

AVONDALE STATE CONSERVATION AREA
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment, Climate Change and Water

March 2010

This plan of management was adopted by the Minister for Climate Change and the Environment on 3rd March 2010.

Acknowledgments

The NPWS acknowledges that this reserve is in the traditional country of the Dhungutti people.

This plan of management is based on a draft plan prepared by the staff of the Northern Tablelands Region of the NSW National Parks and Wildlife Service (NPWS), part of the Department of Environment, Climate Change and Water.

NPWS specialists, the Northern Tablelands Regional Advisory Committee and members of the public provided valuable information and comments.

For additional information or any inquiries about this reserve or this plan of management contact the Ranger at the NPWS Armidale Area Office, 145 Miller Street, Armidale NSW 2350 or by telephone on (02) 6738 9100

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FOREWORD

Avondale State Conservation Area covers an area of 313 hectares and was reserved as part of the North East Regional Forest Agreement in 2003. The reserve is located approximately 36 kilometres on the eastern edge of the central New England Tablelands.

Avondale State Conservation Area protects a small but significant remnant of Tablelands dry open forest. It has a high diversity of native vegetation, with 233 native plants having been recorded to date. Five threatened animal species have also been recorded, and the reserve provides important habitat for woodland bird species.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each state conservation area. 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 Avondale State Conservation Area was placed on public exhibition from 11 July until 13 October 2008. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the State Plan priority to “Protect our native vegetation, biodiversity, land, rivers and coastal waterways”, including working with neighbours to encourage conservation of remnant native vegetation in the vicinity of the reserve, the control of introduced animal species, and the upgrading of boundary fencing to protect the native vegetation.

