

Department for Environment and Heritage  
Management Plan



Blackwood Forest Recreation Park  
2005



Government  
of South Australia

## OUR PARKS, OUR HERITAGE, OUR LEGACY

Cultural richness and diversity are the hallmarks of a great society. It is these qualities that are basic to our humanity. They are the foundation of our value systems and drive our quest for purpose and contentment.

Cultural richness embodies morality, spiritual well-being, the rule of law, reverence for life, human achievement, creativity and talent, options for choice, a sense of belonging, personal worth and an acceptance of responsibility for the future.

Biological richness and diversity are, in turn, important to cultural richness and communities of people. When a community ceases to value and protect its natural landscapes, it erodes the richness and wholeness of its cultural foundation.

In South Australia, we are privileged to have a network of parks, reserves and protected areas that continue to serve as benchmarks against which we can measure progress and change brought about by our society. They are storehouses of nature's rich diversity, standing as precious biological and cultural treasures. It is important to realise that survival of species in 'island' reserves surrounded by agriculture or urban areas is uncertain, and that habitat links between reserves are essential for their long-term value as storehouses.

As a result of more than a century of conserving nature and cultural items, we possess a "legacy" which is worth passing on to future generations.

There are twelve essentials for the protection of our park environments:

- Recognition that a primary purpose of our national parks system is to conserve the wide diversity of South Australia's native plants and animals and to improve their chances of survival through active wildlife management.
- Recognition that all our parks also protect cultural legacy of relevance to both Indigenous and Non-indigenous people, and that Indigenous people have had cultural association with this land over many thousands of years.
- Freedom to improve our legacy by making additions to the park system -- enhancing existing protected areas and including landscapes and environments containing native plant and animal communities not already protected.
- Realisation that the continuance of our native species cannot be dependent upon island reserves alone but should be provided for in a regional landscape with linkages between natural areas to enhance the prospect of long-term survival.
- Recognition that there is potential for new and useful substances or genetic material to be found in native plant and animals.
- Recognition of economic and social benefits for local communities, which arise from the presence of national parks in their region and the consequent opportunities to offer service for visitors.
- Development of close relationships with the community, so that there is an understanding of the role of parks in conserving native wildlife, cultural items and in providing recreational opportunities.
- Promotion of community participation in making decisions on the management of parks, so that a sense of community ownership of the reserve system may be fostered, and so that parks and surrounding landscapes are managed in harmony.
- Appreciation that those qualities presented to visitors for their use and enjoyment in parks, should be the diversity of plants, animals and landscapes for which the parks were set aside.
- Understanding that development in a park should proceed where it :
  - contributes to the conservation of the environment;
  - provides for better appreciation of the need to conserve the diversity of plants and animals;
  - protects wildlife habitats and landscape (especially vulnerable and threatened species or communities); and
  - is necessary for management of the park.
- Reassurance, in support of our cultural character, that natural areas can survive even though those who care deeply for their survival may never visit them.
- Provision of valued natural areas for people to be at one with nature and for personal and spiritual refreshment.

Department for Environment and Heritage

# Management Plan

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## Blackwood Forest Recreation Park

2005



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



Government of South Australia

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## FOREWORD

Blackwood Forest Recreation Park, located 12 kilometres south of Adelaide in the Mount Lofty Ranges suburb of Hawthorndene, provides a valuable open-space area in a suburban setting. The park is highly valued by the local community and is popular for walking, jogging, horse riding, bicycle riding, and dog exercising.

The 20.8 hectare Recreation Park was first acquired by the Government in 1908 for use as an experimental orchard and continued to be used for horticultural research until the 1960s. Sustained public concern over a period of more than 15 years since the mid 1980's, seeking to have the land retained as open space resulted in it being proclaimed a Recreation Park under the *National Parks and Wildlife Act* in November 2001.

The plan defines a series of objectives and strategies for the future management and use of this reserve. With appropriate and effective management, Blackwood Forest Recreation Park will be increasingly valued as a community asset for its unique history, visual amenity, biodiversity and the recreational opportunities it provides.

Many people have contributed to the development of this plan of management. Their interest and helpful suggestions are gratefully acknowledged.

I now formally adopt the plan of management for Blackwood Forest Recreation Park under the provisions of section 38 of the *National Parks and Wildlife Act 1972*. I encourage you to read the plan and visit and enjoy this distinctive park.



**JOHN HILL**

**MINISTER FOR ENVIRONMENT AND CONSERVATION**



## SYNOPSIS

This is the first management plan for Blackwood Forest Recreation Park, located in the Mount Lofty Ranges suburb of Hawthorndene, 12km south of Adelaide. The 20.8 ha park was first acquired by the Government of South Australia in 1908 for use as an experimental orchard and planted out to a variety of fruit and nut trees. The land continued to be used for horticultural research and development until the 1960s when most of the fruit trees were removed. Management was then transferred to the Woods and Forests Department. A small area had been planted with pines in 1952 and that agency increased the area under pine plantation.

By the mid 1980s the land was no longer required for forestry purposes and attempts were made to dispose of it. Sustained community resistance to these moves however, resulted in it being proclaimed a Recreation Park under the *National Parks and Wildlife Act 1972* in November 2001. Prior to proclamation, remediation was required to deal with pesticide residues from the long period of horticultural activity and occupation by the Pest Eradication Unit of the Department of Primary Industries. Those works have now been completed and while pesticide contamination will continue to be monitored, it is no longer considered to pose a risk to humans and only a negligible risk to wildlife, given the proposed future landuse as a recreation park.

The park is an open-space area in a suburban setting and its amenity is highly valued by the local community. Development is minimal (currently, no public facilities are provided) and it is used mainly for outdoor recreation by a small number of visitors. Activities pursued include walking, jogging, horse riding, bicycle riding, and dog exercising.

This plan envisages that, with appropriate and effective management, these recreational uses can be accommodated sustainably for the foreseeable future, without significant detriment to the park's biodiversity, heritage or amenity values. The vision for the future of Blackwood Forest Recreation Park is as a reserve valued and managed by the community for its unique history, visual amenity, biodiversity and recreational values.

The park is not highly biodiverse, retaining only a few native plant species. The park does provide habitat for some native fauna species, including possums, parrots and cockatoos. However, two old buildings and some of the introduced trees are of historic and amenity value. The management focus will be on providing sustainable recreational opportunities, highlighting historic values, removing weeds and gradually restoring natural habitat. The main problems to be tackled are areas of weed infestation and in a few places, soil erosion. The pine forest will be retained but reduced and managed in the short to medium term, but with the intention of its eventual replacement with native species.

An integrated, regional approach to tackling these conservation and recreation issues and a high level of community involvement is desirable. To achieve that end, it is proposed to develop partnership arrangements with other land managers, recreational user groups and in particular, local government and the local community.

To achieve the major objectives identified in this plan, the following key actions are proposed:

- Develop and maintain partnerships between state and local government, non-government organisations, recreational user groups and the local community, in the management of the park and adjoining land, in particular Archibald Reserve and Minno Creek;
- Undertake remedial work, particularly in areas of weed infestation and soil erosion, that includes pest plant removal, natural regeneration and revegetation;
- Protect historic sites and objects and seek advice on the significance of, and best management options for the non-indigenous trees, including the pine forest;
- Delineate the park boundaries and public access points, defining the tracks and trails most suitable for various activities, and provide signs and other information sources for visitors to ensure that they are well-aware of the values of the park and appropriate behaviour;
- Install boundary fencing and provide some basic facilities for visitors; and
- Monitor site condition generally for any impacts arising from past/present landuses or recreational activities, and manage using appropriate measures and consultation.

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## **ABBREVIATIONS AND GLOSSARY OF TERMS**

ALRM:	Aboriginal Legal Rights Movement
DAARE:	Department for Aboriginal Affairs and Reconciliation
DDT:	Dichlorophenyltrichloroethane – an organochlorine pesticide
DDD, DDE;	Dichlorodiphenyldichloroethane – metabolites of DDT
DEH:	Department for Environment and Heritage
DEHAA:	(former) Department for Environment, Heritage and Aboriginal Affairs
DENR:	(former) Department of Environment and Natural Resources
EA	Environmental Association
HETP:	Hexaethyltetraphosphate – an organophosphate pesticide
IBRA	Interim Biogeographic Regionalisation for Australia
ILUA	Indigenous Land Use Agreement
IUCN:	International Union for Conservation of Nature and Natural Resources (The World Conservation Union)
MEC:	Minister for Environment and Conservation
NAA:	Naphthalene acetic acid – a phyto-hormone used in horticulture
PCWMB:	Patawalonga Catchment Water Management Board
2,4,5-T:	Trichlorophenoxyacetic acid - a phyto-hormone mainly used as a herbicide

## **ACKNOWLEDGEMENTS**

Valuable assistance was received from various agencies, groups and individuals, particularly the members of the community reference group convened to guide the development of the plan.



# 1 LEGISLATIVE AND MANAGEMENT FRAMEWORK

## 1.1 National Parks and Wildlife Act 1972

Reserves are managed by the Director of National Parks and Wildlife subject to any direction by the Minister for Environment and Conservation or the Chief Executive of the Department for Environment and Heritage (DEH). When managing reserves, the Director is required under section 37 of the *National Parks and Wildlife Act 1972* to have regard to, and provide actions that are consistent with the following objectives of management 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 geographical, 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;
- generally, the promotion of the public interest; and
- preservation and protection of Aboriginal sites, features, objects and structures of spiritual or cultural significance within reserves.

Section 38 of the Act states that a management plan is required for each reserve. A management plan should set forth proposals in relation to the management and improvement of the reserve and the methods by which it is intended to accomplish the objectives of the Act in relation to that reserve.

DEH is responsible for preparing management plans and undertaking the prescribed community consultation process for the park. A standard management planning process is mandated, to ensure that all statutory obligations are met. Help and guidance with plan preparation is sought and obtained from individuals, community groups or relevant advisory committees, although ultimately the decision on whether or not to adopt a management plan remains a ministerial prerogative.

The draft plan for Blackwood Forest Recreation Park was released for public exhibition in November 2004. At the close of the comment period, ten submissions were received, giving support for the plan and raising issues including dioxin contamination, removal of horticultural trees, the use of water bores on the park, clear felling of pines, access for horses/dogs/bicycles, nomenclature and general corrections. All comments and concerns were considered by the Southern Lofty Consultative Committee and forwarded to the South Australian National Parks and Wildlife Council for review and endorsement before the plan was presented to the Minister for adoption.

In accordance with the Act, the provisions of this management plan must be carried out and no actions undertaken unless they are in accordance with this plan. In order to achieve this, each year park managers, taking regional and district priorities into account, draw up work programs to implement some of the strategies proposed in management plans. Implementation of these projects is determined by, and subject to, the availability of resources (eg staffing and funding).

## 1.2 Native Title

Native Title describes the rights and interests Aboriginal and Torres Strait Islander People have in land and waters according to their traditional laws and customs. Commonwealth 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.

This management plan is released and will be adopted subject to any native title rights and interests that may continue to exist in relation to the land and/or waters. Before undertaking any acts that might affect native title, DEH will follow the relevant provisions of the *Native Title Act 1993*.

## 1.3 Vision

The vision for Blackwood Forest Recreation Park is a reserve valued and managed by the community for its unique history, visual amenity, biodiversity and recreational values.

## 1.4 Purpose of Reserve

Blackwood Forest was originally known as the Blackwood Experimental Orchard, having been purchased for that purpose in 1908. It was managed by various South Australian Government agencies for over 90 years. With the passage of time, the nature of landuse changed and when it was no longer required for government purposes, moves were instigated to dispose of it – various alternative uses were proposed for the site, including school grounds and residential housing.

However, community pressure was successfully brought to bear to retain the whole area as public open space. In November 2001, after some areas of pesticide contamination (a legacy of past landuse) had been successfully remediated, Blackwood Forest was proclaimed a Recreation Park under the *National Parks and Wildlife Act 1972*.

Blackwood Forest is very much a local park, but with linkages to other reserves in the district. Its key assets are its history as an experimental orchard and its current role as public open space. Protecting the open space character, visual amenity and cultural values is important, and where appropriate, given the historic significance of the site, non-indigenous vegetation and plant varieties of historic interest will be retained or where necessary, propagated and relocated to other appropriate living collections. Another key role is to provide ecologically sustainable outdoor recreation opportunities for the local community.

Management will focus on resource protection, particularly public risk abatement, access rationalisation and weed control. Restoring indigenous native vegetation will be a longer-term goal. The ongoing involvement of the local community in these activities will be actively encouraged.

## 2 LOCATION AND GENERAL DESCRIPTION

Blackwood Forest Recreation Park is located in Coromandel Valley in the Mount Lofty Ranges, 12km south of Adelaide (Figure 1). The park is in the suburb of Hawthorndene, within the local government area of the City of Mitcham. The property description is as follows: Section 665, Hundred of Adelaide, proclaimed in the Government *Gazette* on 1 November 2001 (p4746).

The 20.8 ha park, roughly in the shape of a rectangle, is bounded by Main Road and Turners Avenue on the west and south, and by Myrtle Road on the east (Figure 2). Main Road is the major access route through the Blackwood area and records high traffic volumes. It is the main thoroughfare to the suburbs of Hawthorndene, Coromandel Valley and Aberfoyle Park. Surrey Street, Devonshire Road, St Thomas and St Alick Streets all terminate in the northern side of the park, where there is a common boundary to residential properties. Devonshire Road provides access to the community house (formerly the manager's house). New fencing has been established along the southern and eastern boundaries, incorporating emergency vehicle access.

The main entrance is currently located on the corner of Main Road and Turners Avenue, while pedestrians can also access the park through recently installed gates along the northern, eastern and southern boundaries.

There is a bituminised walking trail along the Main Road frontage and along Turners Avenue (external to the park). There are a number of informal walking trails through the park that have been developed by use, but it should be noted that as yet, no zones, tracks or trails have been formally designated for specific uses (as per the Act or Regulations).

Located on Minno Creek in the Sturt River catchment system, the park is contiguous with the Archibald Reserve (City of Mitcham) on its eastern boundary. It is one of a number of small open space reserves in the vicinity (eg Maddern Reserve, Frank Smith Park, Hawthorndene Reserve) that protect native vegetation and/or provide the local community with amenity and opportunities for various kinds of outdoor recreation.

The park has limited natural vegetation, the riparian vegetation understorey along the watercourses largely, but not completely, comprising introduced species. However Minno Creek (on the western boundary) retains some old River Red Gums (*Eucalyptus camaldulensis*) and a few *Acacia* species. These mature River Red Gums make up the park's more significant biodiversity value. The park provides habitat for some of the more common native wildlife including possums, cockatoos and other bird species.

