

**STONY BATTER CREEK NATURE RESERVE
PLAN OF MANAGEMENT**

NSW National Parks and Wildlife Service

November 2003

This plan of management was adopted by the Minister for the Environment on 17th November 2003.

Inquiries about this Stony Creek Batter Nature Reserve or this plan of management of should be directed to the ranger at the Armidale Area Office, 85 Faulkner Street, Armidale, or by telephone on 02 6776 0000.

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FOREWORD

Stony Batter Creek Nature Reserve is located on the eastern slopes of the Nandewar Range approximately 70 km west of Armidale.

The reserve is significant as a region of overlap between Tablelands and western slopes vegetation communities and species. The reserve contributes to the protection of dry open forest and woodland in the New England bioregion.

A total of 281 plant species have been recorded in the reserve to date, including three threatened species and a number of restricted or uncommon species.

Access to the reserve by members of the public is restricted as the reserve is surrounded by private land.

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 a reserve will be managed in the years ahead.

A draft plan of management for Stony Batter Creek Nature Reserve was placed on public exhibition for three months from 18th October 2002 until 3rd February 2003. The exhibition of the plan of management attracted 2 submissions which raised 2 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management establishes the scheme of operations for Stony Batter Creek Nature Reserve. In accordance with section 76 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

BOB DEBUS
Minister for the Environment

1. NATURE RESERVES IN NEW SOUTH WALES

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in New South Wales (NSW) is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the *Threatened Species Conservation Act 1995* (TSC Act) and the National Parks and Wildlife Service Field Management Policies. The Field Management Policies are a compilation of policies arising from the legislative background, the corporate goals of the National Parks and Wildlife Service (NPWS) and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic site conservation, recreation, commercial use, research and communication. Other legislation, international agreements and charters may also apply to management of the area. In particular, the *NSW Environmental Planning and Assessment Act 1979* requires the assessment and mitigation of 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 this plan, no operations may be undertaken within Stony Batter Creek Nature Reserve except in accordance with the plan. This plan will also apply to any future additions to the reserve. Where management strategies or works are proposed for the reserve or any additions to the reserve that are not consistent with this plan, an amendment to the plan will be required.

1.2 MANAGEMENT OBJECTIVES

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.

2. STONY BATTER CREEK NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Stony Batter Creek Nature Reserve (referred to herein as 'the reserve') is located on the eastern slopes of the Nandewar Range approximately 70 km west of Armidale. The location of the reserve, nearby areas of NPWS estate and towns are shown in figure 1.

The reserve lies within the New England Tablelands bioregion and borders the Nandewar bioregion (a bioregion is an area defined by a combination of repeated biological and geographic criteria, rather than geopolitical considerations). The reserve is one of a number of small isolated reserves lying in this zone of overlap between these two bioregions.

Public access to the reserve is not possible as the reserve is surrounded by private land.

The reserve is approximately 564 ha in size and was dedicated in 1999. The area was vacant crown land prior to becoming a nature reserve.

The reserve lies within Uralla Shire. Much of the surrounding land has been cleared and is used for grazing and other rural activities.

This plan applies both to the land currently reserved as Stony Batter Creek Nature Reserve and to any future additions to the reserve. Where management strategies or works are proposed for additions, that are not consistent with the plan, an amendment to the plan will be required.

2.2 LANDSCAPE CONTEXT

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 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 and 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

2.3 NATURAL AND CULTURAL HERITAGE

Landform, Geology and Soils

The reserve encompasses an elevated eastern component of the Nandewar range and consists of gently undulating to sloping terrain with several steep gullies in the west. Elevations range from approximately 800 to 1060 metres above sea level. The western part of the reserve drains into Bakers Creek and the eastern part into Camerons and Stony Batter Creeks. These creeks flow into the upper reaches of the Gwydir River, a sub-catchment of the Murray-Darling River system.

The reserve lies on the Bundarra granite belt that extends from Bendemeer to the Queensland border, forming a distinctive north-south trending ridge across the region. These granites are characteristically coarse grained and have been classified as undifferentiated leucoadamellite (Hunter, 1999). Weathering and erosion have exposed granite bedrock sheets and tors throughout the area. The eastern part of the reserve grades into sedimentary geology.

