

Department for Environment and Heritage
Lake Gairdner National Park
Management Plan



July 2004



Government
of South Australia

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Lake Gairdner National Park
Management Plan

South Australia

July 2004

***This plan of management has been prepared and adopted
in pursuance of Section 38 of the National Parks and
Wildlife Act 1972***

Published by the Department for Environment and Heritage,
Adelaide, South Australia

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ISBN: 0 75901076 5

Final edited by staff of Reserve Planning and the West Region
Department for Environment and Heritage

Cartography by Reserve Planning

Cover photo: Ross Allen

This document may be cited as Department for Environment and Heritage (2004)
Lake Gairdner National Park Management Plan, Adelaide, South Australia

FIS 17201.04 • June 2004

FOREWORD

This is the first management plan for Lake Gairdner National Park, which lies approximately 150 kilometres North West of Port Augusta. The park, an expansive salt lake, nestles into the rounded foothills of the northern Gawler Ranges and provides a magnificent, scenic experience for visitors.

The park includes natural habitat of high quality and despite being mainly salt lake, supports some significant species of fauna and flora. The absence of any obvious, visual intrusion into the landscape can convey a wilderness experience of the highest aesthetic, social and spiritual value.

This management plan has been prepared and adopted in accordance with section 38 of the *National Parks and Wildlife Act 1972*. As Minister, I have endorsed the contents of this plan after considering all the representations and advice presented to me.

The management plan sets the following broad objectives, to:

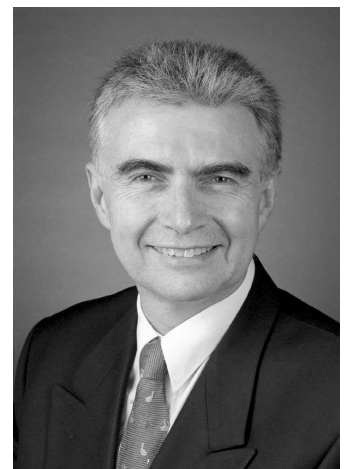
- maintain and protect the park's biodiversity values and natural attributes,
- undertake programs to protect both the physical (geological) and cultural values of the park; in particular, features of geographical, natural or scenic interest, and attributes of historic or scientific interest,
- provide a positive and sustainable visitor experience, with opportunities for interested groups and individuals to gain access to the lake and its unique features, and to promote a high level of community awareness and understanding of the purpose and significance of the park,
- foster, where possible, community involvement, including Aboriginal people with a traditional association with the land comprising the park, in the ongoing management and scientific surveys of the park,

This plan of management is now formally adopted under the provisions of section 38 of the *National Parks and Wildlife Act 1972*. As the responsible minister, I urge you to read this plan and to visit and enjoy Lake Gairdner National Park.



JOHN HILL

MINISTER FOR ENVIRONMENT AND CONSERVATION



SYNOPSIS

PROCLAMATION: The Park was proclaimed in 1991 as the land was considered to be ‘of national significance by reason of the wildlife and the natural features’.

The park is subject to a simultaneous proclamation under section 43(2) of the *National Parks and Wildlife Act 1972* that permits exploration and mining rights to be acquired or exercised under the *Mining Act 1971* or *Petroleum Act 1940*.

APPROXIMATE AREAS:

Total park:	5507 square kilometres
Lake Gairdner:	4349 square kilometres
Lake Everard:	858 square kilometres
Lake Harris:	300 square kilometres
Total number of islands:	315 (excluding rocky outcrops)
Total island area:	166 square kilometres (3% of park area)
Largest island:	48 square kilometres

LOCATION: Lake Gairdner National Park lies approximately 150 kilometres NW of Port Augusta.

SPECIAL VALUES AND CHARACTERISTICS:

- Scenic, aesthetic and wilderness qualities.
- Cultural values for Aboriginal people.
- Special landscape appeal; particularly the scenic, southern areas where Lake Gairdner nestles into the footslopes of the Gawler Ranges.
- Extensive salt lakes, generally without evidence of human impact; controls over public access (by neighbouring landholders) having hitherto prevented haphazard driving on, and around, the salt lake margins.
- Significant geomorphological interest; with attributes not yet fully identified but which may include important fossil or sub-surface features.
- Specialised habitat for plants and animals.
- A geological resource that may have mining potential.
- A regional tourism resource.
- A venue of international-standard for high-speed motor vehicle trials and record attempts.

MAJOR MANAGEMENT GOALS:

- The preservation of biodiversity values and attributes of scientific interest.
- Ongoing, environmentally sustainable public access and commercial use.
- Provision of resource information and the promotion of the public interest.
- Occasional use of the southern portion of the park for environmentally sustainable recreation.
- Investigation of possible land acquisition to provide a reserved buffer to the lake.
- Development of community based, land and tourism management agreements.

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ABBREVIATIONS AND GLOSSARY OF TERMS

- DAARE: Department for Aboriginal Affairs and Reconciliation
- DEH: Department for Environment and Heritage
- GIS: Geographic Information System
- ILUA: Indigenous Land Use Agreement
- IUCN: International Union for Conservation of Nature and Natural Resources (The World Conservation Union)
- PIRSA: Primary Industries and Resources South Australia

ACKNOWLEDGEMENTS

The contribution of contract planner Mike Hinsliff, of Natcon Land Management Services, in compiling the initial draft of the plan is gratefully acknowledged.

The initial input made by persons and groups who responded to the pre-planning call for management suggestions in December 1995 is also acknowledged; as is the valuable contribution made by all those persons and groups who made representations when the draft plan was subsequently placed on public exhibition in January 1997.

1 INTRODUCTION

This management plan for Lake Gairdner National Park has been prepared in accordance with the *National Parks and Wildlife Act 1972*. Section 38 of the Act states that a management plan is required for each reserve under the Minister's control and should 'set forth proposals' in relation to the management and improvement of those reserves and the methods by which it is intended to accomplish the objectives of the Act.

Upon completion of a draft plan, an announcement is made in the *Government Gazette* and the plan is placed on public exhibition for three months. During this period, any interested persons may make submissions. These are then referred, with the draft plan, to an independent review body, the South Australian National Parks and Wildlife Council, for consideration and advice.

The Minister, after considering all representations and advice may then adopt the management plan with or without alteration. Notice of such official adoption is published in the *Government Gazette* and copies of the adopted plan are made available for sale to the public.

Once a management plan has been adopted, its provisions must be carried out, and no operations undertaken unless they are in accordance with the plan. The Act does however, include provision for making amendments to, or substitutions for, adopted plans. That process is similar to the one described above, and includes a statutory period of public exhibition.

This plan has been prepared and adopted following completion of a community consultation process undertaken in accordance with the statutory requirements of the *National Parks and Wildlife Act 1972*. After an initial call for suggestions in 1995 (resulting in 13 submissions) the draft plan was placed on public exhibition in 1997, and a further 15 submissions were received. All of these representations were considered by the South Australian National Parks and Wildlife Council.

The more significant issues referred to in submissions included: use of the park for motor sport, public access, acquisition of a reserved margin adjoining the lakebed, lack of biological information, ecotourism and visitor use, fencing and control of stock intrusion, Aboriginal involvement, native title and mining. In the interval since the draft plan was prepared, an initial biological survey of the islands in Lake Gairdner has been undertaken, significantly increasing our knowledge of the park's natural attributes. As well, mineral exploration has been proposed and a native title claim registered.

The management plan has been amended to address all those issues; defining objectives and outlining strategies and actions considered necessary to manage Lake Gairdner National Park effectively. The plan is intended to provide readers with an overview of park values and an understanding of the management strategies being pursued.

2 MANAGEMENT FRAMEWORK

Management planning is a statutory requirement for all reserves prescribed in s38 of the *National Parks and Wildlife Act 1972* and s31 of the *Wilderness Protection Act 1992*. The management planning process is a small part of a much larger, state-wide hierarchy of management. This is directed at the highest level by state government policies and departmental priorities and implemented, on a day to day basis, at a regional and district level.

Management plans are significant, in that they provide a ministerially endorsed and legally binding framework for the use and management of *National Parks and Wildlife Act 1972* reserves. They are intended to accommodate anticipated trends and community aspirations over a ten year time frame. The legislation anticipates that management plans will be formally reviewed from time to time, but there are no prescribed time limits for this to occur.

DEH regional staff have been assigned primary responsibility for preparing management plans and undertaking the associated community consultation process. A standard management planning process is mandated, to ensure that all statutory obligations are met.

Management plans define what is considered acceptable activity in a reserve while still allowing park managers some flexibility in day to day decision-making. They should be stringent enough to prevent deleterious activities or inappropriate developments taking place, but are not intended to be comprehensive compendiums of resource information, nor heavily prescriptive action statements; other documentation covers those aspects. They do however, identify the key values of reserves, the appropriate utilisation and the major issues of concern requiring action, thereby providing park managers (and the community) with a blue-print of how public land is going to be used and managed.

Each year park managers, taking regional and district priorities into account, draw up work programs to implement some of the actions proposed in management plans. Whether these projects are actually undertaken is determined by, and subject to, the availability of resources (eg staffing and funding) and to any requirements of the Minister for Environment and Conservation and the department's Chief Executive, who take a state-wide overview in setting departmental priorities and allocating resources.

2.1 Park Classification

Parks are established for the conservation of biodiversity and cultural heritage and the environmentally responsible use of our natural resources. The classification of parks provides a general statement of purpose for which the area was acquired.

Classifications under the *National Parks and Wildlife Act 1972*, the *Crown Lands Act 1929* or the *Wilderness Protection Act 1992* are as follows:

Recreation Parks (RP) - areas of significance under the *National Parks and Wildlife Act*, managed for public recreation and enjoyment in a natural setting;

National Parks (NP) - areas proclaimed under the *National Parks and Wildlife Act* considered to be of national significance due to wildlife, natural features of the land or cultural heritage;

Conservation Parks (CP) - areas under the *National Parks and Wildlife Act* that are protected for the purpose of conserving wildlife or the natural or historic features of the land, where the development of visitor facilities tends to be kept to a minimum;

Game Reserves (GR) - areas set aside under the *National Parks and Wildlife Act* for the conservation of wildlife and the management of game at prescribed times for controlled seasonal hunting;

Regional Reserves (RR) - areas proclaimed under the *National Parks and Wildlife Act* for the purpose of conserving wildlife or natural or historical features while allowing responsible use of the area's natural resources (ie. mining);

Conservation Reserves (CR) - land currently set aside for conservation of natural and cultural features under the *Crown Lands Act* and held under the care, control and management of the Minister for Environment, that for various reasons were not proclaimed under the *National Parks and Wildlife Act*;

Wilderness Protection Areas (WPA) - land set aside under the *Wilderness Protection Act* to protect natural and remote areas.

2.2 Government Policy and Legislation

When managing reserves, DEH is required under section 37 of the *National Parks and Wildlife Act 1972* to have regard to, and undertake actions that are consistent with, the following objectives as stated in the Act:

- preservation and management of wildlife;
- preservation of historic sites, objects and structures of historic or scientific interest within reserves;
- preservation of features of geological, natural or scenic interest;
- destruction of dangerous weeds and the eradication or control of noxious weeds and exotic plants;
- control of vermin and exotic animals;
- control and eradication of disease of animals and vegetation;
- prevention and suppression of bush fires and other hazards;
- encouragement of public use and enjoyment of reserves and education in, and a proper understanding and recognition of, their purpose and significance; and
- generally, the promotion of the public interest.

Additional legislation, conventions and agreements that DEH is obliged to comply with are listed in Appendix B.

2.3 Native Title

Native Title is used to describe the interests Aboriginal and Torres Strait Islander People have in land and waters according to their traditional laws and customs. Federal legislation, in the form of the *Native Title Act 1993*, was enacted to:

- provide for the recognition and protection of native title;
- establish ways in which future dealings affecting native title may proceed and to set standards for those dealings;
- establish a mechanism for determining claims to native title; and
- provide for, or permit, the validation of past acts, and intermediate period acts, invalidated because of the existence of native title.

Any development proposed for a reserve must be valid in terms of the *Native Title Act 1993*.

This reserve is subject to a claim for a determination of native title by the Gawler Ranges Native Title Claim SC97/007. A ‘determination’ is a decision made by the courts as to who holds native title for an area.

Although Lake Gairdner National Park is within the much larger area of land subject to a claim for a determination of native title, any native title which may have existed over the area of the park has been suppressed by virtue of the land being proclaimed as a National Park in 1991. However, regardless of native title status, DEH is committed to developing partnerships with Aboriginal people in accordance with the provisions of the *National Parks and Wildlife Act 1972* (SA).

