

**THE BASIN NATURE RESERVE
PLAN OF MANAGEMENT**

NSW National Parks and Wildlife Service

March 2004

This plan of management was adopted by the Minister for the Environment on 15 March 2004.

Inquiries about this draft plan of management of The Basin Nature Reserve 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

The Basin Nature Reserve covers approximately 2,317 hectares and is located on the central New England Tablelands approximately 35 kilometres west of Guyra.

The reserve protects a remnant of the vegetation communities that once covered much of the central portion of the New England Tablelands. At least seven species considered to be rare or threatened on a national scale, and a number of other regionally significant species, have been recorded within the reserve.

The Basin Nature Reserve is one of the oldest reserves in the State. It was the tenth largest nature reserve dedicated at the time of formation of NSW the National Parks and Wildlife Service in 1967.

The *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 the area will be managed in the years ahead.

A draft plan of management for The Basin Nature Reserve was placed on public exhibition from 11th October 2002 until 3rd February 2003. The exhibition of the plan of management attracted 4 submissions which raised 4 issues. All submissions received were carefully considered before adopting this plan of management.

The primary emphasis of this plan is the conservation of the natural and cultural values of The Basin Nature Reserve. Public use of the reserve will continue to be allowed for passive appreciation and recreation activities such as walking, bird watching and nature study.

This plan of management establishes the scheme of operations for The Basin 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 policies of the National Parks and Wildlife Service (NPWS). 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 *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 a plan, no operations may be undertaken within The Basin Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to The Basin Nature Reserve. Where management strategies or works are proposed for the reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

1.2 NATURE RESERVES IN NEW SOUTH WALES

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. THE BASIN NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

The Basin Nature Reserve (referred to herein as ‘the reserve’) is located on the central New England Tablelands approximately 35 km west of Guyra. The location of the reserve, nearby areas of NPWS estate and towns are shown in figure 1.

The Basin Nature Reserve was one of the 52 reserves transferred to the NPWS on its creation in 1967. It was previously ‘The Basin Faunal Reserve No 33’, which was dedicated in 1964 under the *Fauna Protection Act 1948*. A small addition of 45 hectares was added to the north-east corner of the reserve in 1987, taking the size of the reserve to approximately 2317.7 hectares.

The reserve lies within Guyra Shire. Much of the surrounding land, except for the section along the Georges Creek has been cleared and is used for grazing and other rural activities. Public access to the reserve is not possible as the reserve is surrounded by private land.

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 plan 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 consists of steep, rocky terrain with many steep gullies including a gorge along sections of Georges Creek on the eastern boundary of the reserve. Elevations range from approximately 700 to 1170m metres above sea level. All of the reserve drains into Georges Creek or one of its smaller tributaries, part of the Gwydir River catchment.

The reserve lies on mostly acid volcanic geology with the south-eastern part of the reserve grading into a relatively small section of carboniferous conglomerates. Soils within the reserve are characteristically influenced by the underlying geology and topography.

Native Flora

The reserve is an important remnant area of vegetation, indicative of vegetation communities that covered much of the central portion 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 has recently been surveyed for flora and analysis of that survey has not yet been completed.

The reserve is mainly covered by dry sclerophyll forest and woodland communities dominated by New England blackbutt (*Eucalyptus andrewsii*), Caley's ironbark (*Eucalyptus caleyi* subsp. *caleyi*), black cypress pine (*Callitris endlicheri*) and rough-barked apple (*Angophora floribunda*). Small pockets of heath occur on the rock outcrops and riparian woodland dominated by river oak (*Casuarina cunninghamiana* subsp. *Cunninghamiana*) occurs along Georges Creek.