Soils within the reserve are influenced by the underlying geology and topography. Coarse granite based soils are found throughout the reserve, with small patches of alluvium-colluvium along the tributaries of Bakers Creek, Stony Batter Creek and Camerons Creek catchments. The granite based soils are very susceptible to erosion, owing to the lightly textured surface horizons overlying more heavily textured lower horizons.

Native Flora

The reserve is an important remnant area of vegetation and is indicative of vegetation communities that covered much of the north-western slopes of the New England Tablelands prior to clearing for grazing and other activities. Remnants of these communities are often highly fragmented across the landscape, making the reserve highly significant as a core area of once widespread vegetation communities.

The reserve is significant as a region of overlap between Tablelands and western slopes vegetation communities and species. The reserve contributes to the protection of dry open forest and woodland in the New England bioregion.

The native flora list for the reserve currently consists of 281 species. Future surveys will provide a more comprehensive record.

The reserve is mainly covered by dry sclerophyll forest and woodland communities dominated by New England blackbutt (*Eucalyptus andrewsii*), Caley's ironbark (*E. caleyi* subsp. *Caleyi*), orange gum (*E. prava*), red stringybark (*E. macrorhyncha*), black cypress pine (*Callitris endlicheri*) and rough-barked apple (*Angophora floribunda*). The most common shrub is usually blunt beard-heath (*Leucopogon muticus*) while the ground layer is often covered by a diverse range of grasses and forbs such as silvertop wallaby grass (*Joycea pallida*), barb-wire grass (*Cymbopogon refractus*) and Pomax (*Pomax umbellata*). Small pockets of heath occur on the rock outcrops (usually dominated by common fringe-myrtle (*Calytrix tetragona*) and linear

bands of riparian scrub line the westerly flowing drainage lines. These lines are usually dominated by common tea-tree (*Leptospermum polygalifolium* subsp. *Transmontanum*), prickly bottlebrush (*Callistemon pungens*) and various sedges such as *Carex appressa*.

Three species considered to be rare or threatened on a national scale (ROTAP's) and a number of other regionally significant species were also recorded:

- prickly bottlebrush (*Callistemon pungens*) - scattered along drainage lines in the western third of the reserve.
- New England bush pea (*Pultenaea campbellii*) - widespread and often abundant in suitable habitat throughout the reserve.
- tufted granite lily (*Thelionema grande*) - restricted to a single population on a large rock outcrop in the eastern half of the reserve

Other species of significance which have been found to occur in the reserve include:

- *Macrozamia* sp. aff. *stenomera* - an undescribed cycad restricted to the Nandewar Ranges. Common and widespread throughout the reserve.
- *Lomandra* sp. aff. *multiflora* - a poorly known species with a relatively restricted distribution. Common and widespread throughout the reserve.
- *Pultenaea* sp. - often abundant on the north-west slopes and Northern Tableland but with a relatively restricted distribution. Widespread but infrequent in the reserve.
- *Acacia leptoclada* - a relatively restricted species which possibly reaches its southern limit in Stony Batter Creek Nature Reserve. Recorded from just a few individuals in the eastern half of the reserve.

Native Fauna

The reserve has not been surveyed for fauna. Incidental records indicate common macropods such as the eastern grey kangaroo (*Macropus giganteus*), swamp wallaby (*Wallabia bicolor*) and red-necked wallaby (*Macropus rufogriseus*) frequent the area. Fauna models predict that the reserve provides suitable habitat for species listed as vulnerable under the TSC Act such as the border thick-tailed gecko (*Underwoodisaurus sphyrurus*) and turquoise parrot (*Neophema pulchella*). Other reserves in the vicinity with similar habitat areas have recorded the squirrel glider (*Petaurus norfolcensis*), barking owl (*Ninox connivens*) and greater broad-nosed bat (*Scoteanax rueppellii*), also listed as vulnerable.

