

DOWNFALL NATURE RESERVE

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Conservation (NSW)

May 2006

This plan of management was adopted by the Minister for the Environment on 2nd May 2006.

Acknowledgments

This plan of management was prepared by staff of South West Slopes Region of NPWS.

Cover photograph by Simon Allender, NPWS.

Inquiries about this draft plan of management should be directed to the NPWS South West Slopes Region Office, 7a Adelong Road, Tumut 2720 or by telephone on 69477000.

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FOREWORD

Downfall Nature Reserve is located 26km west of Batlow and 9 km north of the small town of Rosewood. The reserve was gazetted in 2001 as part of the Southern Regional Forest Agreement and covers an area of 496ha.

Downfall Nature Reserve is located within the South West Slopes Bioregion of NSW. Due to disturbance and clearing, all remaining vegetation in this bioregion is considered important.

Downfall Nature Reserve is important as an island habitat for a diverse range of native species. Of particular interest is the number of species listed under the *Threatened Species Conservation Act, 1995* including the barking owl, turquoise parrot and squirrel glider.

There are no visitor facilities within the nature reserve. Public vehicular access to the reserve boundary is via state forest roads. The topography and size of the reserve limits its potential for public use.

The *National Parks and Wildlife Act, 1974* requires a plan of management to be prepared for each park and reserve. A plan of management is a legal document that outlines how a reserve will be managed in the years ahead.

A draft plan of management for Downfall Nature Reserve was placed on public exhibition from 18 June until 17 September 2004. The exhibition of the draft plan attracted 4 submissions that raised 3 issues. All submissions received were carefully considered before adopting this plan.

This plan of management establishes the scheme of operations for Downfall Nature Reserve. In accordance with Section 73B of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Bob Debus
Minister for the Environment

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1. MANAGEMENT CONTEXT

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves 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, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). Section 72AA of 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.

The plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within Downfall Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to Downfall Nature 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.

1.2 MANAGEMENT PURPOSES AND PRINCIPLES

Nature reserves are reserved under the NPW Act to protect and conserve areas containing outstanding, unique or representative ecosystems, species, communities or natural phenomena.

Under the Act, nature reserves are managed to:

- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena;
- conserve places, objects, features and landscapes of cultural value;
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values; and
- provide for appropriate research and monitoring.

Nature reserves differ from national parks in that they do not have as a management principle to provide for visitor use.

