LIVINGSTONE NATIONAL PARK AND STATE CONSERVATION AREA

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change NSW

November 2008

This plan of management was adopted by the Minister for Climate Change and the Environment on 14th November 2008.

Acknowledgments

NPWS acknowledges that the park is located within the traditional lands of the Wiradjuri People.

This plan of management is based on a draft plan prepared by staff of South West Slopes Region of the National Parks and Wildlife Service (now the Parks and Wildlife Group of the Department of Environment and Climate Change - DECC).

Cover photo by Jo Caldwell, NPWS.

Inquiries about these reserves or this plan of management should be directed to the ranger at the NPWS Murrumbidgee Area Office, 7a Adelong Road, Tumut 2720 or by telephone on 69477000.

ISBN 978 1 74232 051 9

DECC 2008/620

FOREWORD

Livingstone National Park and Livingstone State Conservation Area are located 30 kilometres south of Wagga Wagga on the south west slopes of NSW and cover a total area of 2,458 hectares.

Livingstone National Park and Livingstone State Conservation Area contain a diversity of vegetation communities that provide habitat for up to 15 threatened fauna species and one threatened flora species. They also contain a number of Aboriginal sites which contribute towards the understanding of Aboriginal culture as well as historic sites associated with mining in the area for a range of minerals.

A network of public access trails in the park and state conservation area provide for recreation activities such as vehicle touring, horse riding, cycling, bushwalking and bird watching.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park and state conservation area. A plan of management is a legal document that outlines how an area will be managed in the years ahead.

A draft plan of management for Livingstone National Park and Livingstone State Conservation Area was placed on public exhibition from 17th July until 20th October 2006. The submissions received were carefully considered before adopting this plan.

This plan contains a number of actions to achieve “Better environmental outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways” (Priority E4 in the State Plan) including periodic surveys for threatened plants, control of introduced plants and animals, and the closure and rehabilitation of unauthorised trails. The plan also contains a number of actions to help achieve Priority E8 in the State Plan “More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity”, such as preparation of a park brochure, provision of orientation and directional signs, construction of a multi-use trail, and development of a picnic area and a camping area.

This plan of management establishes the scheme of operations for Livingstone National Park and Livingstone State Conservation Area. In accordance with section 73B of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Carmel Tebbutt MP

CONTENTS

	page
1. INTRODUCTION	**1**
Location, Gazettal and Regional Setting	1
Landscape	
2. MANAGEMENT CONTEXT	**2**
2.1 Legislative and Policy Framework	2
Management Purposes and Principles	2
MAP OF RESERVE	**5**
3 KEY VALUES AND MANAGEMENT DIRECTIONS	**6**
Values of the Area	6
Management Directions	7
4. CONSERVATION OF NATURAL AND CULTURAL HERITAGE	**8**
4.1 Geology, Soils and Hydrology	8
4.2 Native Plants	9
4.3 Native Animals	12
4.4 Aboriginal Heritage	14
4.5 Historic Heritage	15
5. PARK PROTECTION	**17**
Soil Erosion	17
Introduced Species	18
Fire Management	19
6. VISITOR OPPORTUNITIES AND EDUCATION	**23**
6.1 Information Provision	23
6.2 Recreation Opportunities	24
7. RESEARCH AND MONITORING	**29**
8. NPWS MANAGEMENT OPERATIONS AND OTHER FACILITIES	**30**
9. PLAN IMPLEMENTATION	**32**
10. REFERENCES	**40**
APPENDIX 1 – Fauna species lists	**41**

1. INTRODUCTION

1.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Livingstone National Park and State Conservation Area, referred to collectively as "the park" in this plan, is located 30 kilometres south of Wagga Wagga and 10 kilometres east of Mangoplah on the south west slopes of NSW. The park incorporates Livingstone National Park (1,918 hectares) and Livingstone State Conservation Area (540 hectares), a total area of 2,458 hectares.

Livingstone National Park and Livingstone Reserve (which was later reclassified as Livingstone State Conservation Area) were established on 1 January 2001 as part of the Southern Regional Forest Agreement. Prior to this most of the park was managed as Livingstone State Forest (No 410, Dedicated 4 May 1917) by the then State Forests of NSW (now Forests NSW). Livingstone Reserve became Livingstone State Conservation Area on 1 April 2005.

The park forms part of a fragmented network of conservation reserves in the Riverina and south west slopes and is generally isolated from other large tracts of remnant native vegetation. Sparse woodlands adjoin the park to the north and south-east.

The lands surrounding the reserve are predominantly used for mixed dryland farming, including grazing and cropping. Much of the south west slopes contains prized farming land and has a long history of clearing to make way for agriculture.

The park is within the geographical area of the Murrumbidgee Catchment Management Authority, Wagga Wagga Rural Lands Protection Board and Wagga Wagga Shire Council.

1.2 LANDSCAPE

Natural and cultural heritage and on-going use are strongly inter-related and together form the landscape of an area. Much of the Australian environment has been influenced by past Aboriginal and non-Aboriginal land use practices, and the activities of modern day Australians continue to influence bushland through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

The geology, landform, climate, plant and animal communities of the area, plus its location, have determined how it has been used by humans. Both Aboriginal and non-Aboriginal people place cultural values on natural areas, including aesthetic, social, spiritual, recreational and other values. Cultural values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness natural and cultural heritage, non-human threats and on-going use are dealt with individually, but their inter-relationships are recognised.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of NPWS estate in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation (2002), the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). The NPW Act lists the matters to be considered in the preparation of a plan of management. The policies arise from the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) requires the assessment and mitigation of the environmental impacts of any works proposed in this plan.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within Livingstone National Park and SCA except in accordance with the plan. The plan will also apply to any future additions to the reserve. Where management strategies or works are proposed for the nature reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

Objectives for National Parks

Under the Act (Section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes;
- conserve places, objects, features and landscapes of cultural value;
- protect the ecological integrity of ecosystems for present and future generations;
- promote public appreciation and understanding of the park's natural and cultural values;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of natural and cultural values;

- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values; and

- provide for appropriate research and monitoring.

National parks are part of the regional pattern of land use. Management of national parks aims to minimise disturbance to natural and cultural heritage. Other land uses, for example agriculture, forestry and mining, are distinguished by an acceptance or encouragement of environmental modification. National parks, therefore, provide for only a limited part of the range of land uses in a region.

Objectives for State Conservation Areas

Under the Act (Section 30G), State Conservation Areas (SCA) are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes;

- conserve places, objects and features of cultural value;

- provide for the undertaking of mining, having regard to the conservation of the natural and cultural values of the area;

- provide for sustainable visitor use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area;

- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area; and

- provide for appropriate research and monitoring.

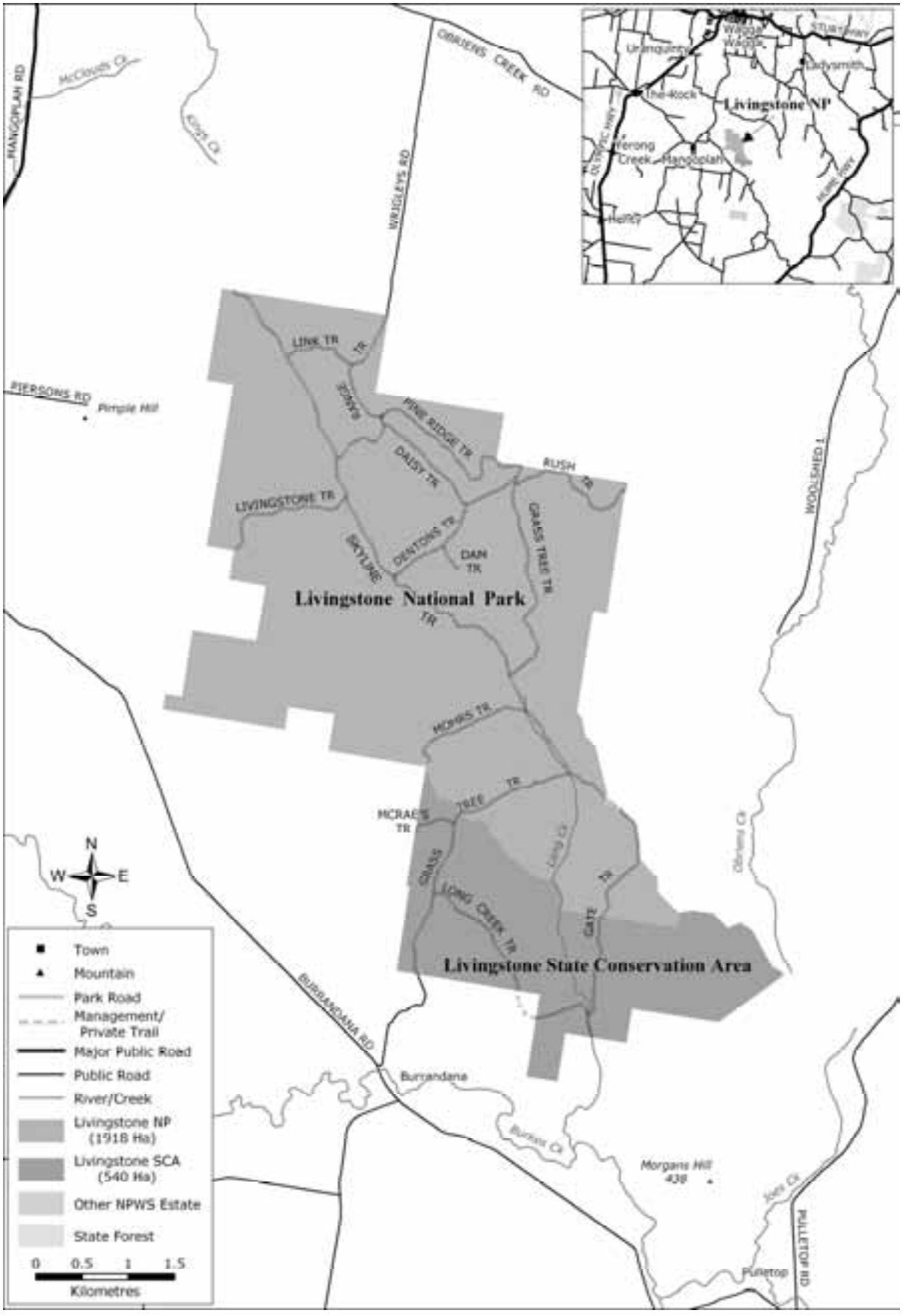
The Act also requires review of the classification of SCAs every 5 years to determine whether they should receive either a national park or nature reserve classification. The classification review for SCAs is described in section 47M of the Act and is undertaken in consultation with the Minister administering the *Mining Act 1992*.

