

Gnangara Park

A Preliminary Concept Plan



Department of Conservation and Land Management

November 1998



Gnangara Park

A Preliminary Concept Plan to
identify the main issues and discuss
proposed directions for the Park

Prepared by a Technical Working Group
consisting of:

Department of Conservation & Land Management

Water & Rivers Commission

Water Corporation

Ministry for Planning

Department of Environmental Protection

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Introduction

The Department of Conservation and Land Management (CALM) have prepared this document, with the assistance from a Technical Working Group, as the basis for discussion about the future planning and management of Gngangara Park. It is largely a broad statement of intent designed to complement the management planning process.

Background

The proposed Gngangara Park is a major component of the open space and conservation system for the Perth Metropolitan Area and the Perth District CALM managed estate. It brings together into one proposal, a number of areas that have been subject to longstanding recommendations for conservation, recreation and groundwater protection.

In 1983 the System 6 report, which was the first systematic review of conservation needs in the Perth area, recommended that the Caraban, Wabling, Yeal, Melaleuca and Ridges areas of State Forest 65, together with areas of existing reserves, vacant Crown land and private lands, within the area now proposed as Gngangara Park.

The Forest Regional Management Plan 1994 (NPNCA, LFC and CALM) is consistent with the earlier System 6 recommendations and ensures that these State forest and reserve areas are currently being managed consistent with the protection of their biological diversity.

Earlier this year Cabinet agreed that the Wilbinga area, which is now proposed as the important coastal component of the proposed Gngangara Park, would be managed for conservation.

Gngangara Park is strategically located between the rapidly growing residential and rural areas of the North West Corridor and the future growth areas identified in the North East Corridor. The North West Corridor will house an estimated 310,500 people by the year 2021 and it is expected that the North East Corridor will house some 80,000 people within the next 30 years. It is acknowledged that the Park will eventually cater for newly developing areas in the Avon Arc.

The Park is located over the Gngangara Mound. The Mound is the single most important groundwater resource area in the Perth region and its environs. It has the capacity to supply clean, affordable drinking water for Perth on a sustainable long-term basis. The groundwater of the mound also supports many of the environmental values of the conservation areas of the park, such as wetlands and vegetation.

The declaration and establishment of the Gngangara Park is a major land use planning and land management initiative. It will not only provide for a wide range of innovative and exciting recreation and conservation opportunities but will ensure the long term protection of this most valuable groundwater resource. The Park will also ensure the protection

of significant areas of remnant vegetation and contribute towards major conservation efforts being undertaken by the State Government in the Perth Bush Plan initiative.

Creation of Gnangara Park

Cabinet approved the Gnangara Park concept in 1996 as a strategic part of the Government's overall response to the issue of increasing salinisation and eutrophication of the State's land and water resources.

A public news release in November 1996 presented Gnangara Park to the community as follows:

Just imagine if the whole Gnangara pine plantation became one vast conservation and recreation Park...

The original concept announced that 23,000 hectares of pine plantation would be replaced with native vegetation over a period of 20 years. A further 27,000 hectares of surrounding State-owned Banksia woodlands would create a major park. In addition to providing significant nature based recreational opportunities for the people of Perth and tourists, the park would be used to ensure conservation of the State's threatened plant species. The establishment of the park would also provide for long term protection of Perth's underground water supplies.

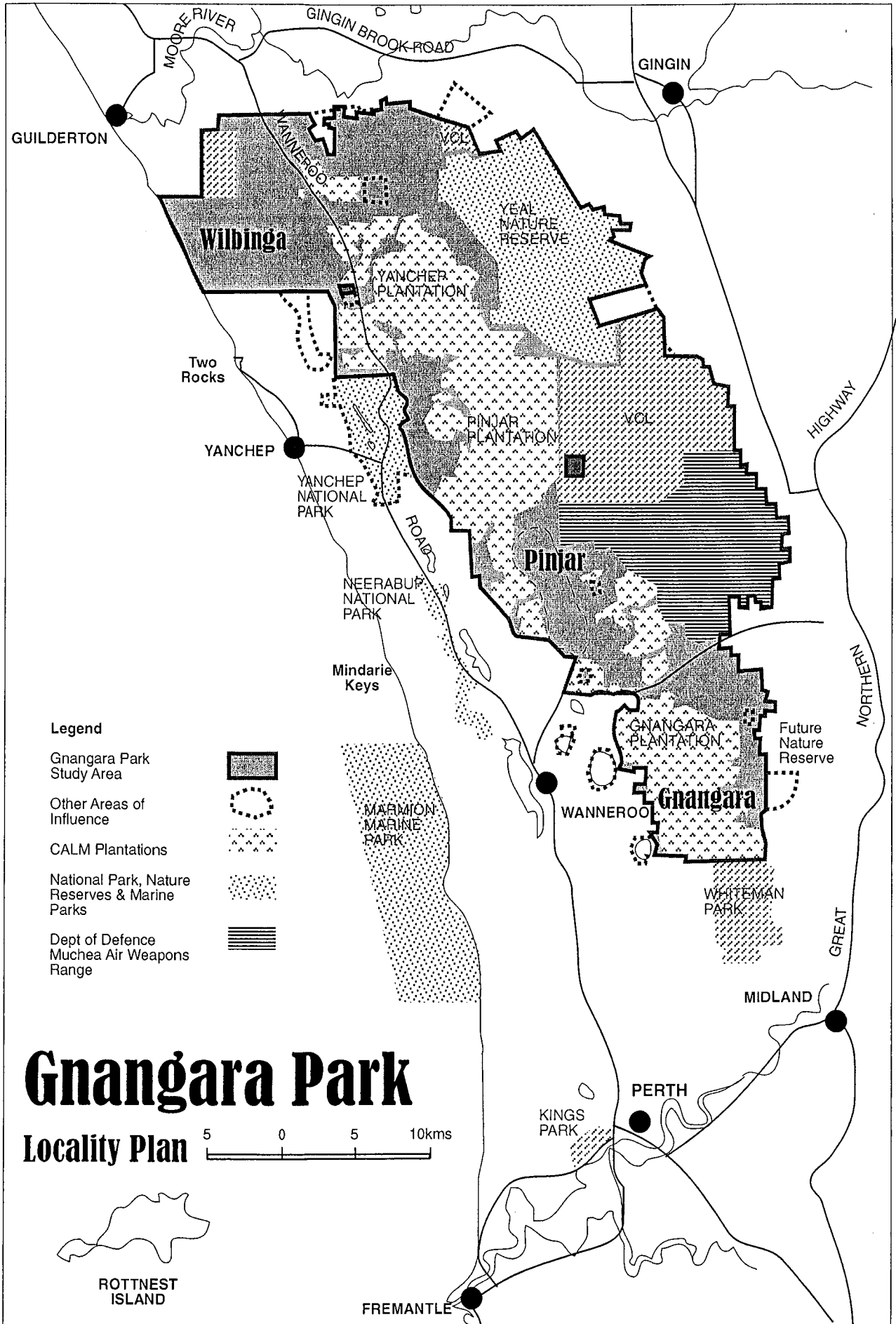
The news release described the new Park as being "100 times the size of Kings Park, in the suburbs of Perth for children of the next millennium". As the pine plantations are progressively harvested, the cleared land would be planted with native species.

Various ideas were presented for the Park's creation, such as wide open spaces, drifts of wildflowers and a place to learn more about Aboriginal culture. New facilities would be designed so visitors could enjoy picnicking, bush walking and bird watching. Active recreational pursuits that are currently uncontrolled in the pines were acknowledged and the announcement stated that separate areas would be zoned for these activities.

The protection of ground water resources and the reduction of the fire risk were key components of the Park concept. An emphasis was also placed on the protection of endangered wildlife species, unique habitats and the integration of new plantings with existing habitats.

Aim of this Preliminary Concept Plan

This Preliminary Concept Plan has been conceived as a new and innovative approach to address planning for this Park. This plan deals with complex land management planning issues as well as the need for extensive inter-agency liaison. By using this collaborative approach and setting up a Technical Working Group to identify the way forward, CALM has endeavored to ensure the process successfully incorporates all the complicated needs of this very large Park. The approach is also a highly adaptive one, capable of accommodating future research and operational activities.



GUILDERTON

MOORE RIVER

GINGIN BROOK ROAD

GINGIN

WANNEROO

Wilbinga

VCL

YEAL NATURE RESERVE

YANCHER PLANTATION

Two Rocks

YANCHEP

YANCHEP NATIONAL PARK

PINJAR PLANTATION

VCL

ROADS

NEERABUP NATIONAL PARK

Pinjar

Mindarie Keys

MARMION MARINE PARK

GNANGARA PLANTATION

Future Nature Reserve

Gnanagara

WANNEROO

WHITEMAN PARK

NORTHERN HIGHWAY

GREAT

MIDLAND

PERTH

KINGS PARK

FREMANTLE

The Technical Working Group consisted of key agencies involved in land management and protection (refer to Appendix 1 ... Gngangara Park Technical Working Group, page 61). The Technical Working Group has assisted CALM in preparing this plan to identify key issues and initiate discussions with key stakeholders and the general public about the development of the Park. The Preliminary Concept Plan, once reviewed, will be a precursor to a formal management planning process.

A study area was determined by the Technical Working Group to include approximately 91,000 hectares (Locality Plan, page 3). The area is made up of approximately 20,000 ha of pines, 47,000 ha of other CALM managed estate and 23,000 ha of other lands. Refer to Appendix 6 ... Area Statements, page 71.

Other areas were identified that need to be considered (see Other Areas of Influence on Locality Plan). These areas generally border, or are influenced, by the Park e.g. Yanchep National Park and should be addressed in the management planning process.

The Technical Working Group identified four primary values to form the basis of this Preliminary Concept Plan. These are:

- Nature Conservation
- Resources
- Recreation and Interpretation
- Heritage.

Principles and strategies for planning and management of Gngangara Park have been developed from these primary values and are listed in the Principles and Strategies Section, page 23. Conceptual zones give a framework for site specific recommendations, page 39.

Consultation

A communication strategy will be prepared to ensure that consultation and participation is well designed and effective.

Community consultation and participation will be an integral component of Gngangara Park. The Park is a huge, complex area and no land management agency would succeed without the support and assistance of the community. In preparation of this Preliminary Concept Plan, key organisations and individuals have been contacted and comments received have been incorporated into the plan. These organisations and people will continue to be consulted throughout the planning process along with others identified throughout this process to ensure the various interests and concerns are represented.

When the idea of Gngangara Park was released in November 1996, the public was asked to send in ideas and comments. These submissions have been collated and made available for use by the planning team. CALM's Perth District officers have also been collating a list of interested

people and organisations that have registered for further information or involvement.

This report is the first stage of the planning and consultation process to raise issues and initiate discussion.

Management Context

The establishment of Gngangara Park will need to be an integrated approach directed by CALM but involving many agencies, stakeholders and members of the community.

Key agencies that will be an integral part of management direction and decision-making will be:

1. Department of Conservation and Land Management
2. Water and Rivers Commission
3. Water Corporation
4. Department of Environmental Protection
5. Ministry for Planning
6. Department of Minerals and Energy.

Other agencies, such as the bordering local governments, Aboriginal Affairs Department, Department of Land Administration, Department of Transport and Main Roads WA will contribute to the Park's planning and management as required.

Planning Framework

The area of land proposed for Gngangara Park is comprised of mostly CALM managed estate. Approximately 23,000 hectares are State forest and the balance includes conservation estate such as Yeal Nature Reserve and Melaleuca Conservation Park (refer to Appendix 6 ... Area Statements, page 71). The Park is also likely to include some other significant conservation areas such as the East Wanneroo Wetlands and land at Wilbinga/Caraban.

Currently, these land categories are managed according to their management objectives as stated in Section's 55 and 56 of the CALM Act. Section's 55 and 56 describe the objectives of management plans.

Existing Planning Framework

The Metropolitan Region Scheme (MRS) shows most of the park as "State forest" or "Parks & Recreation". There are also some areas in private ownership, which are zoned "Rural" and several "Public Purpose" reservations such as the Dept of Defence's Muchea Air Weapons Range and Western Power's Pinjar Power station.

The northern portion of the Park is outside of the Metropolitan Region and consequently is subject to Regional Planning policies and the District Planning schemes of the Shires of Chittering and Gingin.

In the Shire of Gingin, most of the land within the Park boundary is set aside for State forest. There are also small portions of privately owned land which is zoned "Rural".

In the Chittering Shire nearly all of the land within the Park boundary is zoned for "Water Supply" but there are also some small portions of "Rural" lands.

Management planning for the Park will address the environmental protection policies made under the Environmental Protection Act 1986 and land use aspects of certain water protection legislation. These include the following:

- Environmental Protection (Gnangara Mound Crown Land) Policy 1992.
- Environmental Protection (Swan Coastal Plain Lakes) Policy 1992.
- Environmental Protection (Swan and Canning River) Policy 1998.
- East Gnangara Environmental Water Provisions Plan.
- Gnangara Mound Groundwater Resources - Review of proposed changes to Environmental Conditions.
- Water & Rivers Commission Priority Source Area Classifications (P1, P2 and P3) and the existing Underground Water Pollution Control Area (UWPCA) as per the Metropolitan Water Supply, Sewerage & Drainage Act 1909 and By-laws for governing land use activities within UWPCA's.

As well as the above, CALM needs to have regard to a number of policies, reports and land use controls, for example:

- Ministry for Planning (April 1991) Basic Raw Materials (BRM) Policy Statement.
- Statement of Planning Policy No.3, Gnangara Mound Crown Land 1992 and 1995.
- Pinjar Planning Control Area No.29 (1994).
- NW Corridor Structure Plan.
- NE Corridor Structure Plan.
- Metropolitan Region Scheme.

- System 6 area recommendations over national parks, nature reserves, State forest and other areas.

Future Planning Framework & Regional Planning Context

CALM will prepare a management plan in accordance with the CALM Act Part V, Division 1 - Management plans. However, the outcome of this Preliminary Concept Plan will assist in the management planning process. The management plan will undertake detailed analyses of social, scientific, economic and physical information. Recommendations are then made for all aspects of future vesting, park development and ongoing management. Community participation and consultation is an integral part of the process.

In preparing its management plan, CALM will liaise with the Ministry for Planning which, in association with other agencies, is preparing a Draft Gngangara Land Use and Water Management Strategy (GLUWMS). This will provide a regional context in which the Park will operate. The Strategy will include revised Underground Water Pollution Control Area boundaries and will make recommendations on the preferred long-term land uses within its study area. The GLUWMS study area includes private land contained within the Park. The issue of private land will be addressed in the GLUWMS.

Once the GLUWMS is finalised, there will be a Metropolitan Regional Scheme (MRS) amendment to place a Water Catchment Reservation (WCR) over the existing MRS zonings and reservations for the Priority 1 Source Protection Areas. Land within P2 source protection areas will be rezoned to "Rural Water Protection".

In the longer term, once the Park boundaries have been finalised, it is envisaged that the Park area will be zoned for "Parks and Recreation" in the MRS to complement the WCR and to recognise the future land uses of "Conservation/Recreation and Forestry".

A new Environmental Protection Policy is being prepared by the Department of Environmental Protection, as well as a Statement of Planning Policy by the Ministry for Planning, to guide land use decision-making. These will be consistent with Water and Rivers Commission By-laws and land use guideline policies. Land owned by Western Australian Planning Commission and Water & Rivers Commission may be managed as part of Gngangara Park.

Primary Values & Objectives

The Park is unique because:

- it has multiple planning constraints and issues;
- it is a huge area made up of contiguous existing, and potential, conservation reserves in the Perth metropolitan area;
- there are large number of stakeholders involved in planning and management; and
- it deals with an inter-relational land management approach for underground and above ground issues.

To address this uniqueness, and provide a balanced framework in which to commence planning, the following primary values and objectives were developed. They provide a premise on which to base this Preliminary Concept Plan.

Nature Conservation	Resources	Recreation & Interpretation	Heritage
Protect and enhance existing biodiversity, threatened species, wetlands and vegetation communities. Rehabitate flora and fauna habitats and remove feral predators.	Protect and enhance quantity and quality of groundwater and public drinking water supply. Harvest pines within the next 20 years. Extract sand, limestone and others resources.	Develop a wide spectrum of recreational opportunities and public access. Interpret primary values to enhance visitor awareness, experience and enjoyment. Provide opportunities for nature based tourism.	Protect natural and cultural (Aboriginal and non-Aboriginal) values. Provide opportunities for appropriate interpretation of natural and cultural heritage values.

Main Issues

These are the main issues that have assisted in formulating this Preliminary Concept Plan. It is recognised that other issues, such as changes in Perth people's needs and demands, increased population density, economic concerns and local and regional planning will need to be incorporated into future planning.

Nature Conservation

One of the most significant aspects of the Park is that it protects a large arc of native woodland that provides a complete west/east transect across the Northern Swan Coastal Plain from the coast almost to the Darling Scarp. This large woodland area, because of its size and relatively undisturbed state, affords its plants and wildlife a high level of protection and sustainability. It also provides the opportunity to undertake a broad-scale feral predator control program and ultimately to consider reintroductions of species now locally extinct.

