HATTONS CORNER NATURE RESERVE PLAN OF MANAGEMENT

National Parks and Wildlife Service

Department of Environment and Conservation (NSW)

March 2007

This plan of management was adopted by the Minister for the Environment on 1 st March 2007.
Acknowledgments
The NPWS acknowledges that this nature reserve exists near the border of Wiradjuri and Ngunnawal Country and within the Onerwal Local Aboriginal Land Council boundary.
This plan of management is based on a draft plan prepared by staff of South West Slopes Region of NPWS (now the Parks and Wildlife Division of the Department of Environment and Conservation).
The NPWS would like to thank all those who attended a public meeting about the draft plan of management and who submitted information and comments regarding the nature reserve.
Inquiries about this draft plan of management should be directed to the ranger at the NPWS Queanbeyan Area Office, 6 Rutledge St, Queanbeyan, 2620 or by telephone on (02) 62992929.
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FOREWORD

Hattons Corner Nature Reserve lies three kilometres west of Yass, on the southern tablelands of NSW. It comprises four hectares of native grassland on the banks of the Yass River and was established as a nature reserve in 1982 because of its significant geological values.

The significance of the area as a geological study site dates back to the 1870s. The Hume Limestone, which caps the scarp above the river at Hattons Corner, is particularly rich in fossils, including tabulate and rugose corals. The site is the type section for Late Silurian sedimentary sequences.

The site also protects a remnant of Yass Plains grassland, a vegetation type that has been largely removed elsewhere by modern agricultural practices.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. 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 Hattons Corner Nature Reserve was placed on public exhibition for three months from 10 June until 16 September 2005. The exhibition of the plan of management attracted five submissions, which were carefully considered before adopting this plan of management.

This plan of management establishes the scheme of operations for Hattons Corner 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 Regulations, 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 Hattons Corner Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to the nature reserve. Where management strategies or works are proposed, 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

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:

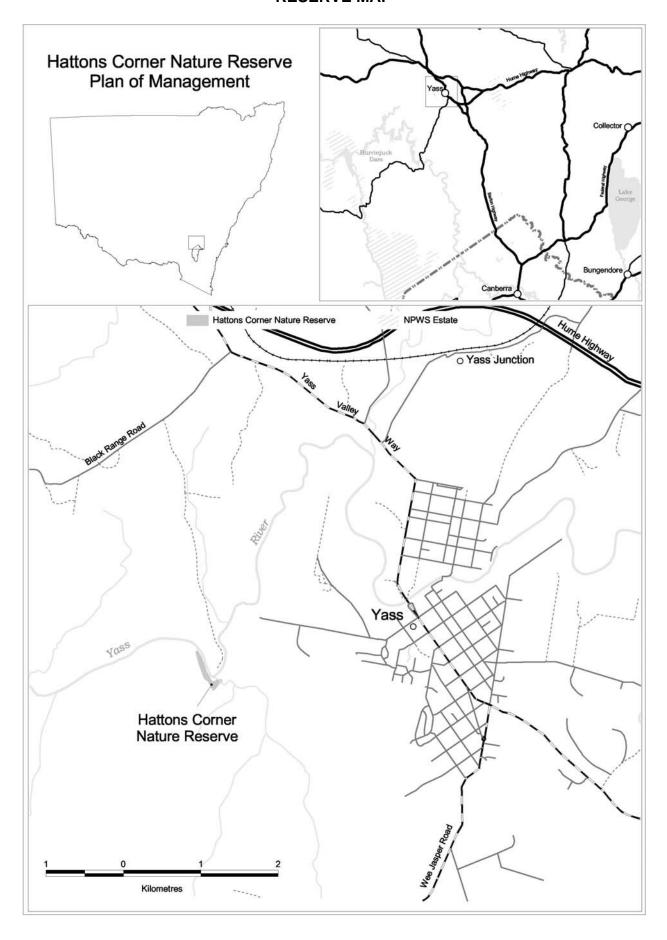
- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena;
- conserve places, objects, features and landscapes of cultural value;
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values; 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 MANAGEMENT DIRECTION

Management of the nature reserve will focus on protection of the significant geological features and grassland communities within the reserve.