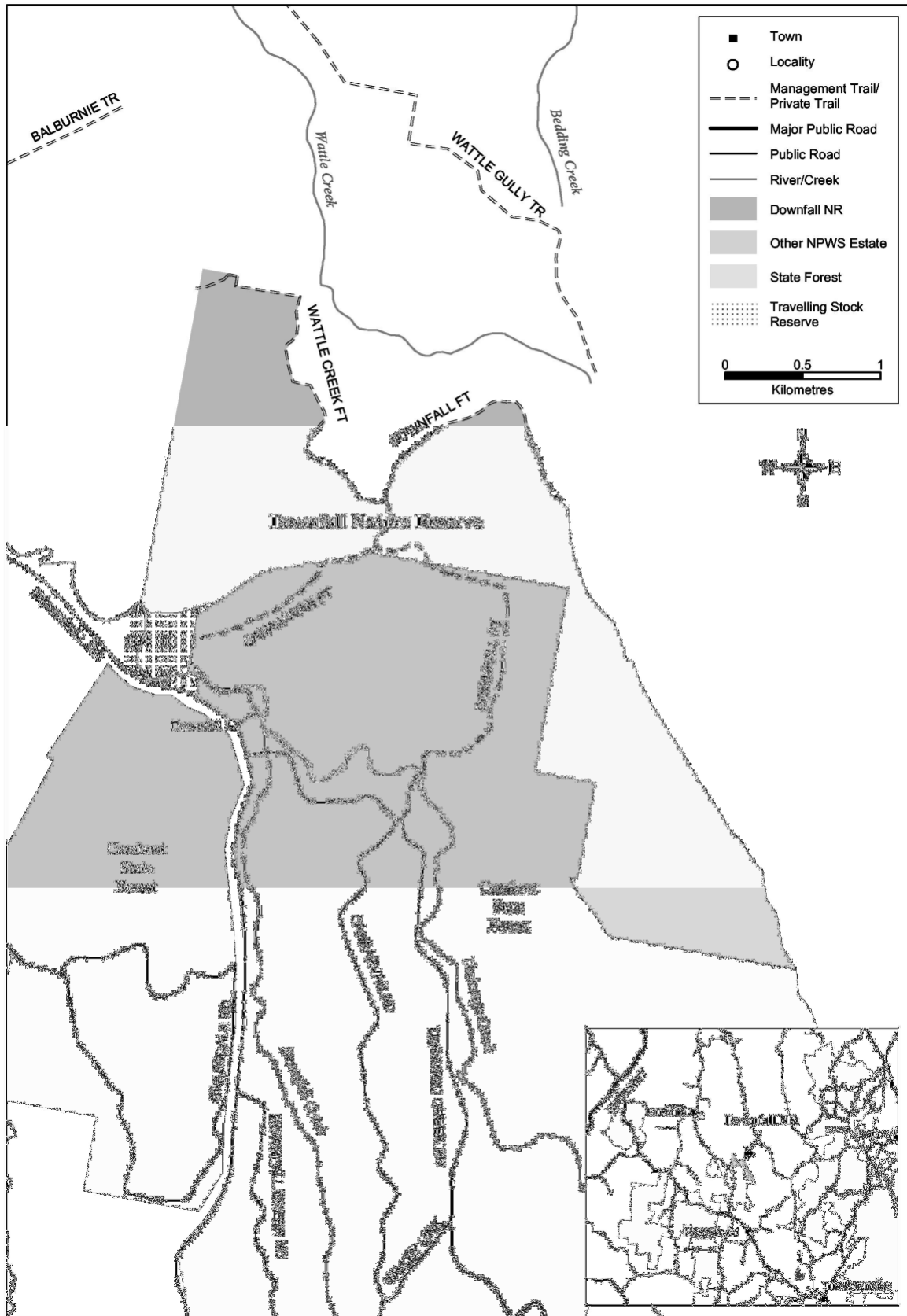
1.3 REGIONAL FOREST AGREEMENTS

Regional Forest Agreements (RFA) 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 RFA covers the planning area. The process leading up to the RFA provided for major additions to the reserve system, including the establishment of Downfall Nature Reserve.

RESERVE MAP



2. DOWNFALL NATURE RESERVE

2.1 LOCATION, GAZETTAL, AND REGIONAL SETTING

Downfall Nature Reserve (hereafter referred to as “the reserve”) is located 26km west of Batlow and 9 km north of the small town of Rosewood (see map, page 7). The reserve was gazetted in 2001 as part of the Southern Regional Forest Agreement (RFA) and covers an area of 496ha.

From 1850 to 1906 the reserve was part of the ‘American Yards’ pastoral run (Dearling, 2003). From this point until gazettal in 2001 the reserve was crown land that was subject to lease, the main use being for grazing of cattle and sheep.

The reserve takes its name from the nearby locality of Downfall. The name Downfall comes from a steep slope in the Rosewood Hills where railway builders had to undertake major construction for the railway to negotiate the slope (Dearling 2003).

Carabost State Forest covers the areas to the south and south west of the reserve. This forest consists primarily of pine plantation, however native forest exists within this State Forest on the nature reserve’s southern boundary. Although not currently under lease, the state forest is still available for permit grazing. Other surrounding private lands have been cleared or partially cleared for pine plantation, grazing and other agricultural activities, although some high quality native vegetation remains. A Travelling Stock Reserve (TSR) adjoins the reserve to the south west. Downfall Nature Reserve is one of several small reserves in the region which sample remnants of formerly widespread vegetation types. Nearby reserves are Courabyra Nature Reserve to the south east and Woomargama National Park to the south west.

The Reserve is within Holbrook Shire, Wagga Wagga Aboriginal Land Council area, Murrumbidgee catchment, and Hume Rural Lands Protection Board area.

2.2 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.

As a remnant area of native vegetation, Downfall Nature Reserve and the tracts of native vegetation to the north of the reserve forms part of a broader habitat for native species, including nomadic and migratory birds moving between remaining areas of habitat.

The geology, landform, climate and plant and animal communities of the area, plus its location, have determined how it has been used by humans. Because the area has been used for grazing and is surrounded by privately owned land and state forest, it has seen very little public use up to this point, though there is access to the reserve through surrounding private and public land.

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.

2.3 NATURAL HERITAGE

2.3.1 Landform, Geology and Soils

The reserve is dominated by moderately steep slopes with an elevation range between 400m and 690m. Most of the reserve has a westerly or south-westerly aspect. The reserve is situated on the same faultline that forms a distinct north-south ridge top in Courabyra Nature Reserve. This ridge top forms the reserve's eastern boundary. Underlying parent materials consist predominantly of Upper Ordovician quartzite and slate.