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

Frank Sartor MP
Minister for Climate Change and the Environment

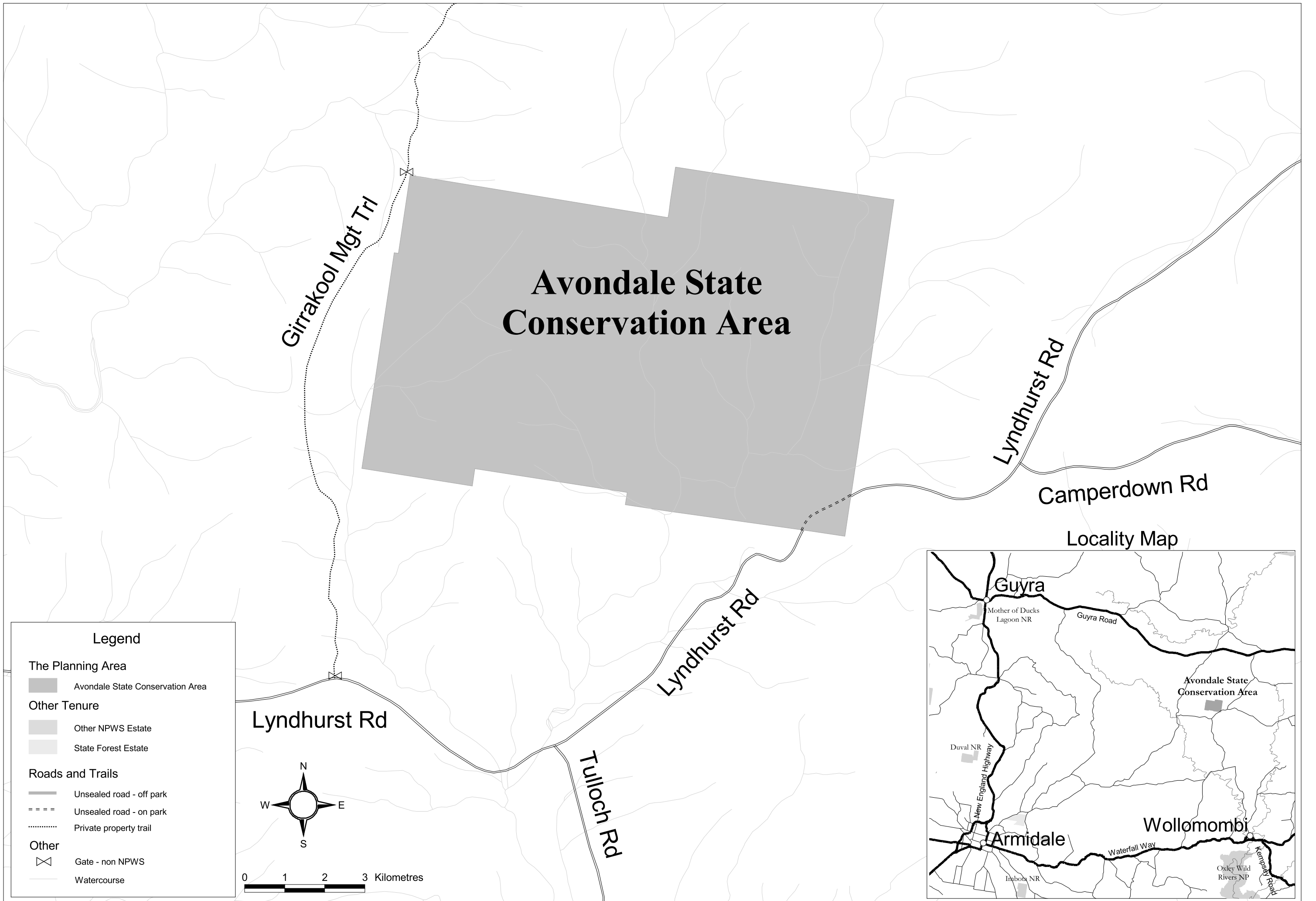


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1. AVONDALE STATE CONSERVATION AREA

Avondale State Conservation Area (referred to herein as 'the reserve') is located on the eastern edge of the central New England Tablelands approximately 36 kilometres north-east of Armidale (via Rockvale Road).

The North East Regional Forest Agreement covers the planning area. The Regional Forest Agreement provided for major additions to the reserve system, including the establishment of Avondale State Conservation Area, following assessment of the natural, cultural, economic and social values of forests. The reserve was gazetted to conserve remnants of previously widespread Tablelands vegetation communities.

The reserve has an area of 313 hectares and was dedicated in 2003. The reserve took its name from its previous tenure as the Avondale State Forest.

The reserve lies within the areas of Armidale Dumaresq Shire Council and the Northern Rivers Catchment Management Authority. Much of the surrounding land has been extensively cleared and is used for grazing and other rural activities. The reserve comprises two lots (Lots 57 & 91 DP751435) in the County Clarke, Parish Avondale. It is currently zoned as 1(f) Forestry under the Dumaresq Local Environment Plan No. 1, however it is in the process of being rezoned to 8(a) National Parks and Nature Reserves.

2. MANAGEMENT CONTEXT

2.1. Legislative and Policy Framework

The management of State Conservation Areas in New South Wales is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), NPW Regulations, the *Threatened Species Conservation Act 1995* (TSC Act) and National Parks and Wildlife Service (NPWS) policies. These policies are a compilation arising from the legislative background, the corporate goals of the NPWS and internationally accepted principles of park management. Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of 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* (EP&A Act) 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 Avondale State Conservation Area except in accordance with this plan. This plan will also apply to any future additions to Avondale State Conservation Area. Where management strategies or works are proposed for Avondale State Conservation Area or any additions that are not consistent with the plan, an amendment to the plan will be required.

2.2. Management Purposes and Principles

State Conservation Areas

State conservation areas are reserved under the NPW Act to protect and conserve areas that contain significant or representative ecosystems, landforms or natural phenomena or places of cultural significance; that are capable of providing opportunities for sustainable visitor use and enjoyment, the sustainable use of buildings and structures, or research; and that are capable of providing opportunities for uses permitted under other provisions of the Act.

Under the Act (section 30G), state conservation areas are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes;
- conserve places, objects and features of cultural value;
- provide for the undertaking of uses permitted under other provisions of the NPW Act (including uses permitted under section 47J such as mineral exploration and mining), having regard to the conservation of the natural and cultural values of the state conservation area;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area; and
- provide for appropriate research and monitoring.

