November 1997 as part of the management planning process. The workshop was attended by people representing broad community interests as well as representatives from the Cities of Joondalup and Wanneroo 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 Cities of Wanneroo and Joondalup. The Yellagonga Regional Park Community Advisory Committee also commented on the draft plan prior to its release for public comment.

Yellagonga Regional Park Community Advisory Committee
The Yellagonga Regional Park Community Advisory Committee provides a forum at which issues affecting the Park are discussed.

A call for nominations to establish the committee occurred in 1995. The committee consists of community members and representatives from the Cities of Joondalup and Wanneroo and the Department of Conservation and Land Management. The committee's role is 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.

Additionally, the broader community will play an important role in implementation of this Management Plan, as discussed in Section 42.

Strategies

1. **Maintain active liaison with community groups involved in the Park (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

2. **Periodically review the role and composition of the Yellagonga Regional Park Community Advisory Committee. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

3. **Provide opportunities for the community to be involved in implementing this Plan. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

40 - 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 the implementation of this Plan.

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

A communication plan and programme for the eight regional parks in Perth, including Yellagonga Regional Park, will be completed by the Department of Conservation and Land Management. The communication plan and programme will have three integrated parts:

1. Information – providing an overview of opportunities and details of facilities, activities and regulations;
2. Interpretation – exploring natural and cultural features; and
3. Education – providing detailed materials and programmes designed to facilitate learning, focusing on target groups (e.g. school groups, community groups).

The communication programme will be implemented by way of signs, displays, publications (such as brochures and Park notes) and guided activities. Close liaison between the Park managers will be necessary to help ensure the development of a coordinated programme of information, interpretation and education for the Park.

An interpretation plan will also be completed for Yellagonga Regional Park. Visitors to the Park will require information to help plan their visit, enjoy and appreciate the Park and to help them to recall their experience when they depart. The Park offers many opportunities for developing an enriching body of interpretive material. Key areas for interpretation and education within the Park include:

- the lakes and wetland areas;
- recreational opportunities;
- flora and fauna;
- how local residents can reduce nutrient loads into the wetlands in the Park and therefore participate in the recovery of the wetland system.
- cultural influences (both Aboriginal and non-Aboriginal people);
- the wetlands in the Park and their relationship with other wetlands on the Swan Coastal Plain;
- the Regional Park entity, its management and evolution; and
- responsible use of the Park.

The development of interpretive material should be undertaken in a co-ordinated 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.

The Friends of Yellagonga (Inc.) and the Yellagonga Catchment Group (Inc.) provide opportunities for people to be involved in community programmes and other Park activities (see Section 42).

COMMUNITY ENVIRONMENT (EDUCATION) CENTRE

The development of a Community Environment (Education) Centre can serve as a focus for educational and research programmes related to the Park. Such a centre would offer accessible, timely information about the values of the Park together with activities and programmes to interpret those values.

Over the past decade, various proposals for an environment centre at have been proposed in the Park particularly at Lot 1 Joondalup Drive, Joondalup in the north-west of the Park. Proposals for an environment centre have been prepared by government, education institutions and the community. These include the original proposal by Landcorp in 1992, the Yellagonga Environment Centre (Inc.) and the West Coast College of TAFE - Joondalup Campus.

During the preparation of this management plan it became evident that:

- The Department of Conservation and Land Management does not have the resources to contribute the funding required to establish and manage such a facility.
- While there is still support of the idea of an environment centre at the site, requests for the project have not been regular or high in number.
- Other development proponents have identified Lot 1 Joondalup Drive as a site suiting their requirements.

In addition the proposed re-development of the Luisini Winery, by the National Trust of Australia (WA) will incorporate a number of community facilities, including a community environment centre. The centre, which will utilise sustainable building technologies, will be of a scale to accommodate up to 50 persons including community and school groups. It is planned that the centre is be a separate building to winery and would include a meeting room use for environmental and educational purposes, an externally accessed storeroom for tools and equipment (to be used by volunteer groups working in the Park) as well as toilets and showers for the public using the facility and those visiting the park

The National Trust has undertaken considerable consultation with local residents and stakeholders involved with the Park. The proposed environment centre at the Luisini Winery has the support of local community volunteer groups involved with Yellagonga Regional Park such as the Yellagonga Regional Park Community Advisory Committee.

Funding for the redevelopment of the Luisini Winery is to be provided by the Western Australian Planning Commission and ongoing management of the facility is to be coordinated by the National Trust.

Strategies

1. **Develop and implement a communication plan for Perth's Regional Parks. (Department of Conservation and Land Management) [High]**
2. **Develop and implement an interpretation plan for Yellagonga Regional Park. (Department of Conservation and Land Management) [High]**

3. **Continue to liaise with all interest groups to ensure a coordinated approach to interpretation and education within, and adjacent to the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
4. **Continue to encourage, promote and support the local volunteers with resources to help them carry out their activities. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**
5. **Support the provision of a community environment centre as part of the redevelopment of the Luisini Winery. (Department of Conservation and Land Management) [High]**

H. PLAN IMPLEMENTATION.

41 - Priorities, Funding and Staff

The objective is to manage the Park according to the priorities developed for implementation.

PRIORITIES

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 start of the planning process and will be reviewed in reference to changing circumstances during the term of the Plan. There are many strategies outlined in this Plan. While some are guidelines others are prescriptions for specific actions. The local governments of Joondalup and Wanneroo as well as the Department of Conservation and Land Management will implement this Plan within the framework of available resources.

