

LINTON NATURE RESERVE
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

December 2003

This plan of management was adopted by the Minister for the Environment on 19th December 2003.

Inquiries about this draft plan of management of Linton 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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ISBN 0 7313 6639 5

FOREWORD

Linton Nature Reserve covers 640 ha and is located on the western fall of the New England Tablelands approximately 90 km (by road) west of Armidale.

The reserve protects a significant remnant of dry open forest and woodland in a landscape of substantially cleared or altered pastoral land. The reserve is significant as a region of overlap between Tablelands and western slopes vegetation communities and species. Approximately 167 native flora species have been identified as a result of a number of formal and informal surveys.

The forest and woodland ecosystems of the reserve support a diverse range of vertebrate fauna. Surveys have identified approximately 110 bird, 19 reptile, 13 amphibian and 27 mammal species within the reserve.

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 Linton Nature Reserve was placed on public exhibition from 18th October 2002 until 3rd February 2003. The exhibition of the plan of management attracted 5 submissions which raised 2 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 Linton 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 Linton 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 Linton Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to Linton 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. LINTON NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Linton Nature Reserve (referred to herein as ‘the reserve’) is located on the western fall of the New England Tablelands approximately 90 km (by road) west of Armidale. The location of the reserve, nearby areas of NPWS estate and towns is shown in figure 1. The reserve lies in a region of overlap between the New England Tableland and Nandewar bioregions (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.

The reserve is approximately 640 ha in size and was dedicated in 1979. The reserve was state forest prior to becoming a nature reserve.

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

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 a central arm of the Nandewar Range with undulating south-west slopes ranging from 5-35%. Elevations range from approximately 800 to 920 m above sea level. Drainage flows into Welsh’s Creek in the north and Eumur Creek in the south. These creeks flow into the Manilla River in the extreme upper reaches of the Namoi River catchment, a sub catchment of the Murray-Darling River system.

The reserve lies on a geological formation known as the Woolomin beds, which are characterised by folded and slightly metamorphosed sedimentary rock. It is the only

reserve within the region to lie on this sedimentary geology. The Woolomin beds have largely been derived from volcanic sources (Voisey, 1969).

Soil type within the reserve is variable due to the tilting and folding of the sedimentary rock beds. Non calcic brown soils are found on the slopes and hills of the reserve. On upper slopes they become very shallow and stony. Red brown earths are found on the lower slopes where they tend to level off to the valley floors.

Solodized solonetz (shallow sandy soils with underlying clay horizon) occur on the valley floors. These soils are very susceptible to erosion, owing to the lightly textured surface horizons overlying more heavily textured lower horizons.

Native Flora

The reserve protects a significant remnant of dry open forest and woodland in a landscape of substantially cleared or altered pastoral land. 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 Nandewar bioregion.

Since European settlement, over 60% of native vegetation within the Nandewar bioregion has been cleared (Pressey, Hager, Ryan, Schwarz, Wall, Ferrier and Creaser, 2000). Less than 2% is protected within conservation reserves within the bioregion. Nationally agreed criteria specify that for vegetation communities that have sustained a reduction in area of 50% or more since European settlement, 30% of the remaining area should be reserved within the conservation estate to minimise loss of biodiversity (Commonwealth of Australia, 1995 & 1997).

Within the eastern half of the Nandewar bioregion, approximately 250 000 ha of dry open forest remains. Of this, less than 1.5% (3400 ha) is protected within the conservation estate. The reserve forms approximately 20% of this conserved area.

Small areas of the reserve were cleared of woody vegetation under the previous state forest tenure. Various people including Peter Metcalf, Paul Davies and students from the Armidale School have undertaken limited rehabilitation and restoration works.

The reserve is mainly covered by dry sclerophyll forest and woodland communities dominated by silvertop stringybark (*Eucalyptus laevopinea*), New England blackbutt (*E. andrewsii*), mugga ironbark (*E. sideroxylon*) and rough-barked apple (*Angophora floribunda*). Of particular note is the presence in the reserve of woodland dominated by yellow box (*Eucalyptus melliodora*) and Blakely's red gum (*E. blakelyi*) with a grassy understorey. This woodland type forms part of the endangered ecological community of yellow box, white box (*E. albens*) and Blakely's red gum listed under the TSC Act. Small pockets of riparian vegetation occur along the creeklines and areas of scrub and cleared grasslands occur on the southern slopes.