2.3.1 Land Tenure History

Throughout its recorded history, the land constituting the park (Sections 1531, 1533 and 1534, North Out of Hundreds) has been Crown land.

2.4 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) represents a fundamental reform of former Commonwealth environment laws. The Act establishes a new Commonwealth approval process for assessment of proposed actions that are likely to have a significant impact on matters of national environmental significance and provides an integrated system for biodiversity conservation and management of important protected areas.

Matters that require assessment and approval of proposed actions under the EPBC Act 1999 are:

- any action that has, will have or is likely to have a significant impact on the following identified matters of national environmental significance:
 - World Heritage properties
 - Ramsar wetlands of international significance
 - Nationally listed threatened species and ecological communities
 - Listed migratory species
 - Commonwealth marine areas
 - Nuclear actions (including uranium mining)
- any activity involving Commonwealth land that has, will have, or is likely to have a significant impact on the environment.

With regard to Lake Gairdner National Park there are currently no known matters of national environmental significance that influence park management, however, over time such matters may arise. Commonwealth approval is required for any action that has, will have or is likely to have a significant impact on matters of national environmental significance in addition to any State approval that may be required.

3 MANAGEMENT CONTEXT

3.1 Purpose of Reserve

Lake Gairdner National Park was proclaimed in 1991 because the land was considered to be ‘of national significance by reason of the wildlife and the natural features’. The park conserves one of South Australia’s salt lake systems and includes Lakes Gairdner, Everard and Harris.

IUCN Classification

Lake Gairdner National Park is recognised as an IUCN category Ia ‘Strict Nature Reserve’, an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Management of Lake Gairdner National Park will be consistent with the following IUCN Category Ia objectives of management:

- to preserve habitats, ecosystems and species in as undisturbed a state as possible;
- to maintain genetic resources in a dynamic and evolutionary state;
- to maintain established ecological processes;
- to safeguard structural landscape features or rock exposures;
- to secure examples of the natural environment for scientific studies, environmental monitoring and education, including baseline areas from which all avoidable access is excluded;
- to minimise disturbance by careful planning and execution of research and other approved activities; and
- to limit public access.

3.2 Location and Park Features

Lake Gairdner National Park lies approximately 150 kilometres NW of Port Augusta. The park includes Lake Gairdner, Lake Everard and Lake Harris in their entirety.

The park complements the State’s other large, inland salt lakes (Lakes Eyre, Torrens and Frome) that are also reserved. The park boundary, plotted from aerial photography, follows the edge of the lakes proper and encompasses an area of 5507 square kilometres. It is located on the northern side of the Gawler Ranges where, nestled into the rounded foothills, it gives rise to spectacular scenery that is very different to the other large salt lakes.

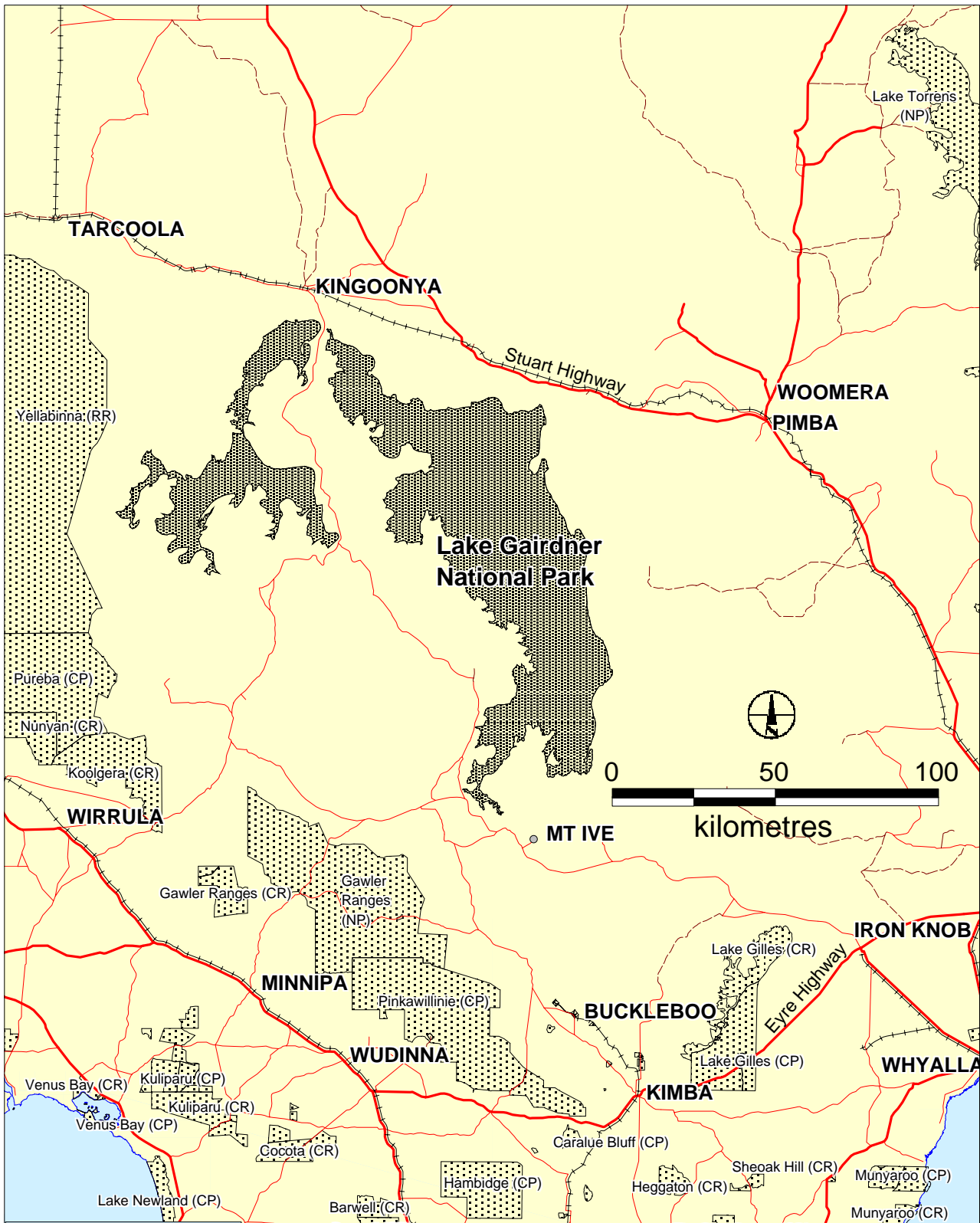
The absence of any significant or enduring man-made intrusions into the landscape can reward visitors with a wilderness experience of the highest aesthetic, social and spiritual quality.

Fourteen pastoral leases, held as eight separate properties, surround the park and access to the lake itself is only possible through pastoral-lease land. Public access to the general vicinity of the park is via two maintained but unsealed roads. One from Glendambo on the Stuart Highway, passes between Lake Gairdner and Lakes Everard and Harris. The other road from Iron Knob on the Eyre Highway runs west through the Gawler Ranges, connecting with the Kingoonya Road near Mount Ive and rejoining the Eyre Highway at either Minnipa or Wirrulla.

The majority of park visitors access Lake Gairdner National Park through Mount Ive Station, on the southern side of the park. This pastoral property provides visitor accommodation and store facilities as part of a small tourism venture.

The physical conditions of the lake are particularly suitable for motor sport timed speed trials and, to date, environmental impact has been minimal.

A new public access route was gazetted in 2002, running from the Kingoonya Road to the southwestern arm of the Park. This route does not provide vehicle access to the lakebed, but is intended to provide for day visitors wishing to view the park from the proposed lookout, or explore the park on foot.








-  DEH Reserve
-  Lake Gairdner National Park
-  Main Road
-  Road
-  Railway

Figure 1

Lake Gairdner National Park
Location

Map created by
Reserve Planning
using PAMS 2004



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Relatively little is known about the physical, biological and cultural resources of the park or the mechanisms that drive the (presumed) simple aquatic food chains. None the less, the range of environmental associations represented therein is worthy of protection.

At the time of its dedication in 1991, the park was also proclaimed under section 43(2) of the *National Parks and Wildlife Act 1972*. This 'joint proclamation' permits exploration and mining rights to be acquired and exercised under the *Mining Act 1971* or the *Petroleum Act 1940*. Gaining the approval of the Minister for Environment and Conservation is necessary before new mining rights are acquired. While such approval is not required for the exercise of any rights held under the *Petroleum Act* immediately before proclamation, there were no petroleum tenements in that category.

Mining exploration work can only take place under environmental guidelines set by the Minister for Environment and Conservation, and mining companies operating in the park must have regard to the provisions of this management plan.

3.2.1 Climate

Lake Gairdner and the northern Gawler Ranges generally, experience hot, dry summers and mild and occasionally wet winters. Rainfall can be erratic and may fall at any time during the year. Summer rainfall is frequently a result of thunderstorm activity.

Annual average rainfall decreases from about 270 mm near the southern boundary of the park, to about 190 mm near the northern boundary.

Average annual evaporation from the lake surface is approximately 2000 to 2500 mm.

Near the park, the average summer day maximum temperature is 33°C, while the winter day maximum temperature averages 18°C. Average daily minimums are 16°C for summer and 5°C for the winter months. Winds are predominantly from the southwest from May though to September, and from the south from October to May, however hot, northerly winds regularly affect the region during summer.

3.3 Regional Setting

The Interim Biogeographic Regionalisation of Australia (IBRA) provides a bioregional planning framework within which to identify the gaps and to set priorities for developing the National Reserve System. IBRA regions represent a landscape-based approach to classifying the land surface from a range of continental data on environmental attributes (Environment Australia 2000). Lake Gairdner National Park is located in the Gawler IBRA Region. IBRA regions can be further divided into subregions and hence the Park is located in the Gawler Lakes subregion.

The park includes portions of 16 Environmental Associations (Figure 2), according to Laut *et al* (1977), as follows:

Gairdner Environmental Association

Playa lake occupying a tectonic depression. Vegetation consists of low samphire shrubland and tall open shrubland over chenopods. The park conserves 92.84% of this association and it is not represented in any other protected area.

Everard Environmental Association

Salt lakes with gypsum dunes. Vegetation consists of low samphire shrubland and tall shrubland with a chenopod shrub understorey. The park conserves 86.87% of the association and it is not represented in any other protected area.

Given that the edge of the salt lakes largely determines the park boundary, it is obvious that the majority of the park consists of Gairdner and Everard Environmental Associations. However, the very numerous islands in the lakes and some land around their margins, encompass a variety of other environments, including:

Fyne Environmental Association

Plain with irregular dunes and lakes or pans. Vegetation consists of low chenopod shrubland, tall open woodland over chenopods, open mallee scrub and samphire shrubland. The park conserves only 5.21% of the association, but it is well represented (31.05%) in Yellabinna Regional Reserve.

Waulalumbo Environmental Association

Plain with isolated low hills and dunes. Vegetation consists of tall open shrubland and low woodland with a mixed chenopod-grass understorey and low mixed chenopod shrubland. The park conserves only 1.77% of the association and it is represented in no other protected area.

Paltrubie Environmental Association

Undulating plain and hills on volcanics. Vegetation consists of tall open shrubland and low woodland with a mixed chenopod shrub and grass understorey, low chenopod shrubland and low samphire shrubland. The park conserves only 1.7% of the association and it is represented in no other protected area.

Harper Environmental Association

Hills with long footslopes. Vegetation consists of tall shrubland and low open woodland with a chenopod shrub understorey. The park conserves only 1.12% of the association and it is represented in no other protected area.

Mahanewo Environmental Association

Undulating plain with dunes and low silcrete-capped rises. Vegetation consists of low chenopod shrubland and low open woodland, open woodland and tall open shrubland with an understorey of chenopod shrubs. The park conserves only 0.76% of the association and it is represented in no other protected area.

Chitaminga Environmental Association

Hills with long dissected footslopes. Vegetation consists of low open woodland and tall shrubland with mixed chenopod shrub-grass understorey. The park conserves only 0.75% of the association and it is represented in no other protected area.

White Elephant Environmental Association

Undulating plain overlain by sand sheets and dunes, with occasional silcrete-capped rises. Vegetation consists of tall open shrubland, low woodland with a chenopod shrub understorey and low chenopod shrubland. The park conserves only 0.36% of the association and it is represented in no other protected area.

Wipipipee Environmental Association

Undulating plain with parallel dunes. Vegetation consists of low open woodland and woodland with an understorey of chenopod shrubs and open mallee scrub. The park conserves only 0.26% of the association and it is represented in no other protected area.