RESERVE MAP



2. HATTONS CORNER NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Hattons Corner Nature Reserve (referred to herein as "the reserve") is located 3kms west of Yass on the southern tablelands of NSW. It consists of 4ha (being part of Portion 7, Parish Hume, County Murray) of open grassland on the banks of the Yass River and was gazetted in 1982 as nature reserve due to its significant geological values. The reserve is surrounded by freehold land and public access is limited.

The name Hattons Corner is derived from the name of the large bend in the river on which the nature reserve is situated.

Agriculture is the primary industry in the area, particularly sheep and cattle grazing and cropping. The reserve lies within the area of the Yass Shire Council, Yass Rural Lands Protection Board, Murrumbidgee Catchment Management Authority and the Onerwal Local Aboriginal Land Council.

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.

The nature reserve protects a significant geological formation as well as a small area of native grassland supporting a range of fauna species.

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

Hattons Corner was early recognised as a most important stratigraphic and palaeontological locality. The Hume Limestone, which caps the scarp above the river at Hattons Corner, is 7.8 m thick and particularly rich in fossils including tabulate and rugose corals. The underlying Barrandella Shale Member is 64.3 m thick in its type section at Hattons Corner (Percival, 1979). Cramsie et al (1978) described the section as commencing with shaly mudstones containing trilobites, graptolites and bands of

small brachiopods, which are overlain by mudstones with thin fossiliferous beds, followed by interbedding mudstones and siltstones. Sparsely fossiliferous mudstones, grading to mudstones with brachiopods, corals and bivalves, complete the section.

The geological site extends out of the reserve to the south, including Rainbow Hill and Barrandella Gully on the "Cliftonwood" property.

The site is the type section for Late Silurian (approximately 420 million years BP) sedimentary sequences. It has numerous fossiliferous fauna unique to the site and is famous for the diversity and abundance of the fossils present. Percival (1979) included Hattons Corner in a study of 47 significant geological sites in NSW, measured by a number of criteria, including importance to scientific research (as type or reference localities), educational utility, recreational or tourist potential, aesthetic appeal, rarity or fragility and historic links.

2.3.2 Native Plants

The site protects a remnant of Yass Plains grassland, a vegetation type that has been largely removed by modern agricultural practices. The vegetation of the reserve has been recorded by Rehwinkel (1999). It consists of a riparian community of kangaroo grass *Themeda australis* grassland, with a number of shrubs located on the rocky outcrops. Significant species include the anchor plant *Discaria pubescens*, a regionally rare plant, shrubs such as slender westringia *Westringia erimifolia* and hairy hop-bush *Dodonea boroniifolia*, the grass *Cymbopogon refractus* and the lily *Bulbine bulbosa*. A number of mature and regenerating river red gum *Eucalyptus camaldulensis* occur along the river bank.

The area shows severe disturbance from past agricultural activities, with 55% of herbaceous species being exotic.

2.3.3 Native Animals

The reserve is likely to support a high diversity of reptiles due to its rocky nature. The reserve has been identified as suitable habitat for a number of threatened grassland fauna including the striped legless lizard *Delma impar*, the pink-tailed legless lizard *Aprasia parapulchella*, the southern lined earless dragon *Tympanocryptus lineata pinguicolla* and the golden sun moth *Synemon plana* (Rehwinkel, 1999). A reptile survey was carried out by Gaia Research in the reserve in 1999. Species recorded include Cunningham's skink *Egernia cunninghami*, southern rainbow skink *Carlia tetradactyla*, and striped skink *Ctenotus robustus*. Leseur's tree frogs *Litoria leseuri* were found adjacent to the reserve, under river stones beside the Yass River. It is possible that platypus *Ornithorhynchus anatinus*, water rat *Hydromys chrysogaster* and bush rat *Rattus fuscipes* and smaller arboreal mammals may occur in the riparian zone. Numerous birds have been recorded. The common eastern froglet *Crinia signifera* and the closely-related eastern sign-bearing froglet *Crinia parinsignifera* have been observed in the reserve.