The NPW Act requires a review of the classification of state conservation areas every 5 years in consultation with the Minister administering the Mining Act 1992. In the long term it is intended for Avondale State Conservation Area to become a nature reserve, and so management will also be guided by the management principles for nature reserves. These are to:

- conserve biodiversity, maintain ecosystem function, 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 nature reserve's natural and cultural values; and
- provide for appropriate research and monitoring (Section 30J).

MAP

3. VALUES OF THE RESERVE

The location, landforms and plant and animal communities of an area have determined how it has been used and valued. Both Aboriginal and non-Aboriginal people place values on natural areas, including aesthetic, social, spiritual and recreational values. These 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 heritage, cultural heritage, threats and on-going use are dealt with individually, but their inter-relationships are recognised.

3.1. Landform, Geology and Soils

The reserve encompasses minor ridges with gentle east-west and north-south facing slopes ranging from 10-30%. Elevations range from approximately 1110 to 1230 metres above sea level. Poorly defined ephemeral drainage lines in the reserve flow into Lambs Valley Creek and into the Wollomombi River before flowing over the escarpment into the upper Macleay River.

The reserve lies on a geological formation known as the Girrakool beds and Agnes Greywacke, which are characterised by metamorphosed sedimentary rock consisting predominantly of clastic sediments of the Carboniferous Period consisting of lithofeldspathic wacke, slate, minor chert, with some mafic and felsic volcanics. The Girrakool beds and Agnes Greywacke cover a much larger area of approximately 120,000 hectares. The reserve and small sections of nearby Oxley Wild Rivers National Park are the only reserves within the New England Tablelands Bioregion that lie on this geology.

Soils are characteristically skeletal, fragmented rocky soils (lithosols) and poorly defined sandy soils with low nutrient value (solods). The lithosols are generally associated with the slightly steeper upper-slope areas and drainage lines. The solods occur on flat and relatively dry areas and are generally powdery. The solods are easily eroded when disturbed.

The Department of Industry and Investment have identified the reserve as a highly mineralised area, however no mining licences have been granted over this reserve at this time. The mineral values of this area of the Northern Tablelands include silver, gold and antimony.

3.2. Native Plants

The reserve protects a small but significant remnant of Tablelands dry open forest in a landscape of predominantly cleared pastoral land.

Since European settlement, 60% of dry open forest in the New England Tableland Tablelands Bioregion has been cleared. Only 12% (47,300 hectares) of the remaining dry open forest 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.

A total of 233 native plants have so far been recorded in the reserve, alongside seven exotic species. The dominant vegetation community in the reserve is Silver-top Stringybark (*Eucalyptus laevopinea*) - Forest Ribbon Gum (*E. nobilis*) Open Forest. The north-eastern corner of the reserve is characterised by Wattle-leaved Peppermint (*E. acaciiformis*). The other dominant community in the south-east corner of the reserve is Broad-leaved Stringybark (*E. caliginosa*) Open Forest.

The diversity of topography within the reserve supports varied microhabitats enabling the growth of species such as Yellow Pomaderris (*Pomaderris sp. aff. intermedia*) and Narrow-Leaved Orangebark (*Maytenus silvestris*) which are outside the area of their normal distribution (NPWS & NPA Biodiversity Survey, 2004). No threatened plants are currently recorded in the reserve.

The reserve was grazed at various intensities under former tenures, and has experienced a very low fire frequency. This may have had an adverse effect on the diversity of the herb and shrub layers, which are limited throughout the reserve.

3.3. Native Animals

The reserve supports a range of vertebrate fauna. Eight amphibian, 67 bird, 22 mammal and 10 reptile species have been identified through surveys of the reserve (NPWS & NPA Biodiversity Survey, 2004). Table 1 lists threatened fauna species identified in these surveys.

Table 1. Threatened Fauna Species recorded in Avondale State Conservation Area.

Common Name	Scientific Name	Conservation Status ¹
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	Vulnerable
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	Vulnerable
Long-nosed Potoroo	<i>Potorous tridactylus</i>	Vulnerable
Barking Owl	<i>Ninox connivens</i>	Vulnerable

¹ Status under TSC Act.