Labyrinth Environmental Association

Elongated depression with salt lakes. Vegetation consists of tall open shrubland and low open woodland with a chenopod shrub understorey. The park conserves only 0.22% of the association and it is represented in no other protected area.

Gawler Environmental Association

Steeply rounded concordant hills and long footslopes, separated by broad floodplains. Vegetation consists of low open woodland with open shrub understorey, low mixed chenopod shrubland and herbaceous vegetation. The park conserves only 0.18% of the association, with Gawler Ranges National Park the only other protected area conserving a portion of this association (7.4%).

Acraman Environmental Association

Low lying tract with dunes, salt lakes and isolated low hills on volcanics. Vegetation consists of low open woodland and woodland with a mixed chenopod shrub understorey, low samphire shrubland and open mallee scrub. The park conserves only 0.06% of the association, but it is well conserved (21.32%) in Yellabinna Regional Reserve and Yumbarra Conservation Park.

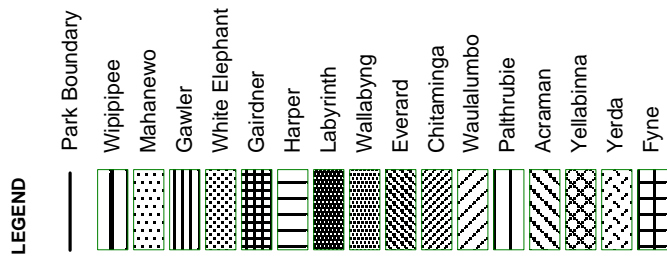


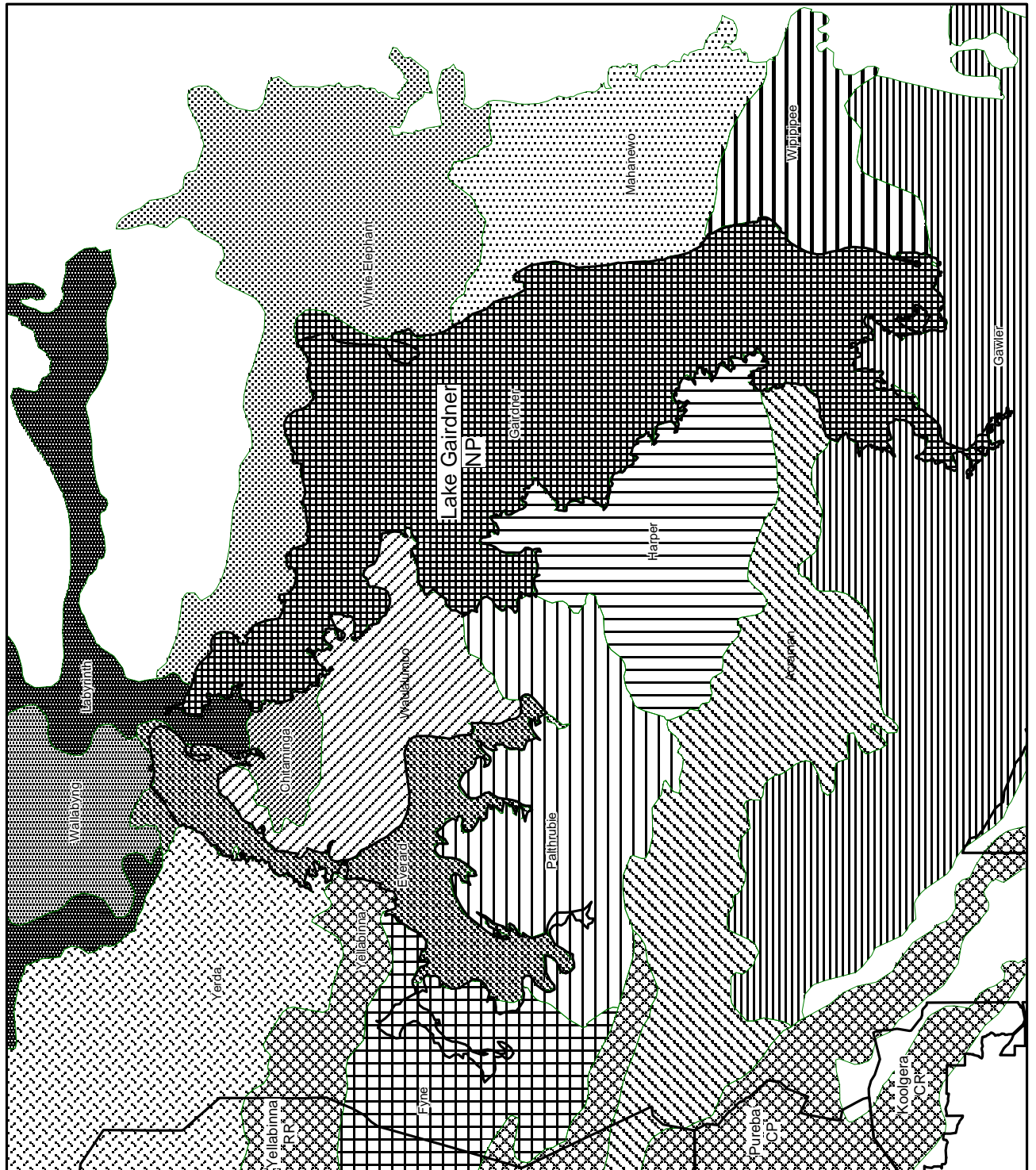
Figure 2

Lake Gairdner National Park
Environmental Associations

Map produced by Reserve Planning
Using PAMS 2004
Projection GDA94



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Wallabyng Environmental Association

Gently undulating sandstone plain with low hills capped by silcrete. Vegetation consists of low chenopod shrubland and tall shrubland with a chenopod shrub understorey. The park conserves only 0.06% of the association and it is represented in no other protected area.

Yerda Environmental Association

Undulating plains and low hills on outcropping shales and sandstones. Vegetation consists of tall shrubland with a chenopod shrub understorey, low woodland with a mixed shrub-grass understorey and low samphire shrubland. The park conserves only 0.01% of the association, but it is also conserved (13.25%) in Yellabinna Regional Reserve.

Yellabinna Environmental Association

Plains with closely spaced dunes. Vegetation consists of open mallee scrub with a chenopod shrub or grass understorey. The park conserves only 0.0002% of the association, but it is very well represented (55.85%) in Yellabinna Regional Reserve, Yumbarra Conservation Park and Conservation Reserve, Pureba Conservation Park and Conservation Reserve, Nullarbor Regional Reserve, Koolgera Conservation Reserve and Nunnyah Conservation Reserve.

Surrounding Land and Park Access

Lake Gairdner National Park straddles the boundary between the Kingoonya and Gawler Ranges Soil Conservation Districts and is surrounded by pastoral properties. The vegetation of surrounding properties receives a measure of protection under the *Pastoral Land Management and Conservation Act 1989*, consisting of regular monitoring and management of grazing pressure. These pastoral properties provide stepping stones or links that assist with movement of species, improved genetic diversity and greater ecosystem sustainability.

The majority of the park remains remote from access, and the relatively few visitors generally gain access to Lake Gairdner through Mount Ive Station on the southern side of the park, although visitors may now enter the Park via the recently gazetted public access route from the Kingoonya Road (Figure 3). Mount Ive provides accommodation and store facilities as part of a small ecotourism venture. With the exception of motor sport participants and observers, most visitors come to the park to experience the scenic, wilderness qualities offered by the lake. The regional tourism industry delivers a small number of ecotourism parties to the park in 4WD vehicles, usually via Mount Ive Station, but occasionally through other pastoral properties. Recreational visitation is expected to increase in future, due to the establishment of Gawler Ranges National Park, less than 50 kilometres to the south.

3.4 History of Park Management

The lessees of Mount Ive Station held a recreation licence from DEH for those areas of the park located south of latitude 32° S until 1997. The licence permitted the lessees to conduct recreational activities, subject to conditions for appropriate environmental management. The most significant activity permitted under the terms of the recreational licence was the conduct of motor sport timed speed trials and, from time to time, providing access and basic, on-site accommodation for the various syndicates attempting to set world land speed records.

Since dedication in 1991, DEH has concentrated primarily on managing motor sport, land speed record attempts and the film crews (from advertising firms) using the southwestern arm of the lake. This has involved liaising with the managers of neighbouring pastoral properties, without whose cooperation public access could not have been managed, nor the integrity of the park maintained.

DEH has also responded to applications for mining tenements and Declarations of Environmental Factors, relating to proposals to carry out mineral exploration on the lake. To date however there has been no on-ground exploration work undertaken.

3.5 Existing Management Arrangements

Although the previous recreational licence was not renewed, Mount Ive Station continues to provide regional tourist accommodation and manages a permit system for visitors gaining access to the park through that particular pastoral lease.

Apart from obtaining permission to travel through pastoral properties, before venturing into the park (ie onto the lakebed) with motor vehicles, visitors must also obtain an appropriate permit from DEH. The majority of visitors however, would not wish to drive on the lake, and DEH does not encourage this activity.

There are no built structures or formal visitor services in the park. DEH staff visit regularly on routine patrols, but there is no ranger present on a daily basis.

3.6 Management Philosophy & Strategic Directions

The role of reserves is predicated by the twin aims of the *National Parks and Wildlife Act 1972*; to provide for public benefit and enjoyment and to conserve wildlife in a natural environment. Increasingly, the importance of biodiversity conservation is being recognised and the future use and management of reserves must address this issue. Proposed actions will need to be assessed with the ability to meet the primary objective of biodiversity conservation, which may result in public use becoming regulated to serve that aim.

DEH must optimise the use of the limited resources available for the conservation and maintenance of reserves, with priorities set on a statewide and then regional perspective. Within the West Region, most resources are allocated to the maintenance of areas of relatively intact, biologically-diverse habitat containing species or communities of state or national significance, and to locations receiving heavy, concentrated public use. When resources are allocated for annual work programs, Lake Gairdner National Park has to compete with other parks and regional projects that may be deemed to be of higher priority.

The vision for Lake Gairdner National Park is a park, valued and managed by the community for its biodiversity, visual amenity, historical and recreational values. To achieve this vision, DEH is keen to explore the possibility of partnership arrangements with agencies and organisations that have a legitimate interest in the management of this park. DEH recognises the importance of community and volunteer organisations and will continue to provide ongoing support and assistance, where possible.

4 MANAGEMENT PRESCRIPTION

4.1 Zoning

Background

Section 39 of the *National Parks and Wildlife Act 1972* provides for the designation of zones in a reserve and constrains the use of land in those zones to the conditions specified in an adopted management plan. Zoning aims to ensure that public use and management actions remain compatible with the protection of park values.

A zoning plan has been developed to facilitate the provision of visitor experiences and recreation opportunities, while safeguarding the biodiversity, wilderness and general scenic values and features for which the park was constituted.

The management zones described below and shown in Figure 3, establish a framework for the sustainable use of the reserve during the life of this plan.

Controlled Vehicle Access Zone

The Controlled Vehicle Access Zone allows for the continued use of the southwestern arm of Lake Gairdner for motor sport and 4WD ecotourism purposes (under permit). It includes that part of the western arm of the lake below 32° south latitude where the salt crust is thickest and most stable. Pedestrian access is, of course, permitted in this zone but caution is urged.

Wilderness Protection Zone

The remainder of the park will be managed as Wilderness Protection Zone to maintain or enhance its wilderness qualities, in accordance with the principles outlined in the *Wilderness Protection Areas and Zones of South Australia - Code of Management* (Appendix A).

No vehicles will be permitted on the lake surface in this zone, other than those used at the discretion of DEH and any such use will be kept to a minimum. Access by the public, on foot, is permitted within the Wilderness Protection Zone.

4.2 Natural Heritage

4.2.1 Geology and Landform

Background

The following Geology and Landform information has been summarised from Robinson *et al.*, 1988, Tynan 1995 and Tutty 1993.

Lake Gairdner National Park is located on the Gawler Craton, an ancient and stable landmass that has not been subject to major tectonic activity for over 1000 million years. The Gawler Craton stretches from near Tarcoola in the north, to the tip of Eyre Peninsula in the south, and was formed as a result of volcanism and igneous activity over a period of 1100 million years. The orogenic (mountain-building) activity had ceased approximately 1580 million years ago but was followed by a period of vulcanism and ash and lava flows.

These extrusions, now called the Gawler Ranges Volcanics, occurred over an area of 25,000 square kilometres about 1525 million years ago. The Gawler Ranges Volcanics underlie and form the elevated southern and western boundaries of the park. A later extrusion of Hiltaba Granite took place about 1480 million years ago.