Encompassing most of the landforms present on the Swan Coastal Plain, the Park contains over 30 distinct vegetation types. These range from coastal herbfields, through heathlands, scrublands on dunes, limestone ridges and wetlands, sedgeland in wetlands, low woodlands of banksia, paperbarks or mallee eucalypts to tall woodlands of Tuart and Jarrah and/or Marri.

The Park also contains a large number of wetlands (refer to Map 4 ... Wetlands and Vegetation, page 81). The majority of these are damplands and sumplands; they only contain open water occasionally or for short periods each year. The wetlands within native vegetation areas are largely undisturbed and of high conservation value. There are also some conservation value wetlands within the pine plantation.

The Park's range of terrestrial and wetland habitats host a diversity of mammals, birds, amphibians, reptiles and terrestrial and aquatic invertebrates. The Gngangara Water Mound directly supports many of these habitats, so it is important to protect groundwater quality and quantity to protect environmental values.

In excess of 750 species of native flora have been recorded in the area. It is likely this number will rise as further surveys are undertaken.

Two declared rare species, *Eucalyptus argutifolia*, and *Caladenia huegelii*, and 18 species listed on the CALM Priority Flora lists occur in the Park. *Eucalyptus argutifolia* is only found within the Park and several nearby populations.

The Park contains two critically endangered ecological communities. These are the aquatic Root Mat Community of the Swan Coastal Plain, found in five caves at Yanchep, and the wetland community, Sedgelands in Holocene Swales, also found at Yanchep. Another flora community, *Melaleuca acerosa* shrublands of limestone ridges (found in the Ridges

area at Yanchep) is recommended to become listed as an endangered community. Another community listed as endangered, the Mixed Shrublands on clay soils is found at Lake Pinjar.

The key issues for identifying and protecting the existing nature conservation values (vegetation, flora, fauna and wetlands) are:

- Protection of nature conservation values, including remnant vegetation, from impacts in the Park, including those caused by extractive industries.
- Managing impacts on nature conservation areas and values from environmental issues such as dieback, weeds, feral animals and frequent fire.
- Managing impacts on nature conservation values from exploration, mining, commercial wildflower picking, beekeeping and other users of the Park.
- Protection and linking of remnant vegetation and wetlands within the pine areas.
- Managing hydrological changes resulting from pine harvesting and water abstraction to benefit flora and fauna conservation and protection.
- Undertaking further research and surveys of the Park to document its flora and fauna and key conservation values.

Water Protection and Production

The Gnangara Mound is the largest and most important fresh groundwater resource close to Perth. Its high quality water supports nature conservation values, such as wetlands, and is used to supply nearly 40% of Perth's public water supply. This is likely to increase to approximately 50% over the next 15 years.

The Water and Rivers Commission (WRC) is responsible for the protection and allocation of the groundwater resources of the Gnangara Mound. The Water Corporation (WC) is responsible for the facilities and infrastructure needed to abstract the groundwater and, through its operating licence, the quality of the water it delivers to the public. In practice the Commission and the Corporation have common goals in ensuring the water resources of the Gnangara mound are effectively managed and protected.

The Department of Environmental Protection also plays a major role in the protection of the environment through its Environmental Protection Policies and the Ministerial conditions placed on the abstraction of groundwater.

There are existing groundwater abstraction schemes for public water supply on the Gnangara Mound. These are the Wanneroo, Pinjar, Mirrabooka, Gwelup, Yanchep/Two Rocks, and the Perth Coastal

Schemes, eg. Neerabup. Another scheme is currently being established at Lexia. Future planning for public water supplies has schemes to be located at Yeal, Pinjar, Barragoon and Muchea (refer to Map 2 ... Water, page 77). The location of these schemes in relation to the Park is referred to in the conceptual zoning part of this document.

Private groundwater users inside the Park area also rely on water from the Gngangara Mound, abstracting groundwater for agricultural, recreation and domestic uses.

The proposed Gngangara Park area covers a significant portion of the Gngangara Mound. Therefore, the consideration of impacts on groundwater quality and quantity are key components in planning for the Park's establishment.

The majority of the Gngangara Park is designated as a Priority 1 Underground Water Pollution Control Area (UWPCA). UWPCA's are declared over groundwater recharge areas to protect the groundwater source from contamination by inappropriate land uses and activities. Priority 1 areas are afforded the highest level of protection with the objective to ensure there is no degradation of the water source. To achieve this objective, development is generally not permitted. Very low intensity, low risk land use activities such as passive recreation, educational and scientific use, and forestry may be acceptable.

Other areas of the Park study area will fall within Priority 2 and Priority 3 water source protection areas. Priority 2 areas are managed to ensure there is no increased risk of contamination to the water source and generally low intensity rural uses are acceptable. In Priority 3 areas, uses compatible with the land zoning are acceptable and specific risks are managed through conditions on establishment and operation.

The removal of the pines in line with the Park's establishment has the potential to impact on groundwater availability through increased groundwater recharge. This presents a unique opportunity to increase the available groundwater for nature conservation values, and both public and private water supply purposes. The program for pine removal and establishment of subsequent land uses will need to be carefully planned by all agencies concerned.

Key issues for water protection and production are:

- Protection of groundwater quality and quantity for nature conservation and water supply as a primary component of planning and use of the Park.
- Appropriate land uses that are established in the Park need to be compatible with the objectives of public drinking water protection. The majority of the Park is in Priority 1 area, thereby affording the highest level of protection for groundwater, and limiting the scale of intensive recreation and other types of development.
- Impact of pine removal on groundwater availability through increased groundwater recharge. After pine

removal, water tables may rise above ground level filling now-dry wetlands due to increased groundwater recharge. These increased water levels may affect native vegetation if they are not properly managed.

- Possible effects of abstraction on the health and viability of remnant vegetation communities.

Other Resource Uses

Resource use of the Park, (other than water production which is dealt with in the Section above) includes softwood production, mining for basic raw materials (principally sand and limestone), and wildflower picking and beekeeping.

Pine Plantations

Removal of the pines will be scheduled over a 20 year period and pine harvesting plans will be prepared to suit market conditions and development of the Gngangara Park. Generally, the pines will be removed from south to north. However, there will be some areas identified for priority removal to create nature conservation links and enhance recharge for the benefit of environmental areas and public water supply.

The area of pines, approximately 23,000 hectares, is very extensive in terms of harvest and rehabilitation (refer Map 5 ... Resources, page 83). In the first 10 years or so, extensive thinning will continue as it occurs now, although this thinning may progressively increase over time. Clear felling of small areas will begin in this period where revegetation trials can take place to ensure correct techniques are developed. Other areas will be cleared to enhance existing tracts of native vegetation that currently exist within and around the plantation.

Key issues for pine management are:

- Scale and timing of harvesting to reduce visual, hydrological and environmental impacts.
- Retention of specific stands for research and heritage purposes.
- Retention of some areas of pines for landscape and recreation values.
- Fire protection in the short to medium term.
- Obtaining a suitable balance between pine harvesting needs and recharge needs for the environment and water supply purposes.

Mining and Basic Raw Materials

A number of mining operations exist within the Park area (refer Map 5 ... Resources, page 83). They operate under mining leases issued by Department of Minerals and Energy (DME) with conditions relating to

environmental protection and rehabilitation, which are monitored by the DME, DEP, WRC and CALM. Mining and quarrying (on Crown land) are conducted under the Mining Act while gas exploration is subject to the Petroleum Act.

The Western Australian Planning Commission's 1991 policy identifies and protects valuable deposits of raw materials required to service future needs of the Perth Metropolitan Region. These significant resource areas are presently under review and a draft Ministry for Planning Section 5AA Basic Raw Materials policy is in its final stage.

Currently, there is one sand mining operation in Gnangara and a number of limestone quarries in Carabooda and Yanchep. There are also a number of applications for exploration and mining. They relate to sand mining, limestone quarrying, diatomaceous earth and natural gas exploration.

The Preliminary Concept Plan recognises existing mining leases, their conditions of operation and strategic areas for basic resources identified by Government. New mining proposals in the Park will continue to be assessed for environmental impact under existing legislation and arrangements involving DME, DEP, WRC and CALM. Consultation with industry has occurred and will continue as an on-going part of future planning and implementation of the Park.

Key issues for mining in the Park are:

- Directing new mining proposals where practicable to areas where there will be the least conflict with existing and future Park uses and values.
- Planning for future use and rehabilitation once mining operations have ceased.
- Conservation of remnant vegetation and wetlands.
- Impacts on water quality and water quantity.
- Ensuring adequate compensation where mining is approved, including consideration of land additions (remnant vegetation) or land swaps with existing leases or other areas containing remnant vegetation.
- Temporal conflicts with pine harvesting.
- Minimising conflicts with transport routes.
- Minimising impacts on visual landscape values.
- Maximising resource recovered for areas disturbed.
- Opportunities for the public to obtain a better understanding of the consequences of needing basic raw materials near residential areas, the origins of the resources, responsible management and rehabilitation and

supply and demand principles in pricing (education and interpretation programs).

Wildflower Industry

A commercial wildflower picking industry operates in the State forest and Vacant Crown land sections of the Park and has done so for many years. Currently approximately 100 commercial pickers pick in these areas for parts of the year, harvesting flowers and seeds of a variety of species. The two most significant commercial species picked in the Park are *Stirlingia latifolia* (picked in Sept/Oct) and *Verticordia nitens* (picked Nov/Dec). Other species picked include *Scholtzia involucreta*, *Boronia purdieana* and several banksia's.

Pickers operate under licenses issued by CALM with conditions relating to areas where picking is endorsed, species able to be collected, quantities of flora picked and access routes to be used. Picking is not permitted on existing or proposed nature reserve areas.

Consultation will occur with the wildflower picking industry to take into account their needs.

Issues related to wildflower picking are:

- Continued monitoring of the industry to ensure that it is not detrimental to the nature conservation values of the Park.
- Changes may be needed in the future to areas available for picking based on nature conservation protection needs. Should any of the areas currently available for commercial wildflower picking be closed, it is likely that an alternative resource will be available as areas of pine plantation are revegetated with native species and made available for wildflower picking.¹
- Potential conflicts with other existing and future park users.

Beekeeping

Approximately one hundred apiary sites are found throughout the Park. They are predominately located on State forest areas, but also occur on the conservation estate. Apiarists who hold these sites do so under apiary site permits issued by CALM. No new apiary sites will be issued on the conservation estate until research on the impact of the honey bee on native flora and fauna is completed. Provision will continue to be made to accommodate apiarists within the Park according to CALM's beekeeping policy.

¹ The ultimate purpose of land vested in Gngangara Park will control wildflower picking.

Consultation will occur with the beekeeper's to take into account their needs.

Issues related to beekeeping and apiary sites in the Park are:

- The impacts of beekeeping on native wildlife, which is currently being researched.
- Opportunities in the future for apiary site permit holders to voluntarily relocate from environmentally sensitive areas to new sites within revegetated pine plantation areas.
- Impacts of beekeeping operations on water quality. Guidelines aimed at water quality protection are being developed by the WC and WRC in consultation with Beekeepers and CALM to minimise these impacts.

Recreation and Interpretation

Almost the entire range of recreation activities experienced on CALM managed lands and waters are undertaken in the Park. Current recreational use includes both passive (bush walking, beach combing and picnicking) and active (motorcycle riding, fishing, horse riding) activities. Existing recreation use of the Park is relatively unregulated and has been largely unsurveyed. Much of the known recreation use is through District management and contact with local people and organisations (refer to Appendix 4 ... Existing Recreation Uses, page 65).

Partly as a result of Gngangara's existing management focus on pine plantations and nature reserves, and partly due to its negative social perception, limited recreation sites have been developed. Many of the existing sites are in extremely poor condition, receive minimal management attention and need to be closed, redeveloped or relocated. Refer to Appendix 3 ... Assessment of Existing Recreation Sites, page 65 for a list of existing sites. The implementation of the Coastal Plain Walktrail and its associated infrastructure represents a significant addition, which will contribute to a change in management approach in the Park.

Two Off-Road Vehicle Areas are located in the Park for motorcycle riding, one on Gngangara Road and one on Pinjar Road. A Rifle Range complex operates on Perry Road, catering for ten shooting clubs, and is managed by the Wanneroo Shooting Complex Incorporated. Other organised recreational activities occur throughout the Park, such as dog training and horse riding.

Little, if any visitor interpretation, occurs within the Park mainly due to the high levels of vandalism to on-site structures and to the low level of resources available to manage activities.

It is possible for the Park to cater for many recreation activities that may not be suitable in the urban areas. It is a very large Park within easy driving distance for many of Perth's residents. However, some activities

are inappropriate in certain areas due to water and nature conservation protection requirements.

Key issues with recreation and interpretation in the Park are:

- Providing a range of recreation and interpretation opportunities, nodes and themes for people to easily access and identify with the Park and its values.
- Provide complementary, not competitive, features, attractions and services with other key recreation parks that are in close proximity i.e. Whiteman Park and Yanchep National Park.
- Zoning to ensure that nature conservation and water quality values are maintained and enhanced.
- Managing existing recreation uses so that conflict is minimised.
- Addressing the issue of vandalism and visitor safety as part of planning, design and management.
- Changing public perceptions of the Park as an unvalued and degraded area.
- Ensuring that key recreation clubs, community groups and associations are part of planning and management of the Park.

Access

Access into and through the Park is a key issue. At present, the main roads are mostly on the boundaries, with only Neaves Road and Wanneroo Road traversing the Park. However, there are a multitude of unsealed roads and management tracks through the Park, mainly to provide access for pine plantation operations. Public use of these roads is not controlled and consequently there are serious issues of public safety, spread of dieback, fire, increased risk of contamination to public water supplies through dumping of rubbish and other illegal activities.

Planning for new major roads and upgrading of existing roads is the responsibility of local government, Ministry for Planning and Main Roads WA. However, CALM is also responsible for roads and tracks on CALM managed lands and will consider the alignment and controlled access of access roads into recreation facilities and associated scenic drives.

New roads through Gngangara Park should not become major routes between Perth and northern areas. They should provide access to the Park only. There should be strong consideration of water quality issues in designing access roads.

An integrated approach to planning new roads and upgrading of existing roads is required to ensure that the full implications for conservation, recreation and water values are considered.

New road works and transport plans to date are proposed for:

- New Perth-Darwin Highway along the eastern side, between the Park and Ellenbrook, to the Brand Highway.
- Upgrading of Neaves and Gngangara Roads.
- Extension of the Mitchell Freeway from Joondalup to north of Yanchep National Park.
- Plans to expand the northern suburbs railway from Currumbine to Two Rocks, as advised by the DOT. At this stage there is only a notional alignment for the extension beyond Two Rocks to the Moore River.

Key issues for access are:

- Lack of public perception of Gngangara Park as a whole entity and lack of, or confusion, on how to access the Park.
- Ensuring that appropriate alignment of roads and rail are designed so that the Park values, especially water quality are not compromised.
- Risk management based approach to roads and other key linear infrastructure through the Park to control impacts on water quality due to increased risk of spillage and increased recreational pressures.
- Use of road alignment and access as a management tool to encourage, or discourage, public access into areas.
- Potential conflicts caused by public access through the extensive management track network in the pine plantations.
- Potential need for access to the eastern side of the Park for the growing number of residents in the North-East Corridor and the Avon Arc.
- Future potential road requirements in the Wilbinga and Caraban areas.
- Future potential east - west public access links through the Park to the north of Neaves Road.

Heritage

Further research into heritage values of the Park is essential to ensure that they are protected and promoted where appropriate. Natural heritage values need to be investigated and reviewed. Refer to Map 3 ... Heritage, page 1 for Natural Heritage Area's on the Register of the National Estate. If the existing land purpose does not protect these values, the management planning process needs to investigate methods for appropriate protection.

Both Aboriginal and non-Aboriginal cultural heritage values need to be recognised and incorporated into park planning. A brief assessment is outlined below.

Aboriginal Heritage

There is strong association with the Park by a number of Aboriginal communities. Initial discussions with some local Aboriginal people have identified a keen interest for Aboriginal people to be involved in the establishment of Gngangara Park. Accordingly, further discussions with all Aboriginal groups will be undertaken as part of the consultation process.

Discussions so far have identified two Dreaming Trails that have an influence over the Park. The two Trails identified were the well known trail through the Wanneroo and Yanchep wetlands and a lesser known trail that veers from Gngangara Lake north-east towards Gingin.

Employment is also a major component of Aboriginal people's involvement in the Park and is supported by CALM. This involvement has begun with the recent establishment of the Aboriginal Landcare Development Project through the Aboriginal Landcare Group. The Landcare Training Initiative was launched in 1997 by the WA Dept of Training to provide trainees with hands on skill in Landcare. As part of this project, the Aboriginal Landcare Group has secured ten placements for the community to undertake training. This training can be incorporated with any work undertaken for CALM or The City of Joondalup to train for future work in Gngangara Park.²

Key issues for protecting and interpreting Aboriginal heritage are:

- Recognising and protecting those cultural sites that are listed with Aboriginal Affairs Department.
- Working with Native Title Claimants as required, refer to Map 3 ... Heritage for Native Title Land Claim boundaries.
- Consultation and co-operation with Aboriginal communities in regard to park management.
- Identification and appropriate interpretation of Aboriginal sites and stories.