Approximately 167 native flora species have been identified as a result of a number of formal and informal surveys. The identified list of species is not exhaustive and further species are still to be found (Lachlan Copeland pers. com.). This especially applies to some of the smaller herbs that have a very limited flowering period.

There are two known rare or threatened plants recorded in the reserve. A small population of around 15 austral toadflax (*Thesium australe*) was discovered just north of Welshs Creek inside the north-western boundary of the reserve. This plant is a small herb known to be parasitic on the roots of kangaroo grass (*Themeda australis*), as well as having been observed elsewhere in association with other grasses (John Hunter pers. com.). A previously unknown pea bush (*Pultenaea* sp. C) has also been found on the reserve.

Native Fauna

The forest and woodland ecosystems of the reserve support a diverse range of vertebrate fauna. Surveys have identified approximately 110 bird, 19 reptile, 13 amphibian and 27 mammal species within the reserve (NPWS, undated).

The reserve has importance for a suite of vertebrate species, both in isolation and as part of the broader landscape. The extensive stands of mugga ironbark and Caley's ironbark (*Eucalyptus caleyi* subsp. *caleyi*) within the reserve provide habitat and nectar resources for a suite of declining and vulnerable woodland bird species. The reserve is large enough to support sustainable populations of a diverse range of terrestrial and arboreal mammals, and to provide habitat for larger mammals in conjunction with surrounding forested areas. Many of the vertebrate species recorded within the reserve have disappeared from large areas of the western New England Tablelands.

The extensive stands of mugga ironbark and yellow box (*Eucalyptus melliodora*) provide habitat for the regent honeyeater (*Xanthomyza phrygia*), listed as endangered under federal and state legislation. The species has been recorded adjacent to the eastern boundary of the reserve and is expected to utilise the reserve itself.

There are records within the reserve for the vulnerable border thick-tailed gecko (*Underwoodisaurus sphyrurus*), speckled warbler (*Chthonicola sagittata*), barking owl (*Ninox connivens*), hooded robin—south-eastern form (*Melanodryas cucullata cucullata*), diamond firetail (*Stagonopleura guttata*), east-coast freetail bat (*Mormopterus norfolkensis*) and grey-headed flying fox (*Pteropus poliocephalus*). The declining spotted quail-thrush (*Cinclosoma punctatum*) has also been recorded in the reserve.

Because of the relatively small size and isolation of the reserve, linking with other forest remnants is important to protect and enhance native vertebrate populations.

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 the territory of the Gamilaroi people. The Gamilaroi people are associated with land west of the Great Dividing Range roughly between Murrurundi and the Queensland border (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).

Artefacts have been located across the region. There has been no study or research to determine the Aboriginal heritage values of the reserve.

Recorded sites are located approximately 11 km away within Warrabah National Park and Ironbark Nature Reserve.

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

History since European Occupation

The first European to visit the New England region in 1818 was John Oxley. European squatters began to occupy land within the next 20 years, which included the area in the vicinity of the reserve. Permanent stock runs were established in the area by the mid 1830's (Harris, 1982). The area was set aside from sale for the preservation and growth of timber and gazetted as Linton State Forest in 1921 (New South Wales Government, 1929).

Although the reserve contains no major evidence of occupation, there is long-term use evident in the remnants of logging camps that contain some old machinery, rubbish dumps and forestry offcuts. An old wooden storage structure is located on the reserve. There are also remnants of cattle yards and wing fences. A small dam and associated drainage channel occurs in the western section of the reserve.

There is also a small pine plantation that does not appear to be of any cultural significance (J. Brandis, pers. Comm. 1992).

2.4 RESEARCH AND EDUCATION

There are no current research activities within the reserve. The area has been traversed for observation of the endangered regent honeyeater. Research may provide information valuable for management of this species.

2.5 VISITOR USE

There are no visitor facilities within the reserve. Extensive visitor facilities exist 25 km from the reserve by road in Warrabah National Park, and within Oxley Wild Rivers National Park at Dangars Falls, Wollomombi Falls, Gara Gorge and Long Point, all within 100 km of the reserve. Reserve identification signs are located at the eastern and western edges of the reserve along the public road.

Recreational use of the reserve is negligible due to its isolation. Current use is limited to passive recreation including bird watching, walking and photography. Some illegal hunting occurs sporadically, mainly for goats (*Capra hircus*) and pigs (*Sus scrofa*).

The reserve is traversed by two public roads, the Barraba- Kingstown Road and Manilla Road. These roads provide east-west linkage routes for public vehicles and horse riding.