The rocks are acidic, often fine grained and classified as rhyolite to dacite. The cooling history of some of the lava flows is complex, with both fast and slow periods of cooling giving rise to both large and small crystal sizes in the porphyritic dacites and rhyodacites. The thickness of the extruded Gawler Ranges Volcanics was estimated by Blissett (1975) at 1500 m.

To the east of the park, sediments associated with the Adelaide Geosyncline overlay the Gawler Ranges Volcanics, including the sandstones of the Pandurra Formation, while Cretaceous sandstones of the Cadna-Owie Formation lie on the north shore of Lake Gairdner.

Along the western side of Lakes Everard and Gairdner, the Gawler Ranges Volcanics are overlain by Quaternary aeolian sands derived from, and an extension of, the inland dune fields of the Great Victoria Desert. This long northwest/southeast trending tongue of vegetated dunes re-occurs on the eastern side of Lake Gairdner.

Long periods of weathering have eroded the ranges along typically vertical jointing and established trellis drainage patterns. This structural control of the drainage pattern may also have been caused or accentuated by ring faulting from the impact of the Lake Acraman meteorite, estimated to have had a four-kilometre diameter (Williams, quoted in Robinson *et al* 1988).

During periods of uplift and higher rainfall, deep valleys were carved into the porphyritic rocks and the drainage system ran deep into the interior of the continent. As the climate changed and rainfall diminished, the elongated river valleys began to fill with sediments. This process continued until the drainage system was infilled and only the tops of the rounded porphyry hills rose above the land surface. The depth of sediments in the valleys has been estimated at 60 m (Garrett 1973). This process of infilling led to the formation of the modern Lake Gairdner.

Today, the drainage pattern is localised, with intermittent streams carrying relatively small amounts of rainfall to the lake. It should be noted that the lake does not receive its salt inflow from surface drainage but from saline groundwater which, through evaporation, deposits sodium chloride (salt) and calcium sulphate (gypsum) at the lake surface.

The surface composition of Lake Gairdner varies considerably. Generally, the lakebed is made up of gypsiferous muds, clays and silts with some gypsum crystals. A layer of salt crust, mostly from 30 mm to 75 mm thick covers this. This crust, however, can range in thickness from a few centimetres to over one metre, although in the northern third of Lake Gairdner and also in parts of Lakes Everard and Harris, there is in fact no identifiable salt crust, the lake surface in most years comprising merely saline clays.

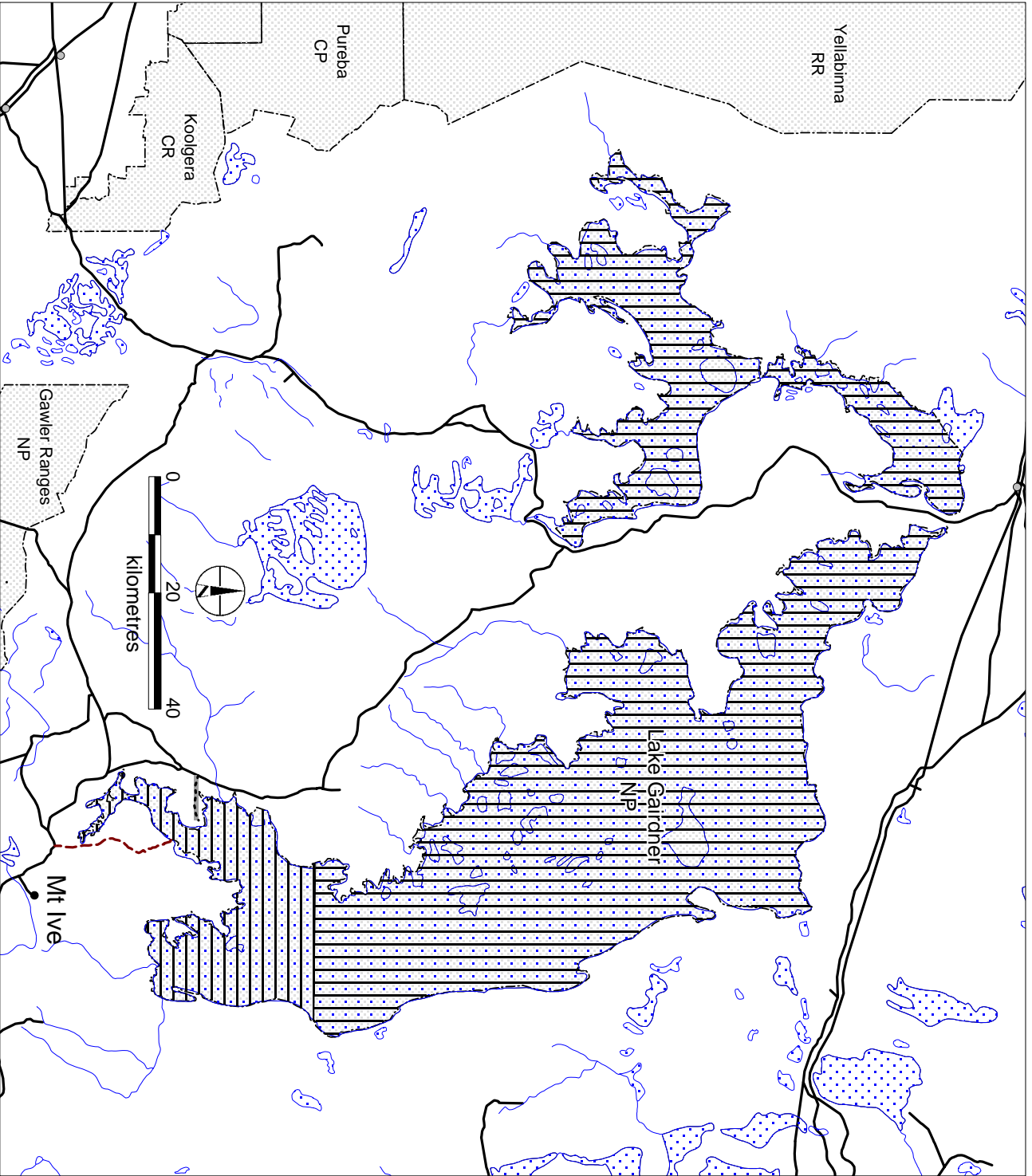
Where the salt crust is particularly thick, as in the southwestern arm of Lake Gairdner, it forms a surface suitable for motor sport activity. Within the salt crust, lithified sediments may contain fossils of microbial mats, the oldest known fossil forms of life on earth (Williams 1995). Such structures are known from the Eyre Basin salt lakes and may be present at Lake Gairdner.

Scattered across the bed of Lake Gairdner are islands, usually comprising a core of Gawler Range volcanic rock with or without a cover of aeolian sands. Lakes Harris and Everard also contain a number of islands, but by contrast, these are comprised mostly of Quaternary deposits with extensive sand cover.

Irregularly, but probably in a majority of years, Lake Gairdner holds surface water during the winter/spring months from August to October. Some of this water enters the lake from minor creeks and streams, but probably just as significant is the direct rainfall falling onto the lakebed. The water depth in years of heavy local rainfall (such as occurred in February 1997) can result in up to a metre of water accumulating in the southern and western parts of the Lake. This water body tends to move around the lakebed depending upon prevailing winds. The lake is usually dry by November. Occasionally, springs are observed where saline groundwater discharges onto the lake surface forming low, gypseous mounds.

The native vegetation of the region reflects geological and soil variations and is often correlated with the presence or absence of calcium carbonate, and the degree of soil salinity. Some of the plains areas comprise sandy soils over a clay base. Where the dunes have little or no calcium carbonate cover, native pine woodlands occur.

Most of the numerous islands that comprise the 'land' area of the park have been seldom, if ever, visited, due to difficulties of access and consequently, very few contain signs of human disturbance (such as vehicle-tracks). None of the islands have been officially named. Consequently, in order to enter characteristics on a database set up for the initial biological survey (Section 4.2.2) every island depicted on the Geological Survey of South Australia 1:250 000 Geology series Gairdner and Yardea map sheets, was numbered. On Lake Gairdner the islands are numbered from 1 to 226, in a logical sequence from south to north.



- LEGEND**
- DEH Reserve
 - Controlled Vehicle Access Zone
 - Wilderness Protection Zone
 - Drainage
 - Park Boundary
 - Road
 - Track
 - Railway
 - Public Access Route

Figure 3

Lake Gairdner National Park

Zoning

Map produced by Reserve Planning
Using PAMS 2003
Projection GDA94

The park then, includes sites of geomorphological interest with attributes not yet fully identified, but which may include important fossil or sub-surface features. The preservation of features of geographical, natural or scenic interest, including specialised habitats for plants and animals on the salt surface and on a number of the islands, is considered to be a priority. The park may also be prospective for minerals (see *Alien Tenures and other Landuses*).

Objective

Conserve geological /geomorphological features of the park and interpret them for visitors.

Actions

- Ensure that any use of, or activities permitted on, the park have minimal adverse impact on its geological and geomorphological values and include appropriate geological information in visitor information material.
- Investigate the occurrence and distribution of fossil and other sub surface features of significance within the park.

4.2.2 Native Vegetation

Background

A fauna survey was conducted within the park by Ireland and Lay during 1997/1998. The islands visited contain a remarkable diversity of environmental associations and plant communities, including all major elements represented on surrounding pastoral lands. Although to date (June 2004), none of the plant species collected or noted on the islands visited was rated as rare or vulnerable, there were interesting occurrences of species on particular islands: *Darwinia* sp (island 39), *Eucalyptus oleosa* (island 12), and a very old, lone specimen of *Acacia papyrocarpa* (island 36). *Dodonaea intricata*, a Gawler Ranges endemic, occurred on a number of small rocky islands remote from land, while *Myoporum brevipes* was abundant on many islands comprised of granitic or aeolian sands (eg on the south-eastern end of Island No. 6).

One interesting feature of the observed flora was that islands in close proximity, which were similar or apparently identical in physical characteristics, were often dominated by quite differing vegetation communities. For example, islands 32 and 36 both contained large areas of aeolian drift sand on a core of Yardea dacite. However island 32 is dominated by low woodland of the Sand Mulga (*Acacia ramulosa*), while similar sandy areas of island 36 are colonised by mixed low woodland of Native Pine (*Callitris glaucophylla*) and *Acacia burkittii*. This phenomenon deserves to be studied further, with a view to evaluating the underlying ecological processes that produce such variations.

The most common perennial plants occurring on the rocky islands include:

<i>Acacia tarculensis</i>	Granite Wattle
<i>Atriplex vesicaria</i>	Bladder Saltbush
<i>Enchylaena tomentosa</i>	Ruby Saltbush
<i>Eremophila oppositifolia</i>	Emu-bush
<i>Gunniopsis quadrifidus</i>	Star Bush
<i>Frankenia serpyllifolia</i>	Frankenia
<i>Halosarcia</i> and <i>Sclerostegia</i> spp	Samphires
<i>Maireana appressa</i>	Bluebush
<i>Maireana astrotricha</i>	Low Bluebush
<i>Minuria cunninghamii</i>	Bush Minuria
<i>Mesembryanthemum</i> sp	Pigface
<i>Stackhousia muricata</i>	Western Stackhousia
<i>Triodia scariosa</i>	Porcupine Grass

Where sandy patches occur, the following shrubs and trees were common:

<i>Acacia kempeana</i>	Witchetty Bush
<i>Acacia ramulosa</i>	Sandhill Wattle
<i>Dodonaea viscosa</i> ssp <i>angustissima</i>	Hopbush
<i>Myoporum brevipes</i>	Short-leaved Boobialla
<i>Pittosporum phylliraeoides</i>	Weeping Pittosporum
<i>Ptilotus obovatus</i>	Silvertails
<i>Santalum spicatum</i>	Sandalwood (surprisingly abundant)

Objective

Conserve native vegetation.

Actions

- Monitor species and communities of special conservation significance.
- Develop and undertake threat abatement programs where necessary and feasible.

4.2.3 Native Fauna

Background

A fauna survey has not yet been undertaken for Lake Gairdner National Park. From observations of tracks on the lake surface and direct observation, Kangaroos (*Macropus rufus* and *Macropus fuliginosus*), Emus (*Dromaius novaehollandiae*) and Camels (*Camelus dromedarius*) move quite freely across the salt. During the 1997/98 survey all islands visited were surveyed for major vertebrate activity. Evidence was found of Red Kangaroos, Western Grey Kangaroos and Euros (*Macropus robustus*).

Objectives

To conserve native animal populations and mitigate threats.

Actions

- Monitor populations of conservation significance.
- Develop and undertake threat abatement programs where necessary and feasible.