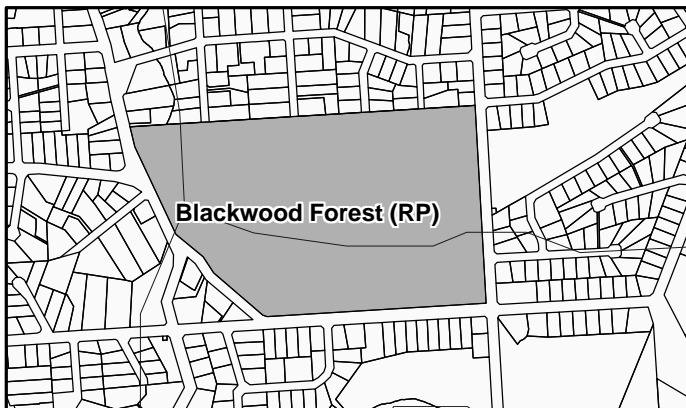
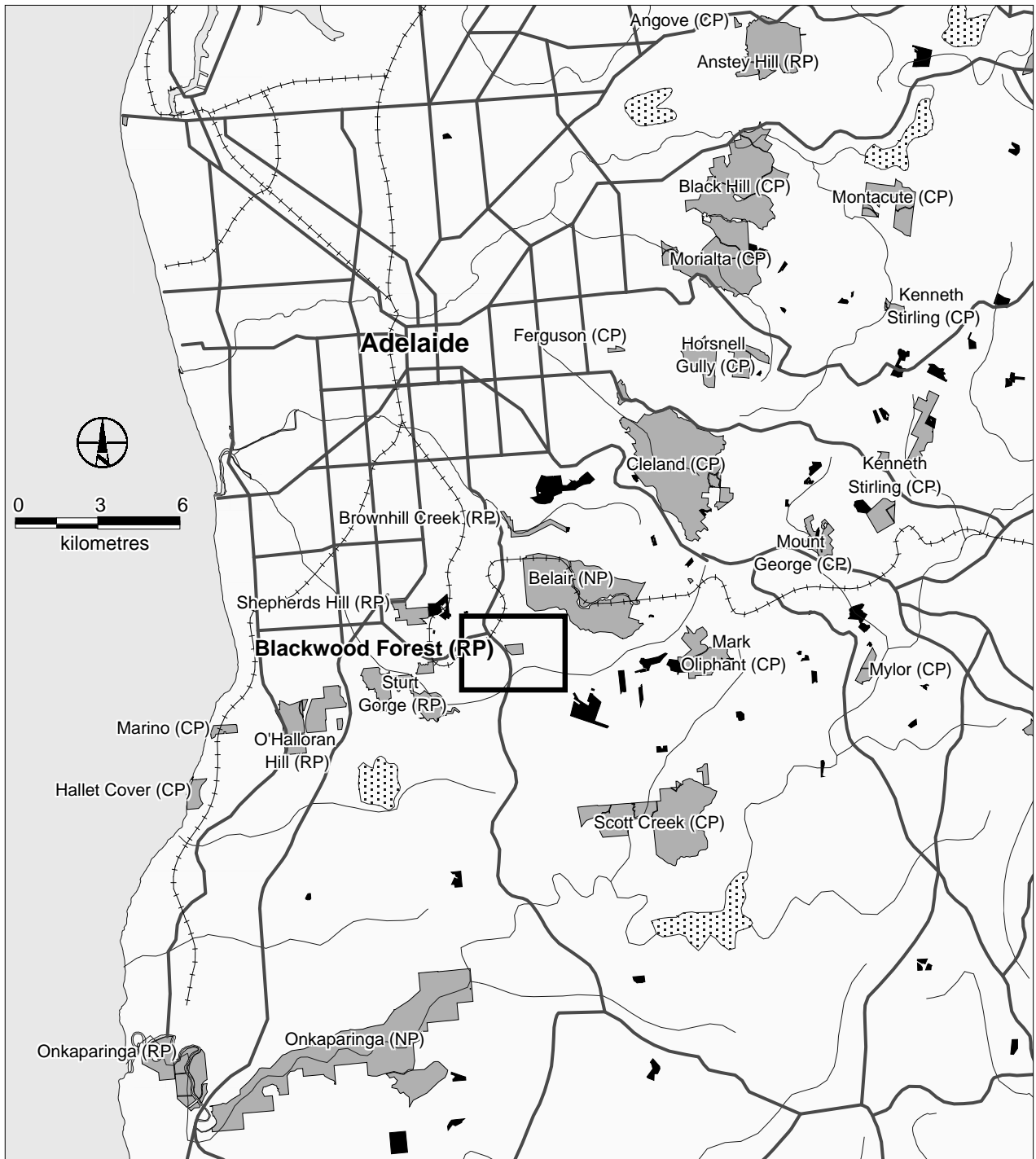
The most obvious physical feature is an 8 ha plantation of Monterey Pine (*Pinus radiata*) planted in 1952 and 1972. Since the fruit trees were removed in the late 1960s, introduced grasses (and woody weed species) have become widespread. Around the external boundaries, some natural regeneration has occurred and there are places where native species can be found, including Grey Box (*Eucalyptus microcarpa*). Members of the local community have also undertaken some planting of indigenous species.

Prior to colonial occupation, the area along Minno Creek would have been familiar to the Kurna people, but the extent of any Aboriginal cultural heritage on the park today is at this time unknown to DEH. The park has historic links with its use as an experimental orchard, with two of the original buildings remaining. Although most of the original orchard was removed many years ago, there are various non-indigenous trees that were either planted during the orchard era period or have regenerated from orchard rootstock.

Today the park provides recreation opportunities that make it a popular venue for both nearby residents and also visitors from further afield. Walking, jogging, dog exercising, bicycle and horse riding are probably the most commonly observed recreational uses.

### Climate

Blackwood Forest Recreation Park experiences a Mediterranean climate characterised by marked seasonal variations in rainfall and temperature - cool, wet winters alternate with warm/hot, dry summers. The majority of rainfall occurs between May and September, with average annual rainfall in the park vicinity estimated as being between 700 and 800 mm. The closest recording station to the park is at Belair, where annual precipitation averages 723 mm (Bureau of Meteorology, 2000).



**Figure 1**  
Blackwood Forest Recreation Park

**Location**

Map designed and created by  
Reserve Planning using PAMS  
Projection: GDA94  
Date: 2005

**LEGEND**

- Road
- Main Road
- ++++ Railway
- ~ Hydrology
- NPW Act Reserve
- Heritage Agreement



**Figure 2**  
**Blackwood Forest Recreation Park**  
**Features**

Temperatures are on average, highest during the months of January and February, with hot weather continuing into March and even April. In most years, maximum temperatures exceed 38°C on several days, often accompanied by hot northerly winds and usually brought to an end by a cooler, south-westerly wind change. These can be days of extreme fire danger in the Mount Lofty Ranges. Approximate mean maximum temperatures: winter 12°C; summer 27°C. Approximate mean minimum temperatures: winter 7°C; summer 15°C. Frosts can be common in winter.

The most frequent winds in the region are those from the southwest to northwest quarter. These winds, associated with the passage of cold fronts, bring most of the winter rain. Gully winds resulting from a funnelling of stronger, easterly winds through the gullies of the western Mount Lofty Ranges, are also quite common and are generally experienced at night during the five warmest months of the year.

## 2.1 Regional Setting

Reserves in the general vicinity of Blackwood Forest Recreation Park include Belair National Park, Shepherds Hill, Brownhill Creek and Sturt Gorge Recreation Parks.

The role of DEH reserves within the Mount Lofty region is recognised by the current State Government planning initiative known as Yurrebilla - The Greater Mount Lofty Parklands, the name given in recognition of the Kurna Aboriginal culture and heritage. The initiative aims to establish a common management framework for land managed by DEH, Forestry SA, SA Water, Planning SA and voluntarily nominated privately owned areas throughout the Mount Lofty Ranges. The project seeks to identify common natural resource, heritage and recreation issues and to develop regional level policies that will enable a consistent, sustainable management approach to be adopted throughout the region.

Prior to Colonial settlement, the Mount Lofty Ranges, together with the Adelaide Plains, are believed to have held the State's richest source of biodiversity (Turner, 2000). This remains true today, but it is estimated that only 10-15% of the original native vegetation remains, generally in small fragmented stands (Turner, 2000), with only 4% held within DEH reserves (Long, 1999). Despite Blackwood Forest Recreation Park's past landuse history and the special management requirements imposed by its close proximity to the urban environment, it can still make a contribution to biodiversity conservation as it forms part of a larger, regional aggregation of open space in the Mount Lofty Ranges.

This chain of protected areas provides stepping stones or links that can facilitate movement of species, improve overall genetic diversity and boost ecosystem sustainability, even if only in a relatively minor way. In much the same way, some areas of land, due to location or physical attributes, are better suited to providing for recreational activities than are others. Consequently, on-park biodiversity, conservation and recreation management should be integrated with and complement broader, regional programs.

Overview plans are being developed that will set priorities for conservation programs and recommend strategies to retain, restore, re-establish and provide links between remnant native habitat. Blackwood Forest Recreation Park falls within the scope of the Metropolitan Adelaide Biodiversity Plan prepared as part of the South Australian Urban Forest Biodiversity Program (Turner 2001). A number of strategic plans to assist with coordinating recreational activities have also been prepared; a relevant example being the *State Mountain Bike Plan for South Australia* (Government of South Australia 2001).

Probably more significant is the park's contribution to hydrology. Minno Creek and its tributaries form an important sub-catchment of the Sturt River system, Minno Creek eventually joining the Sturt River about half a kilometre to the south of the park. The Adelaide and Mount Lofty Ranges Natural Resources Management Board (incorporating the former Patawalonga Catchment Water Management Board) is responsible for the overall regional management of the catchment area and developing and maintaining contact with that agency, regarding on-park activities that may involve the local hydrology, is desirable.

Within the local region and adjacent or adjoining the park, there are reserves managed by City of Mitcham that contribute to either public recreation or the preservation of biodiversity (Figure 1). The park is contiguous with the Archibald Reserve to the east (with its valuable remnant native vegetation). Frank Smith Park lies to the south, Hawthorndene Reserve to the north, and Maddern Reserve and Hewett Sports Ground to the west. Gamble Cottage, not far from the park, is an historic residence with a heritage garden that has links with the park. The original owner of the cottage worked at the Experimental Orchard and some of the trees in this garden originated from there.

The park is surrounded too, by residential properties, a situation very typical of suburban parks. The close proximity of so many neighbours can be beneficial, but can also be a cause for concern. For example, invasive garden plants can spread to the park and become weeds, while domestic animals are known to roam. Conversely, the park may be perceived by some neighbours as a fire hazard and a harbour for pest animals, such as foxes and rabbits. Dealing with these issues requires special effort and tolerance from all concerned.

Furthermore, due to the park's proximity to residential properties, management of Blackwood Forest Recreation Park must take into account the broader regional pattern of landuse, community aspirations and values including:

- the potential impact of surrounding landuses and the application of the *Development Act 1993* to control upstream and neighbouring development proposals;
- the need for pest plant and animal control, water catchment management, soil conservation, fire management and other regionally-based land management activities to be integrated with the efforts of neighbouring land owners/managers;
- the importance of maintaining liaison with key stakeholders and others who have an interest in how the park is managed, including neighbouring property owners/managers; and
- the importance of the park to regional cultural heritage, and as the recreation resource it provides for local residents and visitors.

Blackwood Forest Recreation Park falls within the Institutional Zone as delineated in the Mitcham (City) Development Plan (2001). This zone includes policies for a number of specific land parcels, including both public and private open-space and a number of areas whose future remains undecided. A clause in this Development Plan (Objective 9) refers specifically to Blackwood Forest. The relevant objectives of the Institutional Zone development principles are as follows:

*Objective 1* A zone accommodating public and private activities primarily of an institutional and/or open character.

*Objective 9* The Blackwood Forest Reserve area being retained as open-space and being used for agriculture, agricultural research and forestry purposes until such time as the Government and council agree on ownership, management, maintenance, public accessibility and related matters.

Given that the future of Blackwood Forest as a Recreation Park is now assured, it may be appropriate to change the Development Plan zoning and develop some specific principles. Until that is done however, any development works or changes to landuse on the park will need to heed the Principles of Development Control currently applying to the Institutional Zone.

To achieve the best outcomes in this regional context, developing partnership arrangements will be beneficial. It is important to establish and maintain formal and informal links between the park managers and the other authorities responsible for natural resource and recreation management throughout the Mount Lofty Ranges, including government and non-government agencies, volunteer organisations and local residents. The purpose of such links is to facilitate sharing of information, as well as implementing effective regional planning and management initiatives.

DEH will therefore seek to involve organisations including the City of Mitcham, Mount Lofty Ranges and Adelaide and Mount Lofty Ranges Natural Resources Management Board, Country Fire Services, community organisations interested in Blackwood Forest Recreation Park, park neighbours, recreational groups and other relevant non-government organisations in ongoing dialogue regarding the best way to implement this management plan.

## 2.2 History of Reserve Management

Blackwood Forest Recreation Park was proclaimed in November 2001 and for the first time, day to day management became the responsibility of DEH. The park had previous history of landuse by agencies other than DEH. Past management is summarised in section 6 Managing Cultural Heritage and is also referred to in section 4.1 Geology, Soils and Landform.

Prior to proclamation, considerable investigation and works had been undertaken to identify and remediate the worst sites of pesticide contamination, so that the land would be safe and suitable for other landuses. An environmental audit was undertaken at the end of the remediation process. The environmental auditor concluded that 'the condition of the site is such that it is suitable for both the current use, and the proposed use as a recreational reserve administered by the Department for Environment and Heritage' (Tonkin Consulting 2001). It should be noted that the auditor qualified his conclusion with certain conditions and these are referred to in section 4.1 Geology, Soils and Landform.

The adoption of a management plan will establish future directions for the park. Management input by DEH in the absence of a management plan has included the following:

- open grassland areas have been slashed to reduce the volume of flammable material;
- overhanging vegetation has been removed;
- new fencing has been installed on the eastern and southern park boundaries;
- vehicle access gates and pedestrian walkways have been installed;
- the former office located near the Main Road/Turners Avenue corner has been stabilised and made secure from vandals;
- 50 large pines have been removed along Minno Creek near the former office; and
- 50% of woody weeds have been removed from Minno Creek and native seedlings planted.



### **3 ZONING**

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

For Blackwood Forest Recreation Park, at this stage and given the park's relatively small size, it is not considered necessary to establish a complex zoning framework to ensure sustainable use of the park during the life of this plan. Recreational use can be managed adequately by designating tracks and trails for specific activities.

#### Recreation Zone

The park is zoned for recreation, intended to permit a range of recreation activities and to allow facilities and services for visitors, together with the basic infrastructure required for effective park management. Every effort will be made to minimise environmental disturbance and ensure sustainable recreational use.

Biodiversity enhancement and heritage conservation initiatives will be a significant management focus within the zone. Depending on their horticultural/historic significance, introduced trees can remain and should be given appropriate arboricultural care. Any revegetation should be with indigenous species of local provenance unless there are historic reasons to plant other varieties, and these are unlikely to create environmental problems.

Preferred sites for development of facilities, including walking trail construction, are those with established patterns of use or in areas where past disturbance has already caused impact and further development will ameliorate, not exacerbate, any problems.

Dogs are permitted throughout the park provided they are under the control of a responsible person (see section 7.1 Visitor Use and Access). Horses and bicycles are also permitted on designated tracks/trails. Motor vehicle use is restricted to management activities, access by (potential) lessees and by special arrangement.

#### ***Objective***

Zone Blackwood Forest Recreation Park to ensure appropriate public use, landscape protection and the conservation of wildlife habitats, cultural and historic features.

#### ***Strategy***

- Manage the park in accordance with the zoning prescription outlined in this management plan.

### **4 MANAGING NATURAL HERITAGE**

#### **4.1 Geology, Soils and Landform**

Most of the sedimentary rocks of the Adelaide foothills belong to the Burra Group. These sandstones, siltstones, shales and dolomites were deposited in shallow Precambrian seas between 800 and 750 million years ago. Towards the end of this period (ca 750 million years ago) dramatic changes in climatic conditions occurred, with the onset of a great ice age that affected a large part of Australia from the northwest to Tasmania.

In early Tertiary times, a period of successive block faulting and tilting commenced and has continued to the present day. These earth movements coincided with the separation of Australia from Antarctica and the commencement of northward drift of the Australian Plates. Movement took place along a series of distinct fault-lines, resulting in the step-like structure of the Mount Lofty Ranges seen today; the present landform of the Mount Lofty Ranges reflecting the geological history of the region.

Extensive processes of weathering and erosion have occurred since the uplifting of the Ranges in Tertiary time. The final phase of uplift probably occurred during the last few million years and initiated the present-day drainage system. Along the western escarpment of the Ranges, the landform is dominated by deep, narrow gorges formed where rivers have cut their way down through the steeper upland country to reach the Adelaide Plains. Over time, the creeks within the park area, Minno Creek and the east-west flowing creek, carved out drainage channels through the underlying sediments.

Regional geological information from the Noarlunga SA 1:50,000 Sheet 6627-IV (Department of Mines and Energy 1982) indicates that the park is underlain by rocks of the Saddleworth Formation (Burra Group) including Auburn Dolomite, Beaumont Dolomite and Glen Osmond Slate. Quaternary surficial materials and soil of the slopes and plains (including Callabonna Clay and Christies Beach Formation) occur along the east-west creek line (Tonkin Consulting 2001).

Soils within the park reflect the underlying geology and erosion processes. The 1:5840 Somerton-Brighton-Darlington-Blackwood Soil Map (Department of Mines 1970) indicates that the dominant soil types are grey, sandy surface soils overlying yellow and mottled clay of blocky structure on slates, shales and quartzites (Tonkin Consulting 2001).

Soils on the eastern, 'broad acre' areas of the park generally consist of an A horizon of grey, clayey, sandy silt which varies in thickness from 100 to 150mm. This is underlain by a B horizon of red brown, with orange and yellow mottling, silty clay of high plasticity.

On the steeper slopes in the north-eastern part of the park, in the area covered by the pine plantation, boreholes sunk by Koukourou Engineers revealed the depth to shallow weathered rock varied from approximately 500mm to 1000mm. Koukourou Engineers were of a view that 'where depth to weathered rock is 1.5m or less, significant slope stability problems would not be anticipated'. Although the steep land on the north of the park was considered to have low potential for slope stability problems, there was a cautionary statement included to the effect that if development were to be undertaken, more detail investigation would be required (Jensen 1995).

Consequently, the potential for erosion should be taken into consideration in the context of thinning or ultimately, removal of the pine forest. It is understood the 1952 pine planting was a response to erosion/slippage problems encountered on the steep northern slope (D Reynolds personal communication).

Surface soils in pine plantations are generally nutrient poor, acidic and covered in a resinous layer beneath a covering of pine needles. The high carbon content, low nitrogen levels, low light levels and few grasses on the forest floor creates relatively harsh conditions and soil organisms tend to be very low in number (Tonkin Consulting 2001).