The soils of the area are dominated by moderately deep clays at lower elevations with a skeletal podzolic or lithosol on mid and upper slopes, dominated by weathered rock fragments. The shallow podzolic and skeletal soils have low fertility, the deeper clays and soils of the reserve being only marginally better.

Several ephemeral drainage lines exist within the reserve and occasionally contribute seasonal water to the upper reaches of Umbango Creek. There is no permanent water in the reserve although there are a number of small dams close to the reserve boundary.

2.3.2 Native Plants

The South West Slopes bio-region of New South Wales is one of the most highly disturbed and altered landscapes in NSW (Gibbons & Boak, 2002). Given the history of clearing, burning and grazing in the region, all remaining areas of intact remnant native vegetation are now considered significant.

The reserve contains up to six distinct forest types with subtle changes reflecting varying soil types and aspect within the reserve. These are summarised as:

- Apple box forest in broad low-lying gullies and valley floors,
- Peppermint moist forest on exposed lower slopes with a low/medium grade,
- Red Stringybark-Scribbly Gum-Rough barked Red Box-Tussock grass open forest on western slopes at middle elevations,
- Peppermint-mixed box grassy forest on exposed lower western slopes,
- Norton's Box-Peppermint grassy open forest on western and northern slopes, and
- Secondary wattle shrubland in previously cleared pockets.

The mid and understorey have been disturbed through grazing and burning activities in the past with diversity in these species, in particular, at relatively low levels in parts of the reserve.

2.3.3 Native Animals

Systematic fauna surveys conducted during 2002 and 2004 (NPWS) revealed that Downfall Nature Reserve is important as an island habitat for a diverse range of native species. Its significance as native habitat is relatively high, given the surrounding lands have been altered for agriculture and forestry. A total of 16 species of mammals (including 8 bats), 3 frogs, 7 reptiles and 72 species of birds have been recorded, although more species are likely to use the reserve and surrounding lands on a seasonal basis. Of particular interest, is the existence of a number of species listed as vulnerable on Schedule 2 of the *Threatened Species Conservation Act, 1995* within the reserve including barking owl (*Ninox connivens*), black-chinned honeyeater (*Melithreptus gularis*), brown treecreeper (*Climacteris picumnus*), speckled warbler (*Pyrrholaemus saggitata*), diamond firetail (*Stagonopleura guttata*), turquoise parrot (*Neophema pulchella*), hooded robin (*Melanodryas cucullata*) and squirrel glider (*Petaurus norfolcensis*).

Past disturbance to the forest has led to a general lack of mature trees in the reserve. This has a major influence on fauna diversity. The reserve, in isolation, is home to a number of species, but is more important as part of a broader home range for mobile animals, dependent on changing food and water supplies in different areas during different seasons. For example, nectar feeding birds of the south eastern Australia use various eucalypt species as they come into flower over different seasons and in different locations.

2.4 CULTURAL HERITAGE

2.4.1 Aboriginal Heritage

Aboriginal communities have an association and connection to the land. The land and water biodiversity values within a landscape are central to Aboriginal spirituality and contribute to Aboriginal identity. Aboriginal communities associate natural resources with the use and enjoyment of foods and medicines, caring for the land, passing on cultural knowledge and strengthening social bonds. Aboriginal heritage and nature are inseparable from each other and need to be managed in an integrated manner across the landscape.

The reserve lies within Wiradjuri country. It is thought that the Walgulu people once inhabited this area, but the exact boundary between these 'countries' is unclear. No Aboriginal sites have been identified within the reserve, although it forms part of a broader cultural landscape that supported Aboriginal populations for many thousands of years. Although not yet surveyed by NPWS, it is expected that evidence of this occupation exists within and around the reserve.

The reserve, in isolation, holds no known significance to Aboriginal people, but as part of a broader cultural landscape may be considered significant.

2.4.2 Historic Heritage

The Hume and Hovell expedition passed through the district in 1824. Eleven years later, settlement began in the Tumbarumba area, most likely because the district was one of the only ones relatively unaffected by a severe drought across the entire colony. At this time the area of the reserve was part of the 'American Yards' pastoral run. Clearing and grazing took place at this time. Sometime before 1885 the land became part of the Humula Run. In 1906 the reserve became Crown Land and was leased for grazing up until the gazettal of the nature reserve in 2001.

There is little evidence of past use of the reserve. Some survey markers and fences may still be in place within the individual portions of the reserve but none have been noted (Dearling 2003).