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 what is believed to be the territory of the Gamilaroi people. The reserve may have been a region of overlap between the Gamilaroi and the Anaiwan people. The Gamilaroi occupy land west of the Great Dividing Range approximately between Murrurundi and the Queensland border. The Anaiwan are associated with land on the Great Dividing Range surrounding Armidale and south towards Tamworth and Walcha (Tindale 1974).

Prior to European arrival, it is believed that the Tablelands provided resources for year-round occupation, with groups undertaking a series of short journeys, principally within the Tablelands, coupled with seasonal long journeys between the Tablelands and western slopes. Resource use in the Tablelands is believed to have focussed on woodlands, native grasslands and swamplands (Sullivan, undated).

Aboriginal artefacts have been located across the region. There has been no study or research to determine the Aboriginal heritage values of the reserve. There are no known Aboriginal sites within or close to the reserve. The closest known Aboriginal sites are at Ironbark Nature Reserve approximately 10 kms away.

The reserve falls within the area of the Anaiwan Local Aboriginal Land Council.

Historic Since European Occupation

The first European to visit the New England region in 1818 was John Oxley. European squatters began to occupy land soon afterwards. The earliest permanent runs in the Bundarra-Barraba region were established in 1836. Stony Batter Station, located 15 km east of the reserve, was well established by 1840 (Harris, 1982).

Some small scale timber felling operations occurred in the reserve under previous vacant crown land tenure.

2.4 RESEARCH AND EDUCATION

Whilst there are no current research activities in the reserve, the reserve provides research opportunities for local tertiary institutions. Research can provide information to assist NPWS to manage the reserve.

2.5 VISITOR USE

There are no visitor facilities in the reserve. There is no known visitor use, as access to the reserve is restricted through private land. Reserve identification and regulatory signs are located at the management trail entrance to the reserve.

Extensive visitor facilities are located within 60 kms of the reserve in Warrabah National Park and within 90 kms in Oxley Wild Rivers National Park at Dangars Falls, Wollomombi Falls, Gara Gorge and Long Point.

2.6 THREATS TO RESERVE VALUES

Introduced Plants

To date 27 introduced plants have been recorded although many more are likely to occur in highly disturbed areas such as the fenceline along the eastern boundary. Blackberry (*Rubus fruticosus*) is being actively controlled in accordance with the draft *Northern Tablelands Region Pest Management Strategy*.

Introduced Animals

Foxes (*Vulpes vulpes*), goats (*Capra hircus*) and pigs (*Sus scrofa*) are known to use the reserve. Other vertebrate pests such as cats (*Felis catus*), rabbits (*Oryctolagus cuniculus*) and hares (*Lepus capensis*) may occur within the reserve. These species can have significant effects on the natural and cultural heritage values of the reserve.

Prior to gazettal, the reserve was subject to a permissive occupancy permit for grazing. Grazing is no longer permitted in the reserve.

Fire

The effects of fire on the biota of the reserve remain unclear. An inappropriate burning regime or wildfire may contribute to a loss of biodiversity within the reserve. Fire could also damage fences and threaten neighbouring land. Fires may occur within the reserve due to natural causes, and may also spread into the reserve from neighbouring land.