Regional Forest Agreements

Regional Forest Agreements (RFAs) are one of the principle means of implementing the National Forest Policy Statement of 1992. Under this Statement Commonwealth, State and Territory governments agree to work towards a shared vision for Australia's forests. This aims to maintain native forest estate, manage it in an ecologically sustainable manner and develop sustainable forest-based industries. The Statement provided for joint comprehensive assessments of the natural, cultural, economic and social values of forests. These assessments formed the basis for negotiation of Regional Forest Agreements that provide, amongst other things, for Ecologically Sustainable Forest Management.

The Southern Regional Forest Agreement (2000) covers the planning area. The process leading up to the RFA provided for major additions to the reserve system, including the establishment of Livingstone National Park and SCA.

MAP OF LIVINGSTONE NATIONAL PARK AND SCA



3. KEY VALUES AND MANAGEMENT DIRECTIONS

3.1 VALUES OF THE AREA

Livingstone National Park and State Conservation Area is of regional significance for its natural, cultural and recreational values.

Key **natural** values include:

- A significant area of habitat in a cleared landscape within the south west slopes bio-region.
- A range of forest ecosystems exist in the park that are under represented in conservation reserves.
- A population of the threatened Squirrel Glider.
- Diverse vegetation communities that provide habitat for threatened fauna species. The park contains up to 15 threatened fauna species and one threatened flora species.
- A population of Yass Daisy that has been identified as being at the south western limit of its known range.

Key **cultural heritage** values include:

- Recorded Aboriginal sites, and potential for more Aboriginal sites, showing past use of the area by Aboriginal people and contributing towards the understanding of Aboriginal culture.
- Historic sites associated with mining in the area for a range of minerals.

Key **recreation** values include:

- A network of public access trails that provide for recreation activities such as vehicle touring, trail bike riding, horse riding, cycling, bushwalking and bird watching.
- The park's proximity to Wagga, a major population centre.

Key **research/educational** values include:

- Opportunities for research into native plants and animals, including threatened species and poorly conserved vegetation communities.
- Educational and interpretive opportunities associated with the diverse plant and animal communities and cultural heritage contained within the park.

3.2 MANAGEMENT DIRECTIONS

Management of the park will focus on the protection of significant vegetation communities and habitats, the protection of threatened fauna populations, the protection of Aboriginal heritage sites and European heritage sites, and the provision of low-key, passive recreation opportunities and facilities.

Major strategies to achieve the management objectives are:

- Protection of native vegetation and animal communities and habitats, particularly threatened species;

- Protection of cultural values in consultation with the local community, including the Aboriginal community;

- Provision of a range of recreation opportunities consistent with the objectives of protecting the natural and cultural heritage values of the park, including opportunities for horse riding, cycling, bushwalking and vehicle touring.

- Provision of educational and interpretive opportunities through signage, park brochures and activities to assist visitor understanding and enjoyment of park values.

- Improving knowledge of natural and cultural heritage, corresponding threats and the evaluation of management programs through research and monitoring.

4. CONSERVATION OF NATURAL AND CULTURAL HERITAGE

4.1 GEOLOGY, SOILS AND HYDROLOGY

Livingstone National Park and SCA are situated in the eastern Riverina and cover one of several low-lying timbered ranges that rise out of the expansive plains that dominate the region. The park has an altitudinal range of between 300 and 473 metres and the surrounding plains lie at around 270 metres. The park is a prominent feature of the landscape when viewed from the west, being one of only a handful of forested ridgelines in the area.

The topography of the park can be divided into four types, being major ridges, creek valleys, a plateau area in the south of the park, and basal/foot slopes. The latter is an interface between the basal/foot slopes and the broad open plains of Livingstone and O'Brien's Creeks lying to the east of the park.

The ridge system that dominates the park, rises from about 350 metres to over 450 metres, and is generally aligned NW-SW. The ridges and spurs are interspersed by broad open drainage systems that flow either easterly into O'Briens Creek or south westerly into Burkes Creek. There are numerous creek valleys that are upper catchments of three main drainage systems in the park.

The plateau area is part of the ridge system that makes up the park. It is located in the southern half of the park and is formed where the ridges come together, creating a more open area. The terrain consists of rolling country comprising a series of drainage lines interspersed with low basal slopes that act as terraces.

The basal slopes consist of a low gradient landscape on the eastern side of the Park where the creek valleys open out onto the plains. The area consists of very low gradient spurs/foot slopes cut by shallow drainage lines (Dearling & Grinbergs, 2002).

The park is dominated by two distinct geological types that are common to the Riverina plains. The north, central and eastern sections of the park contain Upper Ordovician sedimentary deposits, in an area known as the Kiandra beds. The deposits contain alternating layers of quartzite, slate, phyllite and greywacke. A small area in the south west of the park contains Lower Ordovician granite and gneissic granite. The incised creek valleys at lower elevations running west out of the park contain alluvium (gravel, sand, silt and clay) indicating an environment of deposition (Bureau of Mineral Resources, 1978).

The soils of the park are relatively shallow sandy clay loams with few rock fragments. Water holding capacity is moderate and fertility is generally low. Erosion hazard is moderate but few active areas of erosion exist within the park owing to the relatively flat plateau topography.

There is no permanent running water in the park although it contributes seasonal water to the broader catchments of the area. There is one dam in the centre of the park. The park receives between 600 and 900 millimetres of rainfall per year.

Desired Outcomes

- The landscape values of the park are protected.

Strategies

- Monitor areas of erosion within the park and minimise their spread through implementation of sediment and erosion control measures.

- Rehabilitate disturbed areas, such as old trails, by controlling access, managing erosion and revegetating areas where necessary.

- Manage recreational activities and other uses in the park to minimise erosion, changes to soil structure and degradation of catchment values.

4.2 NATIVE PLANTS

A combination of environmental factors such as climate, geology, topography and land use has resulted in a variety of vegetation communities and some significant plants and associations in the park.

A comprehensive vegetation survey and mapping project for selected reserves in the region, which included the park, was undertaken by EcoGIS (2004). This project provided the NPWS with species and distribution data and a high level of knowledge of the vegetation types in the park. The majority of the forest ecosystems in the park are generally poorly conserved within the region.

Six distinct forest ecosystems were identified within the park and can be summarised as:

Rough barked red box-white box dry shrub-forb open forest – containing a canopy of red box *Eucalyptus polyanthemos*, white box *E. albens*, Norton's Box *E. nortonii* and red stringybark *E. macrorhyncha.* The mid-storey consists of the bush pea *Pultenaea lapidosa* and currawang *Acacia doratoxylon*. The ground layer consists of stinking pennywort *Hydrocotyle laxiflora*, tall bluebell *Wahlenbergia stricta ssp stricta*, woodrush *Luzula densiflora*, brown-back wallaby grass *Danthonia eriantha* and weeping rice-grass *Microlaena stipoides var. stipoides.* This forest type commonly occurs on lower slopes above creeklines where soil depth is moderate.

Dwyer's gum heathy low open woodland – containing a canopy of black cypress-pine *Callitris endlicheri*, Dwyer's red gum *Eucalyptus dwyeri*, white box *E. albens*, scribbly gum *E. rossii* and red stringybark *E. macrorhyncha.* The mid-storey consists of sticky everlasting *Bracteantha viscosa* and common raspwort *Gonocarpus tetragynus*. The ground layer consists of *Senecio* species, austral carrot *Daucus glochidiatus*, the orchids *Caladenia mentiens* and *C. tentaculata*, snow grass *Poa meionectes* and wattle mat-rush *Lomandra filiformis ssp*

coriacea. This forest type generally occurs on the western edge of the park on hilltops and exposed slopes containing granite soils.

Scribbly gum-cypress pine-red ironbark-tussock grass heathy low woodland – containing a canopy of scribbly gum *Eucalyptus rossii*, red ironbark *E. sideroxylon*, red stringybark *E. macrorhyncha* and black cypress-pine *Callitris endlicheri*. The mid-storey consists of common raspwort *Gonocarpus tetragynus*, daphne heath *Brachyloma daphnoides*, common fringe myrtle *Calytrix tetragona* and grass tree *Xanthorrhoea glauca ssp angustifolia*. The ground layer consists of ivy goodenia *Goodenia hederacea ssp hederacea*, brown-back wallaby grass *Danthonia eriantha*, grey tussock-grass *Poa sieberiana var sieberiana* and thin stinkweed *Opercularia varia*. This forest type generally occurs on exposed slopes at lower elevations in the southern end of the park.

Dwyer's red gum-black cypress pine-grass heathy low woodland – containing a canopy of hybrid Dwyer's red gum X Blakely's red gum *Eucalyptus dwyeri x E. blakelyi*, scribbly gum *E. rossii*, red stringybark *E. macrorhyncha* and black cypress-pine *Callitris endlicheri*. The mid-storey consists of daphne heath *Brachyloma daphnoides*, common fringe myrtle *Calytrix tetragona*, peach heath *Lissanthe strigosa*, and sticky everlasting *Bracteantha viscosa*. The ground layer consists of stinking pennywort *Hydrocotyle laxiflora*, hill raspwort *Gonocarpus elatus*, brown back wallaby grass *Danthonia eriantha*, tall sundew *Drosera auriculata*, tall bluebell *Wahlenbergia stricta ssp stricta*, Austral carrot *Daucus glochidiatus*, ivy goodenia *Goodenia hederacea ssp hederacea*, small poranthera *Poranthera microphylla*, hard mat-rush *Lomandra multiflora ssp multiflora* and nodding blue lily *Stypandra glauca*. This forest type generally occurs on higher hilltops and ridges with broad flat slopes and shallow soils.

Remnant plateau tops currawang wattle -she-oak tall shrubland – containing a canopy of currawang *Acacia doratoxylon* and drooping sheoak *Allocasuarina verticillata* with no defined mid-storey. The ground layer consists of Austral carrot *Daucus glochidiatus*, hill raspwort *Gonocarpus elatus*, a rock fern *Cheilanthes sieberi ssp sieberi*, small poranthera *Poranthera microphylla*, common sunray *Triptilodiscus pygmaeus*, tall bluebell *Wahlenbergia stricta ssp stricta*, small vanilla lily *Arthropodium minus*, Sieber's crassula *Crassula sieberiana ssp sieberiana*, creeping yellow oxalis *Oxalis perennans*, spoon cudweed *Stuartina muelleri* and fine speargrass *Austrostipa scabra ssp falcata*. This forest type generally occurs on flat plateau tops with granite outcrops.