2.6 THREATS TO RESERVE VALUES

Introduced Plants

There are 44 introduced plant species recorded within the reserve. This relatively high proportion of weeds is a reflection of the long history of disturbance in the area arising from past logging, recreational use, light grazing and road construction/maintenance. The identified list of weeds is not exhaustive and further species are still to be found, in particular along the road side (Lachlan Copeland pers. com.).

Blackberry (*Rubus fruticosus*), sweet briar (*Rosa rubiginosa*), bathurst and noogoora burr (*Xanthium* spp) and prickly pear (*Opuntia stricta*) are found within the reserve. These species can competitively exclude native plant species and provide habitat for feral animals. Annual control programs have decreased the distribution of blackberry, sweet briar, bathurst and noogoora burr and prickly pear to small isolated occurrences.

The small experimental plantation of introduced pine trees (*Pinus ponderosa*), planted in 1931, may be a vector or harbour for wood wasp (*Sirex* sp.) and other exotic diseases of pine plantations. Pine trees are beginning to disperse in surrounding areas of native forest and may become problematic if they are left uncontrolled.

Introduced Animals

Foxes (*Vulpes vulpes*), goats (*Capra hircus*), pigs (*Sus scrofa*), cats (*Felis catus*) and rabbits (*Oryctolagus cuniculus*) are found in the reserve. Other vertebrate pests such as hares (*Lepus capensis*) may occur within the reserve. These species can prey on native fauna and competitively exclude native wildlife. They are also present in surrounding lands.

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.

There have been no fires within the reserve since gazettal in 1979. The fire history prior to this period is unknown, but it appears likely there have been no fires within the reserve for over 40 years

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.

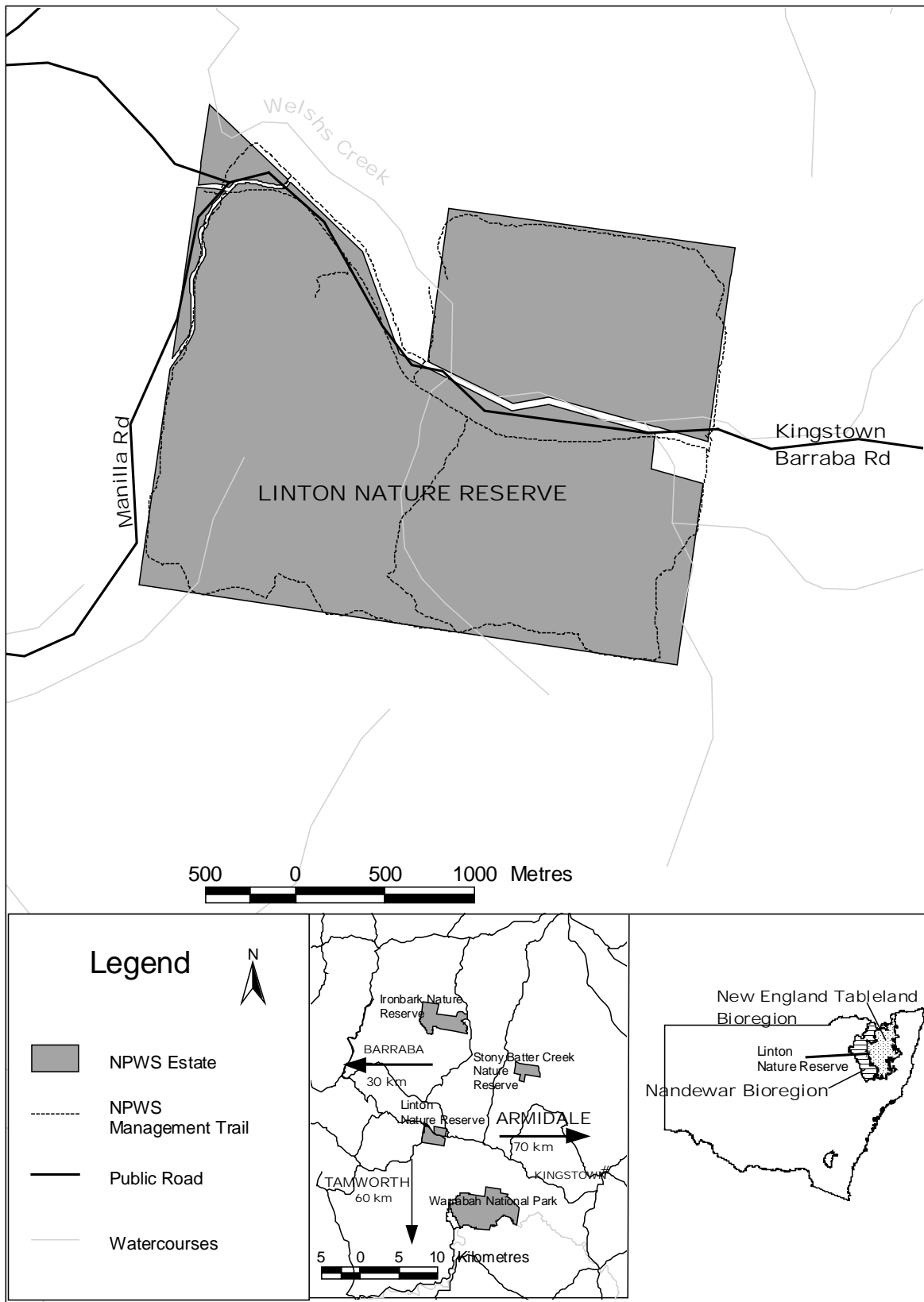
The reserve is small in size. It is important therefore to consider the reserve in the context of surrounding remnant vegetation. Nearby vegetated areas consolidate the habitat values of the reserve and provide ecological corridors to other surrounding forested areas.