Within the former 'built up' area on the west (near Minno Creek), the surface soils (running east/west) vary considerably across the site because of the cut and fill nature of benches that were previously created to provide level areas. The natural soils are generally 250 to 450 mm of brown to grey silt overlying red to orange and yellow brown silt clay of approximately 1.0 metre in depth. Surface fill depths towards Minno Creek vary from 250 to 500mm. The fill consists of a mixture of the grey brown A horizon silts and some of the clays with a surface layer of quarry rubble in some areas. As a result of more recent remediation works, a layer of sand fill has been placed over much of this area. Two 'hot spot' areas where pesticide contamination was physically removed have been capped with rubble to prevent disturbance.

The long history of horticultural use of chemicals on the Experimental Orchard from 1908 to 1968 created problems for future land managers. A wide range of pesticides were used on site, including lead and arsenic-based pesticides, DDT and other organochlorine derivatives, and the organophosphates fenitrothion and malathion. The washing down, filling and calibrating of spraying machines was carried out in the 'built up' area adjacent Main Road and toxic chemicals were stored there (Tonkin Consulting 2001).

The nature and extent of any pesticide contamination needed to be assessed before decisions could be taken on the best alternatives for the area. Jensen (1995) reports that a comprehensive soil sampling program was conducted by Koukourou and Partners (1995) as part of the environmental assessment of the site to identify possible residual pesticide contamination. The soil sampling program initially involved drilling boreholes on a grid pattern across the area. Three re-sampling rounds followed. An environmental assessment report prepared following the soil sampling program and revealed, in summary, the following:

The majority of the site (away from the 'built up' area adjacent to Minno Creek) contained trace levels of DDE and DDT contamination in the surface soils with no significant health or environmental risk. Resampled five years later, it was found that these levels had fallen by around 50% due to natural breakdown and did not present a health or environmental hazard (Tonkin Consulting 2001).

However, in the former 'built up' area adjacent to Minno Creek, it was another story. In much of that area, the surface soils contained trace to low concentrations of fenitrothion, DDE, DDD and DDT, with the potential of 'hot spots' where concentrations could be of health concern. There were also places where concentrations of the heavy metals, lead and arsenic, in the surface soils were of health concern.

Moreover, within a 19m circle of the site of the former chemical storage shed and on the land between that shed and Minno Creek, there were two 'hotspots' identified that were quite seriously contaminated with organochlorine and organophosphate pesticides. One was contaminated with 'extreme' concentrations of fenitrothion and low levels of dieldrin, DDT and DDE. Another was contaminated with high concentrations of DDT.

The Environmental Assessment outlined a number of management strategies to address these issues. During 1997 Koukourou Engineers commenced remediation process that included physically excavating the contaminated soil from two contaminated 'hotspots' and 'sealing' them with imported, clean material. Some of the remediation works undertaken as part of the clean up process included:

- excavation of 'hotspots' contaminated with heavy metals or organochlorine derivatives;
- construction of a cut off drain up-gradient of the remediation works;
- validation of the excavated hotspots on 36 sample locations;
- removal of identified contaminated materials in the buildings;
- demolition of building superstructures and floors;
- validation of building subfloors and fuel tank excavation; and
- validation testing, grid sampling at 20 locations across the former 'built up' area, prior to the placement of clean, imported fill over much of the site.

The City of Mitcham, as potential purchasers of the land, later engaged an environmental auditor to review the remediation works already completed and to identify any other remedial works required. The environmental auditor identified the need for an Environmental Risk Assessment due to the elevated levels of DDE and DDT in the western portion of the 'broad acre' area. This area was investigated a second time in early 2001 by Koukourou Engineers. Although some elevated levels of contamination were discovered, there was no requirement for further remediation works to be undertaken (Koukourou Engineers 2001). The remedial works undertaken previously had been successful and while pesticide contamination should continue to be monitored, it was no longer considered to pose any risk to humans and only a negligible risk to wildlife, given the proposed future landuse as a recreation park.

A paper on potential risks to flora and fauna was prepared by Eco Management Services for Tonkin Consulting as part of the assessment process. The authors concluded that as DDT and derivatives are bound to the soil, at the levels identified there is unlikely to be a hazard to wildlife. There was a possibility that earthworms would ingest contaminated soil and earthworm-eating birds and other fauna could thus (potentially) accumulate DDT. Environmental risks were assessed as very low however, for all animals except earthworms and possibly the birds that feed on some.

The audit was concluded in 2001 (Tonkin Consulting 2001). Koukourou Engineers (2001) presented a broadscale management regime for the area, over a ten-year time frame that would minimise risks associated with any chemical contamination that might remain. The auditor endorsed the following management regime as a prerequisite for signing off on the audit.

*First five years*

- remove exotics and clean up creek banks
- improve the grassing and car parking at the western end of the site
- establish and maintain fire breaks
- manage pine forest in accordance with good practice and thin as appropriate
- mow grasslands twice a year
- repair and maintain walking and horse trails
- establish fringe planting of open woodland (50m wide belt inside fire breaks)

### *Second five years*

- further revegetation of cleared areas with native grasses and trees
- stage progressive clearing of pine trees in accordance with long term management plan

In terms of future management of the land, the above regime should be adhered to as a component of this management plan. In addition, the three test bores in the former 'built-up' area should continue to be monitored as required. The sand covering of former 'build-up' area should be stabilised with planted grasses, where there is still some bare soil. The gravel covering of the former 'hot spots' should however be left undisturbed.

All earth works should be localised and carried out in a manner that does not increase the risk of erosion or silt run off into the creeks. It has been noted previously that soil erosion was a significant problem in the days of the Experimental Orchard (Hill 1999). Furthermore, this risk needs to be borne in mind when undertaking any activities that involve the removal of vegetation.

Recreational activities too, if they are not managed effectively (eg horse riding and mountain bike riding, particularly if this involves the un-authorised construction of new trails) and irresponsible riding away from designated tracks, can cause localised but potentially severe soil erosion and soil compaction. Ongoing and effective liaison with users groups will be required.

Visitors should be informed of any existing or erosion-prone areas and requested to avoid unnecessary intrusion by using the designated tracks provided. Construction of new trails requires due care. Siting of tracks and trails should be done in such a way that the potential for erosion is minimised. Remedial works should be undertaken and appropriate barriers installed to reduce erosion in sensitive and high impact areas.

Finally, while the soil-borne plant disease *Phytophthora cinnamomi* has not been found in this park, park managers still need to take all necessary precautions when contemplating earth-moving operations. The high level of recreational use (horses, bicycles and walkers) is also a factor, given the potential for spread of this disease. Soil should not be imported into the park (to create bicycle 'jumps' for example). The siting, designation and repair and re-location of tracks and trails should be undertaken with this potential problem in mind. The DEH officer responsible for dealing with the *Phytophthora* issue should be asked to provide advice, as and where necessary, regarding the future management of this park.

### **Objectives**

Manage the soils on the park to appropriate standards and consistent with the Audit Report (Tonkin Consulting 2001).

Ensure all activities on park minimise the likelihood of soil movement, particularly near the former 'built up' area and pesticide contamination 'hotspot' sites.

Protect soils in the park generally from adverse impacts, remedy any existing damage where possible, and limit erosion to natural processes.

Minimise the potential for soil-borne diseases to be introduced or spread.

### **Actions**

- Assess soil type and properties, including erosion potential, when planning for future management or visitor access or when undertaking management and development works (including track and trail construction).
- Permit bicycle riding, horse riding and walking on designated tracks only and restrict access in sensitive areas by effective control measures.
- Maintain, improve, repair (or close or relocate) access tracks and walking trails to stabilise soil as required.
- Take account of guidelines for managing contaminated land when planning access routes or management and development works (including track and trail construction) that involve movement of soil or use of machinery.
- Provide and regularly update information signs and interpretive material to encourage visitors to use existing walking trails and to avoid erosion-prone areas.

- Identify existing areas of erosion and undertake remedial works that may include access exclusion, natural regeneration, revegetation and pest plant removal.
- Continue to monitor the boreholes and any other sites for pesticide residues as required and develop management strategies to identify, monitor and remediate any additional hotspots.
- Take account of possible *Phytophthora cinnamomi* introduction/spread when planning access routes or management and development works (including track and trail construction) that involve movement of soil or use of machinery.

## 4.2 Hydrology and Topography

The park includes portions of two watercourses, which dominate the topography. Most of the park slopes towards an unnamed (seasonal) east-west flowing creek that virtually cuts the park in two. It is understood that the present course of the east-west creek was constructed by Experimental Orchard staff after the original watercourse was filled with stones, the by-product of site preparation for horticulture (D Reynolds personal communication). Elsewhere in this plan, it has been suggested that the east-west creek should be assigned an official name (see section 10 Managing Reserve Tenure). The confluence of this creek with the larger, north-south flowing Minno Creek (also seasonal) is near the Main Road/Turners Avenue corner.

Minno Creek, with a catchment area of approximately 18km<sup>2</sup> is an important sub-catchment of the Sturt River system. Minno Creek eventually joins the Sturt River about half a kilometre to the south of the park (Jensen 1995). The riparian environment associated with the two creeks is seen as a park value, particularly Minno Creek, which retains some large River Red Gums and mature, introduced trees. The shaded area along Minno Creek provides a pleasant environment for walking.

The lowest elevation (204m) occurs along the western boundary of the park in the vicinity of Minno Creek. From that low point, elevations rise on either side of the unnamed, east-west flowing creek. Jensen (1995) suggested that the lower-lying park land on the either side of Minno Creek might be subject to flooding during peak events (ie one-in-a hundred-year floods).

Adelaide's Mediterranean climate and topography of slopes and plains, plus human-induced changes to ground cover and drainage, can lead to rapid run-off when it rains. Flooding is most likely to occur after a long duration of rainfall, due to the combined effects of run off from the surrounding urban area and a substantial contribution from the up-stream catchment, which becomes saturated in these long duration storms.

The highest elevation (265.5m) is found at the north-eastern corner of the park and the northern half of the park has the steeper, south and south-west facing slopes (slopes of more than 15 - 25%). In contrast, gentler, north facing slopes are found in the southern half of the park, where the elevation only reaches 238m at the south-east corner. From the higher elevations, visitors to the park can enjoy pleasant views towards the west.

The east-west creek has a total catchment area of 75 ha, a portion of which (to the east of Myrtle Road) has been developed for housing. Jensen (1995) has stated that investigations by Tonkin and Associates indicate that during major flood events, there is now potential for significant flows to enter the park from the area east of Myrtle Road. Even in summer, a boggy area on this creek line can impede vehicular access along the eastern boundary firebreak in the park.

In addition, the park receives some urban run-off, from side-entry pits located in Turners Avenue along the southern boundary. A watching brief should be kept on these artificially wet areas and liaison with the responsible authorities instigated and maintained.

Under natural conditions, creeks reach equilibrium between natural erosion forces and the land cover of the original floodplain and catchment area. Extensive changes to land cover have disturbed this balance and as a result of settlement, vegetation clearance, and urban development, creek systems have entered a new cycle of instability and stream bank and stream bed erosion. In terms of catchment issues, Blackwood Forest Recreation Park receives urban run-off from surrounding properties, and input via the creek systems. It would be desirable if all the water entering the park was of the highest quality and in volumes similar to natural flows, but this seems unlikely given the changes to the catchment.

The park's past landuse for horticulture resulted in pesticide contamination. It would be most undesirable if these chemicals were to enter the catchment. The Site Audit Report (Tonkin Consulting 2001) was reassuring on this count. All laboratory analysis results for samples taken from Minno Creek and the east-west creek were below detection limits. The auditor concluded that surface water contamination does not constitute an unacceptable environmental risk and was not of concern, provided a management regime as proposed in this plan was adhered to.

However, it would seem prudent if future on-park activities did not increase run-off, nor create downstream impacts and possibly degrade water quality. Insensitive management/ development works, uncontrolled public use or loss of riparian vegetation can exacerbate negative effects. The potential for erosion and the resultant siltation/contamination of creeks is therefore seen as a park management issue (see section 4.5 Introduced Plants). It would be desirable to restore the creek environments in the park to a condition that more approaches 'natural' and thereby ameliorate the impacts of urban run-off elsewhere in the park. However, the construction of artificial wetlands that would pond water should not be contemplated. This is because creating such habitats might encourage some bird species to forage for food and inhabit the site longer, as well as opening up exposure pathways, thus increasing the risk of poisoning (Tonkin Consulting 2001).

The Adelaide and Mount Lofty Ranges Natural Resources Management Board (incorporating the former Patawalonga Catchment Water Management Board), who are responsible for improving water quality through improved catchment management practices, can assist park management by ensuring that all activities along the creeks of the catchment are compatible with the preservation of natural flows and the conservation of biodiversity. By this means, all aspects of the natural resources of the catchment can be effectively managed for the benefit of the public and the natural environment. The former Patawalonga Catchment Water Management Board prepared a Biodiversity Action Plan for Sturt River - Minno Creek that includes strategies complementary to this management plan. There is an old gauging station located on Minno Creek that is not currently in use. Future requirement for this facility should be subject to liaison from the City of Mitcham and the Adelaide and Mount Lofty Ranges Natural Resources Management Board.

Actions to address riparian management issues undertaken in the park need to continue in conjunction with the Adelaide and Mount Lofty Ranges Natural Resources Management Board. Developing new and enhancing existing partnerships with other natural resource management organisations will be a priority in the immediate future. DEH should cooperate with the Adelaide and Mount Lofty Ranges Natural Resources Management Board and the City of Mitcham to implement/maintain flood mitigation measures, which may contribute to the reduction of risk of flood damage in the Blackwood Forest catchment. It is understood that the City Of Mitcham has acquired some creek frontages to ensure proper management. Creek bank stabilisation/restoration should also be a priority in the park.

Tonkin Consulting (2001) indicate that there are 34 registered water bores within a 1km radius of the park. Regional standing groundwater levels range from approximately 1m to 80m in depth, and is of varying quality. Koukourou Engineers (2001) sampled groundwater as part of the environmental investigations into pesticide contamination, installing three new wells and sampling an old one on the area now park. The laboratory analysis results showed samples were either below detection limits or either below or comparable to industry standards for ecosystems fresh water investigation levels.

The Environmental Auditor concluded that groundwater contamination was not an issue of concern, stating that the potential for off site effects of contamination migration from the site; eg as a result of leaching of contaminants into the groundwater table, or as stormwater runoff, was negligible.

## Objective

Restore and maintain natural hydrology as far as possible.

## Actions

- In collaboration with the Adelaide and Mount Lofty Ranges Natural Resources Management Board continue the environmental restoration of Minno Creek. In particular, ensure that existing adjacent park management and recreation activities are compatible with maintaining the environmental values of the creek.
- Manage on-park (and engage with other authorities and neighbours regarding off-park) activities to minimise adverse impacts on the hydrology and creek systems within Blackwood Forest Recreation Park.
- Participate in regional catchment management programs, in partnership with the Adelaide and Mount Lofty Ranges Natural Resources Management Board and the City of Mitcham, in support of flood mitigation schemes and to minimise any negative impacts to the Minno Creek and Blackwood Forest catchment.
- Collaborate with the Adelaide and Mount Lofty Ranges Natural Resources Management Board to identify and repair existing areas of erosion through coordinated revegetation and pest plant eradication programs.
- Ascertain status and need for flow recording station on Minno Creek and liaise with the Adelaide and Mount Lofty Ranges Natural Resources Management Board on future operation.
- Continue to encourage and support the involvement of volunteers in revegetation programs and (potentially) the monitoring of water quality.
- Continue to support the environmental restoration of Blackwood Forest Recreation Park and manage the terrestrial areas of the park in a manner that positively contributes to water quality in the creeks on park.

## 4.3 Native Vegetation

Prior to colonial settlement, forest and woodland covered most of the Mount Lofty Ranges, but the progressive spread of settlement and agriculture has resulted in vegetation patterns much altered from the pre-settlement condition. This is exemplified by Blackwood Forest Recreation Park, land that was taken up for farming in the 19<sup>th</sup> century and then used as an experimental orchard and forest reserve for much of the 20<sup>th</sup> century. The few examples of native vegetation seen in the park today have survived (or re-colonised after) a protracted history of clearing, farming, grazing and replacement by introduced species.

The vegetation of Blackwood Forest Recreation Park has been extensively altered and the only native vegetation (in any quantity) is to be found on the eastern perimeter and along the two watercourses. About 8 ha of the park is Monterey Pine (*Pinus radiata*) plantation and the remainder an open grassland dominated by introduced Phalaris grass (*Phalaris aquatica*). It is possible however, that a more thorough survey of the park's vegetation would reveal some native species of interest.