Non-Aboriginal Heritage

The heritage values of forestry and early non-Aboriginal pastoral/market garden settlement are significant components of the Park. Further research is needed to identify significant sites and stories.

There are two known stock routes traversing the Park. One of these, probably the most well-known, is the coastal stock route that passes

² Aboriginal Landcare Group newsletter, Vol.1 No.2 and pers. Comm. Annette Garlett 30/9/98.

through the northern part of the Park past Wabling Hill Tower. The other stock route crosses east – west from near Clarkson Ave (in the east) to somewhere along Bustard and Maralla Roads through the Gngangara Pine Plantation.

Features of this early settlement include the old Gngangara town site and nursery, Tony Villanova's sawmill established in 1936 at Pinjar, Wescoe's limekiln at the corner of Hopkins Rd and Wattle Ave and the very early pastoral lease and campsite established at Boongarra in the mid-1850's.

Key issues for protecting and interpreting non-Aboriginal heritage are:

- Forestry as a major heritage theme in the Park due to pine plantings and research commencing in the 1920's and the Gngangara forestry settlement being a central focus for pine plantation management.
- Recognition and interpretation of the stock routes where appropriate, ensuring that significant historical elements are protected.
- Research, identification and appropriate interpretation of other heritage sites and stories.

Other Land Management Issues

Management of a park this size requires that all aspects and attributes of the land are considered. Other land management issues not already covered are:

- Dieback - the existing situation of little control over public vehicle movement needs to be addressed to protect susceptible plant communities from the introduction and further spread of dieback.
- Fire – protection of life and assets is a key component of park management and exacerbated by the proximity to large urban areas. The need for buffer management is essential and the public plays a major role. Public awareness campaigns need to be considered and implemented.
- Weeds – the need to control weeds, especially in revegetation programs, will be difficult without the use of herbicides. Negotiations are needed between CALM and WRC to ensure water protection is maintained and suitable weed control methods are used.
- Urban Fringe – increasing urban development bordering the Park impacts on management needs and raises problems not associated to the same degree in other non-Metropolitan CALM managed parks, i.e. impacts of feral animal baiting, fire, need for fencing and conflicts with some recreational users (motorcycle riding).

Principles and Strategies

The following section outlines the principles and strategies for future planning and management of the Park.

The principle is stated first and the strategies for achieving this follow. These principles and strategies are based on the four primary values stated in the section above, page 9. They give an overview of the breadth and detail that the management planning process needs to consider.

Protection

Protect important groundwater resource, wildlife, recreation, landscape and heritage values.

1. Recognise existing and support future legislation and policies to protect the values of the Park.
2. Prepare protection strategies for each of the major values in the Park, especially for protection of water, wildlife, remnant vegetation and natural, Aboriginal and non-Aboriginal cultural heritage.
3. Implement interpretation and educational programs that assist in protecting the Park's values by increasing community awareness of the role of the Park, the management authority and associated agencies, residents and visitors.
4. Ensure the Park and neighbouring assets are protected from uncontrolled fire.
5. Ensure that fire protection plans are undertaken to consider requirements of nature conservation, revegetation, landscape and recreation values.
6. Address management of weeds and feral animals to reduce their impact as appropriate and where possible.
7. Ensure that any new species introduced in specific landscape and amenity areas of the revegetation program will not cause problems due to escape and other possible environmental issues.
8. Implement strategy for management of the dieback disease, Phytophthora, including treatments of existing dieback infestation in priority areas where appropriate.
9. Plan for and incorporate appropriate use of the Park to engender community support for the Park's protection.

10. Develop parkland use zones, access routes and recreation sites and facilities to manage visitor impacts and protect Park values.

Pine Removal

Progressively harvest the area of pines over the next 20 years and revegetate much of this area.

The pine removal program will involve these general strategies:

1. Harvest commercial plantations by thinning and clearfelling as determined by timber supply requirements and best silvicultural practice. Areas will be revegetated according to primary use as identified in revegetation plans.
2. In some cases, thinning to a low density of pines to allow a healthy understorey of native vegetation in parklands for landscape and recreation use may be appropriate.
3. Manage plantation density to increase, or protect existing, nature conservation values in specified areas, i.e. wetlands, to favour understorey, provide water to cave streams etc.
4. Retain selected stands of pine for research and education, for historical value and landscape protection.
5. Prepare harvest plans that maintain supply to meet CALM's contractual commitments and ensure best return to the State for its investment in plantations.
6. Research revegetation techniques by using small trial clearfell areas. If possible, clearfell only small areas until such techniques are finalised.
7. Harvest to meet the requirement of water resource management, i.e. balancing the benefit of extra water for nature conservation and for abstraction purposes. This should be in accordance with relevant Environmental Protection Policies and Ministerial conditions.

Revegetation

Revegetate areas of land in the Park that have been degraded or where pines have been removed.

1. Identify different zones where different types of revegetation may be appropriate depending on the stated objectives. The following strategies will be employed:
 - a. Actively revegetate good quality, native vegetation buffers around existing high nature conservation values such as populations of threatened species, threatened ecological communities, conservation category

wetlands, and actively revegetate high quality native vegetation corridors between significant remnants of vegetation. Use local provenance seed. The aim is to recreate vegetation at each of these sites that is as close as practical to intact native vegetation in terms of structure and diversity.

- b. Identify and undertake specific revegetation programs in some areas to maximise recharge to groundwater for nature conservation or water supply purposes.
 - c. Undertake specific revegetation programs at currently disturbed sites (not existing native woodland) to enhance amenity values and recreation, tourism and interpretation opportunities. Ensure that any non-local species are not invasive.
 - d. Undertake less intensive, cost effective active revegetation in the remaining area as the pine plantation is progressively removed. Up to fifty percent of the original flora species are returning to areas of pine plantation clearfelled and burnt four years ago. These areas will initially be supplemented with an additional five to ten site specific, native overstorey and shrub species at an appropriate density. The aim is to create self sustaining native vegetation communities that support a diversity of fauna and provide linkages and buffers to high value nature conservation areas in a cost effective manner. It needs to be recognized that the objective is not to actively try and recreate the full diversity of these areas. This is neither practical nor necessary in the short to medium term.
2. Set up a technical group to oversee the detailed planning and monitoring of the revegetation program.
 3. Undertake the program over a period of 20 years or more coordinated with the progressive removal of the pines. Research and monitoring trials undertaken in the early years will allow for the program to be improved year by year.
 4. Develop and maintain seed sources for CALM to use in the rehabilitation of degraded areas, either within the Park or for other areas around the state.
 5. Investigate strategies to control weeds once pine harvesting has occurred. The management and control of weeds will be the biggest challenge for the revegetation program. The ability to use certain herbicides on the Groundwater Protection area will be limited. Fire management will need to be undertaken in a manner that does not encourage persistence of weeds.

Fauna Management

Increase available habitats for a range of fauna species and actively encourage fauna to be re-introduced into the Park.

1. Control feral predators, as a priority, in the large existing areas of native woodland found at the northern end and eastern side of the Park, including the Yeal Nature Reserve, the adjacent vacant Crown land and the proposed Wilbinga/Caraban Conservation Area.
2. Monitor existing fauna before and following predator control. It is expected that populations of the existing fauna, including the Western Brush Wallaby, Brushtail Possum, Quenda, Honey Possum, Dunnart, Echidna and possibly the Chuditch will begin to increase in numbers and range (if still persisting).
3. Consider opportunities to create new habitat for the Western Swamp Tortoise to assist with the recovery of this threatened species.
4. In future years, re-introduce fauna once found in the area but are no longer present. Species likely to have been found in the area include the Numbat, Chuditch, Brush tailed Phascogale, Tammar Wallaby, Quokka, Water Rat, Boodie, Woylie, Dibbler, Mardo, and Ring tailed Possum (localized).
5. In future years, expand the predator control program to existing pine plantation areas, as they are revegetated.
6. Consider and provide opportunities for fauna observation and education as part of the fauna management program.

Resources

Work within the constraints of resource use in the Park and minimise impacts to public drinking water supplies, recreation, heritage and nature conservation values.

1. Contribute to planning for resource use throughout the Park. Existing resource use and commitments, i.e. mining leases, water production and abstraction, pine plantations will be monitored and evaluated.
2. Manage groundwater abstraction to protect high environmental values, especially the protection of native woodland and wetlands.
3. Through a balanced pine harvesting and rehabilitation approach, aspire to enhance the quality and quantity of groundwater.

4. Ensure that current and future mining operations have least impact on Park use, e.g. transport routes.
5. Ensure that areas of mining are restored with appropriate habitat and landscape values.
6. Manage existing commercial wildflower picking and beekeeping of the Park at a sustainable level.
7. Consider the viability and suitability of commercial wildflower growing in areas that have been cleared of pines. These could be incorporated into recreation areas; however, operational aspects would need to be considered.
8. Consider opportunities to relocate apiary sites from high conservation areas to areas of revegetated pine plantations.

Science

Encourage and support scientific research and development in areas of conservation, heritage, recreation and water use.

1. Carry out research into rehabilitation techniques, including weed control, to ensure successful conversion of pine plantations to suitable landscapes and habitats.
2. Undertake research into appropriate wildlife conservation programs and management practices that further our knowledge and understanding of the Park.
3. Undertake social research into visitor perceptions of the Park and in response to recreational developments, management strategies and communication programs.
4. Use the best scientific data and research available.
5. Prepare a prescriptive scientific database for the restoration program.
6. Demonstrate past research practices and programs through living examples.

Landscape Management

Provide quality experiences and enjoyment for people through good land use planning, environmental care and visitor use planning.

Assessment

1. Identify landscape characteristics and classify, map and describe landscape character units.

2. Identify the characteristics that are most significant to the experience of people (including aesthetic, social and historic significance).
3. Identify and classify access routes and views from these access routes according to their actual or potential contribution to the experience of the people who use them.
4. Determine public sensitivity zones from the access route classes and distance zones.
5. Identify landscape classes that summarise the landscape values.

Experience enhancement

1. Determine the appropriate treatment for the significant features (i.e. visitor exclusion, observation or interaction by visitors).
2. Plan visitor travel routes to:
 - a. Traverse the range of different landscape character units;
 - b. Integrate the appropriate treatment of significant features;
 - c. Include a variety of travel route types in each landscape character unit, if desirable;
 - d. Provide interesting sequences of experience;
 - e. Include access to different types of views, including major lookouts points.

Experience protection

1. Establish objectives for management of the various landscape values.
2. Ensure that all land management (including park development activities meet these objectives).
3. Develop specifications for timber harvesting which will meet landscape management objectives.
4. Develop a harvesting plan that considers landscape values, stand characteristics, yield requirements and other land management constraints.
5. Use the landscape assessment to assist in:
 - a. determining priority areas for pine to bushland conversion;
 - b. identifying pine stands to be retained for cultural reasons;
 - c. determining constraint levels for harvesting operations to protect landscape values.
6. Ensure landscape management guidelines or operations plans are developed for all other land management activities.

Park for the people

Ensure that the Park is created for and with the assistance of, the people of Western Australia and in particular the residents of the northern Perth Metropolitan Area.

1. Set up appropriate levels of community consultation and participation in the planning and management of the Park.
2. Enhance the involvement and interaction of Aboriginal people with the Park.
3. Create employment and economic opportunities for interested parties, especially for youths and Aboriginal people, in appropriate areas within the Park, such as interpretation activities, tourism and management services.
4. Maintain a database of volunteer organisations that are willing to participate and assist in the establishment and management of the Park.
5. Establish a "Friends of..." group to encourage keen advocates and supporters of the Park.
6. Maintain a mailing list of interested parties for updates and information as the Park develops and grows.
7. Work with groups that support the values of the Park, i.e. Conservation Council of WA, The Western Australian Wildflower Society, The Friends of Yanchep, etc. wherever possible to incorporate wide spread support and assistance.

Access

Ensure that access into and through the Park is appropriate and suited to the purpose for which it is intended.

1. Ensure that public access into the Park is controlled, clearly signposted, properly maintained and widely publicised.
2. Actively liaise with Ministry for Planning and local government to ensure appropriate regional recreation links are created between surrounding areas and the Park.
3. Ensure that all public roads and tracks are constructed in accordance with policies and approved standards.
4. Develop a network of trails for walking, mountain biking, horse riding, 4WD and scenic driving. Investigate and incorporate other trails outside the Park to create a broadscale network through the northern Metropolitan area.

5. Investigate various options for scenic drives through the Park. Drives will be designed to interpret the Parks' primary values and demonstrate the revegetation and pine removal progress. Ensure that roads are not used for major transport purposes. Consider the possibility of a main north-south scenic drive in future (especially after the pine removal). Other options of loops that start and finish at main recreation nodes will be investigated.
6. Extend the Coastal Plain Walktrail to the north and east. Maintain as the principal walking spine through the Park.
7. Investigate the potential for creating similar trails as the Coastal Plain Walk Trail for horse riding (connecting into the historic Stock Routes), motorbikes and mountain bikes.
8. Rationalise, where possible, existing plantation management tracks to enable control of public access.
9. Encourage an integrated approach to planning key roads and transport strategies to ensure that the values and objectives of the park are taken into account.
10. Develop entry statements on key roads to announce and promote the Park. Determine, in conjunction with the Communication Plan, the level of signs, facilities and information provided at each site. This could range from a roadside sign to a site with picnic facilities, possibly toilets, trails and interpretive media and activity centres.

Enjoyment/Recreation

Encourage visitors to explore and enjoy the values of the Park and acknowledge its important contribution to Perth as a "green" space on the edge of the suburbs.

1. Prepare a Recreation Master Plan that will provide strategies for recreation development and activities within the Park. In the plan, consider the park in a regional planning context ensuring that existing and future public access links are developed.
2. Ensure that Site Development Plans are prepared for all elements of recreation development.
3. Create a broad spectrum of opportunities for recreational facilities and activities providing people with a range of experiences. Ensure that all facilities are planned and design to cater for people with disabilities and with visitor safety as a priority.
4. Accommodate as many existing recreation activities (including picnicking, dog training, off-road vehicles, model aircraft and target shooting) in areas that are sustainable

and are consistent with ground water protection objectives of this plan.

5. Develop a regional context that promotes and supports a "coast to scarp" concept.
6. Develop three main visitor recreation and information nodes that act as "shopfronts" for orientation to the Park's menu of activities, attractions and opportunities. The nodes are proposed to be located in South Gnaragar plantation (near Gnaragar Rd), near Pinjar Lake and in the Wilbinga area.
7. Investigate the possibility of creating habitats from different parts of WA for education, interpretation and enjoyment but also as a sanctuary for important plants and animals.
8. Investigate the possibility of establishing botanical gardens, in association with Kings Park to provide a showcase of Western Australian plants on a broad scale.
9. Enhance important landscape features in the Park to act as focal points.
10. Enhance prominent landscape elements with mass plantings of wildflowers and woody shrubs for year round colour and spectacle.
11. Plan and zone recreational and other uses so the appropriate experiences are provided for the community. Recreational and other uses that are incompatible need to be zoned to minimise conflicts.
12. Develop social research programs into visitor preferences and perceptions of the Park, as well as programs monitoring visitor uses and impacts.
13. Periodically survey Park visitors to assess their level of satisfaction and enjoyment and whether basic needs are being met.
14. Measure and monitor the location and level of visitor use and any resulting impacts to natural and cultural values within the Park.
15. Embody into all aspects of the Park the values of enjoyment and pleasure inherent in participating in natural environment experiences.
16. Plan and design in accordance with CALM's Policy No. 18 Recreation, Tourism and Visitor Services and the Recreation and Tourism Strategy, in particular the principles of ecological sustainability, equity, visitor safety and quality.

Interpretation

Interpret the natural, historic, cultural and recreational values of the Park to enhance visitor's awareness, appreciation and enjoyment.

1. Prepare a Communication Plan for interpreting the Park that provides strategies for information, interpretation, education services, community involvement and consultation. It will outline a framework of themes and concepts as well as the methods and techniques for implementation and site prescriptions.
2. Specific interpretation objectives for the Park may include:
 - (a) A definitive identity and scope for Gnangara Park
 - (i) Visitors and residents 'north of the river' know about the Park; visitors can recognise and explain the Park logo; and visitors can identify the Park themes.
 - (b) Minimise visitor impact from fires, litter and spread of dieback (disease)
 - (i) Visitors don't light fires; they use litter bags and dispose of litter in bins provided or take it with them; and tour operators take their litter with them.
 - (c) Need for visitors to diversify and enhance their experience of the Park sites and stories
 - (i) Visitors can identify special features of the Park; and can identify park themes.
 - (d) Raise awareness of historical and Aboriginal cultural values of the Park
 - (i) Visitors and residents know the variety of land values of the Park.
 - (e) Raise awareness of the Gnangara Water Mound and its importance to Perth people.
 - (i) Visitors identify the importance of the mound in supporting natural features and as a water supply for Perth.
 - (f) Need for outcome focus for the Park of potentially competitive stakeholders
 - (i) Stakeholders have a shared vision for the Park - maintain water quality and quantity, provide quality recreational experiences, exemplify quality management of the Park.
3. Consider themes in line with:
 - (a) Gnangara Park...explore the past, experience the present and contemplate the future

- (b) Gnangara Park...experience the changing sandscapes.
 - (c) Discover the diversity of things to know and do within Gnangara Park
 - (d) Caring for Gnangara Park means taking responsibility for our actions
 - (e) Gnangara Park is a showcase of quality management. ³
4. Enhance visitor awareness, appreciation and enjoyment of the natural, cultural, historical and recreational values of the Park through opportunities for interpretation experiences, including the Gnangara Water Mound and its importance to Perth people.
 5. Develop a list of people who are sources of specific knowledge and skills to support the interpretation of the Park, including staff in WRC, Water Corporation, CALM, universities as well as Aboriginal people, special interest groups and other member of the local community.