At least seven species considered to be rare or threatened on a national scale (ROTAP's) and a number of other regionally significant species have been recorded within the reserve. These include:

- *Acacia williamsiana* - scattered throughout the northern half of the reserve in rocky areas;
- *Callistemon pungens* - scattered along drainage lines;
- *Eucalyptus youmanii* - abundant in the north-east corner of the reserve;
- *Hibbertia* sp.5 - common along a single drainage line in the north;
- *Homoranthus prolixus* - abundant on westerly facing spurs in the north;
- *Pultenaea campbellii* - widespread and often abundant in suitable habitat; and
- *Zieria odorifera* - widespread in rocky areas but usually in low numbers.

Other species of significance so far recorded in the reserve include:

- *Macrozamia* sp. aff. *stenomera* - a locally common species restricted to the north-west slopes and western edge of the Northern Tablelands (NT);
- *Lomandra* sp. aff. *multiflora* - a poorly known species with a relatively restricted distribution;
- *Calochilus paludosis* - common on the coast but rare on the NT;
- *Cymbidium canaliculatum* - generally common and widespread but rare on the NT;
- *Acacia deanei* - generally common and widespread but rare on the NT;
- *Scaevola albida* var. *albida* - generally common and widespread but rare on the NT;
- *Dodonaea triangularis* - generally common and widespread but rare on the NT;
- *Philothea salsolifera* subsp. *salsolifera* - generally common and widespread but rare on the NT;
- *Parsonsia eucalyptophylla* - generally common and widespread but rare on the NT;
- *Cooperhooikia barbata* - generally common and widespread but rare on the NT;
- *Acacia sertiformis* - a recently revised species rare on the NT;

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- *Pultenaea flexilis* (glaucous form) - possibly restricted to the reserve and nearby Indwarra Nature Reserve;
 - *Pultenaea* sp.C - often abundant on the north-west slopes of the NT but with a relatively restricted distribution; and
 - *Cheiranthra telfordii* - locally common but with a relatively restricted distribution.

Native Fauna

The reserve has not been systematically 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 turquoise parrot (*Neophema pulchella*) and border thick-tailed gecko (*Underwoodisaurus sphyrurus*), which is also listed as endangered in the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Other reserves in the vicinity with similar habitats have recorded the squirrel glider (*Petaurus norfolcensis*), barking owl (*Ninox connivens*) and greater broad-nosed bat (*Scoteanax rueppellii*), also listed as vulnerable under the TSC Act.

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, but it may have been a region of overlap between the Gamilaroi and the Anaiwan people. The Gamilaroi are associated with land west of the Great Dividing Range approximately between Murrurundi and the Queensland border (Tindale 1974). The Anaiwan are associated with land on the Great Dividing Range surrounding Armidale and south towards Tamworth and Walcha (Moore, undated).

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).

Substantial evidence of Aboriginal occupation has been found in close proximity to the reserve (such as open campsites, bora / ceremonial sites and scarred trees). There has been no research to determine the Aboriginal heritage values of the park and no sites are known in the reserve.

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

Historic Heritage

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.

The Basin Nature Reserve is one of the oldest reserves in the State. It was the tenth largest nature reserve dedicated with formation of NPWS in 1967.

The reserve is quite rugged. There are no tracks or any other evidence of human activity, such as grazing or timber extraction, within the reserve.

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 reserve management by the NPWS.

2.5 VISITOR USE

There is no known visitor use, as access to the reserve is restricted through private land. There are no roads, management trails or visitor facilities in the reserve. Visitor facilities are located within 40 km of the reserve at Mother of Ducks Nature Reserve.

2.6 THREATS TO RESERVE VALUES

Introduced Plants

Blackberry (*Rubus fruticosus*) is the only recorded weed species within the reserve. Other weed species are expected to be recorded in the reserve once the flora survey has been analysed (refer to *Native Flora*).

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.