4.2.4 Introduced Plants

Background

The remoteness of the park and lack of vehicle access have contributed to the low number and extent of introduced plants. Most species have become established as a result of past disturbance, usually from grazing pressure, and are confined to those disturbed sites. There are no species known to be aggressively replacing native vegetation.

Alien (weed) species found on the islands in the lakes include:

<i>Carrichtera annua</i>	Wards Weed
<i>Citrullus vulgaris</i>	Paddy Melon
<i>Hordeum vulgare</i>	Barley Grass (uncommon)

Objectives

Control and where practical, eradicate introduced plants.

Actions

- Develop and implement programs to monitor, control and eradicate if possible, introduced plants from the park.

4.2.5 Introduced Animals

Background

In general, the 1997/98 survey team was disappointed to observe the prevalence of feral animal activity on even the most remote islands visited, with evidence of Camels (*Camelus dromedarius*) and either Horses (*Equus caballus*) or Donkeys (*Equus asinus*) on many of the larger islands. In the past, Goats (*Capra hircus*) have grazed some of the more remote islands, and it is understood that adjacent pastoralists have regularly found Sheep (*Ovis aries*) wandering onto the near-shore islands. There was evidence of Red Foxes (*Vulpes vulpes*) on many of the sandy islands and House Mice (*Mus musculus*) were captured during the limited trapping carried out at the time.

On some islands at least, maintenance of high feral and native herbivore populations may be possible due to the fresh or brackish soakages adjacent to the shores, particularly at the interface of sandy patches and underlying bedrock.

Some islands exhibit instability consistent with current and past grazing pressure of Rabbits and Kangaroos in particular. Islands with natural sand-spreads such as islands 42 and 197 are currently drifting and large amounts of loose sand are migrating onto the lake surface. This appears to be a recent phenomenon, as old beach lines (evidenced by dacite cliffs and samphire lines) are now being buried or are receding inland.

Uncontrolled herbivore activity, in addition to the resident and fluctuating kangaroo populations, impacts significantly on the nature and distribution of native and introduced vegetation. The impact of feral carnivores, such as Foxes, on native animal populations, especially small marsupials, reptiles and arthropods, is currently unknown but based on experience elsewhere in inland Australia, is likely to be significant. The presence of Feral Cats (*Felis catus*) is unknown.

Populations of introduced animals will be monitored and measures undertaken to control or eliminate them. Rabbit infestations, while they have been significantly reduced by the introduction of Rabbit Calicivirus Disease in 1996, will be controlled and warrens destroyed.

Feral Camels, Horses, Donkeys, Foxes and Goats will be controlled on a regional basis, as part of integrated programs undertaken in cooperation with neighbouring property managers.

Objective

Control and, if possible, eradicate introduced animals from the park.

Actions

- Undertake monitoring and control of introduced animals on a regional basis, in conjunction with neighbouring property managers.
- Discourage sheep from venturing onto the lake by improving boundary fences where practical or by negotiating with neighbouring property managers to improve their husbandry.

4.3 Cultural Heritage

4.3.1 Aboriginal Heritage

Background

Dreaming

For Aboriginal people, land and waters have many interconnected and complex meanings and values. The significance of land and waters is central to all aspects of people's lives: at birth, play, whilst hunting, gathering, camping, travelling, celebrating, and in death. "Dreaming" is the past, the present and the future. It is the term used to describe the combination of these aspects of life, religion, mythology, law and history. The term "Dreaming" should not be understood in its western or non-Aboriginal context, which in some ways describes a level of unreality. In an Aboriginal context the word "Dreaming" relates to significant, holistic spiritual and cultural stories and events, which weave together broad and complex concepts and describes the millennial journey of Aboriginal peoples.

An area of land or water that an Aboriginal person has traditional association with is commonly referred to as “Country”. Because “country” has such a complex of meanings and is integral to the Dreaming, it is not easy to “map” its significance, especially for people who are not fluent in the local Aboriginal language and who are not part of Aboriginal society. A place can be located in song, in physical space or embodied in an object. Its physical, social or psychological importance can vary according to the speaker’s traditional country, gender, age and personal experience. Meanings and values also change over time.

Many “Dreaming Stories” ‘travel’ throughout an area and may be known as a “Dreaming trail” or “track”. Some stories focus on specific “sacred sites”. However, by Aboriginal definition, no map of significant sites or tracks on the land can be made. What is important to Aboriginal occupation, visitation and use of the area is not so much the content of the stories, but the depth to which the Aboriginal people feel their connection to Country and their need to preserve and protect their culture.

Only Aboriginal people with cultural knowledge of the area can identify mythological sites. There may be no visual evidence of their significance although landscape features such as a tree, rocky outcrop, grove of trees, riverbed or water hole, may physically represent the mythological story. Information about these sites is passed down through stories of travellers, ancestors and mythological beings.

Dreaming stories belong to Aboriginal people. Who tells them, where they are told, to whom they are told and when, are all a part of their culture and must be respected.

At present no Dreaming stories are interpreted within Lake Gairdner National Park.

Wirangu, Barngarla, and Kokatha Occupation

At the time of colonial settlement, the land around Lake Gairdner is thought to have been at the boundaries of territories occupied by three Aboriginal groups: the Wirangu, the Barngarla, and the Kokatha or Gugada people (Horton 1994). It is understood that the Kokatha had been extending their territory prior to the arrival of Europeans and this process continued during the early days of the Colony of South Australia (Berndt 1985).

Dispossession and dispersal began in the 1860s and was just about complete by the late 1880s. Police Posts at Paney and Yardea assisted in the transfer of Aboriginal people to Fowlers Bay (near Ceduna) where they received rations. The overall population of the mixed tribal groups located at the ration stations, including Fowlers Bay, was subsequently reduced by disease and, as a consequence, some cultural knowledge was lost to future generations.

Today, Wirangu, Barngarla, and Kokatha people continue to live on their traditional country and practice their culture, language, and traditional associations.

The Aboriginal Heritage Act 1988

Under the *Aboriginal Heritage Act 1988*, the South Australian Government is responsible for the protection and preservation of sites, objects and remains of significance to Aboriginal people. The Department for Aboriginal Affairs and Reconciliation maintains a Central Archive of some 6360 site recordings of Aboriginal sites.

Certain sites at Lake Gairdner have landforms that are more likely to contain evidence of Aboriginal pre-historic occupation than others.

These include:

- *Claypans and lakes* (stone artefact scatters, shell middens, rock art, stone arrangements, campsites or ovens)
- *Rocky outcrops* (quarries, rock art, rock holes, stone arrangements, ceremonial religious sites, stone artefact scatters)
- *Dunes* (stone artefact scatters, shell middens, burials, campsites or ovens)
- *Bush or forested areas* (stone artefact scatters, campsites or ovens)

Many archaeological deposits have cultural significance for Aboriginal people today and many may have scientific significance. A site may also be important for historic events that occurred there. Such places may contain no archaeological evidence, but can have great significance to Aboriginal people.

Little research has been done on how Aboriginal people lived in the vicinity of Lake Gairdner. Five sites have been recorded on or near the park boundary with many more in the general vicinity of the park. These include art sites, archaeological sites and mythological sites. None of these recordings address the significance of the lakes, however indications are that Lake Gairdner is culturally significant to Aboriginal people from that area.

Geomorphological activity such as erosion or sedimentation (soil or sand build up) and the presence of vegetation can cause archaeological material to be obscured. As a result, many of significance are yet to be discovered and placed on the Central Archive. To promote better cultural heritage management at Lake Gairdner National Park further research needs to be undertaken to identify the significance of Lake Gairdner and record sites of significance on the park.

DEH will consult with relevant Aboriginal authorities before commencement of any development works.

4.3.2 Colonial Heritage

Edward John Eyre is believed to have been the first European to approach the district south of Lake Gairdner. In 1839 he travelled from Streaky Bay to the head of Spencer Gulf by way of the Gawler Ranges (which he named after the then Governor of the colony). In 1844 John Charles Darke explored the Gawler Ranges (south of the park) before being fatally speared and buried at what is now called Darke Peak.

In 1857, the SA Government set up an expedition under the leadership of Stephen Hack to explore the ranges on the western shore of Lake Gairdner. Hack was very impressed by the country he saw, believing that he had discovered 4500 square miles of good grazing country, with extensive natural water.

The following year (1858) the same area was explored by the Commissioner of Police, Major Warburton, who disagreed with Hack on its pastoral value, pointing out that the water supply was mainly from rock pools. Despite this more pessimistic report, the first pastoral lease was taken up in 1857. Under the Lands Regulations of 1857, pastoralists were required to stock their runs at the rate of 50 sheep per square mile (19 per square kilometre). In the late 1860s, some 90 000 sheep were shorn on Nonning Station. Shepherds continued to be used until the late 1870s but from 1875, fences gradually replaced them.

Over the first 30 years of pastoral management, wells were sunk on all properties, some simply to comply with lease conditions but most to provide crucial water supplies during summer. Many early stone wells still exist on properties around Lake Gairdner National Park.

Apart from remnants of abandoned fences, evidence of post-colonial human history is not obvious in the park. Artefacts of cultural significance may, however, be buried in the lake sediment. Any that come to light should be referred to the relevant heritage authority. Historic sites and objects may also have significance for Aboriginal people.

Objectives

Establish working relationships with Aboriginal people who have traditional associations with the land comprising the park with a view to managing cultural places in a culturally appropriate manner.

Conserve sites and objects of cultural heritage value and interpret them for visitors (if appropriate).

Actions

- Consult with people who have a traditional association with the land, Native Title Claimants and relevant State and Federal Aboriginal heritage authorities, in decisions regarding the management of Aboriginal cultural heritage.

- Before proceeding with any development works within the reserve, obtain an assessment and clearance from the appropriate authority, under the provisions of the *Aboriginal Heritage Act 1988*.
- Identify, record, protect, restore and monitor known or relocated sites and items of archaeological, anthropological, cultural and historical significance located in the park, in cooperation with the Department for Aboriginal Affairs and Reconciliation, the Heritage branch of DEH and other relevant authorities and organisations. Aboriginal and historic cultural heritage sites require conservation plans to facilitate appropriate management.
- In consultation with the Wirangu, Barngarla, and Kokatha community, the Heritage branch of DEH and other relevant authorities, research and inventory, cultural and historic sites and stories that relate to the park and where appropriate, develop interpretive material and tourism programs for visitors. Interpretive material may include web-site, brochures, site signage and displays.
- Encourage and support archaeological, anthropological and historic studies within the park. All sites located during these surveys should be recorded to the standards set by the Heritage branch of DEH and/or DAARE and submitted for inclusion on the DAARE Central Archive and/or State Heritage Register. Record information about sites and objects of possible cultural heritage significance and seek the advice of the relevant heritage authority to ensure their conservation and appropriate interpretive potential.

4.4 Recreation and Tourism

4.4.1 Visitor Use

Background

The number of visitors to the park is small and, with the exception of motor sport participants and observers, those that do visit usually want to experience the scenic and wilderness qualities offered by the lake.

When the park was proclaimed and its boundary defined as the edge of the salt surface, very few concerns were expressed about management of public use. Historically, visitor numbers had been limited to a few groups per year and all indications were that few management problems would be experienced as a result of this level of public use of the park.

Surrounding pastoral land use and resultant limitations on public access were seen as safeguards that assisted in the protection of park values. In more recent times however, this situation has begun to change. There is an increased public awareness of Lake Gairdner. Use of the southwestern arm of Lake Gairdner by motor sport and land speed record groups and by more formal ecotourism groups, has begun a process of increasing and concentrating public use on land immediately adjacent to the park. On occasions too, land yachts and other wind-powered vehicles use the salt surface.

The increasing level of interest and use is creating a demand, by some user groups, for more services and facilities including secure and improved access.

The regional tourism industry delivers a small number of ecotourism parties to the park in 4WD vehicles. This activity occurs both through Mount Ive and occasionally through other pastoral properties. However, the natural values of the park are potentially vulnerable should a more diverse system of access through a number of other pastoral properties eventuate. More diverse and unregulated public access has the potential to lead to visitor impacts occurring at many locations around the lake.

Some activities, such as motor sports, potentially conflict with the enjoyment of the area by other groups. This raises the issue of managing conflicting visitor expectations - either in different locations or at different times.

DEH will monitor the evolving pattern of visitor use of Lakes Gairdner, Everard and Harris and, in cooperation with pastoral interests, undertake visitor management measures as required. Sustainable public access and visitor car parking will be provided at suitable location(s). Any public access will be signposted. Signs will include service and safety information and highlight the fragile nature of the park (and pastoral property) values and include guidance on appropriate visitor behaviour.

Objectives

Provide for environmentally sustainable visitor, ecotourism and recreational use of the park.