Prior to colonisation, the vegetation of the park would have comprised, for the most part, a grassy Open Woodland of Grey Box (*Eucalyptus microcarpa*) with native understorey species including Kangaroo Thorn (*Acacia paradoxa*), Golden Wattle (*Acacia pycnantha*), Kangaroo Grass (*Themeda triandra*) and Wallaby Grass (*Danthonia caespitosa*). Grey Box is rated as Uncommon (see Appendix B) in the southern Mount Lofty Ranges and Grey Box Woodlands are limited in their distribution to the foothills and hill slopes south of Adelaide (roughly the area between the Princes Highway and McLaren Vale).

There is now little evidence of this vegetation association in the park, although the firebreak on the eastern side of the pine forest is being re-colonised by Grey Box (*Eucalyptus microcarpa*), South Australian Blue Gum (*Eucalyptus leucoxylon*), Native Cherry (*Exocarpus cupressiformis*), Golden Wattle (*Acacia pycnantha*), Flax Lily (*Dianella revoluta*) and the rush (*Juncus usitatus*). Within the pine forest, there are some remnants of Wallaby Grass (*Danthonia* spp) and Spear Grass (*Stipa* spp) but few other native species.

The presence of Grey Box in Blackwood Forest Recreation Park (and more particularly in the adjacent Archibald Reserve managed by the City of Mitcham) is significant, relatively, in terms of park biodiversity values and future protection is important. Archibald Reserve is the closest source of native plant genetic material for revegetation efforts.

Along the water courses, another major vegetation association would have occurred - an Open Woodland of River Red Gum (*Eucalyptus camaldulensis*) with an understorey that would have probably included Silky Tea-tree (*Leptospermum pubescens*), Swamp Wattle (*Acacia retinodes*), the sedge *Cyperus vaginatus* and the rush *Juncus pallidus*. Today some River Red Gums and a few *Acacias* along Minno Creek area are all that remain - the large trees provide nesting hollows for wildlife. Some smaller, regrowth specimens of River Red Gum can be found on the east-west creek line.

Consequently, in terms of its conservation significance rating, Blackwood Forest Recreation Park is not biodiverse, as little natural habitat remains and there is a large number of introduced species. However, as well as the natural regeneration mentioned previously, local community members have planted River Red Gums, Drooping Sheoaks (*Allocasuarina verticillata*), along with a few native shrubs, including Kangaroo Thorn and Golden Wattle near the Main Road/Turners Avenue corner. Revegetation undertaken by the community has thus far involved concentrating on limited tree/shrub planting and it would be desirable to build on that enthusiasm. It is important though, to establish future weed control and native vegetation re-establishment programs according to an approved management plan.

The preparation of a landscape plan for this park would be useful to provide a clearer idea on just what park managers and community volunteers are going to be dealing with in the future. The long-term re-introduction of native vegetation would be guided by the landscape plan, which would provide a strategic approach to conservation management and recommend actions to systematically remove/control weeds and unwanted introduced plants, and replace them with indigenous native species of local provenance. The main areas proposed for initial revegetation are the creeklines/watercourses, particularly the Minno Creek precinct and areas closely linked to other reserves (eg Archibald Reserve).

DEH has an interest in partnering landowners adjacent to, and upstream of the park in managing remnant native vegetation in a manner that protects and improves natural biodiversity and contributes to the creation of biological corridors and improved catchment water quality. In this context, the City of Mitcham and community groups associated with the catchment area have been involved in restoring riparian habitats by removing woody weeds and replacing them with more appropriate native species. There may be merit in extending this work into the park.

### **Objective**

Encourage restoration of native vegetation in the park and reduce threats, particularly to any plants conservation significance.

### **Actions**

- Prepare and implement a landscape plan for the park and identify rehabilitation priorities; encourage natural regeneration and integrate weed control programs according to the recommendations embodied in that plan. (see section 4.5 Introduced Plants)
- Develop and maintain partnership arrangements with the managers of neighbouring properties to ensure that as far as is feasible, efforts at vegetation management are integrated on a regional basis.
- Support and encourage the Friends of Blackwood Forest Recreation Park and other volunteer organisations and individuals, to continue revegetation programs and to assist with monitoring species of conservation significance in collaboration with DEH.



#### 4.4 Native Fauna

The spread of settlement in the Mount Lofty Ranges resulted in a general decline in the number and abundance of native fauna species, and only a fraction of the pre-colonisation vertebrate biodiversity now remains. Severe habitat modification through land clearing and the introduction of exotic animal species, both as predators and as competitors for food and habitat, have been the major factors contributing to a decline in mammal populations. Birds have fared better and although a number of the species present at the time of settlement are now extinct (or under threat), conversely, some species such as Australian Magpies (*Gymnorhina tibicen*) have flourished with the alteration in habitat.

Although Blackwood Forest Recreation Park is bordered by residential properties and subject to disturbance by human activity, as semi-natural open space located within a larger zone of remnant native vegetation, it forms a useful habitat corridor. While only providing fairly degraded habitat, it can still function as a refuge and feeding area for some species of wildlife. Park managers need to treat native fauna species and the protection of habitat seriously.

Tonkin Consulting (2000) include a working paper on Fauna and Flora prepared by Eco Management Services in the context of assessing the ecological risk of pesticide residues on wildlife. This summarised the current state of knowledge on native fauna of Blackwood Forest Recreation Park and included a list of fauna sightings from Jensen (1995). The following is a precis of the limited information available.

##### Reptiles and Amphibians

Despite the general decline in faunal populations, interesting species still inhabit the Mount Lofty Ranges. Seven species of frogs are widely dispersed throughout the Adelaide region, most occurring in the vicinity of permanent or temporary water or in other well-watered areas. Although there are no records of amphibians for the park, the riparian zone may prove to be significant for this reason.

Reptiles are also well represented in the Mount Lofty Ranges and tortoises, lizards and snakes have been seen in the park. Small skinks would be common and poisonous reptiles are likely to inhabit the area, including the Eastern Brown Snake (*Pseudonaja textilis*) on higher ground and the Red-bellied Black Snake (*Pseudechis prophyriacus*) along the creeks and watercourses.

##### Mammals

The cleared and modified environment of the park provides less than ideal habitat for native mammals, since the majority of these species rely heavily on areas of intact native vegetation for their survival. However, Echidnas (*Tachyglossus aculeatus*) and Koalas (*Phascolarctos cinereus*) have been sighted in the park. It should be noted that Blackwood Forest is not considered part of the former distribution range of the Koala.

The Common Brushtail Possum (*Trichosurus vulpecula*) is well adapted to an urban environment and occurs commonly throughout the Ranges and is likely to inhabit any large, hollow trees. The Common Ringtail (*Pseudocheirus peregrinus*) although more abundant in dense natural scrub, can also live close to urban settlement and may be present.

The status of bats within the park is inconclusive, but species found at Belair National Park may also occur at Blackwood Forest.

##### Birds

Eco Management Services (cited in Tonkin Consulting 2000) evaluated the hypothetical impact of pesticide residues on the bird species that had been listed in Jensen (1995). It is very likely that more systematic bird watching would record other bird species, if not resident in the park, at least in transit.

The native bird species that have been recorded from the park include Australian Magpie, Adelaide Rosella (*Platycercus elegans*), Australian Magpie-lark (*Grallina cyanoleuca*), Grey Currawong (*Strepera versicolor*), New Holland Honeyeater (*Phylidonyris novaehollandiae*), Little Raven (*Corvus mellori*), Noisy Miner (*Manorina melanocephala*), Rainbow Lorikeet (*Trichoglossus haematodus*), Red Wattlebird (*Anthochaera carunculata*), Willy Wagtail (*Rhipidura leucophrys*), and the Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*). Superb Blue Wrens (*Marulus cyaneus*) inhabit the Blackberry thickets.

Perhaps the most significant of these is the Yellow-tailed Black Cockatoo, which is considered vulnerable in South Australia under the *National Parks and Wildlife Act 1972* (see Appendix B). With the loss of native vegetation, these birds feed (in part) on the seeds in pinecones, and the continued existence of the pine plantation may be of importance as a local food source. The locally indigenous food source commonly consumed by the cockatoos is the Erect Hakea (*Hakea carinata*). Information obtained from the dietary research is assisting in the selection of such species for revegetation programs in key areas. South Australian research has also highlighted the need to retain some stands of pines until revegetated areas can support the population (van Weenen personal communication). The removal of pines from the park must be staged and in coordination with revegetation of a native food source (see section 4.5 Introduced Plants).

The audit report (Tonkin Consulting 2001) concluded that for the most part, the levels of pesticides detected were unlikely to have any adverse effects on the wildlife in general and bird population in particular. DDT and metabolites are bound to the soil; leaching to waterways is unlikely and aquatic organisms are generally safe. Only when soil-bound DDT is ingested by an organism can it enter the food chain. Earthworms do this, and creatures that eat earthworms could thus accumulate DDT. It seems unlikely however, that with the possible exception of species like the Australian Magpie and Australian Magpie-lark that ingest earthworms, there would be any long-term impact from pesticide residues.

The land was therefore assessed as a generally low-hazard risk to wildlife in terms of DDT and arsenic contamination. It should be noted that a cautionary comment was made in regard to a proposal to create an artificial wetland that would have presumably encouraged earthworm-eating birds to feed more frequently on the site. That is not a current option, and so pesticide residues are unlikely to prove a problem for wildlife (Tonkin Consulting 2001).

### **Objective**

Identify, manage and protect all native fauna inhabiting or using the park and undertake habitat management projects designed to support wildlife.

### **Actions**

- Encourage approved volunteer groups and individuals to conduct fauna surveys and undertake population monitoring. Investigate opportunistic sightings to verify species identification.
- Integrate fauna habitat restoration with native revegetation efforts and weed management programs.

## **4.5 Introduced Plants**

Today, Blackwood Forest Recreation Park is primarily a 'cultural landscape' dominated by introduced vegetation. It has distinctive visual qualities due, in a large part, to its non-indigenous vegetation, and that poses a dilemma for traditional national park managers, who are involved mainly with natural habitat management. There are a number of distinctive landscape elements within the park environs (Eco Management Services cited in Tonkin Consulting 2000).

The pine forest, around 8 ha in extent, straddles the east-west creek line and physically dominates the higher ground. It comprises a compartment planted in 1952 and a surrounding compartment planted in 1972. The original 1952 plantation and the southern section of the 1972 plantation have been thinned at various times, but the steeper, northern part of the 1972 plantation has not been treated in the same manner and these unthinned sections are becoming senescent. Although it is considered desirable (in the longer term) to remove the pines entirely, at present they provide visual amenity, shade and recreational opportunities. Aggressive thinning has the potential to result in wind throw and whole-scale removal (ie clear felling) could encourage soil erosion (see section 4.2 Hydrology and Topography). Furthermore, pines are an important food source for the Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*) (see section 4.4 Native Fauna). Any proposal to remove pines would need to be incremental and staged in coordination with planting the locally indigenous food source Erect Hakea (*Hakea carinata*). This approach would also minimise the disturbance to soil structure, amenity and recreation.

From preliminary advice received from Forestry SA, it would be appropriate to re-thin the 1952 plantation and the previously thinned part of the 1972 plantation to around half the current stocking rate. The northern unthinned portion of the 1972 plantation will also be thinned (R Smith personal communication). It is proposed that professional advice be obtained on implementing a progressive thinning program to ensure pine plantation health over a 30 year time period, but with the ultimate aim of replacement where appropriate with native Grey Box, Erect Hakea and associated understorey vegetation. To achieve this it is proposed to thin the pine plantation incrementally, from the eastern side of the park, and replace it with native vegetation.

Reduction of the pine plantation, especially on the southern side, is also required for fire prevention purposes, in particular to protect dwellings along the southern boundary.

Within the forest, there is a ground cover (in the more open areas) of Phalaris grass and clumps of Blackberry (*Rubus fruticosus*), Boneseed (*Chrysanthemoides monillifera*) and African Daisy (*Senecio pterophorus*). Figs (*Ficus carica*) are also present. Weed control will therefore need to be addressed, integral to the thinning process, as opening up the forest canopy may encourage weed growth. Blackberry thickets should be incrementally removed and replaced with native vegetation, as they can provide habitat for native bird species such as Superb Blue Wrens.

There are several Carob trees (*Ceratonia siliqua*) on the creek within the pine plantation that are presumably planted specimens and may have some historic significance. Some of the 'break' pine trees from what was the northern edge of the 1952 compartment have developed large limbs and are used by children for climbing. It would be desirable to retain these trees provided they remain in a safe and healthy condition.

Most of the remainder of the park (with the exception of the riparian zone) is open grassland dominated by Phalaris grass and a range of garden weeds and pasture grasses, including Salvation Jane (*Echium plantagineum*). There are also some large clumps of Blackberries within the grassland. Currently the grasslands (and firebreaks) are mown biannually as a fire management measure, while their future is determined. Until the alternatives are explored, the grasslands will be retained as open areas.

Little remains of the orchard that once covered the area, although there are some fruit trees along the east-west creek line that are probably self-seeded. Fruit tree varieties present include specimens of Apple (*Malus domestica*), Loquat (*Eriobotria japonica*), Mulberry (*Morus alba*), Olive (*Olea europaea*), Pear (*Pyrus communis*), Plum (*Prunus salicina*), Quince (*Cydonia oblonga*) and Walnut (*Juglans regia*). The majority are believed to be descendants of the rootstock varieties that were once used in the orchard (see section 6.2 Non-indigenous Heritage). The rows of Olives (*Olea europaea*) along Turners Avenue and in the north-western corner of the park are believed to be original plantings.

There are also garden escapes that have gone wild including Ash (*Fraxinus* spp), Blackberry, Cootamundra Wattle (*Acacia baileyana*), Easter Lily (*Amaryllis belladonna*), Hawthorn (*Crataegus monogyna*), Pampas Grass (*Cortaderia seloana*), Tree of Heaven (*Ailanthus altissima*), Blue Periwinkle (*Vinca major*), English Broom, (*Cytisus scoparius*) and Water Spiderwort (*Tradescantia fluminensis*). The riparian environment along Minno Creek that was originally River Red Gum Woodland has been infiltrated by exotic species. In that locality, planted exotics of character include English Oaks (*Quercus robur*), Elms (*Ulmus procera*) and other ornamental trees.

Hence, both the upland and riparian zones of the park are highly modified and contain many introduced plant species, some of which are considered weeds and regarded as major threats to indigenous plant communities. Some introduced plants that occur in the park, including Blackberry, Olive, Boneseed, Salvation Jane and African Daisy, require control under the *Natural Resources Management Act 2004*. Weed control needs to be a major focus of park management.

The need has been expressed (see section 4.3 Native Vegetation) for a comprehensive landscape plan. The management of non-indigenous vegetation within the park will be guided by this landscape plan, that will provide a long term, strategic approach to conservation management and recommend actions to control introduced plants, focussing on sustainable outcomes. Plants of conservation significance should be protected and the plan should outline 'best practice' strategies to ensure their survival. It is most important that weed control activities do not inadvertently impact on the native plant species or the communities they are intended to benefit – incremental removal and replacement with native species may be required.

To effectively manage the threat of weed reintroduction, a regional integrated weed control program needs to be developed, involving the surrounding property owners/managers, City of Mitcham, Adelaide and Mount Lofty Ranges Natural Resources Management Board and DEH. Weed control programs should be coordinated according to priorities outlined in the aforementioned landscape plan and the legal requirements of the *Natural Resources Management Act 2004*.

To achieve this, DEH has an interest in partnering community groups and landowners adjacent to the park in managing remnant native vegetation in a manner that protects and improves natural biodiversity and contributes to the creation of biological corridors and improved catchment water quality. In this context, the community groups associated with the Archibald Reserve (City of Mitcham) and the former Patawalonga Catchment Water Management Board have been involved in restoring habitats by removing woody weeds and replacing them with more appropriate native species. There would be merit in extending this work into the park. The main areas proposed for initial revegetation are the creeklines/watercourses, particularly the Minno Creek precinct and areas closely linked to other reserves (eg Archibald Reserve).

It should be noted that some non-indigenous trees may be original, planted specimens (see section 6.2 Non-indigenous Heritage) or descendants, that could be historic links with the Experimental Orchard era. Such plants might be considered part of the park's cultural heritage and therefore of historic value. DEH recognises the need to conserve trees and vegetation that are significant for either natural or cultural reasons. Given its origins as an experimental orchard, this is recognised as an issue in Blackwood Forest Recreation Park.

Provided such plants are non-invasive or at least manageable, they can remain. If species are by nature invasive (eg Ash, Hawthorn, Olive) they should be removed. Olives are considered to be a 'woody weed' and although the original plantings may be of horticultural significance, their historic status will be assessed and determined. If investigations prove they have no historic significance, individual Olive trees will be subject to removal. Regardless of the ultimate fate of the parent trees, Olive seedlings will be removed and the same applies to pine seedlings that grow external to the pine plantation.