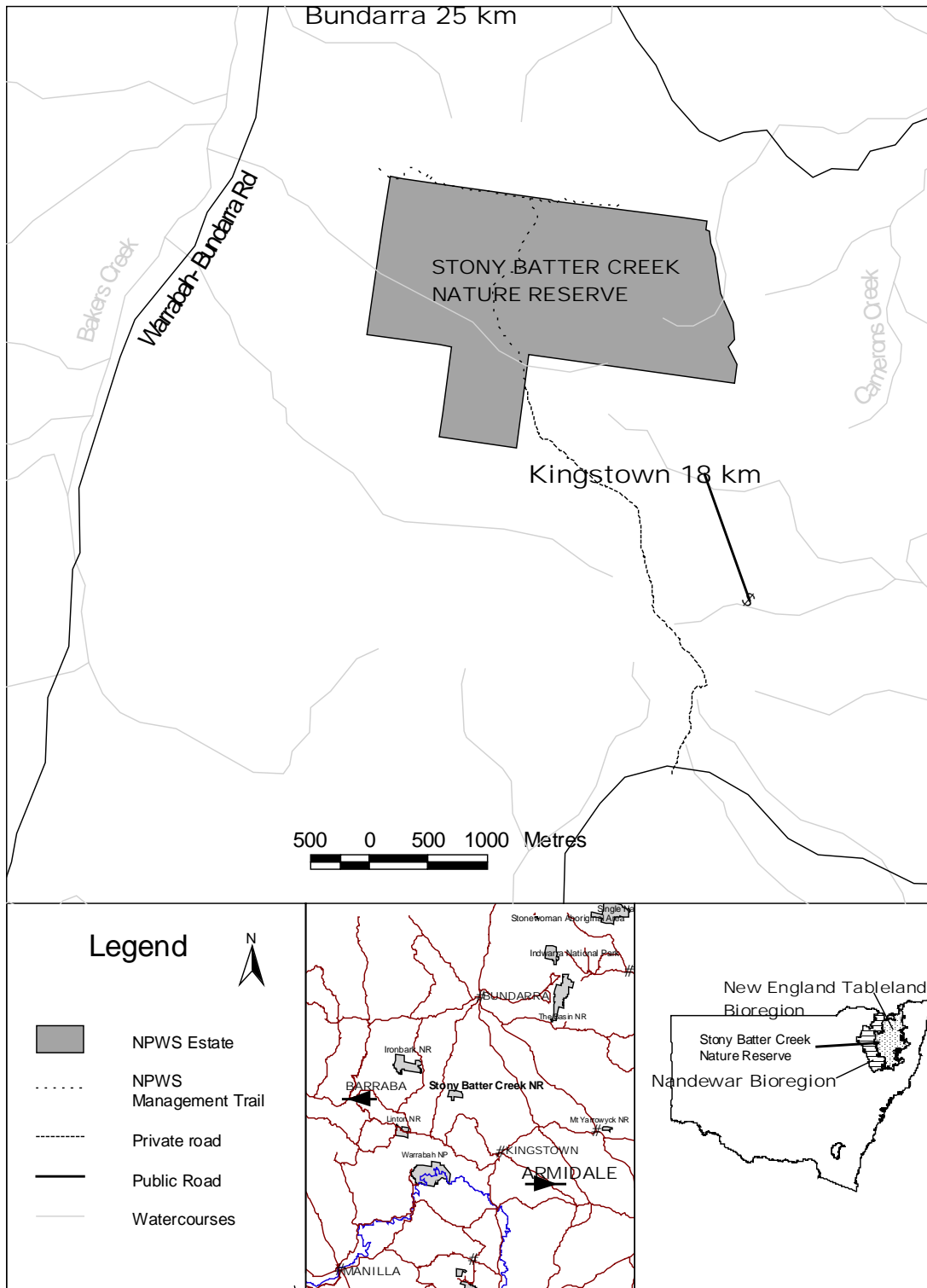
The fire history of the reserve prior to gazettal is unknown. However, the presence of fire sensitive species such as cypress pine (*Callitris endlicheri*) and a lack of evidence of fire suggests that most of the reserve has experienced a low fire frequency.

Isolation and Fragmentation

Clearing of vegetation within the bioregion has resulted in a high loss of biodiversity and fragmentation of habitat. Long term conservation of biodiversity both within the bioregion and the reserve depends upon the protection, enhancement and connection of remaining habitat across the landscape, involving vegetation remnants on both public and private lands.

The reserve is small in size. It is important therefore to consider the reserve in the context of surrounding remnant vegetation. Nearby vegetated areas consolidate the habitat values of the reserve and provide ecological corridors to other surrounding forested areas.