Education

Encourage people to learn about and explore the varied natural and cultural features of the Park.

1. Create links with key educational bodies to study and investigate the values of the Park.
2. Provide opportunities for visitors to learn about Aboriginal culture through cultural programs run by CALM, Aboriginal groups and other approved operators.
3. Provide educational opportunities for the community from scientists and experts in wildlife conservation, water management and interpretation.
4. Provide suitable nature and history study and an accommodation facility for educational purposes for group activity, e.g. Scouts, schools.
5. Inform the community about the values of the Gnangara water mound and the importance of its relationship with surrounding land uses.
6. Investigate opportunities for education in association with mining activities in the Park.

³ Objectives and Themes from *An Interpretation Plan for Gnangara Park, A Preliminary Prospectus*, prepared by CALM, Visitor Interpretation Services in consultation with Perth District.

Identity

Create a positive and exciting identity for the Park.

1. Create a new logo that embodies the symbols and ideals of the Park.
2. Investigate a new name for the Park (other than Gngangara Park) so that it reflects the entirety of the Park and assists in promoting a new image and identity. This is in response to the Park being much larger than the Gngangara locality and the negative image that is currently associated with the Gngangara plantation area.
3. Promote and encourage others to participate in activities under the umbrella of the new Park.
4. Acknowledge the water protection values in the Park's identity.
5. Acknowledge and protect existing identities in and around the Park such as Yanchep Park and Yeal Nature Reserve.
6. Consider commercial protection of a newly established park identity.
7. Create identifiable and "legible" areas by zoning across the Park, i.e. Pinjar, Gngangara, Wilbinga/Caraban.
8. Design and install distinctive furniture and signs that create an identity through use of unique elements within the Park.



Proposed New Logo for Gngangara Park

Tourism - nature based

Provide tourism opportunities for people to experience WA's natural assets and culture.

1. Identify appropriate opportunities that allow for commercial operators to bring tourists, visitors and Perth residents into the Park to promote the values of the Park (such as facilities and services, tours/programs, Aboriginal cultural values, attractions, visits to mining operational areas and accommodation).
2. Identify and work with local tourism organisations i.e. the North West Tourism Association to ensure an integrated and cooperative approach to tourism is adopted.
3. Ensure commercial operators are licensed and managed according to CALM and WRC policies.
4. Support, where possible, the establishment of compatible tourism operations where they are non-existent in the general vicinity of the Park.
5. Provide training opportunities for tour operators in Park values and interpretive techniques towards developing ecotourism opportunities.

Appreciation of values

Develop positive perceptions of the Park for Perth people and others to engender support for management and an appreciation of the area as a unique place.

1. Develop first class facilities and services to denote a sense of place.
2. Promote the values of the Park and the importance of their protection through interpretation, education and tourism activities.
3. Rectify the results of vandalism whenever possible, and as soon as possible, to show a strong management presence.
4. Promote special interest group tours, field visits, consultation and liaison that engender support for management.
5. Undertake visitor and social research into the level of appreciation of the Park.

Compatibility of land uses

Provide an appropriate range of land uses compatible with groundwater protection and Park objectives.

1. Work with other agencies, especially the MfP and WRC, to investigate and assess the suitability and capability of land uses compatible with the values and objectives of the Park, especially groundwater protection.

2. Ensure that policies are adopted that encourage compatible land uses and prevent non-compatible land uses.
3. Work with operators of existing non-compatible land uses to ensure that negative impacts are minimised. Work with best management practice to minimise impacts.
4. Undertake zoning of uses within the Park to ensure that compatible and non-compatible uses are located accordingly to reduce conflict.

Good neighbours

Strive to be good neighbours by working closely with bordering land users and local government to ensure minimal conflicts.

1. Set up a central contact point for the community and other organisations to access CALM.
2. Ensure good communications with local government to ensure support for the establishment and day to day management of the Park.
3. Set up a community involvement program to enable interested neighbours and visitors to contribute to the on-going management and protection of the Park.
4. Maintain a database of neighbouring contacts.
5. Adopt a "Park Watch" program to assist management.

Revenue opportunities

Seek appropriate revenue opportunities that will contribute to achieving the objectives for the Park.

1. Seek funds for the establishment and management of the Park, for example from land sales, tourism operations, leases, and educational and recreational activities.
2. Set up a management and financial structure that can service the needs of the Park.
3. Investigate and pursue other sources of funds, for example Commonwealth Government, natural area grants and other state government agencies.
4. Seek contributions and sponsorship from private organisations and developers for implementation of the Park's facilities and services.

Management

Develop and maintain a sound and well resourced structure that can implement and manage the Park.

1. Prepare a business plan that identifies opportunities and constraints for the development, marketing and management of the Park and outlining key management needs, financial and staffing requirements.
2. Establish a management structure capable of implementing and maintaining the plans for the Park.
3. Create a framework that enables an integrated planning and management approach.
4. Ensure that agencies responsible for delivering resource use, conservation, and recreation within and near the Park are involved in the management structure.
5. Aspire for economic sustainability in the long term.

Time frame

Adopt a time frame to establish the Park over the next 20 years.

1. Determine a suitable harvesting plan for the pine plantations.
2. Determine a suitable rehabilitation program that is achievable and affordable to deliver according to the pine harvesting plans and this plan's requirements
3. Determine suitable programs for implementation of recreation and interpretation facilities and services as allowed by the harvest of pines, post-mining and rehabilitation achievements.
4. Ensure implementation plans are developed to integrate the needs of pine harvesting, groundwater management, post-mining, rehabilitation and recreation development.
5. Acknowledge the changing nature of community values over time and the possibility that planning will need to be reviewed each 3 - 5 years.

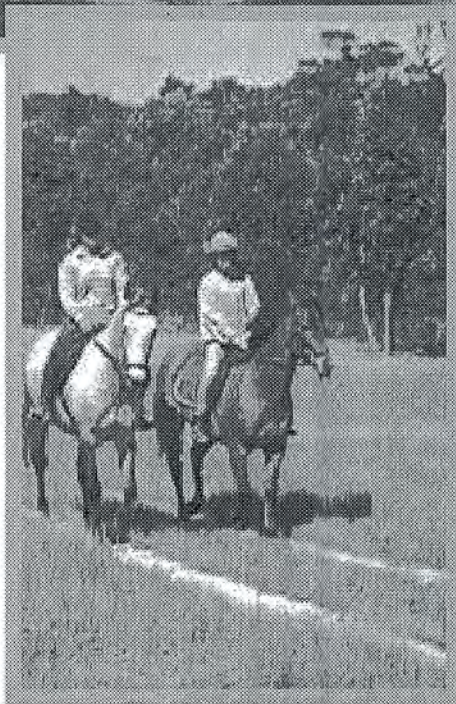
IDEAS FOR THE FUTURE

ZONE ONE GNANGARA



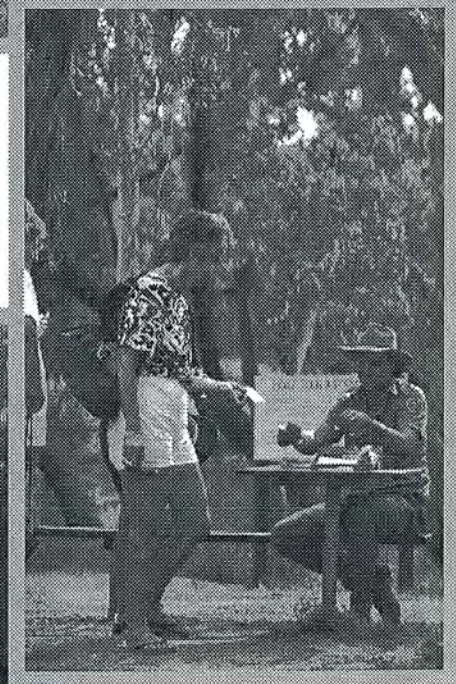
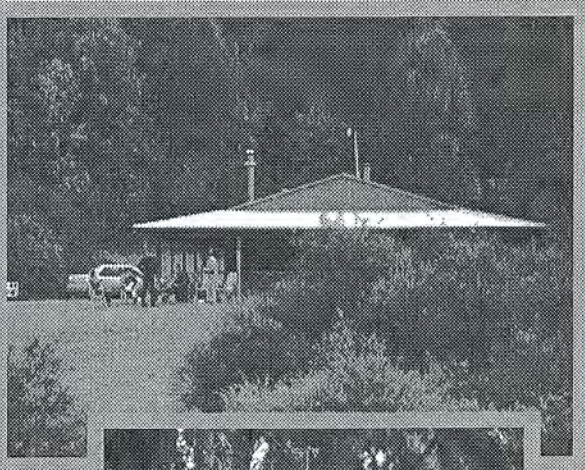
.....PICNIC AREAS
UNDER PINE TREES

AND A VISITOR CENTRE
AMONGST TREES.....



.....PLACES TO RIDE HORSES

OR GO ON A WALKING
TOUR.....



.....AND ENJOY A DRIVE
THROUGH THE FOREST



Conceptual Zones

The Park has been divided into zones for ease of discussion and presentation. The zones are loosely based on land and vegetation characteristics as well as recreation and interpretation concepts. The zones and general concepts are illustrated on Map 1 ... Preliminary Concept Plan, page 75.

The following section presents recommendations for each zone under the headings of each primary Park value (Nature Conservation, Resource, Recreation and Interpretation and Heritage). Issues that require immediate attention have been highlighted.

Zone 1 – Gngangara

This zone incorporates the Gngangara Pine Plantation south of Neaves Road. It presents great challenges and opportunities for park management, encompassing almost all management issues existing in the Park.

In summary, the primary focus for the Gngangara zone will be for public interaction and resource use. The area will act as the main “gateway” to the Park, with recreation facilities and activities being developed in the vicinity of Gngangara Road.

The area offers a highly changing landscape (pine harvesting, sand mining, revegetation plans), so a focus on “Changing Resource Uses Over Time” will be developed from Aboriginal use through colonisation and settlement to current uses to future use (i.e. pine removal and re-introduction of native flora and fauna).

Areas of existing native vegetation and wetlands will be protected and enhanced. Pine harvesting will occur in small areas to promote nature conservation values and groundwater production values. Groundwater abstraction will occur through the Wanneroo and the new Lexia groundwater schemes.

Nature Conservation

1. Protect existing wetlands and remnant vegetation while creating native woodland links.
2. Rehabilitate the pine areas for mainly landscape and amenity values. As the area is highly modified, the revegetation program will concentrate on replanting for recreation and landscape purposes as well as protecting and enhancing remnant vegetation and wetlands.
3. Maintain the nature conservation link between Maralla Nature Reserve and Melaleuca Park. Existing mining leases and operations impact on this link. Investigate potential land or resource swaps with Rocla and ensure continued

high quality post mining revegetation. This issue requires immediate attention.

Resources

4. Retain pine stands with research and historical significance and other areas for landscape values in association with recreation and tourism facilities. Harvest and thin areas according to nature conservation, water supply, landscape and recreation needs.
5. Ensure that a balance is achieved between pine harvesting and abstraction from Lexia groundwater scheme to protect nature conservation values. Monitoring is required to show the outcome of actions and give direction for future management decisions. This issue requires urgent attention.
6. Investigate the impacts of recent pine harvesting east of Lake Gngangara. Undertake monitoring to measure the change in groundwater levels resulting from recent harvesting near Lake Gngangara. Use the data for ground water management to assist in restoration of lake values.
7. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.
8. Acknowledge Wanneroo groundwater scheme infrastructure as an important existing water supply for Perth. The Lexia groundwater scheme is being developed in this area.
9. Accommodate the existing Rocla mining leases and liaise to ensure impacts on Park values are minimised and effective rehabilitation is undertaken to reinstate, where practicable, conservation and recreation values.
10. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.
11. Investigate suitable commercial wildflower picking and apiary sites where they don't impact on other Park users.

Recreation & Interpretation

12. Develop a main visitor centre and recreation site near Gngangara Road, east of Centreway. The centre would have as it's a primary purpose orientation to the Park, its values and focus areas. The facility will be designed to explain the "menu" for the Park.
13. Develop links with Whiteman Park to ensure that there is no duplication and that both facilities are complementary.
14. Develop walk and horse trails to Whiteman Park where appropriate in consultation with the Park management.

15. Redevelop the historic Gnangara settlement as parkland with picnic facilities, walking, cycling and interpretation.
16. Work with the Ellenbrook community to create opportunities for residents in special developments and activities, e.g. Western Shield and Arbor Day.
17. Create links with Ellenbrook, both vehicular and pedestrian across the proposed Darwin-Perth Highway where needed. Consult with Shire of Swan, MRWA, DOT, Rocla and Ellenbrook to plan future road crossings.
18. Relocate existing motorcycle area to west of Centreway for the short term. Provide immediate facilities for parking, management of fuel and signs, in alliance with clubs and/or associations. The establishment of these facilities needs immediate attention. In the long-term, the motorcycle area will be relocated outside the Priority 1 water source protection area where practicable.
19. Develop and manage areas for horse riding in proximity to the western and northern area to cater for bordering landholders.
20. Accommodate other recreation activities, such as dog training and the flying of model airplanes where possible.
21. Link the Coastal Plain Walktrail from Melaleuca Park to main development node, Ellenbrook and to Walyunga National Park. Investigate the possibility of linking a walk trail to Whiteman Park that continues onto the Swan River through Bennett Brook.

Heritage

22. Undertake research and develop conservation plans for remaining heritage sites and structures.
23. Incorporate heritage values of past forestry practices and remnants of the Gnangara settlement in planning and design.
24. Investigate Aboriginal heritage values and determine opportunities for interaction with local communities.

Zone 2 – Eastern Bushland

This zone incorporates the Melaleuca Park, the Dept of Defence Muchea Air Weapons Range, a large area of vacant Crown land and Yeal Nature Reserve.

In summary, the primary focus for this zone will be for nature conservation and groundwater protection.

This zone is the largest and most homogenous area of relatively undisturbed bushland in the Swan Coastal Plain. It has limited resource and recreational use, apart from Dept of Defence (DOD) operations, wildflower pickers and apiary sites (outside Nature Reserves). The intention is not to increase public use of this zone for recreation. Interpretation will be limited to off-site vantages focussing on nature conservation values with a theme of "Sanctuary for Wildlife".

The Dept of Defence, as a major land manager in Australia, is committed to conducting its activities in an environmentally responsible manner. An Environmental Management Plan (EMP) for Muchea Air Weapons Range is to be produced in the near future. As a condition of DOD's State lease, they will need to closely link the objectives of regional plans, such as Gnangara Park, with the management strategies of their EMP. The Gnangara Park management team will provide input into the development of the EMP.

Nature Conservation

1. Nature conservation is and will remain the primary purpose for land use in this zone.
2. Undertake feral predator control and consider future reintroductions of fauna now locally extinct.
3. Protect area from dieback in accordance with CALM procedures.
4. In conjunction with DOD, retain and protect nature conservation values on land occupied by DOD.
5. Protect wetlands and large dune ridge feature (located in Muchea Air Weapons Range and VCL).
6. Ensure the protection of poorly represented and / or threatened communities.
7. Ensure fire protection plans consider requirements of nature conservation and provide a mosaic of fuel regimes.

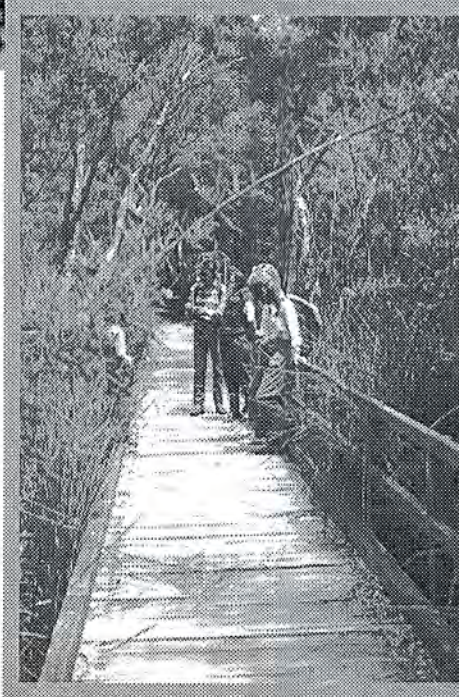
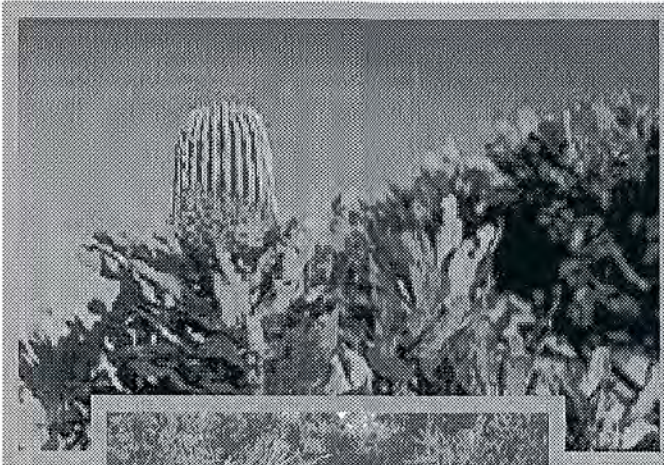
Resources

8. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.