Red stringybark-scribbly gum-rough barked red box dry forb-tussock grass open forest – containing a canopy of red box *Eucalyptus polyanthemos ssp vestita*, scribbly gum *E rossii* and red stringybark *E. macrorhyncha*. The mid-storey consists of common raspwort *Gonocarpus tetragynus*, urn heath *Melichrus urceolatus*, prickly hibbertia *Hibbertia acicularis*, daphne heath *Brachyloma daphnoides*, a bush pea *Pultenaea foliolosa* and rosemary grevillea *Grevillea rosmarinifolia*. The ground layer consists of ivy goodenia *Goodenia hederacea ssp hederacea*, wattle mat-rush *Lomandra filiformis ssp coriacea*, grey tussock grass *Poa sieberiana var sieberiana*, blunt greenhood *Pterostylis curta*, tall greenhood *Pterostylis longifolia* and small ruddy-hood *Pterostylis pusilla*. This forest type generally occurs on exposed mid and lower slopes with granite soils.

The park contains a number of areas of secondary grassland derived from cleared forest or woodland.

Yass Daisy *Ammobium craspedioides* is found at three locations within the park. This plant is listed as vulnerable on the TSC Act. Regular monitoring is undertaken to ensure that the populations are not threatened by recreational or park management activities. In one instance, a small population is threatened by a poorly located and drained trail. This trail (Daisy Trail) will be closed and rehabilitated (refer to Section 6.2.1). Other threatened or significant plants may also be present in the park.

Occurrences of white box, red box and Blakely's red gum in the park are regarded as a component of the White Box-Yellow Box-Blakely's Red Gum Woodland which is listed as an Endangered Ecological Community under the TSC Act. Under the TSC Act, a Priorities Action Statement has been prepared which includes strategies to guide management of threatened species or communities (see www.environment.nsw.gov.au). Recovery plans may also be prepared for specific species or communities.

The invasion of native plant communities by exotic perennial grasses is listed as a Key Threatening Process under the TSC Act. Continual monitoring and management strategies are required to control these species, as well as preventing new infestations from other species. Weed control is discussed in more detail in Section 5.3.

High frequency fire resulting in disruption of life cycle processes in plants and animals and loss of vegetation structure and composition is listed as a Key Threatening Process under the TSC Act. The prevention of frequent fire and protection of threatened and significant vegetation from fire are key objectives in the reserves (see Fire Management Strategy).

Desired Outcomes

- The full range of native plant species found in the park are conserved.

- Vegetation structural diversity and habitat values are conserved, and are restored where subject to past disturbance.

- The habitat and populations of all threatened plant species are protected.

- Park neighbours support conservation of remaining areas of privately owned native vegetation near the park.

Strategies

- Undertake periodic surveys for Yass Daisy and other threatened or significant plant species and communities to ensure that recreational and management activities do not threaten their survival.

- Implement recovery plans/priority actions and threat abatement plans for threatened species, communities and populations that occur within the park.

- Liaise with neighbours, local Landcare groups and catchment management authorities to encourage retention, and if possible expansion, of areas of native vegetation close to the park.

- Continue to liaise with park neighbours to ensure that boundary fences are maintained to a stock-proof standard.

4.3 NATIVE ANIMALS

The park contains a diverse range of native animals, including 5 amphibian species, 9 reptile species, 15 mammal species and 185 species of birds. Knowledge of the type and distribution of native animals in the park is high given the history of fauna surveys undertaken in the reserve both pre and post-gazettal.

Surveys carried out by NPWS in 2002, and Atlas of NSW Wildlife records reveal a number of species occurring in the park that are listed as endangered or vulnerable on the NSW *Threatened Species Conservation Act, 1995* and/or the Commonwealth's *Environment Protection and Biodiversity Conservation Act, 1999.* The following table shows the threatened species that have been recorded in the park and their legal status.

Species Name	Common Name	Legal Status
Rostratula benghalensis australis	Painted Snipe	E1
Burhinus grallarius	Bush Stone-curlew	E1*
Lathamus discolor	Swift Parrot	E1*
Neophema pulchella	Turquoise Parrot	V
Polytelis swainsonii	Superb Parrot	V*
Ninox connivens	Barking Owl	V
Climacteris picumnus	Brown Treecreeper	V
Pyrrholaemus sagittatus	Speckled Warbler	V
Melithreptus gularis gularis	Black-chinned Honeyeater	V
Xanthomyza phrygia	Regent Honeyeater	E1*
Melanodryas cucullata	Hooded Robin	V
Callocephalon fimbriatum	Gang-gang Cockatoo	V

Species Name	Common Name	Legal Status
Pomatostomus temporalis	Grey-crowned Babbler	V
Pachycephala inornata	Gilbert's Whistler	V
Stagonopleura guttata	Diamond Firetail	V
Petaurus norfolcensis	Squirrel Glider	E2

Key: E1 = Endangered, E2 = Endangered Population in the Wagga Wagga LGA, V= Vulnerable
*** =** listed under the EPBC Act

Table 1: Threatened fauna species recorded in Livingstone National Park and State Conservation Area.

All records of native animals (and plants) are collected and stored on the NSW Wildlife Atlas, a state-wide data base established by NPWS. Information stored includes locality, habitat and breeding records and is used to assist management of native wildlife. The Priorities Action Statement also includes strategies to guide management of threatened animal species. This information can be accessed by the public via the department's website (www.environment.nsw.gov.au). A comprehensive list of native fauna recorded in the park is included in Appendix 1 of this document.

Desired Outcomes

- The full range of native animal species found in the park is conserved.

- The habitat and populations of all threatened fauna species are protected and maintained.

Strategies

- Encourage research into the effects of threatening processes on the park's native plant and animal species in order to provide recommendations to guide future park management.

- Protect the habitats of threatened and biogeographically significant fauna species from visitor impacts, the effects of introduced species and inappropriate fire regimes.

- Periodically undertake Squirrel Glider surveys to monitor populations.

- Continue to record the distribution of threatened and significant fauna species.

- Implement recovery plans/priority actions and threat abatement plans for threatened species, communities and populations that occur within the park.

4.4 ABORIGINAL HERITAGE

The strong attachment of Aboriginal people to the land is acknowledged. They may have cultural links with the whole landscape and specific locations. Individual places of significance may include living places, art sites, ceremonial sites, spiritual places and contact sites. Aboriginal sites and places are also important to non-Aboriginal people as they provide information about the past lifestyles of all humans.

While the NPWS has legal responsibility for the protection of Aboriginal sites and places, it acknowledges the right of Aboriginal people to make decisions about their own heritage. Aboriginal communities are consulted and involved in the management of Aboriginal sites, places and related issues and the promotion and presentation of Aboriginal culture and history.

The park is within the area of the Wagga Wagga Local Aboriginal Land Council. There may also be other Aboriginal community organisations and individuals with an interest in the use and management of the park. The park and the Wagga region are within an area identified as part of the Wiradjuri language group (Tindale, 1974).

The history of use of the park by Aboriginal people is not well understood. Brief surveys carried out by Dearling and Grinbergs (2002) revealed a small suite of sites of varying significance. Although there is a lack of permanent water within the area now known as park, there are a number of large permanent springs in the vicinity of the park and recent discussions with Wiradjuri people indicate that the park may have been used much more than previously thought.

Many traditional medicinal plants occur in the park. Such plants include grass trees, red stringybark, mugga ironbark, mistletoe and bullbine lily. Some of the traditional uses of these plants include glue, shields, medicine, fire making and Boomerangs. Similarly native animals such as wombats, brushtail possums, echidna, goanna, and eastern grey kangaroos were traditionally utilised for meat supply, with some providing skins for cloaks, rugs, water carriers, decorative and ceremonial purposes.

A total of 17 open artefact scatters and 5 isolated finds were recorded during the above-mentioned survey. In addition, 3 sites were identified as being potential archaeological deposits (PAD's). Most of the artefacts were located on or near fire trails in the park due to the fact that exposure of sites was greatest where disturbance had taken place. Nearly all of the artefacts were comprised of quartz in the form of flakes, lithic fragments, microblades, cores, modified flakes, microblade cores and bipolar flakes. The most significant sites were the PAD's that are located in the creek/drainage valleys in the north of the park, and on the plateau in the park's south. Further oral history collection and survey may reveal more information about the significance of the park as part of a cultural landscape.

Desired Outcomes

- Aboriginal sites and places are protected from damage by human activities.

- Aboriginal people are involved in management of Aboriginal cultural values in the park.

- The broader community has an understanding of the cultural heritage of the park.

Strategies

- Manage Aboriginal heritage in consultation with the Wagga Wagga Local Aboriginal Land Council and other relevant Aboriginal community organisations.

- Protect identified Aboriginal sites, relics, historic places and culturally significant features from damage by human activity and fire. Prepare management strategies where necessary in consultation with relevant Aboriginal community members.

- Undertake research and oral history gathering to determine the significance of the park and surrounds to the local and wider Aboriginal community, and identify threats and management measures to conserve all identified and potential sites.

- Undertake site specific archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal sites and places.

- Do not publicise the location of Aboriginal sites and places except where the agreement of relevant Aboriginal community organisations has been obtained.

- Progressively record all Aboriginal cultural sites and/or places of significance and update the NPWS's Aboriginal Heritage Information Management System. Priority will be given to areas most threatened by human impact.

4.5 HISTORIC HERITAGE

The park is located within the Parish of Livingstone in the County of Wynyard and Parish of Burrandana in the County of Mitchell. The land portions encompassed by the Park and SCA are the original Portion Nos. 164 (part) and 176 (part) in the Parish of Livingstone, and Portion Nos. 16, 24 and 27 in the Parish of Burrandana.

Prior to 1879, an area of the park within the Parish of Livingstone was part of O'Briens Creek Pastoral Holding. It was then converted to Forest Reserve (No. 3293) in 1884. By the late 1890s gold leases were issued across parts of the now park until in 1917 when the whole area was dedicated as part of Livingstone State Forest (No. 401). A small area in the northern extent of the park was notified as part of an Air Gunnery and Bombing Range in 1944, although no evidence of this use exists today. Smith (2003) did, however, note that the area had been used for some form of low-level infantry training, citing evidence of expended 5.56 and 7.62 mm blank ammunition, as well as debitage from 24 hour (one man) Army ration packs.

Prior to 1879, an area of the park in Parish Burrandana was part of North East Mangoplah Pastoral Holding (No. 453) and Pulletop Pastoral Holding (No. 658). Sections of it were then variously leased to landholders as Conditional or Improvement leases, dedicated as Air Gunnery and Bombing Ranges, or declared

Forest Reserves up until 1917 when, again, the whole area was declared as Livingstone State Forest (No.401).