Figure 1: Stony Batter Creek Nature Reserve Management Infrastructure & Regional Context



3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
Soil conservation			
<p>The soils of the reserve are easily eroded when disturbed.</p> <p>Management trails and ephemeral creeks are specific areas where soil erosion can be a problem.</p>	<ul style="list-style-type: none"> • Soil erosion is minimised. 	<ul style="list-style-type: none"> ▪ Management trails will be maintained to appropriate standards (refer to <i>Management Operations</i> below). ▪ Ensure any ground disturbance works are undertaken in a manner that minimises erosion and water pollution. ▪ Monitor gully erosion along ephemeral creeks and instigate control measures if necessary. 	<p>High</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Native plant and animal conservation</p> <p>There is limited knowledge about the reserve's rare or threatened species.</p> <p>The reserve is one of the few conserved areas on the New England Tablelands that provide resources and habitat for woodland fauna species in a landscape of substantially cleared grazing land.</p> <p>Long term conservation of the reserve's plant and animal species would benefit from the retention, enhancement and connection of remaining vegetation on neighbouring properties and roadsides.</p>	<ul style="list-style-type: none"> All native plant and animal species and communities are conserved and enhanced where possible. 	<ul style="list-style-type: none"> Work with relevant neighbours, Landcare groups, local Citizens' Wildlife Corridors groups, vegetation management committees and others to encourage conservation of remnant native vegetation in the vicinity of the reserve and to identify potential wildlife habitat corridors to link to other remnant native vegetation areas. Encourage and assist the development of voluntary conservation agreements where appropriate for protection of conservation values on adjacent lands. Undertake surveys for rare or threatened plant and animal species, as appropriate. 	<p>High</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p data-bbox="181 233 734 272">Introduced species</p> <p data-bbox="181 272 734 496">Twenty-seven introduced plants have been recorded in the reserve, although many more are likely to occur in highly disturbed areas, such as the fenceline along the eastern boundary.</p> <p data-bbox="181 528 734 679">Blackberry is subject to ongoing control programs in accordance with the draft Northern Tablelands Region Pest Management Strategy.</p> <p data-bbox="181 711 734 903">The small size of the reserve and proximity to other areas with introduced plants allows weed species the opportunity for ongoing invasion.</p> <p data-bbox="181 935 734 1086">Foxes, goats and pigs have been recorded in the reserve. Hares, cats and rabbits may also occur within the reserve.</p> <p data-bbox="181 1118 734 1198">Domestic stock sometimes enter the reserve.</p>	<ul data-bbox="734 272 1189 392" style="list-style-type: none"> • Introduced species are controlled and where possible eradicated. 	<ul data-bbox="1189 272 1944 807" style="list-style-type: none"> • Control and where possible eradicate introduced plants and animals from the reserve. • Develop and implement a program to monitor the distribution of introduced species in the reserve. • Undertake integrated weed control programs in liaison with the New England Weeds Authority. • Undertake regular feral animal control programs in cooperation with Armidale Rural Lands Protection Board, Landcare groups, neighbours and others. • Work with neighbours to ensure domestic stock do not enter the reserve (refer to <i>Management Operations</i> below). 	<p data-bbox="1944 272 2094 312">High</p> <p data-bbox="1944 344 2094 384">High</p> <p data-bbox="1944 456 2094 496">Medium</p> <p data-bbox="1944 568 2094 608">Medium</p> <p data-bbox="1944 727 2094 767">Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
Fire management			
<p>A fire management strategy is yet to be prepared for the reserve.</p> <p>The effects of fire on the biota of the reserve remain unclear. However, frequent or regular fire can cause loss of particular plant and animal species and communities. Fire can also damage cultural features and fences and threaten neighbouring land.</p> <p>The fire history of the reserve is unknown, and no fires have been recorded within the reserve since gazettal in 1999.</p>	<ul style="list-style-type: none"> • Persons and property are protected from bushfire. • Fire regimes are appropriate for conservation of plant and animal species and communities. • Identified cultural heritage features are protected from damage by fire. • Unscheduled fires leaving or entering the reserve are controlled. • All of the reserve is not burnt in a single wildfire event. 	<ul style="list-style-type: none"> • Prepare and implement a fire management strategy for the reserve, • Participate in district Bush Fire Management Committees. • Maintain coordination and cooperation with Rural Fire Service brigades, Council fire control officers and neighbours with regard to fuel management and fire suppression. • As far as possible, a fire free interval of at least 10 to 15 years will be maintained in all dry sclerophyll forest types within the reserve. • Encourage further research into appropriate fire regimes for the reserve. • Prescribed fire will only be used to achieve fire regimes appropriate for maintenance of habitat in accordance with the fire management strategy. • Prepare agreements with neighbours for access to water sources during fire emergencies. • Prohibit camp fires and other unauthorised fires in the reserve to remove a potential ignition source for fires (refer to <i>Visitor Use</i> below). 	