The vacant crown land on the eastern boundary of the reserve is set aside as a travelling stock route. This vegetated area assists in consolidating the values of the reserve.

Public Road Easements

The reserve is traversed by part of the Kingstown-Barraba and Manilla Roads which are not constructed within the dedicated road reserves and encroach into the reserve. Maintenance of these roads by the local authority has disturbed vegetation within the reserve.

Figure 1: Linton Nature Reserve: Management infrastructure and regional context



3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil conservation</p> <p>Soils in the reserve are easily eroded when disturbed.</p> <p>Management trails are specific areas where soil erosion can be a problem.</p> <p>There are areas of gully erosion along Welshs Creek.</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 data-bbox="181 240 732 272">Native plant and animal conservation</p> <p data-bbox="181 280 732 344">There is limited knowledge about the reserve's rare or threatened species.</p> <p data-bbox="181 392 732 608">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="181 647 732 711">The reserve provides known habitat for the regent honeyeater.</p> <p data-bbox="181 759 732 975">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> <p data-bbox="181 1023 732 1158">Cleared areas within the reserve decrease reserve habitat values and are likely to increase the prevalence of weeds.</p>	<ul data-bbox="743 280 1155 456" style="list-style-type: none"> • All native plant and animal species and communities are conserved and enhanced where possible. 	<ul data-bbox="1178 280 1895 1102" 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. • Continue to work with the local community to preserve and protect regent honeyeaters • Undertake surveys for rare or threatened plant and animal species as appropriate. • Where relevant, implement strategies outlined in recovery plans in accordance with the TSC Act. • Rehabilitate cleared areas by monitoring and controlling weeds, encouraging natural regeneration and, where necessary, supplement with native plantings. 	<p data-bbox="1917 280 1984 312">High</p> <p data-bbox="1917 536 1984 568">High</p> <p data-bbox="1917 679 1984 711">High</p> <p data-bbox="1917 759 2029 791">Medium</p> <p data-bbox="1917 871 2029 903">Medium</p> <p data-bbox="1917 983 1984 1015">Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced species</p> <p>There are 44 introduced plant species within the reserve. Four weed species, including blackberry, sweet briar, prickly pear and bathurst and noogoora burr, are subject to ongoing control programs in accordance with the draft Northern Tablelands Region Pest Management Strategy February 2002 and individual pest management control plans.</p> <p>A plantation of introduced pine exists in the reserve, planted under previous tenure.</p> <p>A survey for weeds in the reserve has not been undertaken.</p> <p>The small size of the reserve and proximity to other areas with introduced plants allows weed species the opportunity for ongoing invasion.</p> <p>Foxes, rabbits, goats, pigs and feral cats occur in the reserve. Hares may also occur.</p>	<ul style="list-style-type: none"> • Introduced species are controlled and where possible eradicated. 	<ul 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. • Liaise with the New England Weeds Authority about implementation of integrated weed species control programs. • Undertake regular feral animal control programs in coordination with Tamworth 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). • Remove pine seedlings that have established outside the plot area. • Investigate the removal of the pine plantation and, if removed, rehabilitate the site with local native species. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Low</p> <p>High</p> <p>Low</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>Past history suggests that the reserve poses a low fire risk to persons and property adjacent to the reserve. No fires have been recorded within the reserve since gazettal in 1979.</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 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 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>Public 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> <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>The significance of fences, stockyards and logging camps in the reserve are unknown.</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 Tamworth 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>
<p>Research</p> <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
Visitor use			
Public access is available along the length of the Barraba-Kingstown and Manilla roads that traverse the reserve.	<ul style="list-style-type: none"> The local community is aware of the values of the reserve and of management programs. 	<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. 	Medium
No facilities exist within the reserve.	<ul style="list-style-type: none"> Visitor use remains low and is self-reliant, nature based and minimal impact. 	<ul style="list-style-type: none"> Permit use of the reserve 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. 	Medium
Other areas of NPWS estate nearby provide visitor facilities and recreation opportunities.			
The reserve receives low levels of visitation and is visited mainly for walking, bird watching and nature study.	<ul style="list-style-type: none"> Illegal shooting activities cease to occur. 	<ul style="list-style-type: none"> Public vehicle use (including trail bikes), horse riding, cycling and camping will not be permitted in the reserve. 	Medium
Use of the reserve must be carefully managed, as it is a significant area of remnant vegetation.		<ul style="list-style-type: none"> Horse riding will be permitted on the Barraba-Kingstown and Manilla Roads, which traverse the reserve. 	Ongoing
Horse riding is an established use on the Barraba-Kingstown and Manilla Roads, which are public roads that traverse the reserve.		<ul style="list-style-type: none"> Provide signage along public roads detailing appropriate uses of nature reserves. 	Low
There is anecdotal evidence of illegal shooting within the reserve.		<ul style="list-style-type: none"> Liaise with neighbours to detect illegal activities. Monitor levels and impact of visitor use. 	Medium Low