There appears to have been almost continuous but limited mining activity in and around the now Livingstone National Park from 1872 to the 1950s, with another brief period of activity in the early 1980s. The early period relates to tin mining from 1872 until 1909 to the immediate south of the park and gold mining in the northwest of the park from 1896 until 1919; the second relates to early 1900s–post-World War II wolframite mining to the immediate south of the park; and the third covers areas both within and outside the park and dates to the early 1980s (Smith, 2003).

Numerous trenches, mullock heaps and mine shafts of varying depths and sizes are scattered throughout the park, and probably relate to gold prospecting and mining. The larger of the old gold mining shafts were considered to pose threats to public health and safety and to the environment through erosion, sedimentation, pollution, land instability and visual degradation. As a result, under the auspices of the then Department of Land and Water Conservation, the Pulletop Bushfire Brigade capped the shafts in 2001 (Smith, 2003).

Desired Outcomes

- Historic heritage values are appropriately protected, conserved and managed.

- The safety of park users is maintained.

Strategies

- Record and manage all historic places in a way that is appropriate to their cultural significance in accordance with the Burra Charter of Australia ICOMOS.

- Encourage involvement of local historical societies and interested members of the public in cultural heritage management activities.

- Encourage research into the identification and documentation of historic features of the park and into gathering oral history information on mining activities and other historic heritage in the park.

- Promote public understanding and appreciation of historic resources through provision of interpretation and educational material.

5. PARK PROTECTION

5.1 SOIL EROSION

The soils of the higher elevations in the park are relatively shallow sandy clay loams that can be prone to erosion when disturbed. The lack of organic content and ground cover, combined with the friable, gravelly nature of the soils makes them easily erodible. These soils lack water holding capacity and nutrient fertility and this is reflected in the vegetation types that they support. Although erosion potential is generally high in these areas, the lack of steep slopes and low annual rainfall has resulted in very few areas of active erosion being present.

At lower elevations and near the main ephemeral creek beds in the north of the park the soils are of moderate depth and consist of a higher clay content and water holding capacity. Recreational activities in these areas has led to the formation of a large number of tracks and trails resulting in small areas of erosion and boggy areas forming, particularly in and around intermittent watercourses. This has led to a decrease in seasonal water quality and a reduction in the quality of native fauna habitat in the vicinity.

Trail maintenance activities can effect soil stability in the park, however since park gazettal maintenance activities have focused on improving drainage and stability of trails.

Desired Outcomes

- Human induced soil erosion and track formation, particularly in ephemeral watercourses in the park is minimised.

Strategies

- Rehabilitate disturbed areas, such as unauthorised trails, by controlling access, implementing drainage and erosion control and undertaking revegetation where necessary.

- Manage recreational activities and other uses in the park to minimise erosion, changes to soil structure and degradation of catchment values.

- Undertake regular trail maintenance activities to minimise erosion and maintain drainage features.

- Monitor areas of active erosion and treat if found to be extending.

5.2 INTRODUCED SPECIES

An introduced species is defined in this plan as any species not endemic to the reserve. Introduced species within the reserve and on adjoining land are of concern because they have the potential to have detrimental effects on ecological values and can spread to and from neighbouring land. The *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands. NPWS also has a priority to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

NPWS South West Slopes Region has formulated a Pest Management Strategy for all reserves under its control. This strategy outlines the types of introduced species of plants and animals commonly occurring in the reserve network, strategies for their control, and priorities for the direction of funding to best achieve pest reduction targets. The strategy also outlines the NPWS's commitment to the control and management of feral animals and weeds within and around its reserves in the region.

5.2.1 Introduced Plants

Introduced plant species recorded in the reserve include St. John's wort *Hypericum perforatum* and Paterson's curse *Echium plantagineum.* A number of pasture grass and thistle species also exist. Since gazettal, weed control programs have focussed on reducing the extent and distribution of these species. Monitoring of weed populations occurs regularly to ensure that weeds of highest priority for control are managed in accordance with the regional pest management strategy.

5.2.2 Introduced Animals

An introduced animal is defined in this plan as any animal species not native to the reserve. Introduced animals may impact upon native fauna populations through predation or competition for food or shelter. Introduced animals in the reserve include foxes, rabbits, and cats.

The Regional Pest Management Strategy identifies the pest animal species known to occur within the region, including the park, and ranks them in terms of their potential to damage land, alter natural processes and/or disturb native animal populations and habitats. Management strategies for each species are outlined in this document as well as preferred methods of control.

Foxes (*Vulpes vulpes*) exist within the park as they do throughout the landscape, and regular cooperative baiting programs are undertaken by NPWS, local landholders and the Wagga Rural Lands Protection Board. In addition, the Landcare movement has implemented a project to encourage fox control programs on a landscape scale, particularly on private lands.

Fox control on NPWS managed lands will continue to be undertaken on a cooperative basis but only when in conjunction with control programs on adjacent lands. Predation by foxes on native animals has been identified as a Key Threatening Process under the TSC Act and, as such, a threat abatement plan has

been formulated. This plan proposes actions to reduce the impacts of fox predation on threatened species, increase the effectiveness of baiting programs in terms of location and timing, and to help conserve biodiversity more generally.

Desired Outcomes

- Park values are maintained or improved by undertaking appropriate introduced animal and plant control programs.

- The impact of introduced species on native plants and animals is minimised.

Strategies

- Control introduced species in accordance with the regional pest management strategy and best management practice.

- Give priority for the control of introduced species to those species that:
  - are declared noxious or for which a national emergency control program has been declared or are known to be an important problem in other parks or states;
  - have a significant environmental impact, including damage to threatened species, catchment values and recreation values;
  - may affect neighbouring lands or are considered of high priority by the community;
  - where management is needed to maintain benefits gained from previous control programs or to allow another high priority management program to be effective; or
  - where a window of opportunity occurs.

- Continue to undertake cooperative weed and pest animal control programs with neighbours and the Wagga Wagga Rural Lands Protection Board.

- Continue to undertake periodic weed and pest animal surveys to identify new populations; ensure that existing populations are not spreading; and measure the effectiveness of past control programs.

- Continue to implement the NPWS Boundary Fence Policy in order to restrict stock incursion into the park.

5.3 FIRE MANAGEMENT

Fire is a natural feature of many Australian vegetation communities and environments. It may be essential to the survival of some plant communities and benefit some fauna species. Inappropriate fire regimes can lead to the loss of many plant and animal species and communities. Fire can also damage cultural heritage features and management facilities within the reserve and can threaten visitors and neighbouring assets.

The two primary objectives for fire management in the park are to protect life and property and to conserve natural and cultural heritage features.

There are a number of assets within 1km of the reserve boundary, mostly associated with agriculture (homesteads, sheds, pastures). These assets have been considered when developing the fire strategy for this reserve. As part of the fire planning process a bushfire management zoning system for the park has been implemented. This zoning system is compatible with the Bushfire Management Committee (BFMC) bushfire risk management plans.

5.3.1 Ecological requirements

Bushfire regimes are a major determinant of the distribution and abundance of plants and animals in the park. They also affect nutrient cycles, erosion patterns and hydrological regimes. Ecological research suggests the following requirements for biodiversity conservation:

- variability of fire intervals and area burnt is important to conserve floristic diversity and provide diversity of habitat for animals; fire at regular intervals will lead to loss of species;
- most plant species and communities require infrequent fires of moderate to high intensity to achieve regeneration but patchy burns are better for fauna as they retain shelter and food refuges;
- fires during the breeding season are the most damaging to fauna communities because of direct killing of young and increased exposure;

Fire can also damage some types of Aboriginal sites and historic places. Features such as scarred trees, old buildings and farming implements can be permanently damaged or lost by wildfire. Other sites can be damaged by use of heavy machinery for fire suppression activities.

5.3.2 Fire history

The fire history of the reserve since 1985 is relatively well understood. There have been seven recorded ignitions within the park since 1985 (causes include lightning, arson, campfires and army ignitions). Three other ignitions have been recorded adjacent to the park (causes include lightning, campfire and arson). There is limited recorded data prior to 1984.

No hazard reduction burns have been implemented within the park by NPWS since gazettal in 2001. There is limited information regarding the use of prescribed fire by previous management. Trail maintenance and clearing programs have been applied and will continue as part of the park's annual maintenance program.

The seven ignitions that started wildfires within the park since 1985 burnt only small areas (less than 1-2 hectares) and did not spread beyond the park boundary. In 1992 a small fire occurred near the south west boundary of the park. It is unclear where the fire originated, however agricultural land and a small proportion of the park was burnt.

There are indications that most of the park has experienced at least one fire event in the last 50 years. Fire scars were recorded in all sites sampled.

5.3.3 Fire planning and cooperative arrangements

NPWS maintains cooperative arrangements with surrounding landowners and RFS brigades and is actively involved in the Riverina Zone Bush Fire Management Committee. Cooperative arrangements include approaches to trail maintenance, asset protection, fuel management, support for neighbour fire management efforts and information sharing.

In accordance with current NPWS policy, a map-based Fire Management Strategy and Fire Operations Map has been produced for the park. These outline life, property and natural and cultural resource protection strategies specific to the park. Fuel monitoring sites have also been established for the park.

Under the *Rural Fires Act 1997* the NPWS is a fire authority and is responsible for controlling fires on the national park and ensuring that they do not cause damage to other land or property. An important part of the NPWS's fire management is participation in local co-operative fire management arrangements, including implementation of Bush Fire Risk Management Plans developed by District Bush Fire Management Committees.

Desired Outcomes

- Fire management regimes are managed to protect life and property and to conserve the natural, cultural, scenic and recreational values of the park.

Strategies

- Manage fire in the park in accordance with the Fire Management Strategy.
- Continue measuring and monitoring fuels at all established sites, including the use of photographic site records.
- Use prescribed fire to achieve a variety of fire regimes that maintain the vegetation within the fire thresholds for each vegetation community.
- Aim to maintain biodiversity by restricting fires to only part of the distribution of a vegetation community at any one time.
- Where possible, avoid the use of heavy machinery for fire suppression in areas of rare plants, Aboriginal sites and historic places.
- Rehabilitate areas disturbed by fire suppression operations as soon as practicable after fire.
- Encourage research into the ecological effects of fire in the park, particularly the fire response of significant plant species and the fire requirements of these

communities. Incorporate the results into a periodic review of the park's Fire Management Strategy.

- Continue to actively participate in the Wagga Wagga Bush Fire Management Committee. Maintain close contact and cooperation with Council fire officers and volunteer bush fire brigades.