Finally, some native trees and planted exotic specimens may be regulated under the *Development Act 1993*. Advice on their cultural/horticultural importance should be obtained from knowledgeable persons before a decision is taken for retention/removal. Trees that are retained should be given proper arboricultural treatment, so that they remain in good health. However, where a tree is causing damage to property or is considered a safety hazard, appropriate steps must be taken to ensure safety requirements are maintained.

### **Objectives**

Control and if possible eliminate proclaimed plants and minimise the adverse impact of introduced plant species.

Retain and manage non-invasive trees of horticultural or historical significance.

### **Actions**

- Fulfil the obligations of the *Natural Resources Management Act 2004* within allocated resources.
- Encourage the development of partnerships with the local community and contribute to integrated regional weed control programs that will establish pest plant control priorities and actions, and combine weed control with native plant revegetation efforts on neighbouring land.
- Prepare and implement a landscape plan that will set long-term, achievable and measurable goals and include programs for coordinated pest plant control, invasive species removal/management, land rehabilitation and revegetation with native species of local provenance.
- Stage the removal of pines in coordination with revegetation programs using native food species Erect Hakea (*Hakea carinata*) for the Yellow-tailed Black Cockatoo.
- Provide adequate protection for regulated trees under the *Development Act 1993* and collaborate with the Heritage Branch of DEH, City of Mitcham and other authorities to identify regulated trees/plants of historic or horticultural significance.
- Provide interpretive information on historic plantings, revegetation programs and the adverse impacts of introduced plants to increase public awareness.

## 4.6 Introduced Animals

While no detailed mammal surveys have been undertaken for Blackwood Forest Recreation Park, a number of introduced mammal species occur in the wild throughout the Mount Lofty Ranges and would in all probability inhabit or transit the park. The European Rabbit (*Oryctolagus cuniculus*), Brown Hare (*Lepus capensis*), House Mouse (*Mus musculus*), Black Rat (*Rattus rattus*), Cat (*Felis catus*) - probably domestic strays - and Red Fox (*Vulpes vulpes*) have all been seen at various times (Jensen 1995).

Predators such as foxes and cats have had a considerable impact on indigenous animals, birds, reptiles and invertebrates. Careful management through integrated pest control programs is the best way (until some long-term biological control alternative arrives) to ensure that pest animal numbers are reduced with minimal impact on native flora and fauna.

However, given the park's proximity to residential properties, comprehensive introduced animal control programs are unlikely to be feasible, due to the risk of domestic animals inadvertently consuming poison baits intended for introduced species. There may be opportunities in the future, however, to develop acceptable control programs in cooperation with neighbours and pest animal reduction will remain on the management agenda.

### **Objective**

Ensure safe and effective control of introduced animals.

### **Actions**

- Undertake surveys to determine the extent of introduced animal populations and their relative impact on native flora and fauna.
- Monitor introduced animal populations within the park and devise pest control programs in accordance with priorities, taking into account the benefits versus the costs of possible adverse impacts to native wildlife and other off-target impacts of such programs.
- If control programs prove necessary, work in cooperation with adjoining landowners, the Adelaide and Mount Lofty Ranges Natural Resources Management Board, the City of Mitcham, the Friends of Blackwood Forest and the wider community to achieve effective pest animal control.
- Provide interpretive information on the adverse impacts of introduced animals and any control measures being undertaken, to increase public awareness.

## 5 MANAGING FIRE

Fire management mechanisms are a necessary component of good park management. This is especially the case with Blackwood Forest, considering the park's close proximity to neighbouring properties and suburban residential areas, and given that it is located in a relatively well vegetated part of the Mount Lofty Ranges. Anecdotal reports indicate that fire has not been a major problem in the reserve, although two small fires have occurred in the past five years.

Solid-fuel fires are not permitted in the park. Only gas barbecues may be used, except on total fire ban days when all types of fire including gas barbecues are prohibited. On days of extreme fire danger, the park may be closed to the public in the interests of safety, although this has not yet proved necessary.

To coordinate fire prevention, the City of Mitcham has prepared the Mitcham Bushfire Prevention Plan. The plan's strategies include the reduction of fuel hazard by removing highly flammable introduced shrub and weed species. The plan also includes the establishment and maintenance of firebreaks on land controlled by the City of Mitcham. Firebreaks are inspected regularly for regrowth and combined with the establishment of native indigenous species to reduce infestation of exotic flammable plants.

Consistent with the Mitcham Bushfire Prevention Plan, park staff undertake an annual bushfire prevention program, which involves reducing fuel levels by maintaining mown firebreaks around the park perimeter and slashing open grassland areas. Overhanging vegetation is cut back, while blackberries and other woody weeds are removed to reduce shrub fuels.

Thinning of the pine forest has not been considered at this stage as it is likely to encourage the growth of grasses and other plants in the understorey. This may increase the level of surface fuels and risk of fire, given the nature of the terrain and the frequency of gully winds. Similarly, there is potential for an increased fire risk as a result of any revegetation of the open grassland areas with native species in an attempt to increase biodiversity and native fauna habitat. Reduction of the extent of the pine planting on its southern boundary has been identified as an appropriate fire prevention measure following expression of community concern and in consultation with the Mitcham Bushfire Prevention Committee. Ongoing management to minimise fire risk will be required regardless.

The use of fire to reduce fuel hazards or for habitat manipulation has not been applied in this park. For DEH to use fire as a management tool, a comprehensive fire management plan would need to be developed to address the issue.

A fire management plan will be prepared for the park, in consultation with adjoining Country Fire Service Groups and the District Bushfire Prevention Committee, to integrate district fire management. Stakeholders and the wider community will also be consulted to ensure an understanding of the fire risks and mitigating actions being proposed or undertaken in the reserve.

Fire management planning will:

- identify natural and cultural heritage values and built assets;
- provide a framework for the management of wildfire suppression, including identification of strategic access and control lines;
- provide a framework for prescribed burning for ecological management and fuel reduction purposes; and
- identify performance indicators.

### ***Objective***

Manage fire to ensure the protection of life and property, the maintenance of biodiversity and the protection of natural, cultural and built values.

### ***Actions***

- Develop, implement and review fire management plans in association with CFS and other stakeholders.
- Continue to work with the relevant District Bushfire Prevention Committee and CFS to minimise risk to life and property within and surrounding the reserve.
- Until a fire management plan is developed, continue to:
  - Re-assess the bushfire threat posed by the pine plantings and take appropriate action;
  - Comply with the provisions of the Mitcham Bushfire Prevention Plan; and
  - Maintain a strategic network of fire access and fuel reduced areas.
- Ensure visitors comply with any fire restrictions and the fire ban season (between December 1 and April 30 each year) by providing information and monitoring visitor use.

## 6 MANAGING CULTURAL HERITAGE

### 6.1 Indigenous Heritage

#### Kurna Culture and Heritage

The land comprising Blackwood Forest Recreation Park forms part of the 'Country' of the Kurna people (Tindale 1974). For Kurna people, land and waters have many interconnected complex meanings and values. The significance of land and waters is central to their lives: at birth, death, ceremonies and socially, whilst hunting, gathering camping, and travelling. The term 'story lines' is the term used to describe the combination of these aspects of life, religion, mythology, law and history which includes the past, the present and the future. The term 'story lines' should be understood in its Aboriginal context, which relates to significant and holistic spiritual and cultural stories and events, which weave together broad and complex concepts and describes the millennial journey of Aboriginal peoples in a comprehensive way.

Prior to colonial settlement in 1836, the Kurna people lived in and managed the natural environment of the Adelaide region, which provided abundant resources. Skilful indigenous technology was capable of supplying adequate food and shelter without the need to move constantly. This lifestyle led to concentrations of archaeological deposits throughout Kurna Country.

The available information suggests that the plains and foothills provided a more congenial location for Aboriginal occupation than the colder, heavily-wooded, central Mount Lofty Ranges, although the natural resources of the Ranges were used by the Kurna on a seasonal basis. Tindale (1974) was of the opinion that the Kurna practised transhumance (ie they moved on a consistent, seasonal basis between different environmental zones) migrating towards the sea for the summer and inland for the winter each year.

The Kurna are understood to have called the region of the Mount Lofty Ranges that includes Blackwood Forest Recreation Park 'Piraldi', a word attributed with various meanings, including the moon, shaven or bald. It has been suggested too, that as the area lacked a permanent water supply, it would have been used for hunting, rather than for continuous habitation (Blackwood Business Network 2002).

Perhaps then, the most significant impact of the Kurna on the natural environment may have resulted from their use of fire. Early accounts state that they regularly lit fires to encourage patches of tender, new plant regrowth and thus attract game. Animals overcome by the fire and smoke provided a welcome addition to the menu. Depending on the prevailing weather conditions, the extent of these fires may have been considerable at times. However their ecological impact on the structure and composition of native vegetation and fauna populations, after (presumably) thousands of years of periodic burns, can only be surmised.

Following colonial settlement, the Kurna population was substantially reduced as a result of introduced diseases, dispersal, dispossession of their land and water supplies, and sometimes through violent conflict.

Today, Kurna people live on their country and practise their culture and language. Some of the language and traditional stories have been recorded, however, to date the full extent of Aboriginal heritage at Blackwood Forest has not been comprehensively researched.

Due to historical or cultural reasons, any knowledge of the of the cultural heritage of the region may be privileged and available only to selected Kurna people. It can therefore not necessarily be recorded. Given the lack of existing information, it is considered important that further research be undertaken in order to gain a better understanding of the Aboriginal occupancy and use of the area.

#### Aboriginal Heritage Act 1988

The purpose of the *Aboriginal Heritage Act 1988* is the protection and preservation of Aboriginal sites, objects and remains. The Department of Aboriginal Affairs and Reconciliation (DAARE) maintains a Central Archive, including the Register of Aboriginal Sites and Objects. Aboriginal site is defined under the Act as "an area of land that is of significance according to Aboriginal tradition; or that is of significance to Aboriginal archaeology, anthropology or history."

Although there are no sites listed on the Central Archive for Blackwood Forest Recreation Park, the best available information is in Jensen (1995) who included a report by Naomi Dixon of the Kurna Aboriginal Heritage Committee. She was engaged to undertake an archaeological survey of the land to:

- locate and record any Aboriginal sites or objects that may be under threat due to development or use of the land; and
- consult with the Kurna Heritage Committee to establish their concerns (if any) in relation to the site.

The survey report concluded that 'as there were no Aboriginal archaeological sites found within the study area, there can be no objections, on archaeological grounds, to any development proceeding'. The report recommended that:

- in the event of any development of the site, two Kurna assistants should be employed to monitor all excavation works; and
- in the event that cultural material is unearthed or becomes exposed during any stages of work, all ground works should cease immediately and an officer from the Department for Aboriginal Affairs and Reconciliation and Chairperson of the Kurna Heritage Committee should be contacted and advised immediately.

To promote better cultural heritage management at Blackwood Forest Recreation Park further research needs to be undertaken to identify and record sites of significance on the park. To ensure the protection of cultural heritage sites, DEH staff will consult with DAARE and the Kurna Aboriginal Heritage Committee before commencement of significant development works.

## 6.2 Non-Indigenous Heritage

Colonial settlement in the Belair-Blackwood area began from the mid-1830s and the first road access from the plains (Old Belair Road) was made in about 1840. That road was later extended south, through Coromandel Valley and on to Clarendon, and included a section (now Main Road) that skirts the western boundary of the park. Development in the district accelerated after the railway line to Melbourne was constructed. The Blackwood Railway Station opened in 1883 (Blackwood Business Network 2002).

Early South Australian horticulture started out with trial and error adaptation and acclimatisation of 'useful' European plants. This approach achieved mixed success and by the 1870s, it had become obvious that a change was required. In a comprehensive paper exploring the state's early olive industry, Hill (1999) provides an excellent summary of the more scientific, professional and institutionalised approach that prevailed from the latter part of the 19<sup>th</sup> century and in which the Blackwood Experimental Orchard played a significant part. Much of the following historical summary is derived from that paper.

The economic depression of the mid-1880s coincided with a general decline in agriculture state-wide. The remedy suggested for this malaise was progressive, scientific agriculture, based on research, extension and educational services, including experimental and model farms. The majority of the people then involved in agriculture (and horticulture) had an expectation that the state government would promote and protect agricultural interests and be responsible for research and development activities.

Horticulturists recognised the importance of knowing the correct names and characteristics of the varieties of trees with which they were dealing. To remedy the problem of confusions among cultivated varieties, it was suggested in 1892 that the government should establish an 'educational orchard' where fruit trees and vines would be grown under their correct names. Hence in 1895 the Minister of Agriculture gave approval for a 'type orchard' to be established under the control of the Director of the Botanic Garden. At that time, the only organisation that had undertaken any horticultural research was the Botanic Garden, whose preferred location for the proposed 'type orchard' was where the North Terrace campuses of the Universities of Adelaide and South Australia are now located.

It seems doubtful if any fruit trees were ever established near North Terrace. A second location near Mylor was selected in 1898 and the first trees planted the following year. The Mylor Type Orchard thus became the first of a number of South Australian experimental orchards and by 1904-5 there were a total of 4955 varieties growing there.



Unfortunately, Mylor proved to be an unsatisfactory location for an experimental orchard, and fruit trees planted at Roseworthy Agricultural College did not thrive as expected either. The unhappy horticultural experiences at these two locations resulted in calls for a specialised experimental orchard to be established, to be under the direction of the newly created Department of Agriculture.

This coincided with some inter-agency feuding between the Botanic Garden and the Department of Agriculture. For a time another demonstration orchard existed at Hackney, but in 1908 the government acquired 52 acres of land at Blackwood 'for the purpose of establishing an orchard in which to conduct experiments and demonstrations in fruit culture and to test varieties of fruit not common to the State'.

And so on 17 March 1908 part Section 867 in the Hundred of Adelaide (containing 51 acres, 3 roods) was purchased for the sum of £800 from George Frederick Dall, a farmer of Blackwood. The site chosen for the Blackwood Experimental Orchard was considered particularly favourable to apples and pears. It was (arguably) the second experimental orchard in South Australia.

By the end of 1908 the property had been fenced and ditched and 15 acres cleared and prepared for planting. A hexagonal layout was used, with less than the standard 20 foot spacings between trees. The number of fruit trees planted increased each year and in 1911 the remaining collection at Mylor was transferred to Blackwood.

Under the administration of the Department of Agriculture, the role of the Blackwood Experimental Orchard was significantly different from that of the Mylor Type Orchard. While identification of varieties and distribution of correctly named cultivars to nurseries and horticulturists continued, experimental work also became a major focus. As a result, by 1927 the department had accumulated enough data to be able to advise:

"...as to the flowering periods, the ripening seasons, the habits of growth, fruit capacities, the quality of the product, the hardiness and keeping qualities, as well as the relative liability or resistance to pests and diseases of every variety of tree ordinarily grown in Australian orchards" (Hill 1999).

In the early years there were 1610 apple varieties, 8 pear, 295 peach, 72 nectarine, 340 plum and 108 apricot as well as small collections of loquat, walnut and olive varieties. Twenty-seven olive cultivars were planted in a row along what is now Turners Avenue (see Appendix A). At a later date another row of olive varieties was planted along Myrtle Road, and rows of olives were also planted in the other two corners of the property. The fact that some of these original olive specimens still remain today (2004) is considered horticulturally significant.

Over the years, trials and experiments were carried out on 'apple bitter pit', fertilisers, irrigation, pruning, cool fruit storage, plant quarantine and orchard pest control. A wide range of pesticides was used at various times including DDT, Parathion, HETP, Bordeaux powder, and lead arsenate. Also used were the plant growth hormones such as NAA and 2,4,5-T (Tonkin Consulting 2001). The end result of all this activity over many years was that pesticide residues contaminated the site and became a persistent problem.

The Great Depression of the early 1930s had its effect and by 1933 experiments at the Blackwood Experimental Orchard had been restricted to apples, pears, cherry and peach and general pruning trials. At about that time, another experimental orchard was established at Fullarton to focus on citrus, vines and almonds. By 1936 the Orchard was probably at its zenith (see Figure 3) but the original plantings had largely outlived their usefulness for experimental work, the soil was depleted and soil erosion had become a major problem (Tonkin Consulting 2001). The emphasis of the Orchard changed. A decision was taken that the number of fruit tree varieties was to be reduced and soil erosion dealt with.

From about 1940 most of the original orchard was progressively cleared, rehabilitated, contour ploughed and then replanted, largely with fruits that thrived at Blackwood and were economically valuable. Cover crops of Subterranean Clover and Phalaris grass were planted for soil stabilisation. The latter plant dominates the open grassland areas today. In 1949 the majority of the land was still being used for orchards and in 1952 a compartment of Monterey Pines (*Pinus radiata*) were planted to provide shelter for the fruit trees and ameliorate soil erosion.