Current Situation	Desired Outcomes	Strategies	Priority
Management operations			
<p>The Kingstown-Barraba and Manilla Roads are not aligned with the surveyed road reserves and encroach into the reserve. Road maintenance works by the local authority have impacted on vegetation within the reserve.</p>	<ul style="list-style-type: none"> ▪ Public roads within and adjoining the reserve are incorporated into a gazetted road easement and managed with minimal impact on reserve values. 	<ul style="list-style-type: none"> • Minimise vegetation and drainage disturbance along public road frontages in the reserve through liaison with Barraba Shire Council. • Pursue closure and incorporation of unformed road easements into the reserve. Seek the creation of new easements along the current position of the Kingstown-Barraba and Manilla roads within the reserve. 	<p>High</p> <p>High</p>
<p>The Rural Lands Protection Board (RLPB) manages crown land on the eastern boundary as a travelling stock route. There is no known use of this land, which is fenced in as part of the reserve.</p>	<ul style="list-style-type: none"> • Unformed road easements and the RLPB managed crown land are incorporated and gazetted as part of the reserve. 	<ul style="list-style-type: none"> • Explore the possibilities of transferring the RLPB managed crown land into the reserve. • In conjunction with neighbours, maintain fences and determine strategies to exclude stock in areas where construction of boundary fences is difficult. • Only authorised vehicles are to access the reserve. Any vehicles accessing the reserve must remain on the management trails, unless otherwise authorised for emergency or management activities. 	<p>High</p> <p>High</p>
<p>The management trails in the reserve have been assessed as necessary for management purposes.</p>	<ul style="list-style-type: none"> • Management facilities adequately serve management needs and have acceptable impact. 	<ul style="list-style-type: none"> • Only authorised vehicles are to access the reserve. Any vehicles accessing the reserve must remain on the management trails, unless otherwise authorised for emergency or management activities. 	<p>Medium</p>
<p>Fencing along the reserve boundary is inadequate in some places to exclude stock.</p>	<ul style="list-style-type: none"> • Domestic stock do not enter the reserve. 	<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. 	<p>Medium</p>
<p>The reserve area is zoned 1(a) (General Rural Zone) under the Barraba Shire Council Local Environment Plan. This zoning is inappropriate for a nature reserve.</p>	<ul style="list-style-type: none"> • The reserve is zoned 8(a) under the relevant Local Environment Plan (LEP). 	<ul style="list-style-type: none"> • Liaise with Barraba Shire Council to amend local environment plans to zone the reserve 8(a) (Existing parks and nature reserves). 	<p>Low</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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