Timelines for Key Management Strategies listed in Table 2 represent those strategies that are the most important for the management of the Park.

Subsidiary plans and implementation programmes

In implementing the priorities of the Plan, more detailed subsidiary plans will be required prior to operations taking place within the Park (see Section 2).

Subsidiary plans to be (or that have been) prepared as part of the Yellagonga Regional Park planning process include:

- Pollution Response Plan (Section 14);
- Fauna Management Programme (Section 16);
- Weed Management Plan (Section 17);
- Fire Response Plan (Section 18);
- Rehabilitation Plan (Section 21);
- Visitor Survey Programme (Section 26);
- Recreation Masterplan (Section 27);
- Site Development Plans (Section 28);
- Sign System and Sign Plan (Section 30);
- Safety Risk Management Programme (Section 31);
- Regional Park Mining Protocol (Section 35);
- Communication Plan for regional parks (Section 40);
- Interpretation Plan (Section 40); and
- Volunteer Information Package (Section 42).

Additionally, a five-year implementation programme and annual works programme will be prepared to guide the implementation of this Management Plan.

The Cities of Joondalup and Wanneroo and the Yellagonga Regional Park Community Advisory Committee will be consulted by the Department of Conservation and Land Management in the preparation of the Park's annual works programme and five-year implementation programme.

STAFFING

The City of Joondalup and City of Wanneroo currently manage their respective reserves within the Park using staff from their Operations Units and contracts 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 Cities of Joondalup and Wanneroo, 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 Schemes administered by the WAPC.

Responsibility for acquisition of private land proposed for inclusion in the Park remains with the WAPC.

Strategies

1. **Prepare and implement a five-year implementation programme and annual works programme, taking into account the priorities identified in this Plan. Consult with the appropriate management agencies and the Park's Community Advisory Committee when preparing these programmes. (Department of Conservation and Land Management) [High]**

2. **Seek corporate sponsorship and other funding arrangements for the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

42 - Community Involvement

The objective is to actively encourage as much community involvement as possible, in implementing this Management Plan.

The public is formally involved in implementing this Plan through the Yellagonga Regional Park Community Advisory Committee (Section 39).

It is important that the community is actively involved in implementing this Management Plan and preparing and implementing subsidiary plans (Section 41). 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 the community involvement in the Park the Department of Conservation and Land Management has prepared a Regional Park Volunteer Information Package.

Residents bordering the Park can have a great impact on the Park. It is important to seek the cooperation and involvement of adjacent landowners to protect the values of the Park. This can be done through educational programmes that 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 community can be involved in assisting with the implementation of this Plan including:

- joining community volunteer groups such as the Friends of Yellagonga (Inc.) or the Yellagonga Catchment Group (Inc.);
- joining the Department of Conservation and Land Management's Bush Rangers Programme;
- contacting members of the Yellagonga Regional Park Community Advisory Committee;
- reporting problems and issues to the managing agencies; and
- involvement in clean up days (e.g. Cleanup Australia Day).

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 programme and five-year implementation programme.

Strategies

1. **Promote community groups involved in the implementation of this management plan and subsidiary plans (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

2. **Coordinate all activities of volunteers in the Park in liaison with community groups. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

3. **Encourage and support the activities of community groups, schools and associations interested in the Park (Department of Conservation and Land Management, CJ, CW) [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, CJ, CW) [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, programmes and developments within the Park. (Department of Conservation and Land Management, CJ, CW) [Ongoing]**

43 - Term of this Plan

This Plan will help progress the Park towards its long-term vision (Section 5). In doing so it will be subject to reviews to ensure its appropriateness and effectiveness.

The term of this plan will be 10 years. If the Plan does not require revision after 10 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.

44 - 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.

The Plan will be subject to:
- an annual review; and
- a mid-term (five year) and end-of-term (10 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 works programme for the following year. The annual review will be undertaken by Park management 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.

Mid-term and end-of-term audit
The Plan will be audited mid-term and towards the end of its 10 year term 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 (see Table 2).

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, CJ, CW, Community Advisory Committee) [Ongoing]**
2. **Audit the Management Plan mid-term and towards the end of its 10 year term. (Conservation Commission of Western Australia) [Ongoing]**

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Abbreviations

A list of abbreviations used in this plan:

AHD	Australian Height Datum
CAMBA	China Australia Migratory Bird Agreement
CJ	City of Joondalup
CW	City of Wanneroo
DEWCP	Department of Environment, Water and Catchment Protection
DMPR	Department of Mineral and Petroleum Resources
DOLA	Department of Land Administration
DPUD Infrastructure)	Department of Planning and Urban Development (now Department for Planning and
DPI	Department for Planning and Infrastructure
EPA	Environmental Protection Authority
ICOMOS	The International Charter for the Conservation of Monuments and Sites. The Burra Charter was adopted by the Australian ICOMOS in 1981.
HDWA	Health Department of Western Australia
JAMBA	Japan Australia Migratory Bird Agreement
MRS	Metropolitan Region Scheme
RAOU	Royal Australasian Ornithologists Union
RAMSAR	Convention on the Conservation of Wetlands of International Importance: Especially Waterfowl Habitat. Known as the RAMSAR Convention
SPC	State Planning Commission (now WAPC)
FESA	Fire and Emergency Services of Western Australia
WAPC	Western Australian Planning Commission
WC	Water Corporation of Western Australia

Appendix 1: Contacts

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