Provide for public vehicle access to the margins of the park.

Actions

- In consultation with pastoral lessees, establish a car park with viewing area on the park boundary.
- Install, following consultation with lessees, a suite of directional and interpretive signs for selected locations around the park.
- Provide for the use of the park by motor sport, land yachts and other appropriate wind-powered vehicles, and ecotourism by means of a permit system, subject to conditions determined by DEH. Permit applicants must provide proof of appropriate insurance cover.

4.4.2 Motor Sport

Background

The most significant recreational activity permitted in the park is motor sport timed speed trials. This activity takes place along a defined course, which is also occasionally used by syndicates attempting to set land speed records. Lake Gairdner is acknowledged, by the sport, as the best site in Australia and one of the best in the world for land speed record attempts and has therefore attracted considerable international interest. The depth of salt, its stability and lack of surface irregularities over considerable distances, make it a highly sought-after location for this specialised activity.

Considerable promotion of the lake has already occurred both inside Australia and internationally. Growth in the use of Lake Gairdner for motor sports activities is however, neither certain nor predictable. Technological changes, transport costs, currency exchange rates and many other factors ultimately determine when (and where) land speed record attempts will be made.

Originally conducted under the terms of a recreation licence formerly held by the lessees of Mount Ive Station, timed speed trials and land speed record attempts are an established and approved use for the southwestern arm of Lake Gairdner within the park. Such events, usually of about one to two weeks duration, are conducted annually, with land speed record attempts occurring episodically for a period of up to one month.

This sport has a long history on salt lakes, particularly in the USA, where the Bonneville Salt Flats in Utah were a favoured venue for many years. Based largely on that American experience, a considerable amount of practical and environmental safety knowledge has been transferred to the conduct of trials on Lake Gairdner.

DEH will allow this activity to continue (under permit) on the designated portion of Lake Gairdner, with limitations and conditions imposed (as necessary) to ensure safe and environmentally sound use of the lakebed. The costs associated with administration and management of this use will be recouped through permit fees and DEH will not fund improvements or infrastructure to support motor sport.

It is the view of DEH that the personnel and environmental safety systems now in place are working effectively and should continue to be applied. Fuel and oil containment systems appear adequate and are regularly used. Observed impacts on the environment are essentially temporary in nature (noise and visual disturbance) or short-term at most (wind-blown rubbish and tyre debris). The nature of the sport, and the remote locality where it takes place, are such that there are not large numbers of spectators.

Observations made over a number of seasons indicate that within a year, wind and water repair minor visible impacts. Compaction of the lake surface does not appear to be an issue at this stage. The management of rubbish, debris, spectator and support vehicles has been adequate but is still capable of refinement and improvement. Consequently, with some further attention to detail, a high standard of environmental safety is considered achievable.

DEH believes it can accommodate the sport within the management framework of the park and, by so doing, contribute to the regional tourism industry and the image of South Australia internationally. It can achieve this by providing a premier location for the sport within a sustainable environmental framework.

Environmental monitoring programs will be established to assess the longer-term impacts of motor sport. Officers from DEH will evaluate permit applications, set conditions of use, issue permits and attend speed events and observe motor sports in progress, prepare reports relating to environmental impacts, risks, and the level of compliance with expected procedures, permit conditions and agreements. Further assessment following winter rains will also occur as part of on-going monitoring. Permits may be refused or conditions of use modified in line with monitoring program results, including, but not necessarily restricted to, the following parameters: oil and fuel spillage and other contaminants, tyre and other mechanical or glass debris, surface compression and changes to the lake surface, and any impacts on the behaviour/habitats of wildlife.

Objective

Ensure that motor sport on Lake Gairdner is conducted in an environmentally sensitive and sustainable manner, having due regard to the aesthetic, cultural and biodiversity values of the lake.

Actions

- Operate a permit system, to manage the use of Lake Gairdner by motor sport groups. Impose stringent conditions for personnel safety and environmental protection.
- Gazette and charge a fee to cover the costs of administering and managing permit use, and any follow-up management or remedial action that may be required.
- Establish environmental monitoring programs to assess the longer-term impacts of motor sport and modify permit conditions in line with monitoring program results.
- Undertake a review of the use of the park for motor sport within 5 years of the adoption of this plan of management.

4.4.3 Vehicle Access

Background

The unsealed road running south from Kingoonya to the northern Eyre Peninsula passes between Lake Gairdner and Lakes Everard and Harris. Direct access to Lake Gairdner itself is through pastoral lease land. The majority of park visitors access the lake through Mount Ive Station on the southern side of the park. DEH has recently secured a public access route, running from Waltumba Tanks on the Kingoonya Road to the southwestern arm of the park (Figure 3). The route facilitates vehicle access to the edge of the Park but not to the lakebed. This provides the opportunity to regulate and manage public access to the Park. However, apart from this public access route, the boundary definition of the Park does not include any land adjacent to the lakebed, which severely limits the legal capacity of DEH to manage public access and use.

The lessees of Mount Ive Station allow public access through their property to the park and permission may be obtained through contacting the lessees. This is the only route that currently provides for authorised vehicle access to the lakebed and will continue to be promoted as the main access point for the Park. DEH will also encourage short-term visitors who do not wish to access the lakebed, to utilise the public access road running from the Kingoonya Road. DEH will seek the cooperation of other neighbouring property managers to ensure orderly public access to the park, and to limit any unwanted access around the park boundary.

Objective

Provide legal and sustainable public access to the park.

Actions

- Facilitate discussion with adjoining property owners and representatives of the regional tourism industry, to explore and install mechanisms most likely to ensure consistent and managed public access to the park.
- Maintain liaison with neighbouring property managers to ensure that public access to the park does not compromise the assets of the park or surrounding properties.

4.4.4 Walking Trails

Background

Formal walking trails are not envisaged for the park. However, walkers can gain access to the numerous islands on the bed of Lake Gairdner. These are normally inaccessible to vehicles, due to the frequently muddy and impassable condition of the surface of the lake. Walkers should be aware that, in certain conditions, the lake surface might become boggy in places and difficult even for foot traffic. It should also be borne in mind that there is no shelter on the dry lake and exposure to wind and sun can be extreme. Walkers are therefore cautioned to carry adequate water supplies and exposure protection before embarking on a lake walk.

Despite these concerns, the wilderness qualities of Lake Gairdner and the complex and interesting biodiversity of the numerous islands in the lake may richly reward walkers who make the effort. It is unlikely that visitors would wish to venture onto any of the other lakes in the park. Information on safe walking, including a map of accessible islands in Lake Gairdner, will be provided at the main visitor nodes at the access point through Mount Ive Station and the new access road from Kingoonya Road.

Objective

Promote the benefits of, and precautions necessary to undertake, safe walking in the park.

Action

- Provide information on safe walking, including an appropriate map, in a park brochure that is made available from DEH offices (Port Augusta and the Gawler Ranges National Park) and from regional tourism centres.

4.5 Commercial Activities

4.5.1 Tour Operators

Background

Occasionally, commercial tourism operators bring clients to the park. These people are usually on day visits, and enter the park through Mount Ive Station. Unless they seek to drive onto the lakebed, there is no requirement for them to obtain a commercial user's licence.

Objective

Ensure safe and environmentally sustainable access by commercial tour operators.

Actions

- Ensure that commercial tourism operators clearly understand the vehicle access restrictions within the park and are aware that there are no visitor facilities in the park.
- Ensure that commercial tour operators are issued with an appropriate commercial licence with stringent personal safety and environmental conditions to bring paying clients to the park, if they wish to conduct on-lake tours.
- Monitor impacts generated by this use and amend licences accordingly.

4.5.2 Filming and Advertising

Background

The spectacular scenic values of the lake have become popular backdrops for a variety of films and television commercial advertisements. This use has been managed adequately in the past and to date has caused no discernible, long-term impact.

Film companies are issued with a commercial licence, and crews can undertake filming once their project has been approved.

Objectives

Ensure that commercial filming in the park is compatible with park values.

Actions

- Ensure that commercial filming in the park is undertaken in compliance with a licence issued by DEH. Charge a fee to cover administration, monitoring of the licence and follow-up management.
- Monitor and review the impacts generated by this use and amend licences accordingly.

4.6 Alien Tenures and Other Landuses

4.6.1 Mining Leases

Background

Mining is a permitted land use in this park by virtue of its proclamation. Since 1991 portions of the park area have been included in various Mineral Exploration Licences, although no on-ground exploration activity has actually taken place. At the time of dedication in December 1991, one *Mineral Exploration Licence* was extant.

Preparation of an acceptable Declaration of Environmental Factors is a prerequisite before any on-ground exploration works or mining operations will be allowed to be undertaken. Tenement holders will also be required to rehabilitate exploration or mining sites in a progressive manner, in accordance with PIRSA guidelines including any other conditions deemed appropriate by DEH. Effective working relationships need to be developed with any tenement holders who are operating on the park.

Objectives

Ensure that mining exploration and production is environmentally sustainable.

Actions

- Ensure that stringent conditions are in place to minimise the adverse impacts of mining and exploration permitted in the reserve.
- As far as possible, minimise the impact that any mining operations might have on the reserves, particularly with regard to introducing or spreading plant diseases, reducing landscape values, biological values, cultural values and decreasing water quality.

4.7 Future Management Arrangements

4.7.1 Aboriginal Partnerships

Background

DEH is committed to reconciliation and partnerships with Aboriginal communities as a means to effectively manage parks and wildlife in a way that respects contemporary and traditional culture, knowledge and skills. Partnerships involve the delivery of programs that promote reconciliation, cultural awareness, indigenous employment and training, joint management and indigenous cultural heritage management on parks.

Objective

Establish an effective working relationship with Aboriginal people who have a traditional association with the land comprising the park.

Action

- Involve Aboriginal people with a traditional association with the land comprising the park in partnership arrangements to assist with management of the park, Aboriginal cultural resources within the park, and the management of other resources.

4.7.2 Community and Volunteer Involvement

Background

If ecotourism and motor sport activities associated with the park are to continue in a responsible manner, DEH needs to look for a community-based, cooperative solution to the total management of public use of the surrounding area. One way this can be achieved is if DEH engages in integrated programs taking place across the region (eg feral animal control). Should mining become a significant activity on the park, DEH will need to develop effective working relationships with mining tenement holders. Such partnerships can be mutually beneficial to the environment, cultural custodians and mining operators.

It may also be possible to achieve a ‘buffer effect’ around the park and ensure an integrated approach to different, but sustainable landuses without resorting to land acquisition. This is consistent with the approach taken by the Pastoral Management Branch of PIRSA, who have been working with pastoralists to identify acceptable management strategies to protect high value conservation areas on pastoral leases.

Objectives

Develop and encourage community support for the management of Lake Gairdner National Park.

Develop effective working relationships with the holders of surrounding pastoral leases, mining tenements and the community.

Actions

- Initiate and support forums that encourage an orderly and sustainable expansion of tourism within the region.
- Participate in integrated threat management programs if appropriate.
- Liaise with mining operators.
- Advocate the protection of landscape values outwards from the park boundary. Seek involvement in proposals related to developments that may impact on park values, and provide advice on the provision of services and other matters that relate to or may impact on the management of the park.

4.7.3 Additional Land

Lake Gairdner National Park is surrounded by pastoral leasehold lands. Visitors to the park have to cross these lands, and activities taking place on these lands have the potential to affect the park. In order to protect park values and for DEH to have the legal capacity to control when and where park visitors access Lake Gairdner, the future use and management of the land immediately surrounding the lake is of primary concern. DEH may seek to develop a land buffer around the lake. Such a buffer zone would enable appropriate public access to the lake to be provided at a few discrete localities (or to other sections of the park) in line with the management objectives. Extensive negotiation with surrounding landholders would be required.

The southern shores of Lake Gairdner and the northern slopes of Mount Ive were identified as a Key Biological Area by Robinson *et al.* (1988) in *A Biological Survey of the Gawler Ranges South Australia*. This level of recognition provides further support for the acquisition of a land buffer around the lake. With the inclusion of such land, DEH will be better able to conserve and manage environments of conservation significance within Lake Gairdner National Park.

Objectives

Improve the long term integrity of Lake Gairdner National Park.

Provide a suitable mechanism for controlling public access to Lake Gairdner and the other lakes in the park.

Actions

- Negotiate with neighbouring property managers to achieve appropriate management of public access to the shores of Lake Gairdner.
- Consider alternative administrative arrangements, including the development of a buffer zone surrounding the lake, to ensure that the park boundary encloses and secures land of conservation significance.