IDEAS FOR THE FUTURE

ZONE TWO EASTERN BUSHLAND

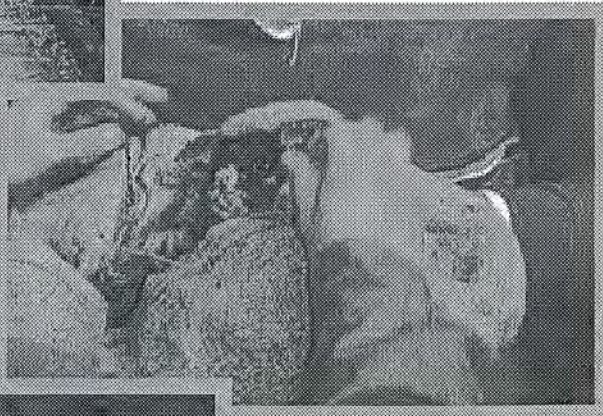
.....PROTECTING REMNANT
VEGETATION COMMUNITIES



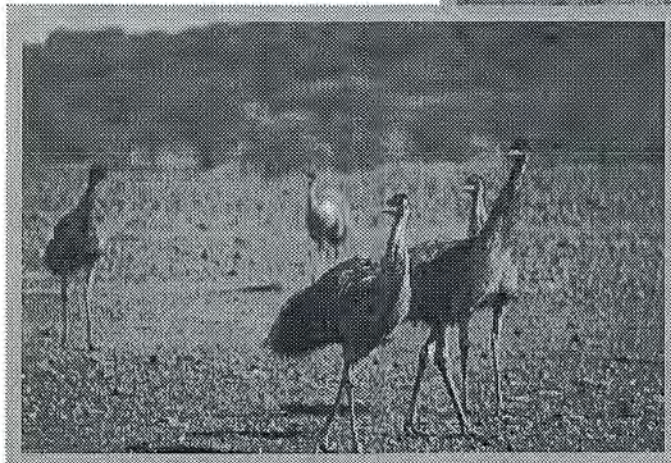
.....PLACES FOR
QUIET WALKS TO
OBSERVE NATURE



WHERE LOCALLY
EXTINCT FAUNA WILL BE
REINTRODUCED.....



.....WITH A CHANCE
TO SEE SPECIAL THINGS



.....AND A SANCTUARY
FOR WILDLIFE

9. Acknowledge Pinjar groundwater scheme infrastructure as an existing important water supply for Perth and the possible development of the proposed Muchea Scheme.
10. Ensure proposals for groundwater abstraction carefully consider the protection of nature conservation values.
11. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.
12. Liaise with DME about pre-mining plans and mining leases to ensure impacts on park values are minimised and effective rehabilitation is undertaken to reinstate conservation values, for example, granted leases affecting diatomaceous earth swamps.
13. Wildflower picking will continue to be prohibited in Nature Reserves.
14. Commercial wildflower picking may be acceptable in the vacant Crown land component of this zone where it is currently permitted. If sensitive areas are identified in VCL, relocate wildflower picking to more appropriate areas.
15. Existing apiary sites will continue to be managed on a sustainable basis. Future opportunities to relocate existing sites from environmentally sensitive areas to new sites in revegetated pine areas will be considered.

Recreation & Interpretation

16. Recreation use will be minimal, nature-based and low impact such as walking and nature interpretation, possibly using qualified guides.
17. Potential for low-key recreation site on the east side of the VCL being accessed from Brand Highway. The site would contain a small parking area, interpretation and a walktrail. Picnic facilities may be provided depending on CALM's ability to maintain the site.
18. Accommodate planned campsite for the Coastal Plain Walktrail.
19. Strictly no public access is permitted in the Muchea Air Weapons Range, therefore no recreation is allowed.

Heritage

20. Investigate possible heritage values and implement protection strategies where necessary.
21. Encourage the Department of Defence to investigate possible heritage values and implement protection strategies on Muchea Air Weapons Range if necessary.

Zone 3 – Pinjar

This zone incorporates the northern portion of Gngangara Pine Plantation, Lake Pinjar (MfP's Planning Control Area 29) and the southern portion of Pinjar Pine Plantation. It presents great challenges and opportunities for park management with major revegetation and rehabilitation programs required for areas harvested of pines. Ministry for Planning's negotiations in Planning Control Area 29 will influence the recommendations in this plan for Lake Pinjar.

In summary, the primary focus for the Pinjar zone will be for public interaction and resource use, with protection of groundwater quality and quantity as a major component of planning and management.

The area will act as a western "gateway" to the Park especially from the proposed urban areas of the north west corridor. Recreation facilities and activities will be developed west of Pinjar Road. The area offers a landscape that will be interpreted as "Changing Lives" or a re-creation theme based on rehabilitation of Lake Pinjar as a dynamic wetland, changes from agricultural uses, lifecycle of pine plantations and the changing needs for recreation. The area provides a place to explore seasonality and change in community's perceptions, especially in relation to changing land uses to protect groundwater quality.

Areas of existing native vegetation and wetlands will be protected and enhanced. Progressive pine harvesting will occur to promote nature conservation values and groundwater production values.

Nature Conservation

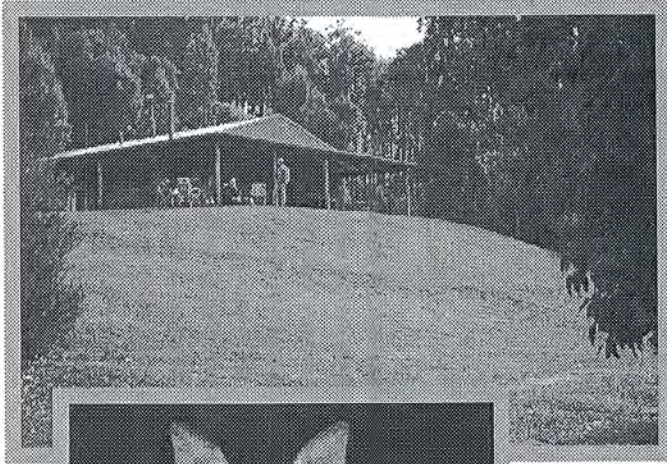
1. Enhance existing nature conservation values on and around Lake Pinjar with rehabilitation for landscape and wildlife habitats to increase the area's integrity.
2. Maintain vegetation remnants and create corridors and linkages within Lake Pinjar and to surrounding remnant vegetation.
3. Protect existing wetlands, endangered ecological communities and remnant vegetation.
4. Protect where possible those high conservation value vegetation communities associated with limestone occurring in areas held under existing mining leases.

Resources

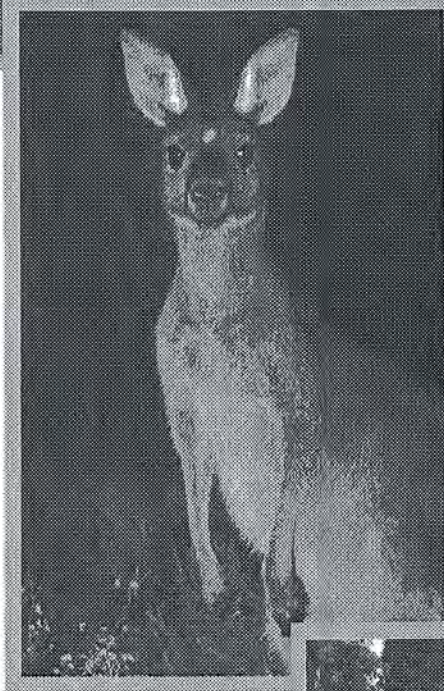
5. Harvest pines according to resource, environmental values and water supply needs, and landscape protection requirements. Give attention to harvesting pines to improve the wetland values of Little Coogee Flat. Monitoring is required to show the outcome of actions and give direction for future management decisions.

IDEAS FOR THE FUTURE

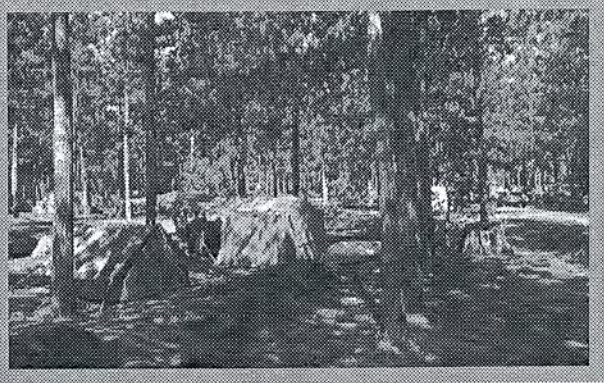
ZONE THREE PINJAR



.....A GATEWAY
INTO THE PARK



.....PLACES TO
SEE LOCAL
WILDLIFE



AND A CHANCE TO
RECREATE IN THE
FOREST.....



.....LEARN ABOUT
THE CHANGING
WETLANDS



.....AND THE RE-
CREATION OF LAKE PINJAR

6. Retain specific areas of pines for landscape and heritage values along Pinjar Road, on corner of Neaves and Pinjar Roads and the avenue at old Pinjar mill site.
7. Acknowledge Wanneroo and Pinjar groundwater scheme infrastructure as important existing water supplies for Perth.
8. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.
9. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.
10. Ensure limestone mining is undertaken with least impact as possible upon nature conservation, water quality and quantity and landscape values.
11. Ensure post-mining rehabilitation is carried out to best practices with future recreation use in mind as an end use.
12. Existing wildflower picking and beekeeping may be acceptable where they don't impact on other Park users and nature conservation values.

Recreation & Interpretation

13. Develop a major visitor node in the vicinity of the old Pinjar Mill connecting to Lake Pinjar. Intensive recreation facilities will be located outside P1 boundary and away from proposed bores. Main foci will be for interpretation of changing lives in relation to water protection, wetland rehabilitation and possibly Aboriginal culture.
14. Investigate possible low-key recreation and landscape uses for Lake Pinjar with potential for parkland with walking and cycling corridors. Consider the potential of re-creating small areas of wetlands as part of an integrated recreation and interpretation plan.
15. Develop a recreation site at the junction of Neaves and Pinjar Roads for interpretation of significant pine plot – Dick Perry's Pine Clone Bank. Consider the development of a demonstration forest that showcases pine harvesting operations, dieback education and an arboretum.
16. Manage existing motorcycle area on Pinjar Road for the short term. Provide facilities for parking, management of fuel and signs, in alliance with clubs and/or associations. Establishment of these facilities needs immediate attention. For the long-term, consider relocating the motorcycle area outside the P1 boundary if practicable.
17. Acknowledge the existing Rifle Range complex as an existing use in this zone.

Heritage

18. Protect significant forestry heritage sites.
19. Investigate the location of Aboriginal heritage sites and associations with the area.
20. Investigate possible heritage values and implement protection strategies where necessary.

Zone 4 – Ridges

This zone incorporates the proposed additions to Yanchep National Park, being Ridges State Forest and a portion of State Forest No. 65 to the south of the Ridges.

In summary, the primary focus for the Ridges zone is for protection of nature conservation values and the catchment for the cave stream communities in Yanchep National Park. The area offers a landscape that will be interpreted as “The Way of Water”, concentrating on the sculpting actions of water through the landscape. Interpretation will be linked with Yanchep National Park, using the McNess Visitor Centre as a key focus for promoting Gngangara Park’s identity. This will be complementary due to Yanchep National Park’s focus on water and cave themes.

Areas of existing native vegetation and wetlands will be protected and enhanced.

Nature Conservation

1. Protect high conservation values of limestone outcrop habitats and catchment for cave stream communities in Yanchep National Park.
2. Ensure land uses in the southern portion of this zone are compatible with maintaining water quality and quantity in order to protect rare invertebrate fauna and cave stream catchments.
3. Establish vegetation corridors to Yeal Nature Reserve and establish buffer around Threatened Ecological Communities.

Resources

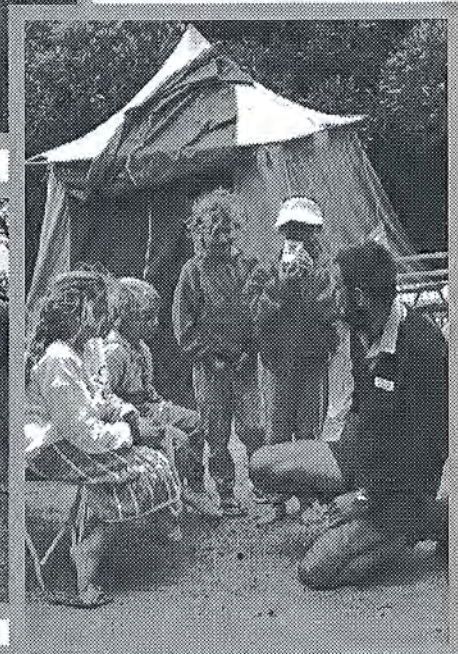
4. Liaise with DME regarding mining leases, existing and pending, over the area.
5. Ensure that future mining activities do not adversely impact on cave stream values.
6. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.

ZONE FOUR RIDGES

.....A PROPOSED NATURE
STUDY CENTRE



AND A CHAT WITH THE
RANGER.....



.....A LONG DISTANCE
WALK ON THE COASTAL
PLAIN



.....CONNECTING TO
YANCHEP NATIONAL PARK &
EVENTUALLY WALYUNGA
NATIONAL PARK



.....AND OVERLOOKING
THE SPECTACULAR RIDGES

7. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.

Recreation & Interpretation

8. Consider a Study Centre for educational groups in or near the Banksia woodland on the northern border of the proposed National Park extension. Small scale type of accommodation may be provided in a basic "wilderness" style, i.e. Perup Forest Ecology Centre. This site is positioned strategically for scientists, students and visitors to study the water theme.
9. Develop a low-key recreation site for picnicking, entry statement and interpretation in the vicinity of Jarrahsend.
10. Support the Coastal Plain Walktrail through this zone, including existing campsite.

Heritage

11. Investigate possible heritage values and implement protection strategies where necessary.

Zone 5 - Pinjar & Yanchep Pines

This zone incorporates the northern portion of Pinjar and all Yanchep Pine Plantation. It forms a belt of land between the Nature Conservation Zone to the east and Ridges Zone to the west.

In summary, the primary focuses for the Pinjar and Yanchep Pines zone are for resource use (mainly pines and groundwater) and protection of the catchment for the cave stream communities in Yanchep National Park. The interpretative focus will be on "Water for the Future" highlighting the progressive change from contemporary land use (pine plantation) to native vegetation to enhance groundwater resource supplies.

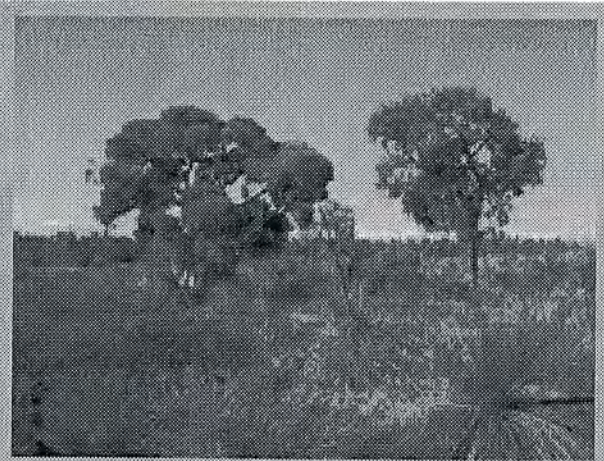
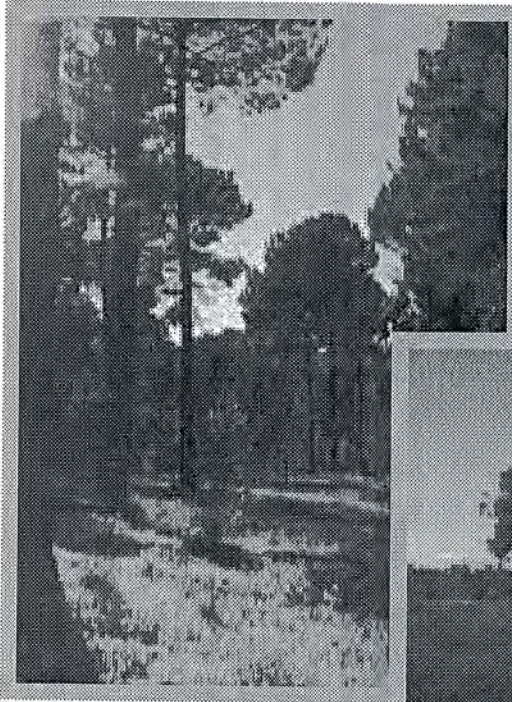
Nature Conservation

1. Create north/south vegetation corridors between Ridges and Lake Pinjar through Pinjar Pines.
2. Continue to monitor ground water levels and impacts of recent harvesting of pines that was undertaken to improve groundwater recharge to cave streams. This issue continues to need immediate attention to prevent the cave streams from drying up thus preserving threatened invertebrate communities.
3. Create east/west native woodland corridors to link Yanchep National Park and Yeal Nature Reserve.