- Where appropriate, carry out fuel management in cooperation with neighbours for mutual protection.

- Consider closing the park to public use during periods of extreme fire danger.

- Undertake fuel reduction programs, trail maintenance, research and monitoring programs in accordance with the policies outlined above and in the Fire Management Strategy.

- Maintain fire history data for the park and adjacent areas and incorporate this information into the Fire Management Strategy.

- A solid fuel fire ban may be implemented during summer and other periods of high fire danger.

6. VISITOR OPPORTUNITIES AND EDUCATION

6.1 INFORMATION PROVISION

Visitor information is an important aspect of park management in that it enhances the visitor experience whilst promoting appropriate use and on-going support for the conservation of the park. Visitor information includes promotional, interpretive and advisory material. This information is typically provided through tourist information centres, the NPWS web site, signage, park brochures and inquiries with NPWS staff.

Interpretive and promotional themes particularly relevant to the park are changes in use, park history and the diversity of plants and animals. These themes can be interpreted and promoted to visitors in a manner that protects these values and encourages appropriate use.

Park facilities and services provide opportunities to enjoy, appreciate and understand the value of our natural and cultural heritage. Only areas that can sustain use are promoted in this way. Information provision at such places and about the area in general assists the protection of natural and cultural heritage, promotes support for conservation and increases the enjoyment and satisfaction of visitors.

The park has a number of natural and cultural features of interest to visitors; primarily the native flora and fauna, scenic values and recreational opportunities. These features will be promoted and interpreted to visitors in a manner which protects their special values and encourages appropriate use. Provision of facilities is discussed in section 6.2 while this section discusses provision of information.

Provision of information about these values will involve three levels:
- promotion to increase community awareness of the existence of the park, its conservation importance and visitor opportunities;
- orientation and regulatory signage to enable visitors to find their way around the park, introduce them to its landscape and advise them about use restrictions; and
- interpretation of individual components of the park's environment in order to increase visitor understanding of the park's values and of the environment in general, and provision of minimal impact use information.

Desired Outcomes

- Visitors are aware of park values and recreation opportunities available through the provision of a range of park information and interpretation.

Strategies

- Park promotion will be "low-key" and focus on park values and appropriate use of the park in accordance with the objectives set out in this plan.

- Promote the concept of "minimal impact" for all recreational activities including 4WDing, trail bike riding, bush walking, camping, horse riding and cycling.

- Liaise with other visitor information organisations to ensure all information is of a high quality, accurate, consistent, up-to-date and promotes appropriate visitor expectations and behaviour.

- Produce media releases and attend meetings with neighbours and community organisations to promote community understanding of park values and management strategies.

- Provide orientation/interpretive signs at entrances to the park and additional directional signposting where necessary.

- Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.

- Support and assist appropriate educational use of the park by schools, community groups and individuals.

- Prepare a park brochure outlining features of the park.

6.2 RECREATION OPPORTUNITIES

Management of visitor use to be ecologically sustainable requires placing limits on the number of access points, design of facilities to ensure that numbers of visitors and the style of use is appropriate for the site, and promotion of minimal impact use. The provisions below are designed to maintain the low-key, scenic, natural settings which are the special feature of the park and to provide for future use in a manner which protects ecological integrity and cultural heritage values.

The park has a long history of recreational use by a diverse range of user groups. Given its proximity to the large population centre of Wagga Wagga and the limited range of alternative recreational opportunities available in the area, use of the park is both frequent and concentrated. Four wheel driving, trail bike riding, mountain bike riding, horse riding, orienteering, rogaining, vehicle driver training and camping are all undertaken within the park. Popular passive activities such as bushwalking, bird watching, botanical study, nature photography and picnicking are also undertaken. In addition, the Royal Australian Air Force regularly uses the park for group dynamic exercises. In some cases recreational use clashes both with the objectives set out for the management of national parks and state conservation areas, and between different user groups. Impacts associated with off-road activities include damage to vegetation, damage to Aboriginal sites, creation of new tracks and spread of weeds.

No formal facilities have yet been developed in the park, however informal camping areas have been created by ongoing use on some flat areas within the park. In addition, a network of unauthorised trail bike/mountain bike tracks have been formed in the park by the high intensity use of single tracks by riders on motorised and non-motorised bikes.

Limits on group numbers will be applied pursuant to the NPW Act for all group recreational activities undertaken in the park to minimise impacts and better manage user conflicts, as well as for safety reasons.

Desired Outcomes

- A variety of low key visitor opportunities are available that encourage appreciation of the natural environment.

- Facilities are designed and managed to provide a satisfying visitor experience and minimise impacts.

- Visitor use is compatible with the purposes of national parks and state conservation areas and is ecologically sustainable.

6.2.1 Public Access and Vehicle Use

Public vehicular access to the park is limited to two main access roads. Access from the north is via O'Briens Creek Road and Wrigleys Road. Access from the south is via Burrandana Road and Grass Tree Trail (see park map). Both of these roads are currently held under enclosure permits by neighbouring landholders.

A network of roads, some 36km in length, has been established within the park over a number of years and provides access for management operations and public recreation. All of the formed internal roads in the park are currently of a dry weather 4WD standard. Some "off-road" trails have also been formed and have resulted in increased erosion, increased public safety hazards and off-site impacts.

A roading plan for the park has been formulated to make informed decisions about the adequacy and use of the trail network and the level of maintenance required to retain its condition. An assessment of the existing formed road network in the park has determined that it provides an adequate level access for management operations such as fire suppression and pest and weed control, and for recreational activities. One exception is Daisy Trail, which will be closed and rehabilitated as identified in the roading plan. This trail is located in a drainage line that contains populations of the threatened Yass Daisy *Ammobium craspedioides.* Due to a lack of drainage features, runoff is not diverted and concentrates on the trail surface eventually leading to off-site impacts such as erosion, sedimentation and reduction of water quality. The trail has little value in providing access as a number of suitable trails in the vicinity provide alternative means of access for both public use and management operations.

A network of around 34 kilometres of 'single' trails has been formed in the park following many years of use by trail bikes, and more recently mountain bikes. The term 'single' trail refers to the informal network of trails that are narrow and can only accommodate trail bikes and mountain bikes. Use of these trails by trail bikes is leading to unacceptable impacts such as erosion, reduction in water quality, noise pollution, disturbance to native wildlife, impacts on cultural heritage sites and loss of vegetation and soil. Trail bikes are classified as motor vehicles under the Motor

Traffic Act and are subject to a series of laws and regulations that apply across all public lands. Trail bike riding will only be permitted on designated roads, where riders are licensed, bikes are registered and relevant traffic laws are being observed.

One multi-use trail will be will developed, which will form a loop in the northern end of the park. Permitted multi-use trail users will be people on foot, horses and mountain bikes. The location will be determined following consultation with the mountain bike group in Wagga and other interested stakeholders. Signs will be erected at the start and end of the multi-use trail advising permitted uses.

Traffic counters have been installed at two locations in the park to collect information on the number of vehicles that use the park.

Strategies

- Formalise legal access to the park in conjunction with neighbours and other interested parties.

- Permit public vehicle use, including trail bikes, on all park roads (refer to park map) provided vehicles are registered and drivers/riders are appropriately licensed. Off-road driving is not permitted within the park.

- Continue to liaise with trail bike riders and recreational drivers to encourage compliance with access regulations and to use minimal impact techniques whilst using the park.

- Close and rehabilitate the Daisy Trail and all informal trails that are not part of the park road network, as per recommendations in the roading plan.

- Upgrade a small portion of the northern section of Range Trail to where it meets Link Trail to two-wheel drive standard to provide access to the proposed day-use area (refer to section 6.2.4).

- Close and rehabilitate single trails, except those that are to be retained as part of the multi-use trail (refer to sections 6.2.2 and 6.2.3).

- Continue to undertake visitor monitoring within the park to determine levels and patterns of use.

- Undertake law enforcement patrols with NSW Police to ensure compliance with the Motor Traffic Act and NPWS regulations regarding vehicular access.

6.2.2 Mountain Bike Riding

The extensive network of single lane trails has attracted mountain bike riders to the park in recent years. Organised group as well as individual recreational riding on single lane trails has increased in the park since gazettal leading to an increased risk of damage/injury where motorised and non-motorised bikes are sharing the track. Issues such as erosion and conflict with other park users exist. Mountain bike riding

is a legitimate recreational pursuit when managed appropriately, and within the scope of objectives for national parks and SCAs, and will be permitted on designated trails in the future.

Strategies

- Continue to liaise with mountain bike clubs to formalise a suitable multi-use trail in the northern end of the park that provides reasonable levels of access, whilst not compromising the park's natural and cultural heritage values or significantly increasing management requirements.

- Following consultation with stakeholders, prepare a strategy outlining the development and management of the multi-use trail.

- Permit mountain bike riding on all park roads.

- All mountain bike riding will be in accordance with DECC/NPWS policy.

6.2.3 Horse Riding

The park is utilised infrequently for horse riding, both by individuals and groups. Organised horse riding events have also been undertaken in the area infrequently in the past. Horse riders use the park road network, single trails and, given the sparse nature of the park's vegetation, have ridden through the park off formed roads and trails. Horse riding is recognised as a legitimate recreational pursuit and is consistent with the objectives set out for national parks and SCAs. Overnight camping with horses has occurred on a very limited basis in the past.

Strategies

- Horse riding will continue to be permitted within the park on park roads and on the designated multi-use trail.

- Overnight camping with horses will not be permitted in the park.

- The application of the principles outlined in the Australian Alps Horse Riding Code will be encouraged within the park.

6.2.4 Camping and Day Use

The park is used regularly by groups and individuals for camping and day use activities such as picnics. Camping is mostly car-based, although a low level of walk-in bush camping has occurred in the past. Car-based camping is often associated with other recreational uses of the park such as trail bike riding and four wheel driving.

Currently there are no camping or day use facilities provided in the park, although there are two main locations that have been used for camping in the past. Issues

associated with camping include management of human waste, rubbish, firewood collection for campfires, and a concentration of vehicles and people leading to soil erosion and damage to vegetation, often near creek lines. Camping and day use of the park for picnicking are considered appropriate for national parks and will be permitted in the future.

Monitoring of park visitation and impacts may see the development of toilets and other such camping facilities where increasing use warrants their installation. At this point it is NPWS policy not to install rubbish bins at any locations due to servicing costs and effects on native and introduced wildlife.

The NPWS proposes to enforce a solid fuel fire ban in the park during periods of high fire danger. Gas camping stoves and barbeques will be permitted, except on Total Fire Ban days.