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural heritage</p> <p>Although substantial evidence of Aboriginal occupation has been found in the region, no sites are known in the reserve and little is known about traditional Aboriginal use and values.</p> <p>Little is known about the European history of the reserve.</p>	<ul style="list-style-type: none"> • Cultural heritage values of the reserve are identified and protected. 	<ul style="list-style-type: none"> • Consult the local Aboriginal community, traditional groups and the Anaiwan Local Aboriginal Land Council about Aboriginal sites, places and other values in the reserve. • Precede all ground disturbance work with a check for cultural features. • Involve the local Aboriginal community in any works affecting Aboriginal sites and in any interpretation of Aboriginal values. • Encourage surveys and research into the cultural heritage values of the reserve. 	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
Visitor use			
<p>There is no public access to the reserve and, as a consequence, general visitor use is low. No facilities exist within the reserve.</p> <p>Other areas of NPWS estate nearby provide visitor facilities and recreation opportunities.</p> <p>Use of the reserve must be carefully managed as it is a relatively small and significant area of remnant vegetation.</p>	<ul style="list-style-type: none"> • The local community is aware of the values of the reserve and of management programs. • Visitor use remains low and is self-reliant and ecologically sustainable. 	<ul style="list-style-type: none"> • Promote community understanding and appreciation of the conservation values of the reserve through contact with neighbours, community organisations and media releases, NPWS <i>Discovery</i> programs and interpretive material as necessary. • Permit use of the reserve (with prior neighbour approval for access) for passive appreciation and recreation activities (walking, bird watching and nature study). Other recreation activities that do not comply with passive recreation (as outlined above) will not be permitted. • Public vehicle use (including trail bikes), horse riding, and camping will not be permitted in the reserve. 	<p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
Research			
Research will improve understanding of the natural and cultural heritage values of the reserve, threatening processes and the requirements for management of significant plant and animal assemblages and species.	<ul style="list-style-type: none"> • Research conducted assists management of the reserve and has minimal impact. 	<ul style="list-style-type: none"> • Encourage research to improve knowledge and management of natural and cultural heritage. • Liaise with the University of New England and other tertiary education providers about priorities for research in the reserve. 	<p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
Management operations			
The management trails in the reserve have been assessed as necessary for management purposes.	<ul style="list-style-type: none"> Management facilities adequately serve management needs and have acceptable impact. 	<ul style="list-style-type: none"> Negotiate agreements with relevant neighbour(s) to ensure long-term access to the reserve is available to NPWS. 	High
Fencing along the reserve boundary is inadequate in some places to exclude stock.	<ul style="list-style-type: none"> NPWS has long term access to the reserve. 	<ul style="list-style-type: none"> In conjunction with neighbours, maintain fences and determine strategies to exclude stock in areas where construction of boundary fences is difficult. 	High
The reserve is not fenced along the western or northern boundary. A western boundary fence would be extremely difficult to construct due to the topography.	<ul style="list-style-type: none"> Domestic stock do not enter the reserve. 	<ul style="list-style-type: none"> Only authorised vehicles will be permitted to access the reserve. Any vehicles accessing the reserve must remain on management trails, unless otherwise authorised for management or emergency activities. 	Medium
The Service does not, at present, have formal access agreements with neighbours.		<ul style="list-style-type: none"> Maintain management trails within the reserve as shown in figure 1. All other trails not shown on figure 1 will be closed and where necessary rehabilitated. 	Medium

Legend for priorities:

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

Medium priority strategies are those that are necessary to achieve management objectives and desired outcomes but will be implemented as resources become available because the time frame for their implementation is not urgent.

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

4. REFERENCES

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