.....PROGRESSIVE
REMOVAL OF
PINES

ZONE FIVE PINJAR & YANCHEP PINES

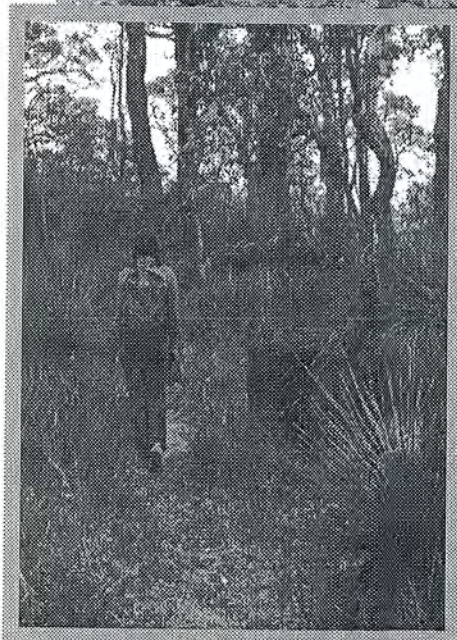
AND NEW WILDLIFE
CORRIDORS.....



.....A SCENIC DRIVE TO
UNDERSTAND THE PARK



.....A RETURN OF
WILDLIFE



.....AND A CHANCE FOR A
LONG WALK

4. Protect existing native woodland remnants and threatened flora and threatened communities.
5. Ensure land uses in the central portion of this zone are compatible with maintaining water quality and quantity in order to protect rare invertebrate fauna and cave stream catchments.

Resources

6. Harvest pines on a selective basis and revegetate to create desired nature conservation links and improving nature conservation values. If necessary, further harvest pines to improve groundwater recharge to cave streams.
7. Retain specific areas of pines for landscape and heritage values, especially along Wanneroo Road.
8. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.
9. Recognise future development of Pinjar, Yeal and Barragoon public ground water schemes.
10. Wildflower picking and beekeeping may be acceptable where they don't impact on other Park users.
11. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.

Recreation & Interpretation

12. Investigate scenic driving opportunities, including 4WD scenic drives, that take into account safety around pine harvesting operations.
13. Support proposal to redevelop the coastal Stock Route as a walking and riding trail.
14. Develop Wabbling Hill Tower as a key interpretation node with a lookout over surrounding landscape to interpret the theme of future water quality and quantity requirements.

Heritage

15. Investigate possible heritage values and implement protection strategies where necessary.
16. Investigate heritage values of the Boongarra camp site that was once on the coastal Stock Route.
17. Protect and enhance Wabbling Hill Tower for its heritage values.

Zone 6 – Wilbinga/Caraban

This zone incorporates the northern most portion of the Park from the coast at Wilbinga to Wallingup Plain on Military Rd.

In summary, the primary focus for this zone is for nature conservation, as a future recreation node and potential future resource allocation (ground water and limestone) in the Caraban area. The area provides the opportunity in Gnangara Park to access the beach and coastal landscapes. Development will be low-key and well designed to ensure that this large coastal area is retained with a “wilderness” quality.

This zone will, in the future, contain the largest single area of relatively intact coastal environment and will define the northern limits of Perth as the urban corridor extends northwards. The landscape will be interpreted as “Changing Sandscapes” where the connections between natural coastal forces and the formation of the Swan Coastal Plain can be made.

Nature Conservation

1. Protect high conservation values that represent a suite of vegetation types from the coast to the eastern edge of the Swan Coastal Plain, which are not represented elsewhere.
2. Rehabilitate disturbed areas as part of management plan for track rationalisation and control of access.
3. Maintain links with Yeal Nature Reserve as a highly significant coastal east/west transect. Ensure that appropriate native vegetation corridors are maintained, especially if at some time in the future limestone mining is allowed to occur. This may occur within the area identified as a State strategic limestone resource that is proposed as the Caraban CALM Act section 5(h) reserve ⁴.
4. Encourage a “wilderness” feeling through careful placement and design of development and facilities, especially along the coastal zone.
5. Include and manage this zone for feral predator control and future reintroductions of fauna now locally extinct.

Resources

6. Within the proposed Caraban CALM Act section 5(h) reserve ⁵ where conservation, groundwater protection and strategic limestone values have been identified, consider with DME each proposal and its significance and possible use in resolving strategic limestone demands in sensitive areas.

⁴ Section 5 (h) “other land” reserve category under the CALM Act.

⁵ Section 5 (h) “other land” reserve category under the CALM Act.

7. Evaluate exploration and mining proposals with regard to existing legislation and government and NPNCA policies.
8. Ensure the protection of poorly represented or threatened communities when considering proposals for mining and exploration.
9. Only allow land uses compatible with priority classifications for water supply protection. Manage existing non-compatible uses.
10. Recognise the future development of the Barragoon public ground water supply scheme.
11. Take into consideration the special requirements of the International Gravitational Wave Observatory. These requirements are based on excluding activities that would cause vibrations to upset sensitive measurements of gravity waves.
12. Manage existing apiary sites and seek opportunities for future relocation into revegetated pine areas.
13. Wildflower picking may be acceptable in the area to the east of Wanneroo Road where it is currently permitted. If sensitive areas are identified in this area, relocate wildflower picking to more appropriate areas.

Recreation & Interpretation

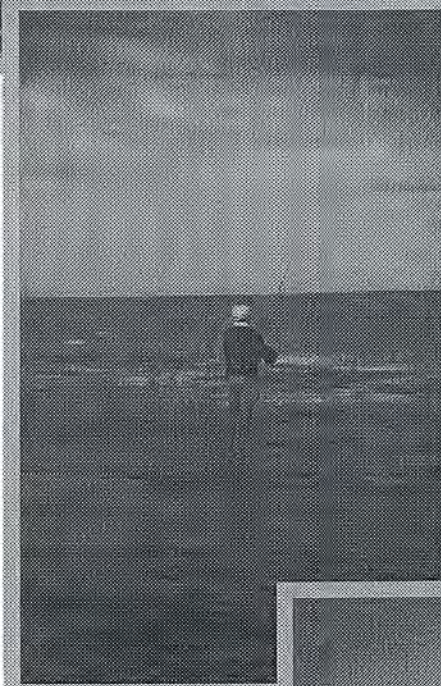
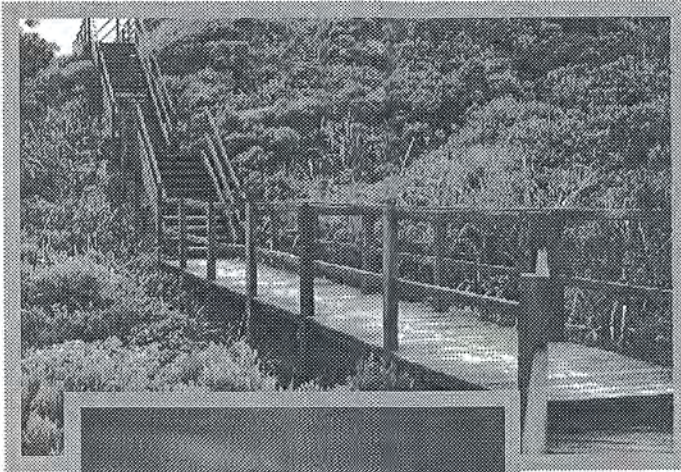
14. Manage existing recreation use of the area in the short term by rationalising and defining 4WD tracks and access to the beach for fishing, surfing and beach activities. This is an issue that requires urgent attention to ensure further degradation is avoided.
15. Develop a major recreation and interpretation node with low-key facilities in mostly existing cleared areas. Main emphasis will be on nature-based activities. Accommodation may be a significant component of the development. The area is strategically located to interpret the Swan Coastal Plain.

IDEAS FOR THE FUTURE

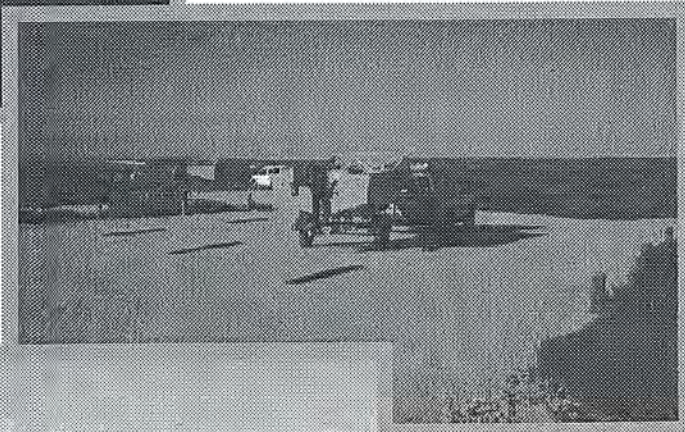
ZONE SIX WILBINGA CARABAN

.....A PLACE THAT
SHOWCASES
COASTAL PROCESSES

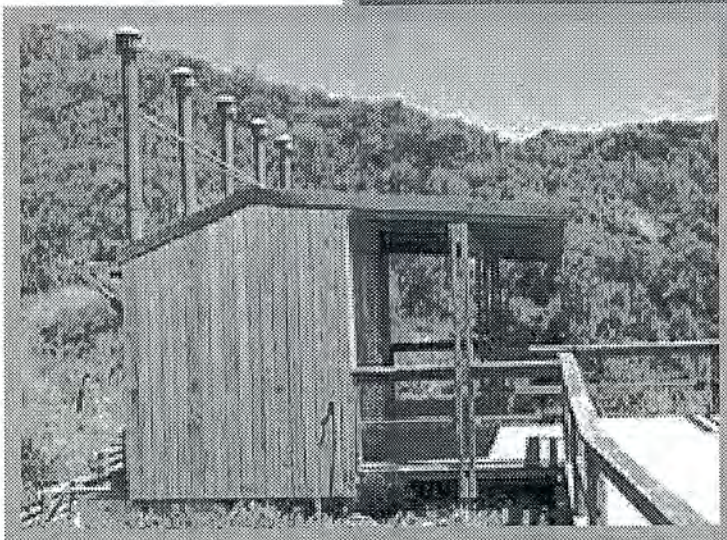
AND SOMEWHERE
QUIET.....



.....TO ESCAPE
FROM THE CITY LIFE



.....ACCESS AND
VEHICLES
CONTROLLED



.....AND SENSITIVE
BUILDINGS AND FACILITIES
PROVIDED

16. Develop one main 2WD access point in the future from the proposed recreation node to the coast with defined parking and walk tracks to the beach and phase out other access tracks to the coast.
17. Consider designated 4WD access to limited areas of the coastline where it does not compromise the environmental and aesthetic values of the area.
18. Link the proposed Coastal Plain Walktrail from Yanchep National Park to the main recreation node and through this zone to the Moore River and Guilderton if possible.
19. Encourage planners to develop coastal access points in future land developments north and south of the park. This will assist in relieving recreational pressure on the Park's coastline and maintaining "wilderness" qualities.
20. Investigate scenic driving opportunities along Military Road, especially as a loop from Wanneroo Road to Gingin Brook Road.
21. Investigate the redevelopment the coastal Stock Route as a walking and horse riding trail.

Heritage

22. Investigate possible heritage values and implement protection strategies where necessary.

Conclusion

This Preliminary Concept Plan is a broad statement of intent with suggestions for the direction of future planning and management of Gngangara Park. It identifies the main issues and provides recommendations for land and resource use. Primary values, principles and strategies are presented to guide future dialogue and provide points for consideration. Conceptual zones for discussion have been devised with recommendations for future nature conservation, resource, recreation and heritage values. Areas and issues that require urgent attention are also noted.

This plan acknowledges the need to manage the Park in an integrated way to achieve a broad range of objectives. In addition to managing conservation, recreation and forestry values, there is a need to provide for coordinated groundwater protection and abstraction.

In the short term, CALM will continue to manage its land according to the reserve and State forest purposes. In the longer term, a planning and management framework will need to be put in place. It is likely that Gngangara Park will not be one single reserve purpose and vesting; but there will be a suite of purposes and vestings suitable for future land use requirements in the park. Appropriate reserve purposes and vestings will be determined in line with the future uses for each area in the Park. It is the Technical Working Group's view that the model intended by CALM for its regional park planning and management is a viable long term solution for Gngangara Park.

Following on from this preliminary concept and the subsequent consultation, a comprehensive management planning process will be undertaken. This will provide a more detailed investigation and process of data collection, analysis of social, scientific, economic and physical information. Extensive community participation and consultation will ensure that key issues and recommendations are made with a broad range of views in mind. Recommendations will be made in the Management Plan for all aspects of future vesting, park development and ongoing management.

The Technical Working Group has recognised the enormous scale of this Park and the impacts of adjoining land uses on management. It has also recognised the multiple objectives for park management and the responsibilities and roles of other government agencies, the community and other major stakeholders in the planning and management of the Park. The following recommendations are made in line with these issues and are given as a way forward for CALM and other agencies to establish the Park.

Recommendations

Recommendations for planning and management direction for the Park are:

1. Prepare a management plan for Gngangara Park in accordance with the CALM Act. Set up a multi-disciplinary management planning team to undertake the task. Identify and work with community and other representatives through the process. Provide adequate resources to undertake this management planning process.
2. Establish a management structure within CALM's Perth District with technical teams for day-to-day management dedicated to Gngangara Park.
3. Set up a Technical Working Group to deal with planning and management of revegetation, harvesting and groundwater changes. This group will provide advice to the management planning team and day-to-day operational staff. This group will have access to specialist expertise and research as required.
4. Establish a mechanism to acquire, accumulate and allocate funds and revenue. This is to ensure there is an appropriate level of resources available to implement and manage the park concept.

As consultation is a key component of planning for Gngangara Park, this document has been prepared for discussion so that CALM can seek ideas and comments from key stakeholders, other government agencies and the community. Submissions on this document, and other issues related to Gngangara Park are being sought.

Appendices

Appendix 1 ... Gnangara Park Technical Working Group

Alan Sands (Chairman)	CALM
Sandra Krupa	Perth District (Wanneroo)
John McKenzie	
Clayton Sanders	
Lyndon Mutter	
Leon Griffiths	
Rob Towers (Deputy Chair)	CALM Swan Region
David Mitchell	
Dr. Neil Gibson	CALM <i>Science</i> Division
Greg Keighery	
Norm Caporn	CALM Environmental Protection Branch
Noel Nannup	CALM Aboriginal Tourism Unit
Tracy Churchill	CALM Recreation Planning & Design Section
Jeff Kite	Water and Rivers Commission
Ross Sheridan	
Steve Chase	
Sharon Stratico	
Mike Martin	Water Corporation
Garry Whisson	Dept of Environmental Protection
Andrew Moore	Ministry for Planning

Appendix 2 ... Supplementary Contributors

Department of Minerals and Energy
Department of Land Administration
Main Roads Western Australia
Agriculture WA
Department of Transport
Conservation Council of WA
Aboriginal Landcare Group
Dames and Moore on behalf of Telstra
Department of Defence
Whiteman Park
Ellenbrook Management
LandCorp
North Metro Tourism Association
The City of Joondalup
The City of Wanneroo
Shire of Gingin
Shire of Chittering
Shire of Swan
Bill De Burgh
Tony Villanova
Margaret Cockman
Rocla Quarry Products
Boral

Appendix 3 ... Assessment of Existing Recreation Sites

	Sites	Significance	Visitation	Location	Access	Site Modification	Interpretation/ Information	Management Presence
1	Wilbinga Grove	Tuart Grove	Low	75 k.m. N.W of Perth	Wann. Rd.	Low (rest area, bins)	None	None (Shire of Gingin)
2	Wabling Hill Tower	Outlook, Landscape	Low	69 k.m. N.W of Perth	Wann. Rd.	Low (observation platform.)	None	Low
3	Jarrahsend	Jarraah Grove	Low	57 k.m. N.W of Perth	Military/Wann. Rds.	Low(rest area)	None	None
4	Yanchep N.P	Landscape, wetlands, cave system	Low	50 k.m. N.W of Perth	Wann, Old Yanchep, Yanchep Beach Rds.	Low (walk trail network)	Low	Low
5	Yanchep N.P Recreation Precinct.	Past Era charm. Modified natural. environs	High	As above	Wann/ Old Yanchep, Yanchep Beach Rds.	High (involving multi-disciplinary design team.)	High (visitor centre, activity program, brochure etc.)	High (staff on site daily)
6	Melaleuca Cons. Park	Landscape, wetlands	Low	40km N.ofPerth	Neaves Rd.	Low (picnic table, bins)	None	Low
7	Coastal Plain Walktrail	Diversity of landscape	Low		Yanchep N.P	Low/Mod (purpose built trail, shelters, <u>water</u> , toilet, bbq facilities)	Low/mod (brochures Orientation)	Low/ Mod (weekly)
8	Pinjar Campsite	Camping in native bushland	Low	40 k.m. N .of Perth	Wescoe Rd.	Low (non formalised camp sites, picnic tab.)	None	Low
9	Pinjar Motor Cycle Area	Designated Off Rd. Motor Cycle Area	Low -mod	37k.m N. of Perth	Pinjar Rd.	Low (sign posted with boundary demarcations and; let down area)	Low(off road brochure, signage)	Low/mod (weekly- C.A.L.M, City of Joondalup)