2.5. THREATS TO RESERVE VALUES

2.5.1 Introduced plants

An introduced plant species is defined in this plan as any plant 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. The NPWS also has a priority to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

Weed species alter soil chemistry and compete with natives for space and dominance. Grazing in the reserve occurred for a number of years under licence. Boundary fencing has not traditionally been maintained, but it is the aim of the Service to exclude uncontrolled grazing from the reserve for the long term.

The NPWS South West Slopes Region Pest Management Strategy identifies priority pest species and programs for action through set criteria. By following this same process the prioritisation of reserve pest species programs may be established and directly linked into the regional strategies (refer to the South West Slopes Region Pest Management Strategy). This strategic approach will consider such issues as (yet not limited by) the control of weeds in endangered ecological communities, significant remnant vegetation associations, threatened/endangered species habitat and areas of community/neighbour concern.

St John's wort (*Hypericum perforatum*) is the only noxious weed known to occur in any numbers in the reserve. Pine wildings are likely to occur in the reserve in the future due to its proximity to nearby plantations. Other weed species are likely to exist in the reserve.

2.5.2 Introduced animals

An introduced animal species 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 rabbits, foxes, deer and wild dogs, and possibly pigs and goats. These species are managed in accordance with the actions listed in the regional pest management strategy.

Foxes may inhabit the reserve periodically, as they do throughout the South West Slopes. Again, cooperative baiting programs between landholders, Rural Lands Protection Boards and the Service will be undertaken if populations in and around the reserve increase, and affect native plant and animal populations.

2.5.3 Fire

Fire is a natural feature of many environments. Many species are tolerant of fire, while others may not survive low or high fire frequencies. Inappropriate fire regimes can lead to loss of particular plant and animal species and communities. Fire can also damage or destroy cultural heritage, recreation and can threaten visitors and neighbouring land.

The reserve's fire history is unknown. Given the location of the reserve, vegetation types and its small size, fire in the reserve is most likely to be from larger fires burning from surrounding agricultural land. There is potential for fire to start on the reserve due to natural causes such as lightning strikes, but this potential is considered low.

There are a number of assets adjacent to the reserve, including pine plantations and neighbouring properties (homesteads, sheds, and grazing land). The fire management plan for the reserve will address the issue of strategic hazard reduction relating to the assets immediately adjacent to the reserve.

The NPWS uses a zoning system for bushfire management in NPWS reserves. NPWS zones are compatible with the system adopted by the Bushfire Coordinating Committee for use in District Bushfire Management Committee (DBFMC) bushfire risk management plans.

NPWS has assessed the reserve for fire management planning purposes and has zoned the reserve as a Heritage Area Management Zone (HAMZ). The primary fire management objectives within this zone are, in addition to protecting life and property, to protect the threatened species associated with the native vegetation communities within and surrounding the reserve. The reserve has been designated as a HAMZ because it is not adjacent to built assets which would be exposed to a high level of bushfire risk, does not have a history of bushfire ignitions or known areas of high bushfire behaviour potential. The HAMZ does not require intensive management and focuses on those actions appropriate to conserve biodiversity and cultural heritage. The use of planned fire in the reserve will only be carried out if required for research, ecological or hazard reduction purposes.

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

2.6 Access and Use

There is currently no signage indicating the reserve boundary or activities permitted and not permitted within the nature reserve. Access to the reserve is via State Forest roads. There appears to be some incidence of vehicular use within the reserve. Evidence of illegal hunting and firewood gathering also exists in the reserve. Management trails within the reserve are stable during dry periods, but can get boggy during the wetter months.

Fencing around the reserve is in varying states of repair. Fencing does not exist between the TSR and the reserve. Fencing between the reserve and surrounding state forest is in poor condition. None of the gates accessing the reserve are currently padlocked.

2.7 References

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- NSW National Parks and Wildlife Service. 2000. *Forest Ecosystem Classification and Mapping for the Southern CRA Region Volume 2: Appendices*. Unpublished report to the NSW CRA/RFA Steering Committee
- NSW National Parks and Wildlife Service. 2001. Systematic Fauna survey of selected reserves – SWS Region. Fieldwork undertaken by consultant and staff members.