Strategies

- Formalise one campsite in the park by installing low-key facilities, after undertaking appropriate site planning and environmental impact assessment.

- Establish a small day use area in the north of the park near the junction of the Range Trail and the Link Trail

- Permit walk-in bush camping in the park where it is more than 200m from a road or park boundary.

6.2.5 Bushwalking

The park is regularly used for bushwalking by both groups and individuals. Walkers use the established road network, single lane trails and also walk cross-country. This use is consistent with the objectives set out for national parks and will be permitted in the future.

Conflicts with other user groups occur and public safety can be compromised where a trail has multiple users. The infrequency of use by other user groups, such as horse riders, and the location of the proposed multi-use trail mean that conflicts with bushwalkers will be minimal and not detract from the visitors' experience.

Strategies

- Permit bushwalking throughout the park.

6.2.6 Commercial and Group activities

Organised group activities such as orienteering, mountain bike riding and group dynamic exercises occur in the park. Organised activities with a group size greater than 12 people will be required to obtain consent for the activity. Organisations using

the park more than once a month, regardless of group size, will also require consent from the NPWS to carry out their activities. This consent process will assist NPWS in minimising impacts and managing user conflict and safety.

No commercial operators currently use the park but there may be demand in future.

Strategies

- Implement a consent system for all groups of 12 persons or more or for groups that use the park more than once a month irrespective of group size.

- Monitor all group activities and special events with respect to cumulative impacts, safety requirements, conflicts with other park users, and compliance with consent conditions.

- Require any commercial operators using the park to be licensed by NPWS.

7. RESEARCH AND MONITORING

Research on the natural and cultural values of the park and processes affecting them can greatly assist in park management. The park provides research opportunities associated with the diversity of plants and animals. Charles Sturt University in Wagga Wagga have utilised the reserve for research over a long period of time. Both post-graduate and under-graduate students have undertaken studies in the park, including general flora and fauna survey work, and targeted study such as Brown Tree-creeper surveys.

Under the Southern Regional Forest Agreement (RFA) all forest managers including Forests NSW, Dept of Natural Resources and the NPWS must demonstrate ecologically sustainable forest management (ESFM). ESFM aims to maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate, including:

- ecosystem biodiversity, health, vitality, productive capacity and functional processes;
- soil and water productive capacity and functional processes;
- long term social and economic benefit; and
- natural and cultural heritage values.

ESFM is an over-riding management principle and will be applied to all ecosystem types, not just forests. It will be implemented primarily through monitoring to provide feedback on management programs and directions for future adaptive management. Performance indicators of ecologically sustainable forest management have been identified. Monitoring programs will be developed using the indicators to demonstrate the impact of management actions on ecological functions. Remedial management actions will then be undertaken as required.

Additional research programs will be considered where they complement ESFM criteria and indicators. The results of research and monitoring will be used to guide management programs.

Research by other organisations and students may provide valuable information for management. Research projects will be encouraged where they have direct relevance to park management and will include: visitor use, satisfaction and impacts; fire and biodiversity monitoring; sites or places that have relevance to the Aboriginal community; threatened species; significant vegetation communities, habitats, native plant and animal species; impacts of recreational activities in the park; effectiveness of management activities and programs; the significance of historic features in the park; natural regeneration of closed trails.

Desired Outcomes

- Research is undertaken that enhances the information base and assists management of the park.

- Research causes minimal environmental damage.

Strategies

- Work with other authorities and stakeholders in implementing ESFM principles across the landscape.

- Encourage and/or undertake research to provide information about the park's natural and cultural heritage and human use in order to facilitate management. Ensure research and monitoring projects are conducted in accordance with best practice and results are communicated to relevant NPWS staff and the public where appropriate.

- Require any research structures and long term markers to be placed in locations that will minimise their visual impact and require their removal upon completion of the research.

- Encourage bird watchers or similar groups to pass on information gathered in the park.

8. NPWS MANAGEMENT OPERATIONS AND OTHER FACILITIES

The park is managed by the Murrumbidgee Area office of the NPWS South West Slopes Region based in Tumut.

The road network within the park will be maintained as per recommendations made in the roading plan for the park.

The existing dam in the park will be retained for water for use in road works and for fire fighting.

Desired Outcomes

- Management facilities adequately serve the needs of park management and have acceptable environmental impact.

- A good relationship is maintained with park neighbours.

Strategies

- Maintain vehicle tracks to a standard of stability and access that is sustainable and suitable for their proposed use, as per the roading plan for the park.

- Maintain close liaison with park neighbours to deal with matters of mutual concern.

- The dam will be assessed for public safety and action will be taken to rectify any safety issues.

8.2 Rural Fire Service tanker training

The Rural Fire Service (RFS) established a network of tanker driver training tracks within the park prior to its gazettal with the permission of the then State Forests of NSW. The tracks are located in the central west of the park and were established for sole use by the RFS. Trail bike riders do, however, also illegally utilise these tracks. Access to these tracks is via private property and no public access is provided. Several of these tracks are inappropriately located; traversing steep slopes, creek lines and threatened species sites.

Liaison with RFS has determined that the use of the majority of these tracks can continue on a consent basis once per year. The RFS can also utilise the established road network within the park (as shown on the park map) for such activities.

Strategies

- Permit RFS to continue driver training on a consent basis once per year.

- Close and rehabilitate identified tracks within the training network in line with recommendations made in the roading plan.

- Work with RFS to identify alternative sites for undertaking this activity.

- Undertake stabilisation and drainage works on those trails to be kept open.

- If at some time in the future RFS no longer require these trails for training purposes they may be closed and rehabilitated.

9. PLAN IMPLEMENTATION

This plan of management establishes a scheme of operations for the park. It is part of a system of management that includes the National Parks and Wildlife Act, management policies, established conservation and recreation philosophies, and strategic planning at corporate, branch and regional levels. The latter may include development of related plans such as regional recreation plans, species recovery plans, fire management plans and conservation plans.

Section 81 of the Act requires that this plan of management shall be carried out and given effect to, and that no operations shall be undertaken in relation to the park unless they are in accordance with the plan.

Implementation of this plan will be undertaken within the annual programs of the NPWS's South West Slopes Region. Relative priorities for identified activities are set out in the table below. These priorities are determined in the context of branch and regional strategic planning, and are subject to the availability of necessary staff and funds and to any special requirements of the Director-General or Minister. The implementation of the plan will be monitored and its success in achieving the identified objectives will be assessed.

The environmental impact of proposed activities will be assessed at all stages in accordance with established environmental assessment procedures. Where impacts are found to be unacceptable, activities will be modified in accordance with the plan policies.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with section 73B of the Act. The plan applies both to the land currently reserved and to any future additions. Where management strategies or works are proposed for additions (or the existing area) that are not consistent with the plan, an amendment to the plan will be required.

Desired Outcomes

The plan is implemented in accordance with identified priorities.

Strategies

- Undertake a bi-annual review of progress in implementing this plan of management.

- Undertake an assessment after 5 years of the effectiveness of managing the park in accordance with this plan and of the degree of success in achieving the plan’s objectives and desired outcomes. Base the evaluation on the monitoring programs set out in this plan and any others that may be developed.

Implementation Table

Plan Ref.	Strategy	Priority
4.1	Monitor areas of erosion within the park and minimise their spread through implementation of sediment and erosion control measures.	Medium
4.1	Rehabilitate disturbed areas, such as old trails, by controlling access, managing erosion and revegetating areas where necessary.	Medium
4.1	Manage recreational activities and other uses in the park to minimise erosion, changes to soil structure and degradation of catchment values.	Medium
4.2	Undertake periodic surveys for Yass Daisy and other threatened or significant plant species to ensure that recreational and management activities do not threaten their survival.	High
4.2	Implement recovery plans/priority actions and threat abatement plans for threatened species, communities and populations that occur within the park.	Ongoing
4.2	Liaise with neighbours, local Landcare groups and catchment management authorities to encourage retention, and if possible expansion, of areas of native vegetation close to the park.	Low
4.2	Continue to liaise with park neighbours to ensure that boundary fences are maintained to a stock-proof standard.	Medium
4.3	Encourage research into the effects of threatening processes on the parks native plant and animal species in order to provide recommendations to guide future park management.	Medium
4.3	Protect the habitats of threatened and biogeographically significant fauna species from visitor impacts, the effects of introduced species and inappropriate fire regimes.	Medium
4.3	Periodically undertake Squirrel Glider surveys to monitor populations	Medium
4.3	Continue to record the distribution of threatened and significant fauna species.	High
4.3	Implement recovery plans/priority actions and threat abatement plans for threatened species, communities and populations that occur within the park.	Medium
4.4	Manage Aboriginal heritage in consultation with the Wagga Wagga Local Aboriginal Land Council and other relevant Aboriginal community organisations.	Medium
4.4	Protect identified Aboriginal sites, relics, historic places and culturally significant features from damage by human activity and fire. Prepare management strategies where necessary in consultation with relevant Aboriginal community members	High

Plan Ref.	Strategy	Priority
4.4	Undertake research and oral history gathering to determine the significance of the park and surrounds to the local and wider Aboriginal community, and identify threats and management measures to conserve all identified and potential sites	Low
4.4	Undertake site specific archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal sites and places.	Medium
4.4	Do not publicise the location of Aboriginal sites and places except where the agreement of relevant Aboriginal community organisations has been obtained.	Medium
4.4	Progressively record all Aboriginal cultural sites and/or places of significance and update the NPWS's Aboriginal Heritage Information Management System. Priority will be given to areas most threatened by human impact.	Medium
4.5	Record and manage all historic places in a way that is appropriate to their cultural significance in accordance with the Burra Charter of Australia ICOMOS.	Medium
4.5	Encourage involvement of local historical societies and interested members of the public in cultural heritage management activities.	Low
4.5	Encourage research into the identification and documentation of historic features of the park and into gathering oral history information on mining activities and other historic heritage in the park.	Low
4.5	Promote public understanding and appreciation of historic resources through provision of interpretation and educational material.	Low
5.1	Rehabilitate disturbed areas, such as unauthorised trails, by controlling access, implementing drainage and erosion control and undertaking revegetation where necessary.	High
5.1	Manage recreational activities and other uses in the park to minimise erosion, changes to soil structure and degradation of catchment values.	High
5.1	Undertake regular trail maintenance activities to minimise erosion and maintain drainage features.	Medium
5.1	Monitor areas of active erosion and treat if found to be extending.	Low
5.2	Control introduced species in accordance with the regional pest management strategy and best management practice.	High