	Site	Significance	Visitation	Location	Access	Site Modification	Interpretation	Management Presence
10	Gnangara Motor Cycle Area	Designated Off Road Motor Cycle Area	Low/Mod	27 k.m. N. of Perth	Gnangara Rd.	Low (boundary demarcation)	Low (Off Road Brochure, signage)	Low/Mod Weekly- C.A.L.M, City of Joondalup
11	Old Lookout Tower Site, Gnangara	Expansive views of scarp, Perth, and surr. Environs.	Low/ Mod	32 k.m. N. of Perth	Gnangara, Pessoa, Trainor Rds.	None (fire tower lookout removed.)	None	Low/ Mod As above
12	Old Mill Site, Gnangara	Historical values	Low	35 k.m. N. of Perth	Gnangara, Wetherall Rds (external to park – Ellenbrook).	Low (obsolete water tank and stand)	None	Low
13	Old Gnangara Settlement	Historic value, exotic tree species, prox. Ellensbrook	Low	30 k.m N. of Perth	Gnangara, Pessoa, Trainor Rds.	None	None	Low/ Mod.
14	Rifle Range Perry Rd.	Designated rifle range- Lease	Low- mod		Perry Road	Lease <u>buildings, access and services.</u>	None	None

Appendix 4 ... Existing Recreation Uses

- Vehicle Based Activities
 - Cycling
 - Off-Road Vehicles
 - Vehicle Rallying (Social)
 - Scenic Driving
 - Competitive Car Rallies
- Boating (Wilbinga)
- Swimming (Wilbinga)
- Fishing/Spearfishing
- Cray Fishing
- Picnicking and Barbecuing
- Nature Study/Appreciation
- Bushwalking
- Horse and Camel Riding
- Dog Training
- Hunting, Fossicking and Collecting (Marine and Intertidal Organisms)
- Aircraft
- Orienteering/Rogaining
- Cross Country Running
- Caving
- Target Shooting
- Model Aircraft
- Training and Trails (Police, Defence, etc)
- Seed Collection

Appendix 5 ... Abbreviations

BRM	Basic Raw Materials
CALM	Department of Conservation and Land Management
DOD	Department of Defence
DEP	Department of Environmental Protection
DME	Department of Minerals and Energy
DOT	Department of Transport
EPP	Environmental Protection Policy
GLUWMS	Gnangara Land use and Water Management Strategy
MfP	Ministry for Planning
MRS	Metropolitan Regional Scheme
MRWA	Main Roads Western Australia
SPP	Statement of Planning Policy
UWPCA	Underground Water Protection Control Area
WC	Water Corporation
WRC	Water and Rivers Commission

Appendix 6 ... Area Statements

GNANGARA PARK

AREA STATEMENTS

STUDY AREA : 91 032ha

Comprising the following components:

PINE PLANTATIONS (ha)

YANCHEP: 7 558
 PINJAR: 7 552
 GNANGARA: 5 555
 TOTAL 20 665 ha

CALM ESTATE (ha)	EXISTING	PROPOSED	TOTAL
STATE FOREST:	30 033	+5719	*23800
NATURE RESERVE:	11 429	+5343	16772
Sect 5(g) RESERVE:	175	+2192	2367
CONS PARK		+3295	3295
NATIONAL PARK		+1122	1122
TOTAL	41 637 ha		47356 ha

*Sum of existing and proposed State Forest (35 752 ha) less the sum of the remaining proposals (-11952 ha) = 23800 ha

SUMMARY:	PINE	20 665 ha
	CALM	47 356
	OTHER	23 011
	PARK	91 032 ha

NOTE: Area calculations based on CALM Operations Graphics map: **Gnangara Park Study Area (11 August 1998)** IMB Job No.98118118
 Pine areas extracted from Plantation plans and not included in State Forest areas.
 Surveyed road casements included in area calculations except for plantations.



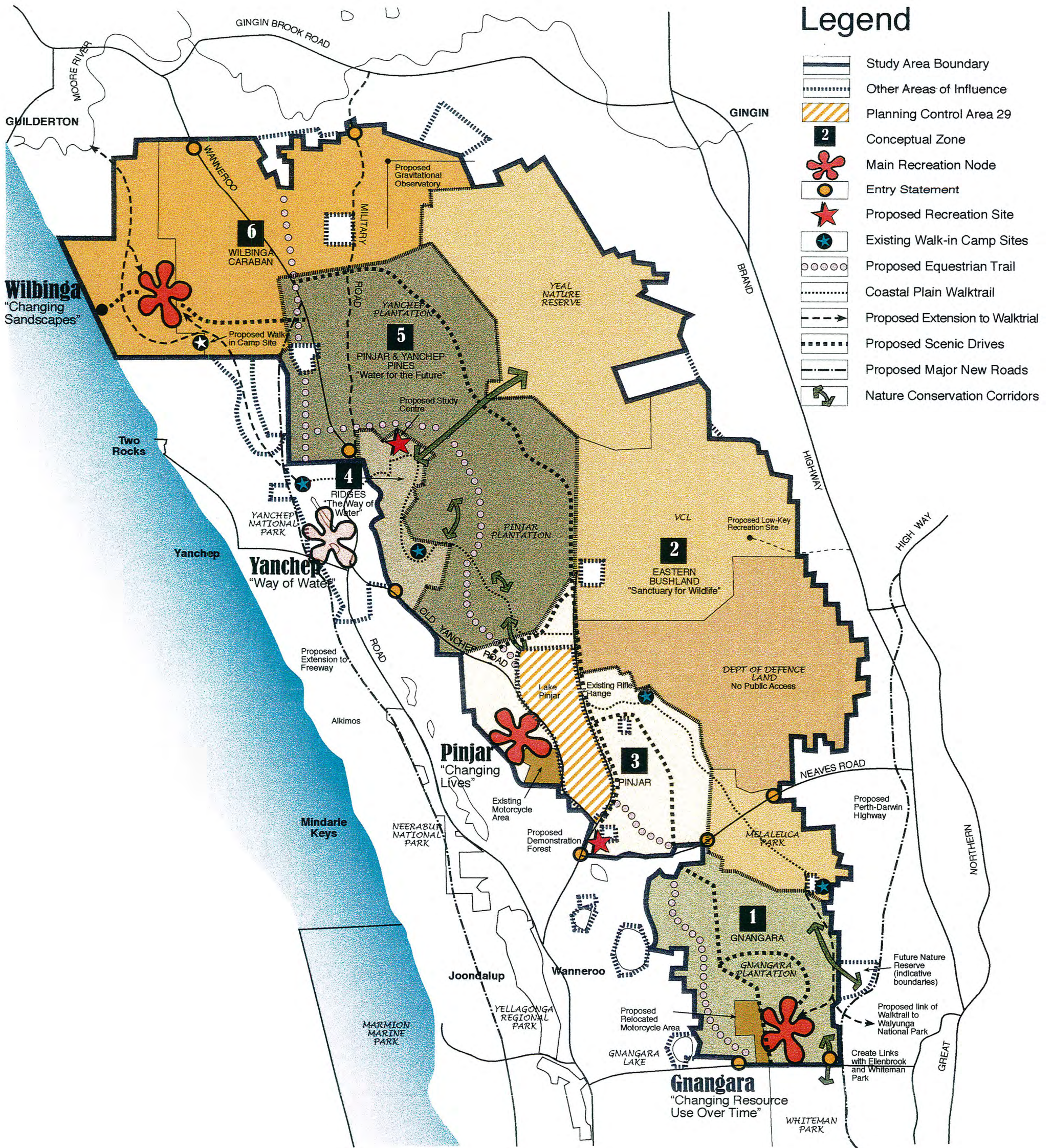
Graham Hoare
 Project Leader, TENURE
 15 September, 1998

Appendix 7 ... Timing of Report & GLUWMS

This report contains information that needs to be considered in line with the release of the MfP's Gngara Land use and Water Management Strategy (GLUWMS).

Depending on the coordination of release between this Preliminary Concept Plan and GLUWMS, the following sections and data in this report needs to be addressed:

- Planning Framework pg. 5 (in both sub-sections)
- Map 2 – Water (UPWCA's remove if released before GLUWMS).



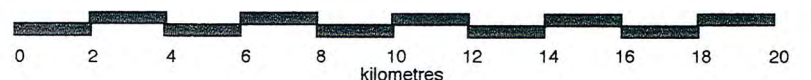
Gnangara Park

Preliminary Concept Plan

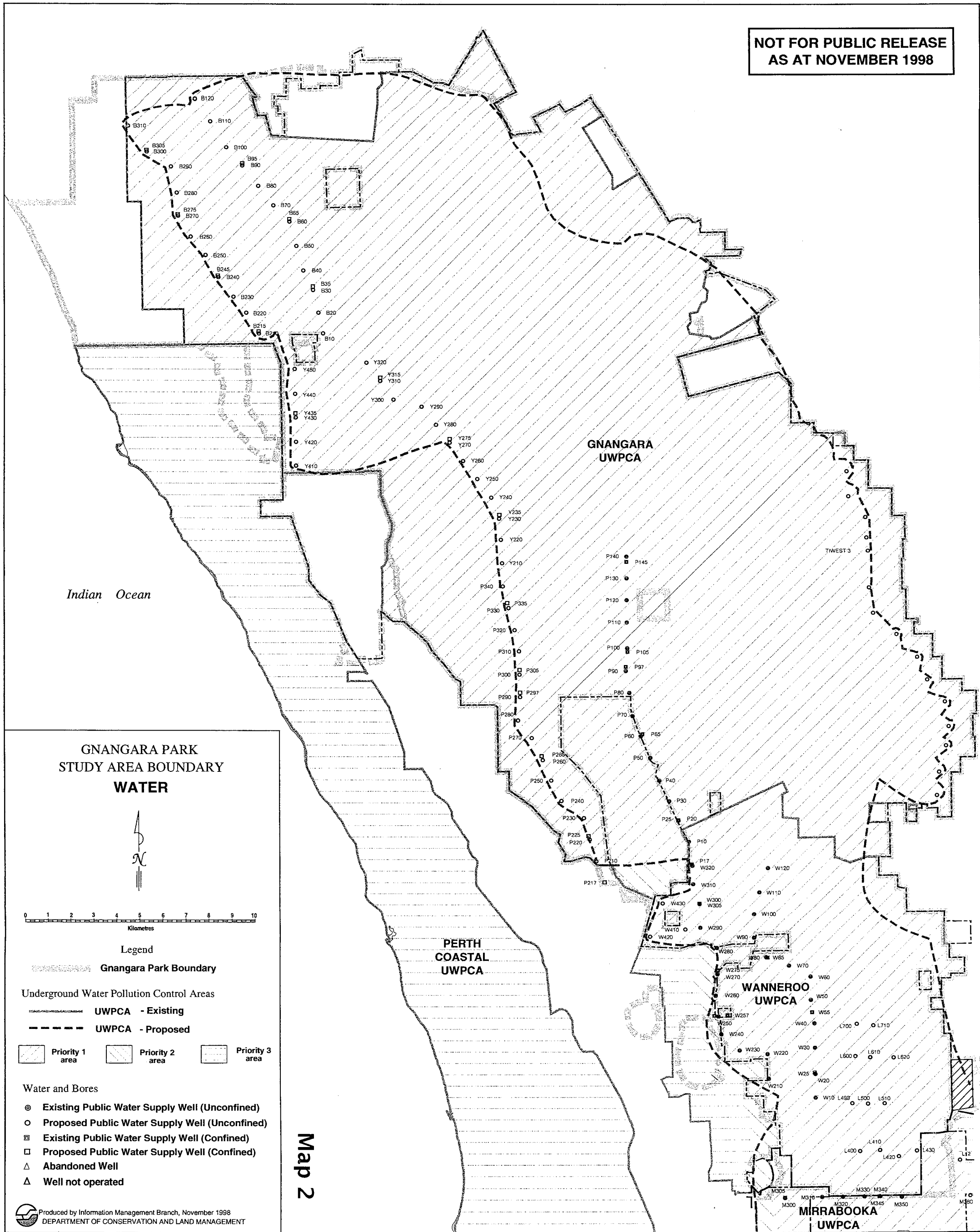
Gnangara Technical Working Group
Department of Conservation and Land Management



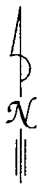
November 1998
Scale 1:200,000



**NOT FOR PUBLIC RELEASE
AS AT NOVEMBER 1998**



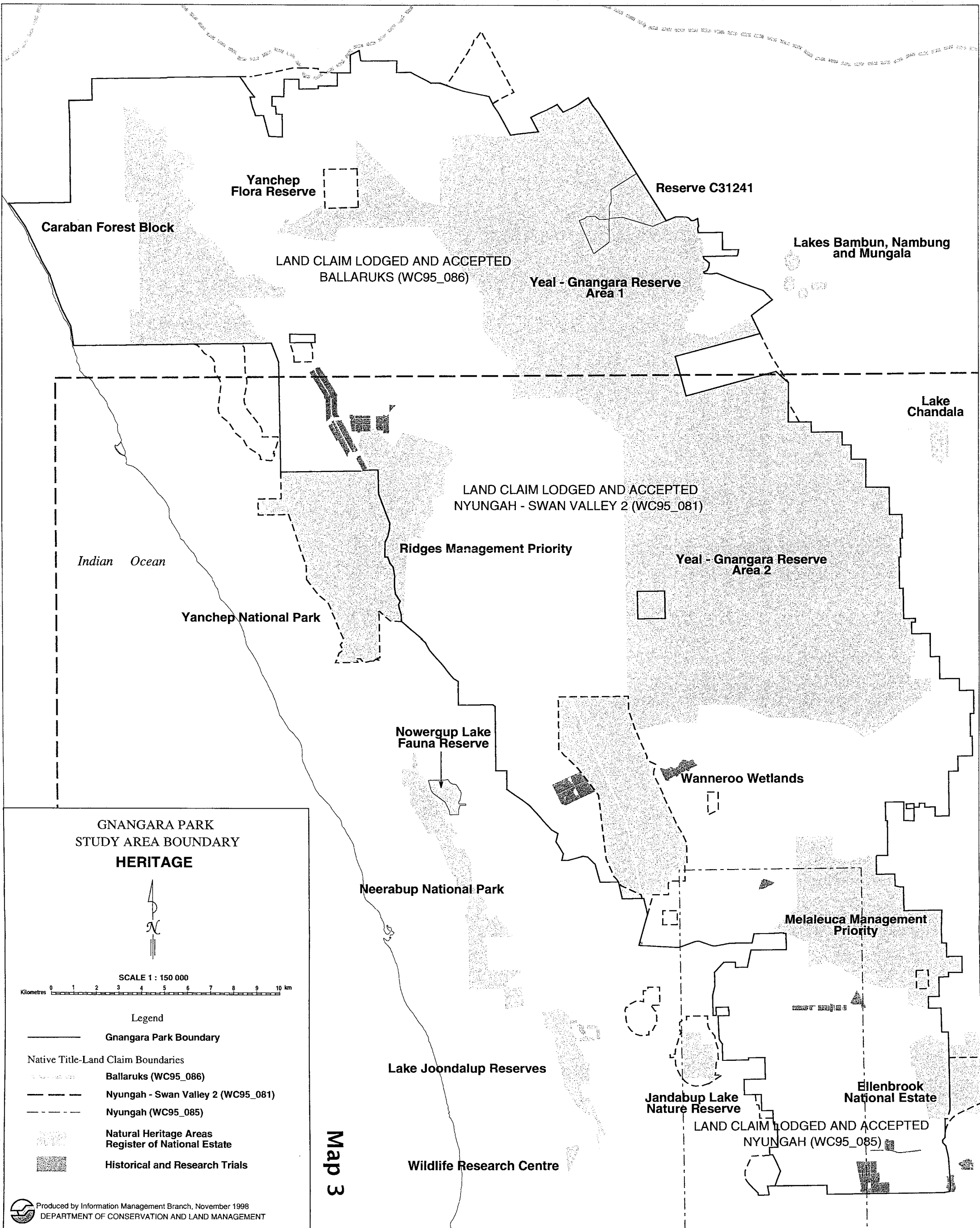
**GNANGARA PARK
STUDY AREA BOUNDARY
WATER**



Legend

- Gnangara Park Boundary**
- Underground Water Pollution Control Areas**
- UWPCA - Existing**
- UWPCA - Proposed**
- Priority 1 area**
- Priority 2 area**
- Priority 3 area**
- Water and Bores**
- Existing Public Water Supply Well (Unconfined)**
- Proposed Public Water Supply Well (Unconfined)**
- Existing Public Water Supply Well (Confined)**
- Proposed Public Water Supply Well (Confined)**
- Abandoned Well**
- Well not operated**