3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>The soils of the reserve are unstable when disturbed, due to their high clay content.</p> <p>There is no permanent water in the nature reserve.</p>	<p>Soil erosion is minimised.</p>	<p>Undertaken all works in a manner that minimises erosion and water pollution</p>	<p>Med</p>
<p>Native plant and animal conservation</p> <p>Survey and mapping of the reserve's native fauna and flora has been undertaken by NPWS (2002/03).</p> <p>A number of threatened species have been identified within the reserve. Other species are expected to inhabit the reserve periodically.</p> <p>The habitat value of the reserve is locally high due to large-scale disturbance on surrounding lands for forestry and agricultural activities.</p> <p>On a broader scale, links between tracts of native vegetation are reasonably intact.</p> <p>Evidence of firewood collection and hunting exists within the nature reserve.</p>	<p>All native plant and animal species and communities are conserved.</p> <p>Structural diversity and habitat values are restored in areas subject to past disturbance.</p>	<p>Undertake further survey for threatened plant species and implement actions listed in recovery plans for all threatened species.</p> <p>Work with neighbours and vegetation management committees to encourage conservation of remnant native vegetation in the vicinity of the reserve.</p> <p>Install signage and consider padlocking of boundary gates to discourage firewood collection and other illegal use.</p>	<p>Med</p> <p>Med</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced species</p> <p>Foxes, rabbits and possibly pigs and goats exist within the reserve, at similar levels to that of surrounding lands.</p> <p>Weeds within the reserve include St John's wort and other pasture (non-native) species.</p>	<p>The impact of introduced species on native species and neighbouring lands is minimised.</p>	<p>Control and introduced plant and animal species. Priority will be given to the control of St Johns wort.</p> <p>Seek the cooperation of other authorities and neighbours in implementing weed and pest animal control programs.</p> <p>Undertake on-going control programs for foxes, rabbits and weed species as per priorities listed in the regional pest management strategy.</p>	<p>High</p> <p>Med</p> <p>Med</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire management</p> <p>Fire is a natural feature of the environment of the reserve and is essential to the survival of some plant communities. Frequent or regular fire, however, can cause loss of particular plant and animal species and communities. Fire could also damage cultural features, fences and threaten neighbouring land.</p> <p>No permanent water exists within the reserve.</p>	<p>Life, property and natural and cultural values are protected from bushfire.</p> <p>Fire regimes are appropriate for conservation of plant and animal communities.</p> <p>Cultural features are protected from damage by fire.</p>	<p>Prepare a Type 2 Fire Management Plan and fire operations map for the reserve that details life, property and natural and cultural resource protection strategies.</p> <p>Prohibit lighting of solid fuel fires in the reserve by visitors.</p> <p>Continue to participate in the Highlands Zone Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service brigades, fire control officers, State Forests and neighbours with regard to fuel management and fire suppression.</p> <p>Suppress all unplanned fires in the reserve as soon as possible during the bushfire danger season.</p> <p>Encourage further research into the ecological effects of fire in the reserve.</p>	<p>High</p> <p>High</p> <p>Med</p> <p>High</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural heritage</p> <p>No Aboriginal or European historic sites have been located within the nature reserve, however, it forms part of a broader cultural landscape.</p>	<p>Aboriginal and historic features and values are identified and protected.</p> <p>Understanding of the cultural significance of the reserve is improved.</p>	<p>Precede all new ground disturbance work by an assessment for cultural features.</p> <p>Consult and involve the Wagga Wagga Local Aboriginal Land Council and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values associated with the reserve.</p>	<p>High</p> <p>Med</p>
<p>Visitor use</p> <p>Use of the reserve must be carefully managed since it is a relatively small and significant area of remnant vegetation.</p> <p>There are no facilities within the nature reserve.</p> <p>Public vehicular access to the reserve boundary is via state forest roads.</p> <p>The topography and size of the reserve severely limits its potential for recreational activities.</p>	<p>The local community is aware of the significance of the area and of management programs.</p> <p>Visitor use is ecologically sustainable.</p>	<p>Provide regulatory and interpretive signage at key locations.</p> <p>Prohibit vehicle use, camping, camp fires and horse riding in the reserve.</p> <p>Monitor levels and impacts of use.</p> <p>Organise media releases, educational material and contact with neighbours and community organisations.</p>	<p>High</p> <p>Med</p> <p>Med</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Management operations</p> <p>Several management trails exist within the reserve. They are of varying standard.</p> <p>Boundary fences are of a varying standard and do not exist in some areas.</p>	<p>Management facilities adequately serve management needs and have acceptable impact.</p> <p>The reserve boundary is fenced to a stock-proof standard.</p>	<p>Maintain trails to be retained for management purposes (refer map).</p> <p>In conjunction with neighbours, construct and maintain boundary fences where required.</p> <p>Negotiate fencing agreements with Hume RLPB, State Forests and neighbours in accordance with the NPWS Boundary Fencing Policy.</p> <p>Consider acquisition of remnant native vegetation currently held under lease to the north of the reserve to increase the habitat value of the reserve.</p>	<p>High</p> <p>High</p> <p>High</p> <p>Med</p>

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.

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