5 SUMMARY OF MANAGEMENT ACTIONS

ACTION	PRIORITY	DURATION
Natural Heritage		
Geology and Landform		
Ensure that any use of, or activities permitted on, the park have minimal adverse impact on its geological and geomorphological values and include appropriate geological information in visitor information material.	High	Ongoing
Investigate the occurrence and distribution of fossil and other sub surface features of significance within the park.	Medium	Short
Native Vegetation		
Monitor species and communities of special conservation significance.	High	Ongoing
Develop and undertake threat abatement programs where necessary and feasible.	High	Ongoing
Native Fauna		
Monitor populations of conservation significance.	High	Ongoing
Develop and undertake threat abatement programs where necessary and feasible.	High	Ongoing
Introduced Plants		
Develop and implement programs to control and eradicate if possible, introduced plants from the park.	High	Ongoing
Introduced Animals		
Undertake regular monitoring of introduced animals and undertake control measures on a regional basis, in conjunction with neighbouring property managers.	High	Ongoing
Discourage sheep from venturing onto the lake by improving boundary fences where practical or by negotiating with neighbouring property managers to improve their husbandry.	High	Ongoing
Cultural Heritage		
Consult with people who have a traditional association with the land, Native Title Claimants and relevant State and Federal Aboriginal heritage authorities, in decisions regarding the management of Aboriginal cultural heritage.	High	Ongoing
Before proceeding with any development works within the reserve, obtain an assessment and clearance from the appropriate authority, under the provisions of the <i>Aboriginal Heritage Act 1988</i> .	High	Ongoing
Identify, record, protect, restore and monitor known or relocated sites and items of archaeological, anthropological, cultural and historical significance located in the park, in cooperation with the Department for Aboriginal Affairs and Reconciliation, the Heritage branch of DEH and other relevant authorities and organisations. Aboriginal and historic cultural heritage sites require conservation plans to facilitate appropriate management.	High	Ongoing

ACTION	PRIORITY	DURATION
In consultation with the Wirangu, Barngarla, and Kokatha community, the Heritage branch of DEH and other relevant authorities, research and inventory, cultural and historic sites and stories that relate to the park and where appropriate, develop interpretive material and tourism programs for visitors. Interpretive material may include web-site, brochures, site signage and displays.	Medium	Ongoing
Encourage and support archaeological, anthropological and historic studies within the park. All sites located should during these surveys should be recorded to the standards set by the Heritage branch of DEH and/or DAARE and submitted for inclusion on the DAARE Central Archive and/or State Heritage Register. Record information about sites and objects of possible cultural heritage significance and seek the advice of the relevant heritage authority to ensure their conservation and appropriate interpretive potential.	High	Ongoing
Recreation and Tourism		
Visitor Use		
In consultation with pastoral lessees, establish a car park with viewing area on the park boundary.	High	Three years
Install, following consultation with lessees, a suite of directional and interpretive signs for selected locations around the park.	Medium	One year
Provide for the use of the park by motor sport, land yachts and other appropriate wind-powered vehicles, and ecotourism by means of a permit system, subject to conditions determined by DEH. Permit applicants must provide proof of appropriate insurance cover.	High	Ongoing
Motor Sport		
Operate a permit system, to manage the use of Lake Gairdner by motor sport groups. Impose stringent conditions for personnel safety and environmental protection.	High	Ongoing
Gazette and charge a fee to cover the costs of administering and monitoring permit use, and any follow-up management or remedial action that may be required.	High	Ongoing
Establish environmental monitoring programs to assess the longer-term impacts of motor sport and modify permit conditions in line with monitoring program results.	High	Ongoing
Undertake a review of the use of the park for motor sport within 5 years of the adoption of this plan of management.	Medium	Five years
Vehicle Access		
Facilitate discussion with adjoining property owners and representatives of the regional tourism industry, to explore and install mechanisms most likely to ensure a consistent and managed control of public access to the park.	High	Two years
Maintain liaison with neighbouring property managers to ensure that public access to the park does not compromise the assets of the park or surrounding properties.	High	Ongoing
Continue to promote access through Mount Ive Station as the main route for public visitation.	High	Three years

ACTION	PRIORITY	DURATION
Walking Trails		
Provide information on safe walking, including an appropriate map, in a park brochure that is made available from DEH offices (Port Augusta and the Gawler Ranges National Park) and from regional tourism centres.	Medium	Two years
Commercial Activities		
Tour Operators		
Ensure that commercial tourism operators clearly understand the vehicle access restrictions within the park and are aware that there are no visitor facilities in the park.	High	Ongoing
Ensure that commercial tour operators are issued with an appropriate commercial licence with stringent personal safety and environmental conditions to bring paying clients to the park, if they wish to conduct on-lake tours.	High	Ongoing
Monitor impacts generated by this use and amend licences accordingly.	High	Ongoing
Filming and Advertising		
Ensure that commercial filming in the park is undertaken in compliance with a licence issued by DEH. Charge a fee to cover administration, monitoring of the licence and follow-up management.	High	Ongoing
Monitor and review the impacts generated by this use and amend licences accordingly.	Med	Ongoing
Alien Tenures and Other Landuses		
Mining Leases		
Ensure that stringent conditions are in place to minimise the adverse impacts of mining and exploration permitted in the reserve.	High	Ongoing
As far as possible, minimise the impact that any mining operations might have on the reserves, particularly with regard to introducing or spreading plant diseases, reducing landscape values, biological values, cultural values and decreasing water quality.	High	Ongoing
Future Management Arrangements		
Aboriginal Partnerships		
Involve Aboriginal people with a traditional association with the land comprising the park in partnership arrangements to assist with management of the park, Aboriginal cultural resources within the park, and the management of other resources.	High	Ongoing
Community and Volunteer Involvement		
Initiate and support forums that encourage an orderly and sustainable expansion of tourism within the region.	Medium	Ongoing
Participate in any appropriate integrated management programs.	High	Ongoing

ACTION	PRIORITY	DURATION
Liaise with mining operators.	High	Ongoing
Advocate the protection of landscape values outwards from the park boundary. Seek involvement in proposals related to developments that may impact on park values, and provide advice on the provision of services and other matters that relate to or may impact on the management of the park.	Medium	Ongoing
Additional Land		
Negotiate with neighbouring property managers to achieve appropriate management of public access to the shores of Lake Gairdner.	High	Two years
Consider alternative administrative arrangements, including the development of a buffer zone surrounding the lake, to ensure that the park boundary encloses and secures land of conservation significance.	High	Ongoing

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APPENDIX A: WILDERNESS CODE OF MANAGEMENT

CODE OF MANAGEMENT FOR WILDERNESS PROTECTION AREAS AND ZONES SOUTH AUSTRALIA

1. INTRODUCTION

- 1.1** This Code is the Wilderness Code of Management prescribed in the Wilderness Protection Act 1992.
- 1.2** Any terms used in this Code have the same meaning as those used in the Wilderness Protection Act and the *National Parks and Wildlife Act 1972*.
- 1.3** A wilderness area means land constituted under the Wilderness Protection Act, 1992 as a Wilderness Protection Area or Wilderness Protection Zone.

2. OBJECTIVES OF WILDERNESS MANAGEMENT

- 2.1** To maximise the naturalness and remoteness, ie. the wilderness quality, of wilderness areas, and in particular:
- (i) protect and, where practicable, enhance wilderness quality;
 - (ii) protect wildlife and ecological processes;
 - (iii) control and, where practicable, eradicate non-indigenous plants and animals;
 - (iv) protect geographical features;
 - (v) protect sites of scientific significance;
 - (vi) protect sites of historical significance;
 - (vii) protect sites of Aboriginal cultural significance;
 - (viii) provide for public use and enjoyment where compatible with maximising wilderness quality; and
 - (ix) promote public awareness of, and education in, the natural features of and proper use of wilderness protection areas and wilderness protection zones.

3. MANAGEMENT PRINCIPLES

3.1 General Principles

- (i) All management operations will be carried out in a manner consistent with maximisation of wilderness quality except where provided for in this Code (see 3.10).
- (ii) A Plan of Management will be prepared for a designated wilderness area as soon as practicable after the area's constitution. The Plan will provide clear direction for the protection and management of the wilderness area, in particular:
 - (a) proposals to achieve the management objectives (2 above);
 - (b) priorities for actions, including:
 - the removal of existing incompatible uses and/or structures except those permitted under this Code; and
 - appropriate rehabilitation to be undertaken following the removal of structures and incompatible uses;
 - (c) recognition of the need to review management if indicated by results of monitoring and research;

- (iii) No additional incompatible uses and/or structures will be permitted except those provided for in this Code.
- (iv) Nothing in this Code derogates from any rights exercised in mining tenements in wilderness protection zones. In relation to mining operations in wilderness protection zones, environmental protection policies in section 5 of this Code will apply.

3.2 Access and Transport

- (i) The use of vessels, motorised or wheeled transport will be permitted only on prescribed access routes, and for emergency and essential management operations (see 3.10) when alternative measures which do not degrade the wilderness quality of an area are unavailable.
- (ii) Access routes may be prescribed in a plan of management for use by vessels, motorised or wheeled transport in circumstances where this type of transport is essential for effective management.
- (iii) Construction of vehicle or walking tracks will be permitted only where re-direction of existing access requires construction of alternative tracks or for management works to achieve objectives identified in a plan of management. The construction of vehicle tracks for specific operations as provided for under 3.6(vi), 3.10 and 5.0 may be permitted on the basis that they will be rehabilitated as soon as possible.
- (iv) Vehicle and walking tracks that are not essential for management purposes as specified in 3.10, or for mining operations in wilderness protection zones (see 5.0) will be closed and rehabilitated as prescribed in a plan of management.
- (v) Over-flying for recreational purposes under an altitude of 1500m above ground level will be prohibited.
- (vi) The landing of aircraft will be prohibited, except by permission of the Director and for emergency and essential management operations. Helipads and airstrips that are identified as essential for emergencies and management operations will be maintained. All other strips or helipads will be rehabilitated as soon as possible or allowed to regenerate naturally.

3.3 Tourism

- (i) Commercial tours may be accommodated where their size and planned activities are compatible with maintenance of wilderness quality. Those permitted will have obtained a licence and will be conducted in accordance with licence conditions, the Visitor Management Strategy for the wilderness area (see 3.4), and the Minimum Impact Code (see 6.0). Tour groups will be monitored and regulated where necessary to prevent significant adverse impacts on wilderness quality and opportunities for solitude.

3.4 Recreation

- (i) The level and type of visitor use and visitor conduct will be managed in accordance with the objectives stated in section 2.0 of this Code.
- (ii) A visitor management strategy that specifies an acceptable level and type of visitor use and visitor conduct will be included in the management plan for each wilderness area.
- (iii) Visitor management strategies will include the promotion of the Minimum Impact Code and the distribution of any information about the wilderness values of particular wilderness areas.

The following information should be used as a basis for monitoring the effectiveness of each strategy:

- (a) the long-term limits of acceptable change for environmental (wilderness quality) and social (opportunities for wilderness dependent experiences) conditions within the wilderness area; and
- (b) change in environmental and social conditions within the wilderness area.
- (iv) Constructed walking tracks, signs, track markers and other management devices or structures will be used only for essential management operations (see 3.2(ii) and 3.10).
- (v) Recreation will be in accordance with the Wilderness Regulations and the Minimum Impact Code.

3.5 Cultural Heritage

- (i) Places, sites and objects of significance to Aboriginal people are protected under State and Commonwealth Aboriginal heritage legislation.
- (ii) Access by Aboriginal people to their sites of significance and protection of these sites will, as far as possible, be by methods compatible with the maintenance of wilderness quality.
- (iii) Nothing in this Code prevents Aboriginal people from doing anything in relation to Aboriginal sites, objects or remains in accordance with Aboriginal tradition. Furthermore, this Code does not prevent the taking, by Aboriginal people, of native plants and animals, protected animals, or the eggs of protected animals, in accordance with the relevant provisions in the *National Parks and Wildlife Act 1972*.
- (iv) Sites of historic significance will be conserved, using access and methods compatible with maintenance of wilderness quality in the long-term.
- (v) Non-Aboriginal structures and artefacts that are of no historic significance, as determined by the relevant authority, will be removed or allowed to deteriorate naturally. Removal will not be undertaken if the only method of removal significantly reduces wilderness quality in the long-term.