**LEGEND**

- Park Boundary
- Block Boundaries
- - - - - Creekline

Map designed by  
Reserve Planning using PAMS  
Projection: GDA94 (Zone 54)  
Date: 2005

**Figure 3**  
**Blackwood Forest Recreation Park**  
**Historic Landuse - 1935**

In the early 1960s the Department of Agriculture began relocating horticultural research to the fruit-producing area of Lenswood and the department finally quit the Blackwood site in 1968. The Woods and Forest Department then took over. More pines were planted in 1972 once the remaining fruit trees had been removed, but plans to plant up the entire site to pines were never carried through. The Experimental Orchard buildings near Minno Creek continued to be used by the Pest Eradication Unit of the Department of Primary Industries as a fruit fly station for many years, contributing to the build up of pesticide residues. Most of these buildings were finally removed in 1997.

Of the early plantings relatively few remain today. The olive trees on the southern and eastern boundaries are probably the most significant remnants, as they date back to 1908. Planting the olives in rows along the boundaries saved them and they probably represent one of the largest varietal ranges of mature olive trees in South Australia (Jensen 1995). Although the Department of Agriculture planted olives in other experimental orchards elsewhere in the State, the Blackwood Experimental Orchard was the only one in which olives were systematically observed, tested and recorded. Its closure in 1968 ended olive research in South Australia until more recent times (Hill 1999).

The site was transferred to the Woods and Forests Department in 1968 and it was later dedicated as a Forest Reserve, administered from the Kuitpo District office. Parts of the pine forest were thinned, but enthusiasm for pine tree planting (in relatively small and isolated compartments remote from mainstream forestry areas) had declined. In the early 1980s the Woods and Forests Department had planned to harvest the timber and transfer or sell the land. Faced with community opposition to the removal of the pine trees, the decision was taken to quit the site and it was declared surplus to that department's requirements in 1985.

The land was then resumed and held as vacant Crown Land, while attempts were made to dispose of it. A committee was formed in 1985 to ascertain community views regarding the land. A number of alternative uses (schools, residential housing, playing fields) were suggested, but from the outset, there was strong opposition to any alienation from the local community, who wanted the area retained in its entirety as public open space. It was re-zoned to its current Development Plan designation, pending a decision on its future.

In 1994 the then Minister for the Environment and Natural Resources initiated a two-stage community consultation process. At the conclusion of that process, a report was submitted that recommended selling the bulk of the land to the City of Mitcham (Jensen 1995). Portion of the land (22%) was proposed for subdivision, but over three-quarters (78%) was to remain as open space. At the same time, the problem of pesticide residues became apparent, and considerable effort and expenditure was directed to environmental investigations and subsequent (pesticide) remediation works. The majority of the buildings were demolished in 1997.

At the instigation of the City of Mitcham, an environmental audit was conducted at the conclusion of these works that confirmed that pesticides were not likely to cause problems for either human or animal health provided that a conservative land management regime was pursued (Tonkin Consulting 2001). Some more sampling was undertaken as a result.

While negotiations continued, the community-based Save the Blackwood Forest Committee consistently opposed any development of the land, and continued with its campaign to set aside the area as community open space. Ultimately in 2001 a decision was taken to withdraw the offer of the land to Council and include it in Yurrebilla – The Greater Mount Lofty Parklands. It was dedicated as Blackwood Forest Recreation Park in November 2001.

The cultural significance of the park is that it was (arguably) the second experimental orchard to be established in South Australia. It reflects an era in the development of South Australian horticulture, particularly the systematic approach to primary industry taken at quite an early date and the importance of orchards to the Blackwood area and the Adelaide Hills generally. The park retains historic associations with the past but most of the orchard itself has now gone, and it is not formally listed on the State Heritage Register nor on any local heritage surveys or registers (M Somerset, Mitcham Heritage Research Centre, personal communication).

Although nothing is formally listed, there are some items of heritage interest on the park. The remaining buildings are links with that era. The former office located near the Main Road/Turners Avenue corner is said to have been built around 1909 of local stone by local builder John Weymouth (Jensen 1995). The community house (formerly the manager's house) is understood to have been built by John Weymouth's son around 1911 (D Reynolds personal communication). The remnants of the garden around the latter contain trees and plants of potential historic interest that are worthy of further investigation and retention. While the future of these buildings remains undecided, in any use, management and restoration work, especially if they are leased to third parties, their historic qualities must be respected.

In this context, it has been noted previously that Gamble Cottage, not far distant, has a heritage garden and developing links between the two properties would seem worthwhile. The original owner of this historic residence worked at the Experimental Orchard and some of the trees in his garden originated from there.

Other stonework dating from the early days of the Experimental Orchard can be found along the drainage channel that runs west from the community house, and along the banks of Minno Creek and the east-west creek, including two old bridges and a stone ford. A disused, galvanised iron-clad pump shed of later origin also remains in the former 'built-up' area near Minno Creek, but should be removed.

There are also sections of derelict, internal fencing throughout the park that are no longer required for park purposes. These should be removed. If the location of these fences is required to be known for historic reasons, a few strategic strainer posts could be retained as future reference points.

As mentioned above, little evidence remains of the orchards themselves today, other than some fruit trees growing along the east-west creek line, the majority either self-seeded or descended from rootstock varieties used in the early orchard (see section 4.5 Introduced Plants). Fruit trees present include varieties of Apple, Loquat, Mulberry, Olive, Pear, Plum, Quince and Walnut. The rootstock species identified include Black Walnut (*Juglans regia*), Callery Pear (*Pyrus calleryana*), Japanese Plum (*Prunus salicina*) and Manchurian Pear (*Pyrus ussuriensis*) (Tonkin Consulting 2001).

Mature plantings of English Oak (*Quercus robur*), Elm (*Ulmus procera*) and other ornamental species are to be found around the built up area near the junction of the two watercourses and around the former 'built-up' area near Minno Creek. There is also a Cotton Palm (*Washingtonia filifera*), Fig (*Ficus carica*), Date Palm (*Phoenix dactylifera*), Cypress (*Cupressus* sp) and even a Grapevine (*Vitis vinifera*) on a trellis near Main Road. The historic/horticultural value of these plants needs to be ascertained by competent authority before a decision is taken on their retention or removal. Where appropriate, non-indigenous vegetation and plant varieties of historic interest will be retained or where necessary, propagated prior to removal and relocated to other appropriate living collections.

Suffice to say that a number of potentially historic plant varieties have been provisionally identified but to date, none have been subject to intensive investigation. As noted previously, some of the introduced vegetation in the park may date from the Experimental Orchard era and introduced trees/plants should not be removed without first ascertaining their historic significance. In that regard, the advice of knowledgeable persons, the Department of Agriculture, Botanic Gardens of Adelaide, the Heritage Branch of DEH and the Mitcham Heritage Research Centre should be sought, and an inventory made of the significance of introduced trees as an aid to future decision making.

### **Objectives**

Ensure significant archaeological, cultural and historical sites and plants are conserved and protected.

### **Actions**

- Consult with Kurna people with a traditional association with the land, Native Title claimants and relevant Aboriginal heritage authorities, in decisions regarding the management of Kurna cultural heritage and before proceeding with significant development works within the reserve.
- Identify and protect known or relocated sites and items of archaeological, anthropological, cultural and historical significance in cooperation with DAARE, the Heritage branch of DEH and other relevant authorities and organisations. Kurna and historic cultural heritage sites require conservation plans to facilitate appropriate management.

- In consultation with the Kurna community, the Heritage Branch of DEH and other relevant authorities, submit cultural and historic sites and stories that relate to the park for inclusion on the DAARE Central Archive and/or the State Heritage Register.
- Decide on best use of the two historic buildings and respect historic integrity in any maintenance, development and/or restoration work.
- In consultation with relevant authorities, investigate and record the historic value of plant varieties that may date from the Experimental Orchard to determine their retention or removal. Plant varieties of historic interest will be retained or where necessary, propagated prior to removal and relocated to other appropriate living collections.

## 7 MANAGING TOURISM AND RECREATION

### 7.1 Visitor Use And Access

With the cessation of horticultural activities and the removal of the majority of the fruit trees in 1968, the land (now park) started to be used as an informal outdoor recreation area. Public access probably increased, once the Woods and Forests Department ceased active management in the mid 1980s. For a number of years then, the site has accommodated a variety of recreational pursuits and activities without any clear management input. Proclamation as a recreation park in 2001 included a provision that allows dogs to be exercised off lead (under control) and recognises that this relatively small area of land can provide open space and recreational opportunities for local residents of Hawthorndene and nearby suburbs of Adelaide.

Some problems have resulted from inappropriate visitor behaviour, with vandals causing considerable damage to buildings. In particular, the former office near Main Road/Turners Avenue corner was targeted, and has now been stabilised and made secure from vandals. Rubbish dumping in the park is also a perennial problem.

There are no developed public facilities provided and there have been no quantifiable surveys on how the public (or indeed how many people) use this park. Pedestrians and others move through the site in a number of directions, north-south and east-west, predicated by their 'desire lines'. By virtue of routine patrols, on-site observations and feedback from community groups, park managers can stay aware of the changing nature and patterns of recreational use. Walking, jogging, dog exercising, bike riding and horse riding are probably the most common activities observed. Quantifiable visitor information will need to be obtained and undertaking a replicable visitor survey may be a suitable task for a tertiary institution.

It can be anticipated that recreational demands on this park will continue to evolve, in parallel with changing community interests. Effective management of the recreational use of this park is needed to ensure that a diversity of activities continues to be accommodated; that conflict between different forms of park use is minimised; and that impacts on landscape and natural and historic values are kept within acceptable limits.

#### Visitor Access and Boundary Definition

With the exception of the vehicles of park managers and associated workers, motorised recreational and off-road vehicles are not permitted in the park since they interfere with other forms of park use, can cause environmental damage, and disturb local residents. Imposing a restriction on vehicle access is considered appropriate in a park of this size. It is proposed that public motor vehicular access be restricted to car parks (to be constructed at the south-west and north-east corners of the park) and to the entrance road to the community house (formerly the manager's house).

The park boundary is clearly defined by fencing with access points for pedestrians and emergency vehicles. Pedestrian access points that allow for bicycles, wheelchairs and horses have been placed at several locations around the park. Disused internal fences within the park will be removed with consideration given to retaining some elements that have heritage value.

The main entrance at present is near the Main Road/Turners Avenue corner. Given the traffic volumes on Main Road, it would be desirable to relocate access further east on Turners Avenue and provide a small car park in that vicinity, with appropriate consideration to the wellbeing of several mature, healthy English Oaks in this area. Similarly, a small car park could be provided off Myrtle/Tallarook Roads in the north-eastern corner.

The eastern break (particularly the area north of the east-west creek) could be revegetated if Myrtle Road could be used for alternative fire access. This option should be discussed with CFS and the City of Mitcham.

Proliferation of tracks in parks generally is a major issue. No track rationalisation has taken place in Blackwood Forest. The only sensible solution is to undertake a review of the existing and desirable track/trail network and in so doing, impose trail demarcation and designated uses for park visitors. If visitors are to be expected to use tracks and trails as designated, there should be proper signposting.

It is proposed to prepare and implement a landscape plan as a means of delineating the tracks and trails most suitable for various activities, including the provision of Information, interpretation and park entry signs when the management plan has been completed.

#### Dog Exercising

Under the *National Parks and Wildlife (National Parks) Regulations 2001*, dogs are permitted in Blackwood Forest Recreation Park off lead provided they remain under the control of their owners. This is the only park where such permission exists, other parks where dogs are permitted, require control on a lead.

To ensure the peaceful enjoyment of other park users, as well as the preservation of wildlife, DEH will monitor levels of use for exercising dogs off lead. Dogs will continue to be allowed off lead in Blackwood Forest Recreation Park, provided levels of use for this purpose remain low.

If monitoring indicates that levels have become too high or undesirable impacts are evident, allowing dogs off lead may no longer be considered appropriate and dogs may require control on a lead. To ensure that dogs are suitably controlled, sign-posting and provision of information will be used.

#### Bicycle Riding

Hitherto, the park has provided people with 'mountain bike' opportunities. Easy access by car or train makes the park a convenient venue for those who come from further afield. The popularity of this pastime is borne out by cyclists regularly using the pine forest area as a downhill riding/jumping area. Elsewhere in the park, mountain bike riders are sometimes observed in 'touring' mode, crossing the park. Provided management remains focussed, bicycle riding is considered an appropriate activity for this park, subject to controls and conditions and subject to review, within five years of the adoption of this management plan.

The requirements and impacts of bicycle groups can vary considerably and can demand different management strategies. Self-made trails and 'jumps' have been constructed in the pine forest and while not currently a major problem, could pose a risk to people and the environment through soil erosion. DEH needs to develop a dialogue with these users and manage their behaviour and use of the pine forest area, while still allowing this activity to continue. While some cyclists are likely to be affiliated with organisations, others will not. Establishing and maintaining effective liaison with the latter will require a special effort on the part of park managers.

The provision of a car park for up to 12 vehicles in the south-west corner on Turners Avenue will cater for visitors and cyclists who transport their bicycle by car. Future consideration will be given for an additional car park on the north-east corner at the intersection of Myrtle and Tullarook Roads if street parking becomes a problem for residents.

The proliferation of bike tracks can detract from the amenity and can cause erosion. Some planning for track designation is therefore required. Although bicycle riding is largely confined to the pine plantation and damage remains localised, maintenance of the area will be necessary if current levels of use continue. The need for site modification to create challenge needs to be addressed although soil should not be imported into the park to create jumps for example. The designation of tracks to allow north-south and east-west bicycle transit should also be addressed.

Use of virtually all tracks by mountain bike riders currently is therefore an issue that will need to be addressed by the preparation and implementation of a landscape plan. This will provide a means to delineate the tracks and trails most suitable for various activities. By significantly upgrading signs and other information sources for visitors, DEH can ensure that they are well aware of the values of the park and appropriate behaviour. Preparing and promulgating a 'code of conduct' for bicycle riders should be discussed with Bicycle SA and bike riders in the park. Their active participation in trail management will be encouraged.

### Horse Riding

Unstructured horse riding currently takes place in Blackwood Forest Recreation Park and will require some management. Numbers of riders are low and although it is recognised that horse riding can have a detrimental effect on natural areas, the potential for horse riding to have a serious detrimental impact on this particular reserve is lessened by past land clearing and grazing, and the already extensive distribution of introduced plant species. Horse riding is therefore accepted as an appropriate activity for this park, subject to controls and conditions and subject to review, within five years of the adoption of this management plan.

To encourage safe and sustainable riding practices, one solution that has been used successfully elsewhere, is the development of a code of practice for horse riders, jointly developed between DEH, Horse SA and local riders. Horse riders would need to be informed of the existence of this code of practice, which could include a methodology for the removal of horse manure and the confinement of horses to designated tracks. The proposed landscape plan should delineate tracks suitable for trail riding and information signs should be erected. Horse-oriented information should be provided for riders and advice sought from Horse SA on the most appropriate trail marking methods and design of other infrastructure both to enable and restrict horse access.

Horse riders have been using the sand covering of the former 'built-up' area for exercising. Disturbing a covering intended to neutralise the risk of exposure to pesticide residues, while probably not highly dangerous, is not desirable. This area should be sown down to grasses (in places where bare soil is exposed) and horse access restricted. The reasons for prohibiting this use should be clearly outlined to horse riders in the code of practice developed.

### Picnic, Barbecue and Toilet Facilities

Blackwood Forest Recreation Park is used mainly for casual recreational activities that do not require permanent facilities. Currently there are no day-visit facilities and it has been suggested that DEH improve facilities to encourage visitor use.

DEH is reluctant to install extensive visitor facilities in un-staffed parks due to the high cost of establishing facilities and the high incidence of vandalism. These are likely to prove very costly to maintain and consequently, no significant developments are proposed for Blackwood Forest Recreation Park.

However, in partnership with the community and other agencies, the provision of some low key quality visitor facilities, including access to toilets, could be considered in the future provided that ongoing asset management is sustainable and the natural and cultural values of the park are not compromised.

Potential sites for picnic facilities include the former 'built up' area (Figure 2), which provides level ground and shade, and the area along Minno Creek, which lends itself for some low key facilities such as picnic benches. The proposed landscape plan will address public facility requirements.

Visitors wishing to have a barbecue are required to provide their own portable gas barbecues and observe any fire bans. Solid fuel barbecues are not permitted in this park due to the fire risk and lack of available wood. Camping and campfires are also prohibited.

### Other Recreational Activities

As well as horse and bike riding mentioned previously, other recreational activities undertaken in the park include walking, jogging, and potentially cross-country running, orienteering, and nature study. Local schools and Scout groups are also known to use the park, and as discussed in section 4.5 Introduced Plants, children enjoy climbing on the large limbs that have developed on some of the 'break' pine trees. It would be desirable to retain these trees provided they remain in a safe and healthy condition.