Map 2



Yanchep
Flora Reserve

Reserve C31241

Caraban Forest Block

Lakes Bambun, Nambung
and Mungala

LAND CLAIM LODGED AND ACCEPTED
BALLARUKS (WC95_086)

Yeal - Gnanagara Reserve
Area 1

Lake
Chandala

LAND CLAIM LODGED AND ACCEPTED
NYUNGAH - SWAN VALLEY 2 (WC95_081)

Indian Ocean

Ridges Management Priority

Yeal - Gnanagara Reserve
Area 2

Yanchep National Park

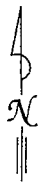
Nowergup Lake
Fauna Reserve

Wanneroo Wetlands

Neerabup National Park

Melaleuca Management
Priority

GNANGARA PARK
STUDY AREA BOUNDARY
HERITAGE



SCALE 1 : 150 000

Kilometres 0 1 2 3 4 5 6 7 8 9 10 km

Legend

— Gnanagara Park Boundary

Native Title-Land Claim Boundaries

Ballaruks (WC95_086)

Nyungah - Swan Valley 2 (WC95_081)

Nyungah (WC95_085)

Natural Heritage Areas
Register of National Estate

Historical and Research Trials

Map 3

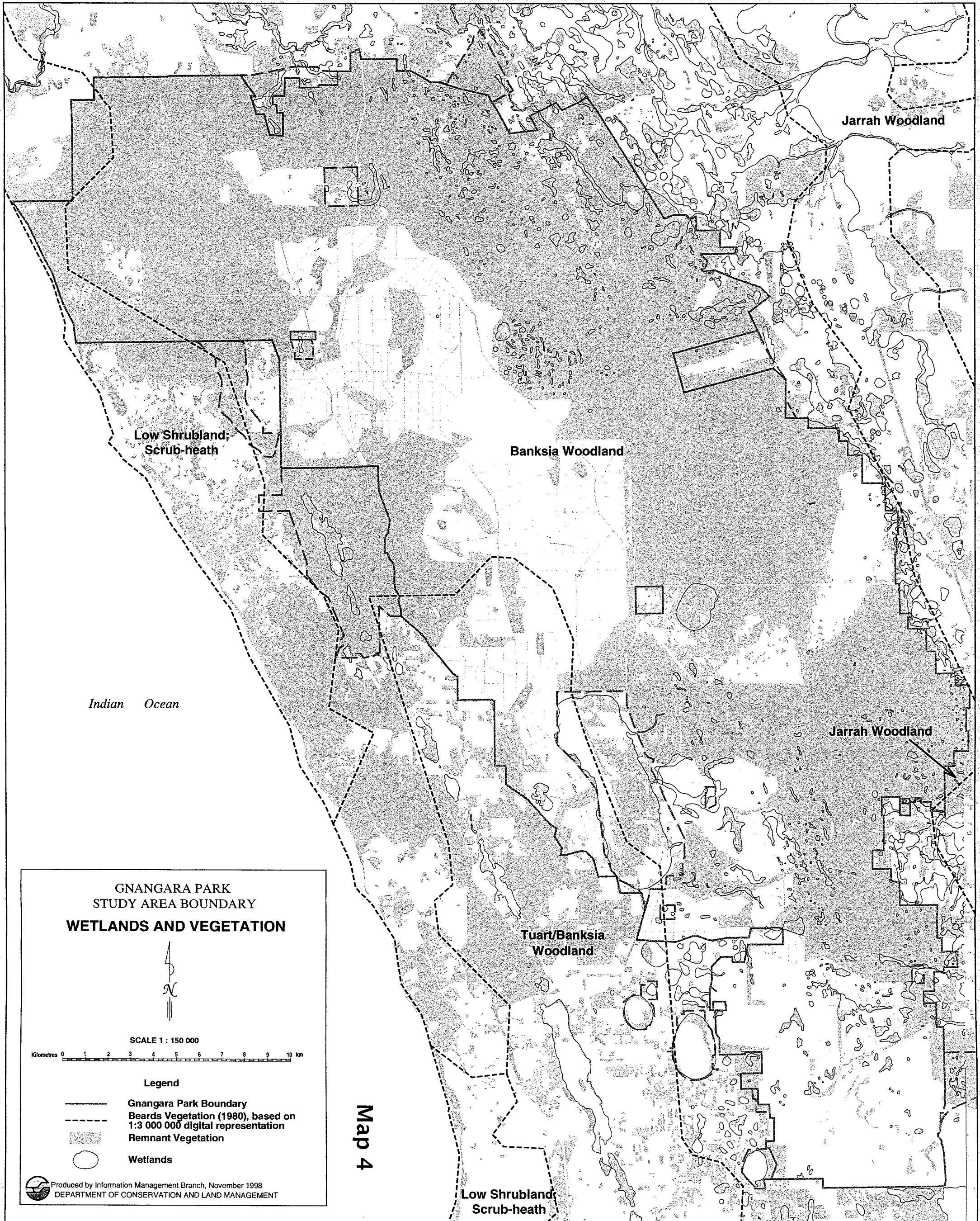
Lake Joondalup Reserves

Jandabup Lake
Nature Reserve

Ellenbrook
National Estate

LAND CLAIM LODGED AND ACCEPTED
NYUNGAH (WC95_085)

Wildlife Research Centre



Jarrah Woodland

Low Shrubland;
Scrub-heath

Banksia Woodland

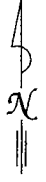
Indian Ocean

Jarrah Woodland

Tuart/Banksia
Woodland

Low Shrubland;
Scrub-heath

**GNANGARA PARK
STUDY AREA BOUNDARY
WETLANDS AND VEGETATION**



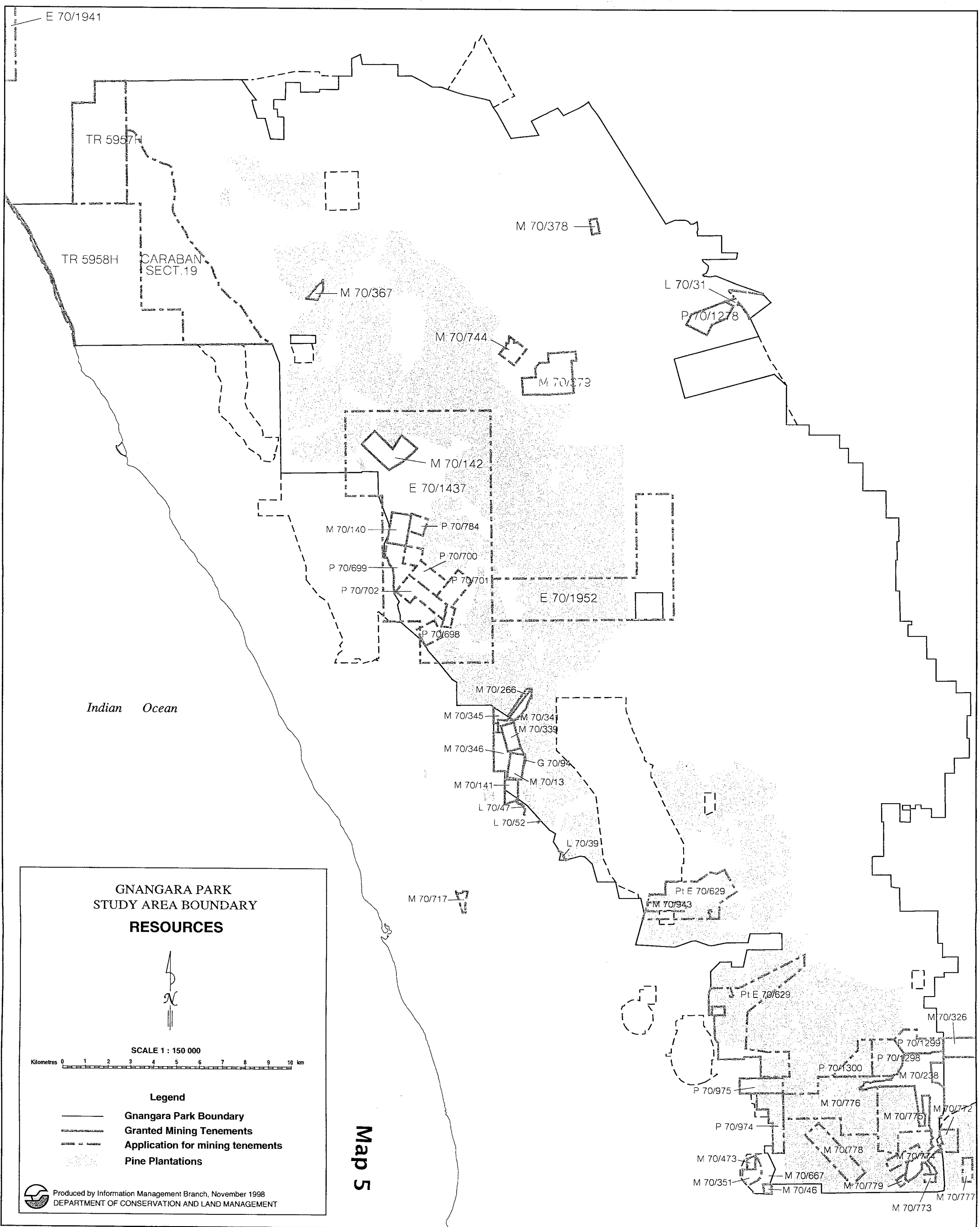
SCALE 1 : 150 000



Legend

-  Gnanagara Park Boundary
-  Beards Vegetation (1980), based on 1:3 000 000 digital representation
-  Remnant Vegetation
-  Wetlands

Map 4



**GNANGARA PARK
STUDY AREA BOUNDARY
RESOURCES**



SCALE 1 : 150 000

Kilometres 0 1 2 3 4 5 6 7 8 9 10 km

Legend

- Gnamagara Park Boundary**
- Granted Mining Tenements**
- Application for mining tenements**
- Pine Plantations**

Map 5

GNANGARA PARK ... PRELIMINARY CONCEPT PLAN ... FINAL DRAFT

Addendum...

The following issues will be addressed prior to public release of the plan:

1. pg. 3 Locality Plan ... include Yellagonga Regional Park boundary
Fix up Future Nature Reserve boundary.
Insert road from Neaves Rd to Muchea.
Labeled Lake Pinjar area as Planning Control Area 29.
Included private land in the park as Other Areas of Influence.
2. pg. 5 Planning Framework...Yanchep National Park removed from 1st para.
3. pg. 7 Future Planning ... 2nd para. last sentence changed to "The issue of private land will be addressed in the GLUWMS."
Future Planning...last para. 1st sentence changed to something like "A new Environmental Protection Policy is being prepared by the Department of Environmental Protection, as well as a Statement of Planning Policy by the Ministry for Planning, to guide land use decision-making." The 3rd sentence starting "Collectively..." will be removed.
4. pg. 12 Water Protection ... 3rd para. "for example" to be replaced with "and".
5. pg. 14 Mining Industry ... title will be changed to "Mining and Basic Raw Materials".
6. pg. 15 Mining ... 2nd para., last sentence, the sentence will include the title of the "Basic Raw Materials" policy.
Mining Issues, 3rd point will read "Conservation of remnant vegetation and wetlands."
7. pg. 16 Wildflower Industry Issues, 2nd point will have a footnote saying "The ultimate purpose of land vested in Gnangara Park will control wildflower picking."
Wildflower Industry ... issues remove "Impact on water quality."
8. pg. 17 Beekeeping Issues, 3rd point ... Change 2nd sentence to "Guidelines aimed at water quality protection are being developed by the WC and WRC in consultation with Beekeepers and CALM to minimise these impacts."
9. pg. 23 Protection ... point 7 ... will be reworded to "Ensure that any new species introduced in specific landscape and amenity areas of the revegetation program will not cause..."
10. pg. 24 Pine Removal ... the points in this section will be replaced with the following:
 1. Harvest commercial plantations by thinning and clearfelling as determined by timber supply requirements and best silvicultural practice. Areas will be revegetated according to primary use as identified in revegetation plans.

2. In some cases, thinning to a low density of pines to allow a healthy understorey of native vegetation in parklands for landscape and recreation use may be appropriate.
3. Manage plantation density to increase, or protect existing, nature conservation values in specified areas, i.e. wetlands, to favour understorey, provide water to cave streams etc.
4. Retain selected stands of pine for research and education, for historical value and landscape protection.
5. Prepare harvest plans that maintain supply to meet CALM's contractual commitments and ensure best return to the State for its investment in plantations.
6. Research revegetation techniques by using small trial clearfell areas. If possible, clearfell only small areas until such techniques are finalised.
7. Harvest to meet the requirement of water resource management, i.e. balancing the benefit of extra water for nature conservation and for abstraction purposes. This should be in accordance with relevant Environmental Protection Policies and Ministerial conditions.

11. pg. 24 Revegetation, point 1.a. add in sentence like "Use local provenance seed."
12. pg. 25 Revegetation, point 1.c. ... Add sentence like "Ensure that any non-local species are non-invasive."
13. pg. 26 Fauna Management ... include new point to read "Consider opportunities to create new habitat for the Western Swamp Tortoise to assist with the recovery of this threatened species."
14. pg. 30 Access, point 9 ... change the end of the sentence to "ensure that the values and objectives of the park are taken into account."
15. pg. 30 Enjoyment/Recreation, point 4 ... reword end of sentence to read "in areas that are sustainable and are consistent with groundwater protection objectives of this plan."
Point 11 ... remove "with each other" from 2nd sentence.
16. pg. 34 Identity ... images of the new logo's developed by CALM may be included if appropriate.
Identity, point 2 ... reword to "Investigate a new name for the Park (other than Gngangara Park) so that it reflects the entirety of the Park and assists in promoting a new image and identity. This is in response to the Park being much larger than the Gngangara locality and the negative image that is currently associated with the Gngangara plantation area."
17. pg. 39 Zone 1, Nature Conservation, point 2 ... reword to something like "Rehabilitate the pine areas for mainly landscape and amenity values. As the area is highly modified, the revegetation program will concentrate on replanting for recreation and landscape purposes as well as protecting and enhancing remnant vegetation and wetlands."

18. pg. 40 Zone 1, Resource Use, point 6 ... change last sentence to "Undertake monitoring to measure the change in groundwater levels resulting from recent harvesting near Lake Gnangara. Use the data for ground water management to assist in restoration of lake values."
Point 8 ... last sentence change to "The Lexia groundwater scheme is being developed in this area."
19. pg. 44 Zone 2, point 9 ... change end of sentence to "...and the possible development of the proposed Muchea Scheme."
Point 12 ... remove "where practicable".
Point 14 ... Change 2nd sentence to "If sensitive areas are identified in VCL, relocate wildflower picking to more appropriate areas."
20. pg. 52 Zone 5, Recreation & Interpretation, point 12 ... change to "Investigate scenic driving opportunities, including 4WD scenic drives, that take into account safety around pine harvesting operations."
21. pg. 53 Zone 6, Nature Conservation, point 5 ... remove whole point.
Point 6 ... Remove 1st sentence.
22. pg. 54 Zone 6, Resource Use, point 14 ... Change last sentence to "If sensitive areas are identified in this area, relocate wildflower picking to more appropriate areas."
23. pg. 57 Conclusion, 3rd para. last sentence ... change "good" to "viable".
24. pg. 58 Recommendations, point 1, 1st sentence ... add "in accordance with the CALM Act."
Point 2 ... include "CALM's" prior to Perth District.
Point 3 ... Change to "Set up a Technical Working Group to deal with planning and management of revegetation, harvesting and groundwater changes. This group will provide advice to the management planning team and day-to-day operational staff. This group will have access to specialist expertise and research as required."
Point 4 ... change to "Establish a mechanism to acquire, accumulate and allocate funds and revenue. This is to ensure there is an appropriate level of resources available to implement and manage the park concept."
25. pg. 73 Appendix 7 ... Timing of Report and GLUWMS will be removed and issues addressed depending on release timing.

The following issues will be addressed on the maps:

Map 1 Preliminary Concept Plan...

1. Maralla Nature Reserve will be labelled as "Future Nature Reserve Indicative Boundaries" and indicative boundaries will be shown (same as on Locality Plan).
2. Yellagonga Regional Park boundaries will be added.
3. Neerabup "National" Park
4. Remove colour in Conceptual Zone in Legend

5. Consider the prominence, or existence of Proposed low-key recreation site off Brand Hwy. Retain in text.
6. Label "Existing Motorcycle Area" at Pinjar.
7. Insert road from Neaves Rd to Muchea.
8. Labeled Lake Pinjar area as Planning Control Area 29.
9. Included private land in the park as Other Areas of Influence.

Map 2 Water

10. Environmental Water Provisions Data will be removed.
11. Depending on coordination of release with GLUWMS, the UWPCA boundaries will be considered.
12. Label "Not for Public Release" to be removed once data is agreed to by WRC and CALM.

Map 4 Wetlands and Vegetation

13. The missing remnant vegetation will be labeled something like "Data Unavailable".
14. Beard titles will be changed to better reflect vegetation types. Note to be added to legend to explain origin of Beard Vegetation data.

Map 5 Resources

15. Missing tenements to be added and differentiation made between Applications and Granted mining leases.