Plan Ref.	Strategy	Priority
5.2	Give priority for the control of introduced species to those species that: – are declared noxious or for which a national emergency control program has been declared or are known to be an important problem in other parks or states; – have a significant environmental impact, including damage to threatened species, catchment values and recreation values; – may affect neighbouring lands or are considered of high priority by the community; – where management is needed to maintain benefits gained from previous control programs or to allow another high priority management program to be effective; or – where a window of opportunity occurs.	High
5.2	Continue to undertake cooperative weed and pest animal control programs with neighbours and the Wagga Wagga Rural Lands Protection Board.	Medium
5.2	Continue to undertake periodic weed and pest animal surveys to identify new populations; ensure that existing populations are not spreading; and measure the effectiveness of past control programs.	Medium
5.2	Continue to implement the NPWS Boundary Fence Policy in order to restrict stock incursion into the park.	Medium
5.3	Manage fire in the park in accordance with the Fire Management Strategy.	High
5.3	Continue measuring and monitoring fuels at all established sites, including the use of photographic site records.	Medium
5.3	Use prescribed fire to achieve a variety of fire regimes that maintain fire thresholds for each vegetation community.	High
5.3	Aim to maintain biodiversity by restricting fires to only part of the distribution of a vegetation community at any one time.	High
5.3	Where possible, avoid the use of heavy machinery for fire suppression in areas of rare plants, Aboriginal sites and historic places.	High
5.3	Rehabilitate areas disturbed by fire suppression operations as soon as practicable after fire.	Medium
5.3	Encourage research into the ecological effects of fire in the park, particularly the fire response of significant plant species and the fire requirements of these communities. Incorporate the results into a periodic review of the park's Fire Management Strategy.	Low

Plan Ref.	Strategy	Priority
5.3	Continue to actively participate in the Wagga Wagga Bush Fire Management Committee. Maintain close contact and cooperation with Council fire officers and volunteer bush fire brigades.	High
5.3	Where appropriate, carry out fuel management in cooperation with neighbours for mutual protection.	High
5.3	Consider closing the park to public use during periods of extreme fire danger.	High
5.3	Undertake fuel reduction programs, trail maintenance, research and monitoring programs in accordance with the policies outlined above and in the Fire Management Strategy.	High
5.3	Maintain fire history data for the park and adjacent areas and incorporate this information into the Fire Management Strategy.	Medium
5.3	A solid fuel fire ban may be implemented during summer and other periods of high fire danger.	Medium
6.1	Park promotion will be “low-key” and focus on park values and appropriate use of the park in accordance with the objectives set out in this plan.	Medium
6.1	Promote the concept of “minimal impact” for all recreational activities including 4WDing, trail bike riding, bush walking, camping, horse riding and cycling.	High
6.1	Liaise with other visitor information organisations to ensure all information is of a high quality, accurate, consistent, up-to-date and promotes appropriate visitor expectations and behaviour.	Low
6.1	Produce media releases and attend meetings with neighbours and community organisations to promote community understanding of park values and management strategies.	Medium
6.1	Provide orientation/interpretive signs at entrances to the park and additional directional signposting where necessary.	High
6.1	Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.	Medium
6.1	Support and assist appropriate educational use of the park by schools, community groups and individuals.	Low
6.1	Prepare a park brochure outlining features of the park.	Medium

Plan Ref.	Strategy	Priority
6.2.1	Formalise legal access to the park in conjunction with neighbours and other interested parties.	Medium
6.2.1	Permit public vehicle use, including trail bikes, on all park roads (refer to park map) provided vehicles are registered and drivers/riders are appropriately licensed. Off-road driving is not permitted within the park.	Medium
6.2.1	Continue to liaise with trail bike riders and recreational drivers to encourage compliance with access regulations and to use minimal impact techniques whilst using the park.	High
6.2.1	Close and rehabilitate the Daisy Trail and all informal trails that are not part of the park road network, as per recommendations in the roading plan.	High
6.2.1	Upgrade a small portion of the northern section of Range Trail to where it meets Link Trail to two-wheel drive standard to provide access to the proposed day use area (refer section 6.2.4).	Medium
6.2.1	Close and rehabilitate single trails, except those that are to be retained as part of the multi-use trail (refer sections 6.2.2 and 6.2.3).	High
6.2.1	Continue to undertake visitor monitoring within the park to determine levels and patterns of use.	Medium
6.2.1	Undertake law enforcement patrols with NSW Police to ensure compliance with the Motor Traffic Act and NPWS regulations regarding vehicular access.	Medium
6.2.2	Continue to liaise with mountain bike clubs to formalise a suitable multiple use trail in the northern end of the park that provide reasonable levels of access whilst not compromising the park's natural and cultural heritage values or significantly increasing management requirements.	High
6.2.2	Following consultation with stakeholders, prepare a strategy outlining the development and management of the multi-use trail.	Medium
6.2.2	Permit mountain bike riding on all park roads.	Medium
6.2.2	All mountain bike riding will be in accordance with DECC/NPWS policy.	High
6.2.3	Horse riding will continue to be permitted within the park on park roads and on the designated multi-use trail.	Medium
6.2.3	Overnight camping with horses will not be permitted in the park.	High
6.2.3	The application of the principles outlined in the Australian Alps Horse Riding Code will be encouraged within the park.	Medium
6.2.4	Formalise one campsite in the park by installing low-key facilities, after undertaking appropriate site planning and environmental impact assessment.	Medium

Plan Ref.	Strategy	Priority
6.2.4	Establish a small day use area in the north of the park near the junction of the Range Trail and the Link Trail	Medium
6.2.4	Permit walk-in bush camping in the park where it is more than 200m from a road or park boundary.	Low
6.2.5	Permit bushwalking throughout the park	Ongoing
6.2.6	Implement a consent system for all groups of 12 persons or more or for groups that use the park more than once a month irrespective of group size.	Medium
6.2.6	Monitor all group activities and special events with respect to cumulative impacts, safety requirements, conflicts with other park users, and compliance with consent conditions.	Low
6.2.6	Require any commercial operators using the park to be licensed by NPWS.	Medium
7.1	Work with other authorities and stakeholders in implementing ESFM principles across the landscape.	Low
7.1	Encourage and/or undertake research to provide information about the park's natural and cultural heritage and human use in order to facilitate management. Ensure research and monitoring projects are conducted in accordance with best practice and results are communicated to relevant NPWS staff and the public where appropriate.	Medium
7.1	Require any research structures and long term markers to be placed in locations that will minimise their visual impact and require their removal upon completion of the research.	Low
7.1	Encourage bird watchers or similar groups to pass on information gathered in the park.	Medium
8.1	Maintain vehicle tracks to a standard of stability and access that is sustainable and suitable for their proposed use, as per the roading plan for the park.	High
8.1	Maintain close liaison with park neighbours to deal with matters of mutual concern.	High
8.1	The dam will be assessed for public safety and action will be taken to rectify any safety issues.	Low
8.2	Permit RFS to continue driver training on a consent basis once per year.	Medium
8.2	Close and rehabilitate inappropriate tracks within the training track network in line with recommendations made in the roading plan.	Medium
8.2	Work with RFS to identify alternative sites for undertaking this activity.	Medium
8.2	Undertake stabilisation and drainage works on those trails to be kept open.	High
8.2	If at some time in the future RFS no longer require these trails for training purposes they may be closed and rehabilitated.	Low

Plan Ref.	Strategy	Priority
9.1	Undertake a bi-annual review of progress in implementing this plan of management	Medium
9.1	Undertake an assessment after 5 years of the effectiveness of managing the park in accordance with this plan and of the degree of success in achieving the plan's objectives and desired outcomes. Base the evaluation on the monitoring programs set out in this plan and any others that may be developed.	High

Legend

High priority activities are those imperative to achievement of the objectives and desired outcomes. They must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.

Medium priority activities are those that are necessary to achieve the objectives and desired outcomes but are not urgent.

Low priority activities are desirable to achieve management objectives and desired outcomes but can wait until resources become available.

10. REFERENCES

Australian Alps Liaison Committee. 1994. Australian Alps Horse Riding Code. Australian Alps National Parks.

Bureau of Mineral Resources. 1978. *1:250,000 Geological Map of the Canberra Region*. Bureau of Mineral Resources, Canberra.

Dearling, C. 2003a. *Aboriginal heritage surveys of selected SWS Region reserves*. Unpublished report to NSW NPWS.

Dearling, C. 2003b. *Preliminary desktop European Heritage Study of selected reserves in SWS Region*. Unpublished report to NSW NPWS.

Department of Mineral Resources, 1982. *Wagga Wagga 1:250,000 Metallogenic Map: Mine Data Sheets Metallogenic Study*, Geological Survey of NSW

EcoGIS. 2004. *Mapping of Vegetation Ecosystems in New and Existing Conservation Reserves, NPWS, SWS Region*. Unpublished report to NPWS.

ICOMOS (1998) *The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter).* Australia ICOMOS (International Council on Monuments and Sites.

IUCN (1994) *Guidelines for Protected Area Management*. International Union for the Conservation of Nature and Natural Resources.

Menkhorst, P.W. 2001. *A field guide to mammals of Australia*. Oxford University Press.

NPWS. 2004. *South West Slopes Regional Pest Management Strategy*. Unpublished report for NPWS South West Slopes Region.

NPWS. 2001. *South West Slopes Region Environmental Safeguards Code of Practice*. Unpublished policy of NPWS South West Slopes Region.

NPWS. 2001. *South West Slopes Region Fire Trail Maintenance Policy*. Unpublished policy of NPWS South West Slopes Region.

Smith, L. 2003. *Preliminary (Desktop) European Cultural Heritage Study of Identified NPWS Parks and Reserves*. Unpublished report for NPWS South West Slopes Region.