There is a bituminised track on the western side of Minno Creek parallel to Main Road and a similar track along Turners Avenue that encourages walking. It is understood that the City of Mitcham maintains these tracks and their curtilage. A wooden footbridge across Minno Creek near the Main Road/Turners Avenue corner has been upgraded by the City of Mitcham, who are responsible for its maintenance. Erecting another footbridge across Minno Creek on the northern part of the park would be of benefit to walkers especially if it were associated with a circuit walk around the park perimeter. The circuit walk could include the community house (formerly the manager's house) and historic plantings to link up with the nearby Gamble Cottage garden to facilitate an historic garden walk.

Preservation of remnants of the Experimental Orchard and implementation of a systematic revegetation and weed control program may benefit from the involvement of local school students, to assist in management while at the same time giving participants a recreational education experience. Developing closer (and potentially mutually beneficial) contacts with tertiary institutions is also seen as being most worthwhile.

### ***Objectives***

Provide and maintain safe, well defined, functional access facilities for park visitors (including access for disabled visitors where feasible), management purposes and neighbouring residents.

Provide safe walking trails that are integrated with any regional trails and which provide opportunities for visitors to explore the natural and cultural assets of the park, without adversely impacting sensitive areas.

Provide for the continuation of dog exercising, bicycle riding and horse riding within the park.

Provide some basic, day visit facilities for visitors to enable them to have an enjoyable experience without compromising the conservation of natural or historic values.

### ***Actions***

- Control motor vehicle access and provide safe parking facilities at the north-eastern and south-western corners of the park.
- Prepare and implement a landscape plan as a means of delineating the tracks and trails most suitable for various activities and providing information and appropriate infrastructure to manage horse access.
- Install signs and other information sources for visitors to ensure that they are well aware of the values of the park and appropriate behaviour.
- Establish a track and trail rationalisation/maintenance program to provide clearly defined routes for visitors while eliminating duplication and reducing impacts on park values.
- Establish and maintain liaison with horse riding, bicycle riding and other specialist user groups, schools, Scouts and event organisers.
- In consultation with Bicycle SA, promote a code of conduct for bicycle riders that addresses visitor safety and environmental protection and incorporates interpretive information for visitors.
- Develop and implement an agreed horse riding code of conduct between DEH, Horse SA and local riders and confine horse riding to designated tracks to avoid sensitive areas and minimise environmental impact.
- Form a partnership with the City of Mitcham and other agencies and the community concerning future use and maintenance of walking trails, and regarding vehicle access and road management.
- Develop a program to monitor visitor numbers and to ascertain their needs.
- Monitor dog exercising, and if monitoring indicates that levels have become too high or undesirable impacts are evident, consider management options and if necessary amend the Director's Notice under Regulation 27 for dogs to be controlled on a lead at all times.



## 7.2 Information and Interpretation

Information and interpretive material for this park has not been provided to date (2004). At the very least, there should be provision of signs at the main entrances, identifying the park and what is considered appropriate behaviour therein. Also, a brochure should be produced and made available from the District Office at Belair National Park. Information on this park is yet to be posted on the ParksWeb Internet site <http://www.parks.sa.gov.au/>.

As mentioned above, no information/interpretive signs are yet located at features of interest, nor are there any directional signs in the park. If designated tracks/trails are not clearly signposted, ensuring visitor compliance with the *National Parks and Wildlife (National Parks) Regulations 2001* will be a problem for park managers. If walkers, bike riders, and horse riders are to be expected to use designated tracks, proper sign-posting and other information sources are a priority. Initially then, it is planned to place interpretation panels at the two car parks and place information signs at the other entrances. Specifics will be incorporated in a landscape plan for the park that will cover revegetation, trails and facilities in much more detail.

The preparation of a landscape plan can guide the provision of interpretation/information. This document should indicate the best means of conveying information to visitors regarding the historic, cultural and natural features of the park, pest animals and plants and the efforts being made to combat them, the impacts of inappropriate behaviour and the need to minimise access to sensitive areas. With regard to cultural and historic values, DEH will consult with the Kaurna community, the Heritage branch of DEH and other relevant authorities for appropriate information and approvals.

Information/interpretation signage can be integrated with track/trail development /designation, to enable visitors on-foot, horse or bicycle to better appreciate park values, to point out various features of interest and to explain current management programs.

### **Objective**

Provide information, where appropriate, for visitors to enhance their visit and to encourage behaviour protective of park values.

### **Actions**

- Prepare a landscape plan with strategies to develop, implement and maintain up-to-date interpretive information, including a brochure, internet information, signs and interpretive panels that:
  - convey track/trail details and basic access information;
  - highlight, where appropriate, special values and features of the park;
  - convey information on history and introduced plants and animals;
  - include visitor safety information; and
  - encourage acceptable behaviour.
- Integrate multiple-use track and walking trail designation with interpretive information for any local or regional trail networks.
- Consult with the Kaurna community, the Heritage Branch of DEH and other relevant authorities for appropriate interpretive information.

## 8 MANAGING RESOURCE USE

### 8.1 Leases and Licences

Currently none of the park is held under lease, although that is an option under Section 35 of the *National Parks and Wildlife Act 1972*. The two remaining buildings, the former office and the community house (formerly the manager's house), that could potentially accommodate various uses, are considered appropriate for leasing as the best way to ensure their maintenance. DEH should enter into leasing negotiations with parties interested in assuming control of either structure and their immediate curtilage, provided that such leasing does not alienate the land and buildings from community benefit and enjoyment. In the interim, the buildings should be retained in vandal-resistant form.

Any renovations or new developments/infrastructure must comply with the requirements of this management plan and under the Mitcham (City) Development Plan. This applies to all new built developments within the park. Although not on heritage listing, the historic integrity of the buildings and curtilage should be respected in any restoration works and advice obtained from appropriate authorities before commencement. During the term of any negotiated lease agreements, DEH will encourage lessees to maintain and upgrade facilities, as and when required, in an aesthetic manner that is sympathetic to the local environment and heritage values. Any leasing arrangements entered into should be reviewed within five years of the adoption of this management plan.

#### **Objective**

Enter into and operate leases for the two buildings on the park within an agreed lease agreement and management framework, that is mutually beneficial to all parties.

#### **Actions**

- Set lease conditions and monitor compliance as required, ensuring lease operation is consistent with the natural and historic values of the park.
- Maintain ongoing liaison with the lessees.
- Encourage any renovation/upgrading of leased facilities to comply with the zoning principles outlined in this management plan and the Mitcham (City) Development Plan.

### 8.2 Public Utilities

Two sewage mains run through the park and are subject to a formal easement to the South Australian Water Corporation (CT 5682/942). Within this easement, a 150mm diameter sewer main is located along the east-west creek line that bisects the park. There is also a 225mm diameter sewer main that runs north-south adjacent to Minno Creek.

Infrastructure supplying electricity, telecommunications, gas and water is located in immediately adjacent areas. There is one SA Water meter that is still connected and used at the community house (formerly the manager's house) off Devonshire Road and a number of now disconnected water pipes enter the park in the vicinity of the Main Road/Turners Avenue corner. Electricity is also connected to the community house.

A number of storm water traps are located on the southern side of the park, off Turners Avenue that direct urban run off into the park. There is an old gauging station located at Minno Creek that is not currently in use. Requirement for and future operation of these facilities should be subject to liaison with the City of Mitcham and the Adelaide and Mount Lofty Ranges Natural Resources Management Board.

There is obvious potential for careless park maintenance work to damage underground utility services and there is equally the potential for park assets to be degraded by insensitive maintenance work undertaken by utility companies. Utility operators have ongoing rights to access and maintain their facilities, but to avoid these problems, DEH needs to maintain liaison with utility managers to ensure that maintenance or development works do not interfere with utility services or impact on park values.

Trees that interfere with overhead power lines can create a fire hazard and DEH needs to ensure that overhanging trees on the park boundary are regularly lopped and maintained by ETSA Utilities, as necessary.

There is also a possibility that, some time in the future, requests may be made to locate additional utility services in the park. It is impossible to canvass the range of possibilities in this management plan but in general terms, the location of utilities on parks will only be supported in exceptional circumstances. Protection of park values should be seen as the priority in all such situations and parks should not be taken as the 'easy option' because they are public land and (relatively) remote from residential areas.

Any proposal for new infrastructure should therefore be reviewed in conjunction with the current policy, and provided that it fully complies, grant of approval may be deemed to be in accord with this management plan.

### **Objective**

Ensure that the location, operation and maintenance of utility services within the park do not compromise park values.

### **Actions**

- Maintain accurate records of underground utility services to minimise damage through park maintenance and any future development works.
- Maintain liaison with utility companies and periodically review access requirements and maintenance programs.
- Ensure that any trees adjacent to power lines are pruned regularly to minimise bushfire risk.
- Ascertain status and need for flow recording station on Minno Creek and liaise with the Adelaide and Mount Lofty Ranges Natural Resources Management Board on future operation.
- When assessing proposals for the location of additional utilities, provide advice to ensure park values are maintained.

## **9 INVOLVING THE COMMUNITY**

DEH supports and promotes partnerships and cooperative management arrangements to establish integrated natural resource management, in addition to the provisions of the *National Parks and Wildlife Act 1972*. Achieving positive biodiversity and recreation outcomes requires the development of effective working relationships with the local community, other government agencies, local authorities and non-government organisations.

DEH is committed to reconciliation and to the development of partnerships with the Kurna community to manage Blackwood Forest Recreation Park effectively in a way that respects both contemporary and traditional culture, knowledge and skills. Partnerships involve the delivery of programs that promote reconciliation, cultural awareness, Indigenous employment and training, cooperative management and Indigenous cultural heritage management in parks.

The City of Mitcham manages land near to, or adjoining Blackwood Forest Recreation Park and co-operation between DEH and Council regarding matters of common interest is therefore desirable. For example, the best venues for various types of outdoor recreational activities and proposals for linking tracks or trails that may involve adjacent reserves would benefit from a coordinated approach. Moreover, weed and fire protection schemes should ideally involve a cooperative approach on adjacent reserve land.

In addition to ongoing liaison with the City of Mitcham, a regional management approach also requires linkages with the Office of Recreation and Sport, Adelaide and Mount Lofty Ranges Natural Resources Management Board, Kurna Native Title Claimants, the representative Kurna Heritage Committee (as nominated by the State Aboriginal Heritage Committee), key community stake-holders (eg Bicycle SA) and local community groups.

Volunteer support and community-based involvement that conserves and improves biodiversity and cultural values, and establishes quality management of recreational use, has become an essential component of park management. Volunteer contribution is invaluable and DEH acknowledges the contribution that the numerous Friends' groups have made across the state.

The long struggle by the community to retain Blackwood Forest in public ownership resulted in a number of groups being formed to achieve that end. To retain that sense of involvement and commitment in the ongoing management of the park, the Friends of Blackwood Forest Recreation

Park group has been convened to provide a vehicle for community involvement in support of future park management programs.

The local community has had some success in weed control and encouraging natural regeneration in the adjoining Archibald Reserve. The techniques used there could probably be applied in Blackwood Forest Recreation Park in the future.

Volunteers often require the provision of materials, equipment and supervision by park staff. DEH will continue to maintain and where possible enhance liaison with volunteers to provide support and encouragement, and to provide direction to ensure their efforts are consistent with park management objectives and work programs. DEH recognises the importance of consulting regularly with Friends members regarding the ongoing management of the park and providing support and assistance including legal and policy advice, technical training, planning and management direction.

Other community programs, organisations and individuals, including groups funded by the Urban Forest Biodiversity Program, local schools, Scout groups and adjoining property owners, can also contribute to restoration, revegetation and weed control projects that support park management. Local schools and tertiary institutions in particular have been or may wish to use the park for education and research and can contribute to better management. Involvement with educational institutions should therefore be encouraged.

DEH recognises that an integrated approach to coordinate priorities for conservation in consultation with the Friends of Blackwood Forest, adjoining property owners and other volunteer organisations and individuals is required. Partnership arrangements should be developed to provide a positive direction for the shared development, maintenance and management of the park (integral with the management of adjacent land) and to improve the resourcing and funding capability to manage the park in accordance with the objectives of this plan.

### ***Objectives***

Create opportunities to develop and maintain partnerships between state and local government, non-government organisations, recreational user groups and the community generally, in the management of the park and adjoining land that assist with the management of the park and help fulfil the park's potential without compromising its natural values.

Encourage and support the involvement of the local community, volunteer organisations and individuals in the development of conservation programs in collaboration with DEH.

### ***Actions***

- Continue to consult with the City of Mitcham and the Adelaide and Mount Lofty Ranges Natural Resources Management Board, and explore the benefits of partnership arrangements for future management decisions regarding issues of common interest.
- Encourage and contribute to the development of partnership arrangements, to integrate biodiversity and recreation management in the Mount Lofty Ranges, with organisations that have an interest in contributing to the sustainable management of the park.
- Involve Native Title Claimants and the representative Kaurna Heritage Committee as nominated by the State Aboriginal Heritage Committee, in the cooperative management of the park and the preservation of their Indigenous cultural heritage.
- Support and encourage the Friends of Blackwood Forest Recreation Park and other suitable volunteers to make a voluntary contribution to park management.
- In consultation with the Friends of Blackwood Forest Recreation Park and other major volunteer groups, review the direction of work activities based on the initiatives outlined in this plan of management, and integrate annual work programs of the Friends Group into the proposed management programs for the park.
- Provide additional training opportunities for the Friends Group based upon a mutual recognition of needs.
- Encourage and facilitate the involvement of local schools and universities in research and volunteer programs.
- Utilise the partnership arrangement facilitated by the Yurrebilla initiative.

## 10 MANAGING RESERVE TENURE

### Management Arrangements

Blackwood Forest Recreation Park has many of the characteristics of a 'local park' (ie a category of public land normally under the care and control of local government). Given the history of this park, direct control by DEH is considered the best option for the term of this management plan.

Consideration of alternative management arrangements as a hypothetical future possibility is not ruled out. Any alternative management would need to adhere to the precepts outlined in this management plan.

### Park Nomenclature

It has been proposed that consideration be given re-naming the park. A change of name would be subject to further consultation, ministerial approval and there would need to be clear consensus in the community, that a change of name was necessary. Should the name of the park be changed, it would remain subject to, and managed in accordance with, this management plan.

Furthermore, the east-west creek, currently unnamed but important in the context of this park, should be assigned an official name. This could be done with the approval of the Geographic Names Advisory Committee. The name 'Orchard Creek' has been suggested.

The views and suggestions of the community are sought on both of these naming proposals.

### Mitcham Development Plan

Now that the future of Blackwood Forest seems assured, it may be appropriate to change the Development Plan zoning and develop more specific principles. Until this is done, development works and changes on the park will need to heed current Institutional Zone Principles of Development Control. However, investigations should be made into the merits of incorporating some of the principles espoused in this management plan into the Mitcham Development Plan.

### ***Objective***

Achieve optimum biodiversity conservation and recreation outcomes by integrating the management of the park with the management of other, nearby open space land.

### ***Actions***

- Develop cooperative partnerships with other land managers to achieve biodiversity conservation and recreational outcomes that accord with the objectives in this plan and support regional initiatives.
- Consider renaming the park if that is desirable and acceptable, and assign a name to the east-west creek.
- Develop a proposal for changing the Mitcham Development Plan to address more adequately the principles of development control for the park area.