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.

No sites have been recorded in the reserve. However the presence of a camp site within 500m of the reserve, recorded at Booroo Ponds, and the location of the reserve on the Yass River is evidence enough of casual use of the area. The potential significance of the exposed fossil beds and associated landforms is unknown and requires research.

The reserve is situated on lands administered by the Onerwal Local Aboriginal Land Council and lies near the border of Wiradjuri and Ngunnawal Country.

2.4.2 Non-Aboriginal Heritage

The reserve is significant as a geological study site dating back to the 1870s. No historic structures are located in the reserve.

2.5 PUBLIC USE

The reserve has no legal public vehicular or pedestrian access as it is surrounded by private property. A neighbouring landholder reports one or two requests for group visits each year. There are no facilities within the reserve.

The site was listed as a category II site in a report for the Australian Heritage Commission and the Planning and Environment Commission of NSW (Percival, 1979) on the geological heritage of NSW. Category II sites are research and reference sites suitable for visits by research workers and small educational groups under responsible supervision.

At present there is no requirement for visitors to the site to have NPWS permission. | Formalising the access by requiring visitors to seek NPWS as well as neighbour permission to visit the site will increase protection of the site, and enable quantifiable assessment of the impact of visitation. Formalising the access will also reduce the incidence of trespass on neighbouring properties.

Collection of fossil specimens by both researchers and individuals has been undertaken in the past, prior to gazettal of the nature reserve. It is an offence to collect specimens from the nature reserve unless for "appropriate research and monitoring". Researchers wishing to obtain consent to collect specimens must apply for consent prior to collect any specimen within the nature reserve. Consent will not be automatically given to all applicants. On-site interpretation will be installed which will include details of the requirement for consent to collect fossils from this site.

2.6 THREATS TO RESERVE VALUES

2.6.1 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 and foxes. Domestic cats are also likely to occur periodically due to the reserve's proximity to the residential areas of Yass. Introduced species on the reserve are managed in accordance with the actions listed in the regional pest management strategy.

Rabbits have existed in the reserve in the past, however, removal of harbour both within and surrounding the reserve, combined with cooperative baiting, trapping and shooting programs has maintained rabbit populations at a low level.

Foxes may inhabit the reserve periodically, as they do throughout the Southern Tablelands. 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.

Evidence of grazing by domestic stock exists in the reserve. Improved fencing around the reserve will prevent stock wandering into the reserve from neighbouring farmland.

2.6.2 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. Lack of control of stock on the riparian zone (due to difficulties of fencing along the river) has resulted in the introduction of weeds, soil disturbance, compaction and nutrification.

The NPWS South West Slopes Region Pest Management Strategy (2004) 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.

The grassland above the cliff line is disturbed by the presence of many exotic species, mainly annual grasses and herbs.

The integrity of the natural grassland below the cliffline is severely reduced by dense swards of phalaris *Phalaris aquatica*, and several noxious weed species including sweet briar *Rubus rubiginosa*, blackberry *Rubus fruticosus*, Paterson's curse *Echium plantagineum*, St John's wort *Hypericum perforatum*, Scotch thistle *Onopordum acanthium*, saffron thistle *Carthanmus lanatus* and St Barnaby's thistle *Centaurea solstitialis*.

The integrity of the immediate riparian zone is disturbed by the presence of dense swards of phalaris *Phalaris aquatica* and by willows *Salix babylonica*. The presence of stock is also reducing regeneration of river red gum *E. camaldulensis* in this area of the reserve.

In addition, inappropriate trees were planted in the reserve in the past and these should be considered for removal if they are damaging the geological or other values of the reserve.

2.6.3 Fire

Fire is a natural feature of many environments and is essential to the survival of some plant communities. Inappropriate fire regimes, however, can lead to loss of particular plant and animal species and communities. Fire can also damage cultural heritage, recreation and management facilities and can threaten visitors and neighbouring land.