3.6 Fire

- (i) Fire management will be based on continuing research into the fire history of the area, the relationships between fire and the natural communities occurring within the area, and on the maintenance of wilderness quality.
- (ii) Deliberately lit fires will be used only in emergency situations, and in essential management operations as listed in 3.10 and subject to (i) above.
- (iii) Other human caused fires should, where practicable, be extinguished consistent with maintenance of wilderness quality.
- (iv) Naturally caused fires will be extinguished when, in view of the direction, intensity and extent of the fire and the fire suppression techniques available, they pose a threat to human life and property, and to habitats requiring protection.
- (v) Where fire suppression action is required, the methods utilised will be, wherever possible, those which will have the least long-term impact on wilderness quality.
- (vi) The use of heavy machinery for fire suppression within a wilderness area will be prohibited except:

- (a) where it is considered to be the only way of preventing greater long-term loss of wilderness quality;
 - (b) where specific machinery use techniques, that do not result in significant disturbance to the landscape or create a new access network, are considered the only feasible method of preventing long-term loss of wilderness quality; or
 - (c) to mitigate hazard to human life, where alternative measures which do not impact on the wilderness quality of the area are unavailable.
- (vii) Wherever possible, fire management practices designed to protect land adjacent to or within a wilderness area will be conducted outside the wilderness area.

3.7 Research

- (i) Research that will contribute to the implementation of the objectives of wilderness management will be encouraged.
- (ii) Research that will not affect wilderness quality and cannot be carried out elsewhere may be permitted.
- (iii) Research not covered under (i) and (ii) will not be permitted.

3.8 Biological Conservation

- (i) Management of threatened species, communities and habitats will, as far as possible, be consistent with maintenance of wilderness quality.
- (ii) Action will be taken to maintain and, where possible, restore natural processes, communities and habitats.

3.9 Non-indigenous Species

- (i) Non-indigenous species which significantly affect the wilderness quality of a wilderness area will be controlled or eradicated.
- (ii) Action will be taken to prevent the establishment of non-indigenous species.

3.10 Emergency and Essential Management Operations

- (i) All emergency and essential management operations will be carried out with the least possible impact on wilderness quality.
- (ii) Actions that cause short-term degradation of wilderness quality but are necessary for emergency and/or essential management operations will be permitted. The only specific situations acknowledged in this Code as possibly requiring such actions are:
 - control or eradication of non-indigenous species;
 - conservation of threatened species, communities and habitats;
 - protection of fire-sensitive species and communities;
 - management of visitor use;
 - management action or use of devices to mitigate hazard to human life;
 - restoration of natural processes, communities and habitats; and
 - research

Where degradation has occurred as a result of these activities, rehabilitation will be undertaken as soon as practicable.

3.11 Wilderness Protection Zones

Protection of wilderness quality in wilderness protection zones will be negotiated with tenement holders on the basis of the environmental protection policies in section 5. Management undertakings will be incorporated in a plan of management.

4 EXTERNAL INFLUENCES

- 4.1** Close liaison with adjoining landholders and managers will be established to ensure that adverse impacts on the wilderness quality of an area resulting from activities outside that area are minimised or prevented.
- 4.2** Where a wilderness area does not comprise a whole catchment, close liaison with upstream landholders and relevant authorities will be established to encourage the maintenance of water quality and flow regimes as close as practicable to their natural state.
- 4.3** Wherever possible management activities essential to the maintenance of the wilderness quality of a wilderness area to be on land outside the wilderness area.

5 EXERCISE OF MINING RIGHTS IN WILDERNESS PROTECTION ZONES

The holder of a mining tenement shall:

- 5.1** have regard to the provisions of the plan of management under section 31 of the Wilderness Protection Act; and
- 5.2** in undertaking any operations:
- (i) protect native flora and fauna;
 - (ii) avoid the pollution of land, water and air;
 - (iii) avoid disturbance to known sites of natural, scientific, Aboriginal and non-Aboriginal cultural significance;
 - (iv) minimise the potential for wind and water erosion;
 - (v) avoid unnecessary track creation;
 - (vi) avoid introduction of non-indigenous species;
 - (vii) establish environmental monitoring and rehabilitation programs; and
 - (viii) upon completion of the operation remove or obliterate all structures and materials used in the carrying out of mining operations.

MINIMUM IMPACT CODE FOR VISITORS TO WILDERNESS PROTECTION AREAS AND ZONES IN SOUTH AUSTRALIA

Introduction:

The rise in popularity of outdoor recreation has led to a great increase in the number of people visiting National Parks and wilderness areas. With this rise in use has come increasing damage to the natural environment. Degradation of popular areas through proliferation of unnecessary tracks, trampling of native vegetation, collection of fallen and live timber for firewood, and rubbish dumping is a significant environmental problem.

Fortunately, along with the increasing number of visitors to wilderness, a new user ethic has developed. The 'minimal impact' philosophy is now widely adopted. This Code covers the major minimal impact techniques for visitors to wilderness protection areas and zones.

While this Code serves as a handy guide for wilderness users, visitors are reminded that detailed requirements are set out in the Wilderness Protection Act Regulations.

Planning and Getting There

There are certain requirements for visitors to wilderness areas so planning ahead is vital.

1. Equipment and Permits

To visit a wilderness area with the least impact you need the right equipment.

Walkers staying overnight will need, in addition to normal bushwalking gear, the following:

- a fuel stove and fuel
- a hand trowel or spade
- a container for collecting water
- strong rubbish bags
- up to date maps and access information
- relevant permits or licences

Drivers through desert areas should refer to the National Parks and Wildlife Desert Parks Handbook for helpful advice on trip preparation and travel. As well as the items listed above desert travellers should ensure they have adequate water, food, fuel and vehicle spare parts.

Commercial tours and scientific expeditions require a licence to take groups into a wilderness area. Group leaders must:

- adhere to the conditions of the licence and the Minimum Impact Code; and
- supply each member with a copy of the Code.

2. Timing and Numbers

Be constantly aware of the effect your presence is likely to have on the wilderness area and on other visitors.

- Go in a small party rather than a large one. Large parties usually have more impact, affect the wilderness experience of others and are socially more unwieldy.
- Where possible avoid the peak times of the year and the more popular areas. You will miss the multitudes and by spreading the impact you give the environment a chance to recover.
- Plan your travelling times so that you can camp at recognised campsites rather than creating a new site.

3. Things to leave behind

There are some things you cannot take into a wilderness area.

- Please arrange for your pets to be cared for while you are away.
- Firearms, fishing equipment, nets and any other trapping device. Unless you have a permit, these are prohibited.

Protecting the Wilderness Area

1. Flora, fauna and natural features

Flora and fauna and natural features in wilderness areas are protected.

- Wildlife and habitats should not be disturbed. Observe and enjoy them quietly. Particular care should be taken near breeding birds and other known wildlife colonies.
- Do not pick flowers, take or disturb other specimens, including rocks and fossils, unless you have a permit. Even if you have a permit, take care that you do not spoil the environment and other people's enjoyment of it.

2. Cultural Heritage

Sites and objects of Aboriginal and Non-Aboriginal cultural significance are protected by law.

- Sites and places should not be disturbed or defaced, nor any objects removed. Access to some sites may require the permission of Aboriginal traditional owners.
- Recognised sites and places are likely to have defined access. Visitors should not leave access tracks nor create new tracks.

3. No Trace Camping

With modern camping equipment you can leave a campsite looking as if you had never been there.

- Look for low impact campsites. Sandy or hard surfaces are better than vegetated areas. Aim to leave the area as if no-one had been there. Reduce your impact by spending only one or two nights in one place.
- Making vehicle tracks around campsites is unnecessary and should be avoided. Parking under trees should be avoided as it compacts the soil and reduces the ability of water to penetrate.
- If it looks like rain, pitch your tent on ground that will drain naturally. Please do not dig channels around your tent.
- Access to water is vital for most animals and birds. Make your campsite sufficiently far from any water sources so that animals may have undisturbed access.
- A significant part of the wilderness experience is the enjoyment of the sounds of the bush. Do yourself and other visitors a favour by keeping noise to a minimum.

4. Campfires

Trees are precious. Trees and vegetative litter provide habitats for many animals, birds and insects. Collection of dead wood and the cutting of live timber for firewood has had a serious impact on woodland and individual trees in some popular outback areas.

- Areas which are ecologically fragile or depleted of timber may be designated **Fuel Stove Only Areas**. Visitors should check on campfire restrictions before leaving and always carry the appropriate equipment and fuel. Compared to campfires, fuel stoves are faster, cleaner and do not cause visual scarring and debris.
- Where campfires are permitted, only one small campfire should be made. Timber should be obtained from designated sites or supply depots.
- Campfire remains should be as unobtrusive as possible. Campfires should not be constructed from piled stones or in holes as this creates a visual disturbance. A fire that has burnt to ashes is less obtrusive than one extinguished with soil or water. Remove any non-combustible material from the ashes and take it with you.
- Be absolutely sure that the fire is out. A fire is not really out until the soil is cool.
- When in doubt about the safety of lighting a fire, please do not light it. Always carry a fuel stove and fuel just in case.
- All fire bans must be observed.

5. Rubbish - Carry it in, carry it out

Remember, what you take in you must take out.

- Pack to minimise rubbish. Avoid carrying too many bottles, cans and wrappings.
- Do not bury rubbish as it disturbs the soil and is likely to be dug up and scattered by animals, birds and the wind.
- If fires are permitted, you may burn combustible material, but carry out the rest.
- If you have the misfortune to come across other people's rubbish, do the wilderness a favour and pick that up too.

6. Washing and hygiene

If water is required for washing it should be collected in a container.

- Wash 50 metres away from rivers, creeks, springs, lakes and other water bodies. Detergents, toothpaste and soap (even biodegradable types) harm fish, other water life, and pollute the water.
- Do not swim in any water bodies unless permitted to do so.
- Dig a hole and bury all faecal waste and paper. Choose a spot at least 100 metres away from campsites and watercourses. If fires are permitted, paper should be burnt on the campfire rather than buried.
- Many sanitary items and 'disposable' nappies have plastic liners and do not burn well. Please carry them out.

7. Tracks and Trails

Vehicle access to wilderness areas is generally not permitted. In South Australia it is recognised that effective management of some wilderness areas may require some vehicle access. Where this access is made available to the public, the privilege should not be abused. Drivers and walkers please:

- stay on prescribed tracks and trails. This confines any impacts to a planned route.
- Do not create new tracks and trails by cutting corners or skirting around obstacles such as fallen trees or dead animals. New track creation increases environmental impacts, and creates visual scarring as well as confusion. Where possible, remove the obstacle.
- Avoid vehicle travel on tracks when wet as this can cause extensive damage to the track surface.
- Leave gates open or closed as found. If a gate is locked, do not force it or go around it.
- Where there is no walking track or trail:
 - avoid sensitive vegetation as it is easily destroyed by trampling;
 - follow an animal pad; or
 - spread out where the terrain allows as this will help disperse impacts. A plant has more chance of survival if only one walker has trodden on it than if the whole party has stomped on it.

Thank you for helping to protect our precious wilderness.

By adopting the techniques in this Code, you will help protect our wilderness. Without a conscious effort, we run the risk of 'loving our wilderness areas to death'.

APPENDIX B: LEGISLATION, CONVENTIONS AND AGREEMENTS

In addition to the *National Parks and Wildlife Act 1972*, DEH is obliged to comply with the provisions of the following:

South Australia
<i>Aboriginal Heritage Act 1988</i>
<i>Animal and Plant Control Act (Agricultural Protection and Other Purposes) 1986</i>
<i>Biological Control Act 1986</i>
<i>Catchment Water Management Act 1995</i>
<i>Coast Protection Act 1972</i>
<i>Country Fires Act 1989</i>
<i>Equal Opportunity Act 1984</i>
<i>Environment Protection Act 1993</i>
<i>Development Act 1993</i>
<i>Harbors and Navigation Act 1993</i>
<i>Heritage Act 1993</i>
<i>Historic Shipwrecks Act 1981</i>
<i>Mining Act 1971</i>
<i>National Trust of South Australia Act 1955</i>
<i>Native Title (South Australia) Act 1994</i>
<i>Native Vegetation Act 1991</i>
<i>Occupational Health, Safety and Welfare Act 1986</i>
<i>Petroleum Act 2000</i>
<i>Prevention of Cruelty to Animals Act 1985</i>
<i>Roads (Opening and Closing) Act 1991</i>
<i>Recreational Greenways Act 2000</i>
<i>Soil Conservation and Land Care Act 1989</i>
<i>Water Resources Act 1997</i>
<i>Wilderness Protection Act 1992</i>

Commonwealth
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>
<i>Disability Discrimination Act 1992</i>
<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<i>Native Title Act 1993</i>
<i>Natural Heritage Trust Act 1996</i>

International
Japan / China Australia Migratory Bird Agreements (JAMBA, CAMBA)
Ramsar Convention
World Heritage Convention

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