## 11 SUMMARY OF MANAGEMENT ACTIONS

ACTION	PRIORITY	DURATION
<b>Zoning</b>		
Designate and adopt the prescribed zoning arrangement.	High	Short
<b>Managing Natural Heritage</b>		
<b>Geology, Soils and Landform</b>		
Assess soil type and properties, including erosion potential, when planning for future management or visitor access or when undertaking management and development works (including track and trail construction).	High	Short
Permit bicycle riding, horse riding and walking on designated tracks only and restrict access in sensitive areas by effective control measures.	High	Occasional
Maintain, improve, repair (or close or relocate) access tracks and walking trails to stabilise soil as required.	Moderate	Ongoing
Take account of guidelines for managing contaminated land when planning access routes or management and development works (including track and trail construction) that involve movement of soil or use of machinery.	High	Ongoing
Provide and regularly update information signs and interpretive material to encourage visitors to use existing walking trails and to avoid erosion-prone areas.	High	Occasional
Identify existing areas of erosion and undertake remedial works that may include access exclusion, natural regeneration, revegetation and pest plant removal.	High	Ongoing
Continue to monitor the boreholes and any other sites for pesticide residues as required and develop management strategies to identify, monitor and remediate any additional hotspots.	High	Ongoing
Take account of possible <i>Phytophthora cinnamomi</i> introduction/spread when planning access routes or management and development works (including track and trail construction) that involve movement of soil or use of machinery.	Moderate	Ongoing
<b>Hydrology and Topography</b>		
In collaboration with the Adelaide and Mount Lofty Ranges Natural Resources Management Board, continue the environmental restoration of Minno Creek. In particular, ensure that existing adjacent park management and recreation activities are compatible with maintaining the environmental values of the creek.	High	Ongoing
Manage on-park (and engage with other authorities and neighbours regarding off-park) activities to minimise adverse impacts on the hydrology and creek systems within Blackwood Forest Recreation Park.	High	Ongoing
Participate in regional catchment management programs, in partnership with the Adelaide and Mount Lofty Ranges Natural Resources Management Board and the City of Mitcham, in support of flood mitigation schemes and to minimise any negative impacts to the Minno Creek and Blackwood Forest catchment.	High	Ongoing

<b>ACTION</b>	<b>PRIORITY</b>	<b>DURATION</b>
Collaborate with the Adelaide and Mount Lofty Ranges Natural Resources Management Board to identify and repair existing areas of erosion through coordinated revegetation and pest plant eradication programs.	High	Ongoing
Ascertain status and need for flow recording station on Minno Creek and liaise with Adelaide and Mount Lofty Ranges Natural Resources Management Board on future operation.	High	Ongoing
Continue to encourage and support the involvement of volunteers in revegetation programs and (potentially) the monitoring of water quality.	High	Ongoing
Continue to support the environmental restoration of Blackwood Forest Recreation Park and manage the terrestrial areas of the park in a manner that positively contributes to water quality in the creeks on park.	High	Ongoing
<b>Native Vegetation</b>		
Prepare and implement a landscape plan for the park and identify rehabilitation priorities; encourage natural regeneration and integrate weed control programs according to the recommendations embodied in that plan. (see section 4.5 Introduced Plants)	High	Ongoing
Develop and maintain partnership arrangements with the managers of neighbouring properties to ensure that as far as is feasible, efforts at vegetation management are integrated on a regional basis.	High	Ongoing
Support and encourage the Friends of Blackwood Forest Recreation Park and other volunteer organisations and individuals, to continue revegetation programs and to assist with monitoring species of conservation significance in collaboration with DEH.	High	Ongoing
<b>Native Fauna</b>		
Encourage approved volunteer groups and individuals to conduct fauna surveys and undertake population monitoring. Investigate opportunistic sightings to verify species identification.	Medium	Ongoing
Integrate fauna habitat restoration with native revegetation efforts and weed management programs.	Medium	Ongoing
<b>Introduced Plants</b>		
Fulfil the obligations of the <i>Natural Resource Management Act 2004</i> within allocated resources.	High	Ongoing
Encourage the development of partnerships with the local community and contribute to integrated regional weed control programs that will establish pest plant control priorities and actions, and combine weed control with native plant revegetation efforts on neighbouring land.	High	Ongoing
Prepare and implement a landscape plan that will set long-term, achievable and measurable goals and include programs for coordinated pest plant control, invasive species removal/management, land rehabilitation and revegetation with native species of local provenance.	High	Ongoing
Stage the removal of pines in coordination with revegetation programs using native food species Erect Hakea ( <i>Hakea carinata</i> ) for the Yellow-tailed Black Cockatoo.	High	Moderate



<b>ACTION</b>	<b>PRIORITY</b>	<b>DURATION</b>
Provide adequate protection for regulated trees under the <i>Development Act 1993</i> and collaborate with the Heritage Branch of DEH, City of Mitcham and other authorities to identify regulated trees/plants of historic or horticultural significance.	Medium	Short
Provide interpretive information on historic plantings, revegetation programs and the adverse impacts of introduced plants to increase public awareness.	High	Ongoing
<b>Introduced Animals</b>		
Undertake surveys to determine the extent of introduced animal populations and their relative impact on native flora and fauna.	Medium	Ongoing
Monitor introduced animal populations within the park and devise pest control programs in accordance with priorities, taking into account the benefits versus the costs of possible adverse impacts to native wildlife and other off-target impacts of such programs.	Medium	Ongoing
If control programs prove necessary, work in cooperation with adjoining landowners, the Adelaide and Mount Lofty Ranges Natural Resources Management Board, the City of Mitcham, the Friends of Blackwood Forest and the wider community to achieve effective pest animal control.	Medium	Ongoing
Provide interpretive information on the adverse impacts of introduced animals and any control measures being undertaken, to increase public awareness.	Medium	Short
<b>Managing Fire</b>		
Develop, implement and review fire management plans in association with CFS and other stakeholders.	High	Ongoing
Continue to work with the relevant District Bushfire Prevention Committee and CFS to minimise risk to life and property within and surrounding the reserve.	High	Ongoing
Until a fire management plan is developed, continue to: <ul style="list-style-type: none"> <li>– Re-assess the bushfire threat posed by the pine plantings and take appropriate action;</li> <li>– Comply with the provisions of the Mitcham Bushfire Prevention Plan; and</li> <li>– Maintain a strategic network of fire access and fuel reduced areas.</li> </ul>	High	Ongoing
Ensure visitors comply with any fire restrictions and the fire ban season (between December 1 and April 30 each year) by providing information and monitoring visitor use.	High	Ongoing
<b>Managing Cultural Heritage</b>		
Consult with Kaurna people with a traditional association with the land, Native Title claimants and relevant Aboriginal heritage authorities, in decisions regarding the management of Kaurna cultural heritage and before proceeding with significant development works within the reserve.	High	Ongoing
Identify and protect known or relocated sites and items of archaeological, anthropological, cultural and historical significance in cooperation with DAARE, the Heritage branch of DEH and other relevant authorities and organisations. Kaurna and historic cultural heritage sites require conservation plans to facilitate appropriate management.	High	Ongoing

<b>ACTION</b>	<b>PRIORITY</b>	<b>DURATION</b>
In consultation with the Kaurna community, the Heritage Branch of DEH and other relevant authorities, submit cultural and historic sites and stories that relate to the park for inclusion on the DAARE Central Archive and/or the State Heritage Register.	Medium	Ongoing
Decide on best use of the two historic buildings and respect historic integrity in any maintenance, development and/or restoration work.	Medium	Ongoing
In consultation with relevant authorities, investigate and record the historic value of plant varieties that may date from the Experimental Orchard to determine their retention or removal. Plant varieties of historic interest will be retained or where necessary, propagated prior to removal and relocated to other appropriate living collections.	Medium	Moderate
<b>Managing Tourism and Recreation</b>		
<b>Visitor Use and Access</b>		
Control motor vehicle access and provide safe parking facilities at the north-eastern and south-western corners of the park.	High	Short
Prepare and implement a landscape plan as a means of delineating the tracks and trails most suitable for various activities and providing information and appropriate infrastructure to manage horse access.	High	Moderate
Install signs and other information sources for visitors to ensure that they are well aware of the values of the park and appropriate behaviour.	High	Short
Establish a track and trail rationalisation/maintenance program to provide clearly defined routes for visitors while eliminating duplication and reducing impacts on park values.	High	Short
Establish and maintain liaison with horse riding, bicycle riding and other specialist user groups, schools, Scouts and event organisers.	High	Short
In consultation with Bicycle SA, promote a code of conduct for bicycle riders that addresses visitor safety and environmental protection and incorporates interpretive information for visitors.	Medium	Short
Develop and implement an agreed horse riding code of conduct between DEH, Horse SA and local riders and confine horse riding to designated tracks to avoid sensitive areas and minimise environmental impact.	Medium	Moderate
Form a partnership with the City of Mitcham and other agencies and the community concerning future use and maintenance of walking trails, and regarding vehicle access and road management.	Medium	Moderate
Develop a program to monitor visitor numbers and to ascertain their needs.	Medium	Moderate
Monitor dog exercising, and if monitoring indicates that levels have become too high or undesirable impacts are evident, consider management options and if necessary amend the Director's Notice under Regulation 27 for dogs to be controlled on a lead at all times.	High	Ongoing

ACTION	PRIORITY	DURATION
<b>Interpretive Information</b>		
Prepare a landscape plan with strategies to develop, implement and maintain up-to-date interpretive information, including a brochure, internet information, signs and interpretive panels that: <ul style="list-style-type: none"> <li>- convey track/trail details and basic access information;</li> <li>- highlight, where appropriate, special values and features of the park;</li> <li>- convey information on history and introduced plants and animals;</li> <li>- include visitor safety information; and</li> <li>- encourage acceptable behaviour.</li> </ul>	Medium	Ongoing
Integrate multiple-use track and walking trail designation with interpretive information for any local or regional trail networks.	Medium	Ongoing
Consult with the Kaurna community, the Heritage Branch of DEH and other relevant authorities for appropriate interpretive information.	Medium	Short
<b>Managing Resource Use</b>		
<b>Leases and Licences</b>		
Set lease conditions and monitor compliance as required, ensuring lease operation is consistent with the natural and historic values of the park.	High	Occasional
Maintain ongoing liaison with the lessees.	High	Ongoing
Encourage any renovation/upgrading of leased facilities to comply with the zoning principles outlined in this management plan and the Mitcham (City) Development Plan.	High	Occasional
<b>Public Utilities</b>		
Maintain accurate records of underground utility services to minimise damage through park maintenance and any future development works.	Medium	Ongoing
Maintain liaison with utility companies and periodically review access requirements and maintenance programs.	Medium	Ongoing
Ensure that any trees adjacent to power lines are pruned regularly to minimise bushfire risk.	High	Ongoing
Ascertain status and need for flow recording station on Minno Creek and liaise with the Adelaide and Mount Lofty Ranges Natural Resources Management Board on future operation.	Medium	Short
When assessing proposals for the location of additional utilities, provide advice to ensure park values are maintained.	High	Ongoing
<b>Involving the Community</b>		
Continue to consult with the City of Mitcham and the Adelaide and Mount Lofty Ranges Natural Resources Management Board, and explore the benefits of partnership arrangements for future management decisions regarding issues of common interest.	High	Ongoing
Encourage and contribute to the development of partnership arrangements, to integrate biodiversity and recreation management in the Mount Lofty Ranges, with organisations that have an interest in contributing to the sustainable management of the park.	High	Ongoing

<b>ACTION</b>	<b>PRIORITY</b>	<b>DURATION</b>
Involve Native Title Claimants and the representative Kurna Heritage Committee as nominated by the State Aboriginal Heritage Committee, in the cooperative management of the park and the preservation of their Indigenous cultural heritage.	High	Ongoing
Support and encourage the Friends of Blackwood Forest Recreation Park and other suitable volunteers to make a voluntary contribution to park management.	High	Ongoing
In consultation with the Friends of Blackwood Forest Recreation Park and other major volunteer groups, review the direction of work activities based on the initiatives outlined in this plan of management, and integrate annual work programs of the Friends Group into the proposed management programs for the park.	High	Ongoing
Provide additional training opportunities for the Friends Group based upon a mutual recognition of needs.	High	Ongoing
Encourage and facilitate the involvement of local schools and universities in research and volunteer programs.	High	Occasional
Utilise the partnership arrangement facilitated by the Yurrebilla initiative.	High	Ongoing
<b>Managing Reserve Tenure</b>		
Develop cooperative partnerships with other land managers to achieve biodiversity conservation and recreational outcomes that accord with the objectives in this plan and support regional initiatives.	High	Short
Consider renaming the park if that is desirable and acceptable, and assign a name to the east-west creek.	High	Short
Develop a proposal for changing the Mitcham Development Plan to address more adequately the principles of development control for the park area.	High	Short

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#### **Personal Communication**

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## APPENDIX A: BLACKWOOD EXPERIMENTAL ORCHARD 1908-1912

The 27 Olive varieties planted at the Blackwood Experimental Orchard 1908 - 1912 were:

Variety	Date	Source	Primary Source
Atroriolacae Brum-Ribier	August 1908	Mylor	Sahut, France
Black Italian	August 1908	Mylor	Emerald, Victoria
Ascolana	July 1912		Fresno, California
Borregiola	August, 1908	Mylor	Naples, Italy
Bouquettier	August, 1908	Mylor	Hurstville, NSW
Bouteillon	August, 1908	Mylor	Naples, Italy
Buchine	Sept, 1910	Mylor	Sahut, France
Early Blanquette	August, 1908	Emerald, Victoria	
Frantoja	August, 1908	Mylor	Sahut, France
Gaeta	August, 1908	Mylor	Naples, Italy
Gros Redonneau	July, 1910	Payenham, SA	
Hardy's Mammoth	August, 1908	Mylor	Adelaide, SA
Institute	August, 1908	Mylor	Adelaide Institute
Large Fruiting	August, 1908	Mylor	Emerald, Victoria
Late Blanquette	August, 1908	Mylor	Emerald, Victoria
Longue d'Ascoli	August, 1908	Mylor	Naples, Italy
Lucca	August, 1908	Mylor	Naples, Italy
Morihioso	August, 1908	Mylor	Naples, Italy
Mission	July 1912		Fresno, California
Picholine	August, 1908	Mylor	Emerald, Victoria
Pueblana	August, 1908	Mylor	Naples, Italy
Regalise de Languedoc	August, 1908	Mylor	Sahut, France
Rouget	August, 1908	Mylor	Naples, Italy
Rubra Baillon d'Aise	August, 1908	Mylor	Sahut, France
Salome	August, 1908	Mylor	Emerald, Victoria
Verdale	August, 1908	Mylor	Hurstville, NSW

Extracted from : Hill C S (1999) *Research and Development in the Early Australian Olive Industry*, South Australian Olive History Website, <http://members.ozemail.com.au/~cshill/Research/R&D.html>

## APPENDIX B: CONSERVATION STATUS CODES

### Australian Conservation Status Codes

The following codes are based on the current listing of species under Section 179 of the *Environmental Protection and Biodiversity Conservation Act 1999*.

- EX Extinct:** there is no reasonable doubt that the last member of the species has died.
- EW Extinct in the Wild:** known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CE Critically Endangered:** facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- E Endangered:** facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- V Vulnerable:** facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD Conservation Dependent:** the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

**Note:** Prescribed criteria as defined under the IUCN Red List of Threatened Species.

### South Australian Conservation Status Codes

The following codes are based on the current listing of species under Schedules of the *National Parks and Wildlife Act 1972*, as amended in 2000.

- E Endangered:** (Schedule 7) in danger of becoming extinct in the wild.
- V Vulnerable:** (Schedule 8) at risk from potential or long term threats which could cause the species to become endangered in the future.
- R Rare:** (Schedule 9) low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant threats, but warrants monitoring and protective measures to prevent reduction of population sizes.

### Regional Status Codes

The categories below apply to the species distribution at a regional level.

#### Mammals, Reptiles & Amphibians

There are no regional conservation status categories developed in this region for mammals, reptiles or amphibians to date (2005).

#### Birds

Regional conservation status for birds follow Carpenter and Reid (1998) *The Status of Native Birds in the Agricultural Areas of South Australia*;

The regions are defined as follows;

<b>ML</b>	Mount Lofty	<b>MN</b>	Mid-North	<b>SE</b>	South-Eastern	<b>KI</b>	Kangaroo Island
<b>MM</b>	Murray Mallee	<b>EP</b>	Eyre Peninsula	<b>YP</b>	Yorke Peninsula		



## Plants

Regional conservation ratings for plants follow:

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The regions are as defined by the State Herbarium (Plant Biodiversity Centre), illustrated in the back cover of 'A List of the Vascular Plants of South Australia (Edition IV)' (Ed. Jessop, 1993).

<b>NW</b>	North-Western	<b>FR</b>	Flinders Ranges	<b>NL</b>	Northern Lofty	<b>SL</b>	Southern Lofty
<b>LE</b>	Lake Eyre	<b>EA</b>	Eastern	<b>MU</b>	Murray	<b>KI</b>	Kangaroo Island
<b>NU</b>	Nullarbor	<b>EP</b>	Eyre Peninsula	<b>YP</b>	Yorke Peninsula	<b>SE</b>	South-Eastern
<b>GT</b>	Gairdner-Torrens						

In order of decreasing conservation significance:

- X** **Extinct/Presumed extinct:** not located despite thorough searching of all known and likely habitats; known to have been eliminated by the loss of localised population(s); or not recorded for more than 50 years from an area where substantial habitat modification has occurred.
- E** **Endangered:** rare and in danger of becoming extinct in the wild.
- T** **Threatened:** (*Plants only*) likely to be either Endangered or Vulnerable but insufficient data available for more precise assessment.
- V** **Vulnerable:** rare and at risk from potential threats or long term threats that could cause the species to become endangered in the future.
- K** **Uncertain:** likely to be either Threatened or Rare but insufficient data available for a more precise assessment.
- R** **Rare:** has a low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant or widespread threats, but warrants monitoring and protective measures to prevent reduction of population sizes.
- U** **Uncommon:** less common species of interest but not rare enough to warrant special protective measures.
- Q** **Not yet assessed:** but flagged as being of possible significance.
- N** **Not of particular significance** (*Plants only*) Also indicated by a blank entry.
- C** **Common** (*Birds only*) Also indicated by a blank entry.
- O** **Occasional Visitor Only** (*Birds only*) Not considered of conservational status.