Little is known about the fire history of the reserve, prior to its gazettal. In May 1985 a small fuel reduction burn of approximately 1ha was undertaken on the area adjoining the fence line above the cliff. The flame height was approximately 30 cm, indicating a low intensity burn.

The application of fire to grassland is thought to be generally favourable, as it reduces the density of thatch of perennial grass tussocks, enabling germination of forbs in the inter-tussock spaces. However, it is likely that techniques such as slashing at appropriate times could have similar effects.

Additionally, fire creates bare soil and an ideal seed bed for exotic weed species. Research has shown that up to 90% of seed stored in the soil of native grassland sites may be annual exotic species. Most of the natives produce little seed and re-establish vegetatively.

Application of fire over too great a proportion of the grassland could result in lack of protection for threatened fauna from predators, rain, exposure etc and may lead to extinction of local populations.

High intensity fire may cause the removal of the rock surface, as shards, resulting in the destruction of minor surface features. Fire may also increase soil erosion, particularly on steep sites.

There are a no major assets that immediately border the reserve, but residential and rural-residential housing developments exist within several hundred metres of it.

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 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 protect significant geological features including exclusion of wildfire from the reserve.

The primary fire management objectives within this zone are to protect the sensitive geological formations and fauna habitats and to prevent the extinction of species that are known to occur naturally within the reserve.

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

Fire suppression operations will exclude the use of earth moving machinery and fire retardant in the reserve. Wetting agents and hand tools may be used as directed by the Incident Controller as part of suppression operations.

Under current NPWS policy, Plan of Management guidelines adequately address fire management issues in this reserve (Type 1 Plan).

2.7 References

- Cramsie, J. N, Pogson, D. J. and Baker, C. J. 1978. *Geology of the Yass 1:100,000 sheet 8628*. Geol. Surv. NSW. 85pp.
- Gaia Research, 2000. Survey of the Reptiles and Amphibians of Mundoonen and Hattons Corner Nature Reserves. Unpublished report to the National Parks and Wildlife Service.
- Jackson, S and Moore, A. 1999. *Hattons Corner Nature Reserve Issues Statement*. Unpublished report to the NSW National Parks and Wildlife Service, Queanbeyan.
- NPWS. 2004. South West Slopes Regional Pest Management Strategy. Unpublished report for NPWS South West Slopes Region.
- Percival, I.G. 1979. *The Geological Heritage of New South Wales.* Unpublished report prepared for the Australian Heritage Commission and the Planning and Environment Commission of New South Wales, July 1979. 277pp.
- Percival, I.G. 1985. *The Geological Heritage of New South Wales. Volume 1.* National Parks and Wildlife Service NSW. 136pp.
- Rehwinkel, R. 1999. *Field survey undertaken for Hattons Corner resource inventory*. NSW National Parks and Wildlife Service, Queanbeyan.

3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
Soil and water conservation			
Lack of control of stock on the riparian zone allows overgrazing and inhibition of regeneration of native vegetation, introduction of weeds, soil disturbance, compaction and nutrification of waterways to occur. Geological features are prone to disturbance by fire, fossil collectors and orosion.	Soil erosion is minimised. Geological integrity of the site is maintained.	Liaison will be undertaken with relevant landholders with the aim of establishing an effective stock fence at an agreed location along the river. Undertake all works in a manner that minimises disturbance to geological features.	High High
by fire, fossil collectors and erosion.			
Native plant and animal conservation			
The integrity of the natural grassland is being compromised by invasive weed species from a number of sources.	All native plant and animal species and communities are conserved.	Control weed invasion in the reserve by spraying, removal of stock and encouragement of natural regeneration of grassland species.	High
The reserves flora has been surveyed with a number of rare, threatened or significant species identified.	Structural diversity and habitat values	Monitor vegetation recovery following the removal of grazing from the reserve.	Medium
Limited fauna survey has been undertaken, however a number of threatened, rare or	are maintained.	Undertake further survey for threatened plant and animal species.	Medium
significant species have been identified as likely to be present.		Work with neighbours and vegetation management committees to encourage conservation of remnant native vegetation, particularly grasslands, in the vicinity of the reserve.	Medium