Personal Communications

Schulz, Martin. 2004. Fauna Ecologist

Appendix 1 – Fauna Species Lists

Amphibian species recorded in the park include:

Scientific Name	Common Name
Crinia parisignifera	Plains Froglet
Crinia signifera	Common Eastern Toadlet
Crinia sloanii	Sloane's Toadlet
Limnodynastes tasmaniensis	Spotted Grass Frog
Litoria peroni	Peron's Tree Frog

Reptile species recorded in the park include:

Scientific Name	Common Name
Amphibolurus muricatus	Jacky Lizard
Amphibolurus nobbi	Nobbi
Carlia teradactyla	Southern Rainbow Skink
Cryptoblepharus carnabyi	Carnaby's Wall Skink
Ctenotus taeniolatus	Copper-tailed Skink
Lerista bougainvillii	Bougainville's Skink
Christinus marmorata	Marbled Gecko
Varanus varius	Lace Monitor
Pseudechis porphyriacus	Red-bellied Black Snake

Native mammals recorded in the park include:

Scientific Name	Common Name
Tachyglossus aculeatus	Short-beaked Echidna
Antechinus flavipes	Yellow-footed Antechinus
Vombatus ursinus	Common Wombat
Trichosurus vulpecula	Common Brushtail Possum
Pseudocheirus peregrinus	Common Ringtail Possum
Macropus giganteus	Eastern Grey Kangaroo
Wallabia bicolor	Swamp Wallaby
Petaurus norfolcensis	Squirrel Glider
Mormopterus planiceps	Little Mastiff Bat
Nyctinomus australis	White-striped Mastiff Bat
Chainolobus gouldii	Gould's Wattled Bat
Chainolobus morio	Chocolate Wattled Bat

Scientific Name	Common Name
Nyctophilus geoffroyi	Lesser Long-eared Bat
Nyctophilus gouldii	Gould's Long-eared Bat
Vespadelus regulus	Southern Forest Bat
Vespadelus vulturnus	Little Forest Bat
Vespadelus darlingtoni	Large Forest Bat
Scotorepens balstoni	Western Broad-nosed Bat

Birds recorded in the park include:

Scientific Name	Common Name
Struthidea cinerea	Apostlebird
Tachybaptus novaehollandiae	Australasian Grebe
Anas rhynchotis	Australasian Shoveler
Falco longipennis	Australian Hobby
Alisterus scapularis	Australian King-Parrot
Gymnorhina tibicen	Australian Magpie
Aegotheles cristatus	Australian Owlet-nightjar
Pelecanus conspicillatus	Australian Pelican
Anthus australis	Australian Pipit
Corvus coronoides	Australian Raven
Acrocephalus australis	Australian Reed-Warbler
Tadorna tadornoides	Australian Shelduck
Porzana fluminea	Australian Spotted Crake
Threskiornis molucca	Australian White Ibis
Chenonetta jubata	Australian Wood Duck
Vanellus tricolor	Banded Lapwing
Ninox connivens	Barking Owl
Falco subniger	Black Falcon
Cygnus atratus	Black Swan
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subsp.)
Chalcites osculans	Black-eared Cuckoo
Coracina novaehollandiae	Black-faced Cuckoo-shrike

Scientific Name	Common Name
Artamus cinereus	Black-faced Woodswallow
Elseyornis melanops	Black-fronted Dotterel
Elanus axillaris	Black-shouldered Kite
Gallinula ventralis	Black-tailed Native-hen
Entomyzon cyanotis	Blue-faced Honeyeater
Falco berigora	Brown Falcon
Accipiter fasciatus	Brown Goshawk
Cincloramphus cruralis	Brown Songlark
Acanthiza pusilla	Brown Thornbill
Climacteris picumnus	Brown Treecreeper
Melithreptus brevirostris	Brown-headed Honeyeater
Melopsittacus undulatus	Budgerigar
Gallirallus philippensis	Buff-banded Rail
Acanthiza reguloides	Buff-rumped Thornbill
Burhinus grallarius	Bush Stone-curlew
Ardea ibis	Cattle Egret
Anas castanea	Chestnut Teal
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren
Acanthiza uropygialis	Chestnut-rumped Thornbill
Nymphicus hollandicus	Cockatiel
Accipiter cirrocephalus	Collared Sparrowhawk
Phaps chalcoptera	Common Bronzewing
Tringa nebularia	Common Greenshank
Ocyphaps lophotes	Crested Pigeon
Platycercus elegans	Crimson Rosella
Anhinga melanogaster	Darter
Stagonopleura guttata	Diamond Firetail
Eurystomus orientalis	Dollarbird
Taeniopygia bichenovii	Double-barred Finch
Gallinula tenebrosa	Dusky Moorhen

Scientific Name	Common Name
Artamus cyanopterus	Dusky Woodswallow
Platycercus adscitus eximius	Eastern Rosella
Falcunculus frontatus	Eastern Shrike-tit
Eopsaltria australis	Eastern Yellow Robin
Fulica atra	Eurasian Coot
Petrochelidon ariel	Fairy Martin
Cacomantis flabelliformis	Fan-tailed Cuckoo
Petroica phoenicea	Flame Robin
Lichenostomus fuscus	Fuscous Honeyeater
Eolophus roseicapillus	Galah
Callocephalon fimbriatum	Gang-gang Cockatoo
Pachycephala inornata	Gilbert's Whistler
Pachycephala pectoralis	Golden Whistler
Cisticola exilis	Golden-headed Cisticola
Phalacrocorax carbo	Great Cormorant
Podiceps cristatus	Great Crested Grebe
Ardea alba	Great Egret
Cracticus torquatus	Grey Butcherbird
Strepera versicolor	Grey Currawong
Rhipidura albiscapa	Grey Fantail
Accipiter novaehollandiae	Grey Goshawk
Colluricincla harmonica	Grey Shrike-thrush
Anas gracilis	Grey Teal
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subsp.)
Poliocephalus poliocephalus	Hoary-headed Grebe
Melanodryas cucullata	Hooded Robin
Chalcites basalis	Horsfield's Bronze-Cuckoo
Ardea intermedia	Intermediate Egret
Microeca fascinans	Jacky Winter

Scientific Name	Common Name
Gallinago hardwickii	Latham's Snipe
Dacelo novaeguineae	Laughing Kookaburra
Myiagra rubecula	Leaden Flycatcher
Phalacrocorax sulcirostris	Little Black Cormorant
Hieraaetus morphnoides	Little Eagle
Philemon citreogularis	Little Friarbird
Megalurus gramineus	Little Grassbird
Glossopsitta pusilla	Little Lorikeet
Phalacrocorax melanoleucos	Little Pied Cormorant
Corvus mellori	Little Raven
Grallina cyanoleuca	Magpie-lark
Barnardius zonarius barnardi	Mallee Ringneck
Vanellus miles	Masked Lapwing
Artamus personatus	Masked Woodswallow
Dicaeum hirundinaceum	Mistletoebird
Biziura lobata	Musk Duck
Falco cenchroides	Nankeen Kestrel
Philemon corniculatus	Noisy Friarbird
Manorina melanocephala	Noisy Miner
Oriolus sagittatus	Olive-backed Oriole
Anas superciliosa	Pacific Black Duck
Turnix varia	Painted Button-quail
Rostratula benghalensis australis	Painted Snipe (Australian subspecies)
Cuculus pallidus	Pallid Cuckoo
Geopelia placida	Peaceful Dove
Falco peregrinus	Peregrine Falcon
Cracticus nigrogularis	Pied Butcherbird
Phalacrocorax varius	Pied Cormorant
Strepera graculina	Pied Currawong

Scientific Name	Common Name
Malacorhynchus membranaceus	Pink-eared Duck
Dendrocygna eytoni	Plumed Whistling-Duck
Porphyrio porphyrio	Purple Swamphen
Merops ornatus	Rainbow Bee-eater
Anthochaera carunculata	Red Wattlebird
Neochmia temporalis	Red-browed Finch
Petroica goodenovii	Red-capped Robin
Erythrogonys cinctus	Red-kneed Dotterel
Psephotus haematonotus	Red-rumped Parrot
Xanthomyza phrygia	Regent Honeyeater
Myiagra inquieta	Restless Flycatcher
Platalea regia	Royal Spoonbill
Rhipidura rufifrons	Rufous Fantail
Cincloramphus mathewsi	Rufous Songlark
Pachycephala rufiventris	Rufous Whistler
Todiramphus sanctus	Sacred Kingfisher
Myiagra cyanoleuca	Satin Flycatcher
Petroica boodang	Scarlet Robin
Calidris acuminata	Sharp-tailed Sandpiper
Chalcites lucidus	Shining Bronze-Cuckoo
Larus novaehollandiae	Silver Gull
Zosterops lateralis	Silvereye
Lichenostomus virescens	Singing Honeyeater
Ninox boobook	Southern Boobook
Aphelocephala leucopsis	Southern Whiteface
Pyrrholaemus sagittatus	Speckled Warbler
Acanthagenys rufogularis	Spiny-cheeked Honeyeater
Circus assimilis	Spotted Harrier
Eurostopodus argus	Spotted Nightjar
Pardalotus punctatus	Spotted Pardalote

Scientific Name	Common Name
Threskiornis spinicollis	Straw-necked Ibis
Pardalotus striatus	Striated Pardalote
Acanthiza lineata	Striated Thornbill
Plectorhyncha lanceolata	Striped Honeyeater
Cacatua galerita	Sulphur-crested Cockatoo
Malurus cyaneus	Superb Fairy-wren
Polytelis swainsonii	Superb Parrot
Circus approximans	Swamp Harrier
Lathamus discolor	Swift Parrot
Podargus strigoides	Tawny Frogmouth
Petrochelidon nigricans	Tree Martin
Neophema pulchella	Turquoise Parrot
Daphoenositta chrysoptera	Varied Sittella
Malurus lamberti	Variegated Fairy-wren
Aquila audax	Wedge-tailed Eagle
Smicrornis brevirostris	Weebill
Hirundo neoxena	Welcome Swallow
Gerygone fusca	Western Gerygone
Chlidonias hybridus	Whiskered Tern
Haliastur sphenurus	Whistling Kite
Cheramoeca leucosternus	White-backed Swallow
Coracina papuensis	White-bellied Cuckoo-shrike
Pomatostomus superciliosus	White-browed Babbler
Sericornis frontalis	White-browed Scrubwren
Artamus superciliosus	White-browed Woodswallow
Lichenostomus leucotis	White-eared Honeyeater
Egretta novaehollandiae	White-faced Heron
Melithreptus lunatus	White-naped Honeyeater
Ardea pacifica	White-necked Heron
Lichenostomus penicillatus	White-plumed Honeyeater

Scientific Name	Common Name
Gerygone olivacea	White-throated Gerygone
Hirundapus caudacutus	White-throated Needletail
Eurostopodus mystacalis	White-throated Nightjar
Cormobates leucophaeus	White-throated Treecreeper
Corcorax melanorhamphos	White-winged Chough
Lalage tricolor	White-winged Triller
Rhipidura leucophrys	Willie Wagtail
Platycercus elegans flaveolus	Yellow Rosella
Acanthiza nana	Yellow Thornbill
Platalea flavipes	Yellow-billed Spoonbill
Lichenostomus chrysops	Yellow-faced Honeyeater
Acanthiza chrysorrhoa	Yellow-rumped Thornbill
Lichenostomus melanops	Yellow-tufted Honeyeater
Taeniopygia guttata	Zebra Finch