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 history of fires in the reserve before gazettal is not known, however, parts of the reserve were in a long unburnt state in the mid 1970s. In 1982 two fires a few months apart burnt 835 ha (southern end) and 839 ha (central section) respectively. In 1998 a

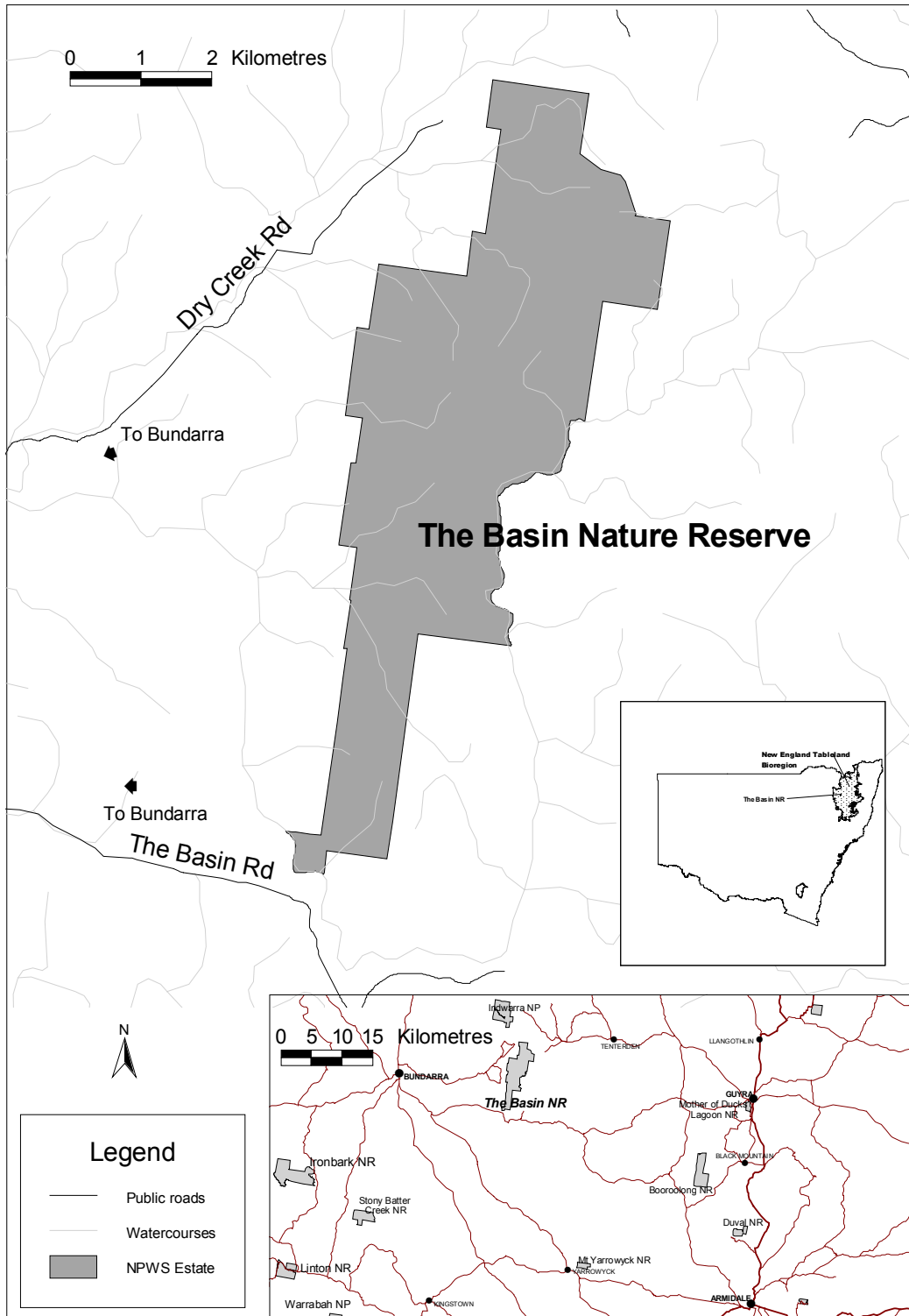
small fire burnt approximately 1 hectare in the northern end of the reserve. In 1999 a lightning strike started a fire in the north-east corner of the reserve in a windrow of logs, which had been pushed up in earlier fencing operations. The fire was limited to a small section of the windrow. In 2002 lightning started a small fire which burnt approximately 1 hectare before being extinguished.