Current Situation	Desired Outcomes	Strategies	Priority
Introduced species			
Weed species are invading the native grassland in and around the reserve. Rabbits, foxes and domestic cats are known to occur periodically in the reserve.	The impact of introduced species on native species and neighbouring lands is minimised.	Control introduced plant and animal species in the reserve as per the Regional Pest Management Strategy. Priority will be given to control of invasive weeds and roaming livestock from neighbouring properties.	High
		Seek the cooperation of other authorities and neighbours in implementing weed and pest animal control programs.	Medium
		Monitor noxious and significant environmental weeds. Treat any new outbreaks.	Low

Current Situation	Desired Outcomes	Strategies	Priority
Fire management			
Fire is a natural feature of the environment 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 geological features and	Life, property and natural and cultural values are protected from bushfire. Fire regimes are	Continue to participate in Yass Zone Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service brigades, council fire control officers and neighbours with regard to fuel management and fire suppression.	High
fences and threaten neighbouring land. Fire history of the reserve prior to gazettal is	appropriate for conservation of plant and animal	Contain all unplanned fire events as soon as possible during high bushfire danger periods by rapidly responding to reported ignitions.	High
not known. After a high rainfall year native grasses may provide sufficient fuels to carry fire although this risk is considered low. The reserve is not prone to fire.	Geological features are protected from damage by fire.	Encourage further research into the ecological effects of fire in the reserve and its value in regeneration of native species.	Low
Under the current NPWS policy, the Plan of Management guidelines adequately address fire management issues in this reserve (Type 1 Plan).	damage by me.	Following further research it may be possible to use prescribed fire to encourage regeneration of native grassland species. Care should be taken to burn only a portion of the reserve, as habitat values will be greatly reduced temporarily and harbour will be required whilst regeneration is taking place.	Low
FIRE SUPPRESSION GUIDELINES	All wild fires suppressed with minimal damage.	Earth moving machinery and phosphorus-based fire retardant are not permitted as part of fire suppression operations in the reserve.	High
		Wetting agents (foam) and hand tools may be used as directed by the Incident Controller as part of suppression operations	High

Current Situation	Desired Outcomes	Strategies	Priority
Cultural heritage			
No known Aboriginal sites exist within the reserve	Aboriginal and historic features and values are identified	Maintain liaison with the Onerwal Aboriginal Land Council.	High
No known historic sites exist within the reserve however it has a long history of use for fossil collection, geological research and education.	and protected. Understanding of the cultural significance of the park is improved.	Precede all new ground disturbance work by an assessment for cultural features.	Medium
Visitor use			
There is no public access to the reserve. Access to the reserve has been by informal agreement with landholders.	The local community is aware of the significance of the	Establish formal permit process for access to site that informs and includes neighbours	High
The nature reserve has been used over a long period of time for fossil research, education and scientific purposes. Approval from	area and of management programs.	Install an interpretive sign to inform reserve users of the values and protection of the site, ie no fossil collection without consent.	Medium
landholders has not always been obtained by such users.		Monitor levels and impacts of use.	Medium
Use of the reserve must be carefully managed since it is a relatively small and significant area of remnant vegetation.		Establish and maintain contact with key geological interest groups and research agencies to ensure that information regarding the reserves significance and legislative constraints is known.	Medium

Current Situation	Desired Outcomes	Strategies	Priority
Management operations			
Management access is by informal agreement with neighbours.	Management access is formalised permanently.	Negotiate management access arrangements with neighbours.	High
The reserve boundary fence is of a varying standard, and is made more difficult by large fluctuations of water level in the Yass River.	Domestic stock do not enter the reserve.	In conjunction with neighbours, and in accordance with the NPWS Boundary Fence Policy, maintain boundary fences and determine strategies to exclude stock where boundary fencing is difficult.	High

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.