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 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: The Basin Nature Reserve Management Infrastructure & Regional Context



3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil conservation</p> <p>The soils of the reserve are easily eroded when disturbed.</p> <p>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"> ▪ 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>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p data-bbox="181 272 734 304">Native plant and animal conservation</p> <p data-bbox="181 312 734 376">There is limited knowledge about the reserve's rare or threatened species.</p> <p data-bbox="181 424 734 639">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 data-bbox="181 679 734 863">Long term conservation of the reserve's plant and animal species would benefit from the retention of remaining vegetation on neighbouring properties and roadsides.</p>	<ul data-bbox="745 312 1155 488" style="list-style-type: none"> • All native plant and animal species and communities are conserved and enhanced where possible. 	<ul data-bbox="1178 312 1933 903" 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. • Where relevant, implement strategies outlined in recovery plans in accordance with the Threatened Species Conservation Act. 	<p data-bbox="1955 312 2078 344">High</p> <p data-bbox="1955 568 2078 600">Medium</p> <p data-bbox="1955 719 2078 751">Medium</p> <p data-bbox="1955 791 2078 823">Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p data-bbox="181 233 732 272">Introduced species</p> <p data-bbox="181 272 732 496">Blackberry is the only recorded weed species in the reserve and is subject to ongoing control programs in accordance with the draft Northern Tablelands Region Pest Management Strategy.</p> <p data-bbox="181 528 732 679">Other weed species are expected to be recorded in the park once the flora survey has been analysed (refer to <i>Native Flora</i>)</p> <p data-bbox="181 711 732 903">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="181 935 732 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 732 1198">Domestic stock sometimes enter the reserve.</p>	<ul data-bbox="741 272 1158 384" style="list-style-type: none"> • Introduced species are controlled and where possible eradicated. 	<ul data-bbox="1176 272 1930 727" 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 integrated feral animal control programs 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="1939 272 2087 312">High</p> <p data-bbox="1939 344 2087 384">High</p> <p data-bbox="1939 416 2087 456">Medium</p> <p data-bbox="1939 536 2087 576">Medium</p> <p data-bbox="1939 647 2087 687">Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire management</p> <p>A fire management plan 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>Since gazettal of the reserve there have been two major fires, in the southern and central sections of the reserve in 1982.</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 plan for the reserve, • Participate in district Bush Fire Management Committees. • Maintain coordination and cooperation with the Rural Fire Service, the Shire Council 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 plan. • 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 close proximity to the reserve, 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 other than that it was a state forest.</p> <p>No research has been conducted into the cultural heritage values of the park.</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>
Research			
<p>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.</p>	<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
<p>Visitor use</p> <p>There is no public access to the reserve and as a consequence, general visitor use is low. No facilities, roads or management trails 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). Recreation activities which do not comply with passive recreation (as outlined above) will not be permitted. • Public vehicle use (including trail bikes), cycling, 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
<p>Management operations</p> <p>The only access to the reserve is through adjacent private lands. Arrangements with neighbours for access have not been formalised.</p> <p>No management trails exist within the reserve. The eastern and western reserve boundaries have fencelines that are generally clear and mostly trafficable.</p> <p>Fencing along the reserve boundary is inadequate in some places to exclude stock.</p>	<ul style="list-style-type: none"> • Management facilities adequately serve management needs and have acceptable impact. • NPWS has long term access to the reserve. • Domestic stock do not enter the reserve. 	<ul style="list-style-type: none"> • Negotiate agreement(s) with relevant neighbour(s) to ensure long-term access to the reserve is available to NPWS. • In conjunction with neighbours, maintain fences and determine strategies to exclude stock in areas where construction of boundary fences is difficult. 	<p>High</p> <p>High</p>

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.

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