The reserve is also highly significant for declining woodland bird species. Of the 20 declining woodland bird species identified across NSW, eight have been recorded in this reserve. These are the Brown Thornbill (*Acanthiza pusilla*), Buff-rumped Thornbill (*Acanthiza reguloides*), Grey Shrike-thrush (*Colluricincla harmonica*), White-winged Chough (*Corcorax melanorhamphos*), Varied Sittella (*Daphoenositta chrysoptera*), Rufous Whistler (*Pachycephala rufiventris*), Spotted Pardalote (*Pardalotus punctatus*) and the Scarlet Robin (*Petroica boodang*) (Reid, 1999). A number of these species exist in significant numbers within the reserve.

Although comparatively small, the reserve is large enough to support sustainable populations of small mammal species, although many smaller mammal species are likely to have disappeared from the reserve since the introduction of the fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) to the Tablelands in the late 1800s. The reserve also provides habitat for large macropods and arboreal mammals in conjunction with surrounding areas.

Under the TSC Act, Recovery Plans and the Threatened Species Priorities Action Statement (www.threatenedspecies.environment.nsw.gov.au) identify actions and priorities for threatened species, populations and ecological communities. The Priorities Action Statement and recovery plans will be used to guide management of threatened species in the reserve.

Because of the small size and isolation of the reserve, maintaining or enhancing links with other forest remnants is important to protect and enhance native vertebrate populations.

3.4. Aboriginal Heritage

Aboriginal communities have an association and connection to the land. The land and water 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, kinship systems and strengthening social bonds. Aboriginal heritage and connection to nature are inseparable from each other and need to be managed in an integrated manner across the landscape.

Little is known about past Aboriginal association with the reserve. There is limited evidence of Aboriginal occupation in close proximity to the reserve. The nearest recorded sites are in excess of 10 kilometres from the reserve. It is possible that there may be unrecorded sites within the reserve.

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

The reserve falls within the area of the Armidale Local Aboriginal Lands Council which has been classed by Aboriginal Elders as a shared area. The Biripi, Dhungutti and Anaiwan people would have shared this area, traditionally using it for ceremonials, camping areas, travel routes and may also have used rock from the reserve for stone tool making.

While NPWS has legal responsibility for the protection of Aboriginal objects and places, the NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. It is NPWS policy to encourage the Aboriginal community to participate in the management of Aboriginal cultural heritage and NPWS actively consults with relevant persons for cultural heritage information and advice.

3.5. Historic Heritage

John Oxley was the first European to visit the New England Tablelands in 1818, and European squatters began to occupy land in the area in the late 1830s. The area that is now the reserve was set aside from sale for the preservation and growth of timber in 1905, and gazetted as Avondale State Forest in 1914 (NSW Govt., 1914).

Some minor logging activities occurred within the reserve prior to gazettal, mainly for local fencing and domestic purposes. Since reservation as a state conservation area, removal of standing or dead timber has not been permitted within the reserve.

Grazing has also occurred over much of the reserve through permissive occupancy grazing permits issued under former tenures.

Some mining for antimony and other metals has occurred around the boundary of the reserve but there are no known records any mining within the reserve.

3.6. Education and Research Values

In November 2004, the NSW National Parks Association in conjunction with the NPWS under took a biodiversity survey of the reserve's fauna and flora (NPWS & NPA Biodiversity Survey, 2004). A comprehensive species list for the reserve has been compiled as a result of this survey.

Whilst there are no current research activities in the reserve, the reserve provides research opportunities for local tertiary institutions. Research can provide valuable information to contribute to the management of the reserve.

3.7. Recreation Values

The reserve currently has low levels of use for nature-based recreation such as nature study, bushwalking and bird watching. Access to the reserve is via Lyndhurst Road, which is a public road that cuts through the south-east corner of the reserve for a distance of approximately 400 metres. NPWS signs are present along this road and there is a small car park on the edge of Lyndhurst Road (refer to Map). Apart from the car park there are no visitor facilities within the reserve, including no formed walking tracks or roads, and no management trails, however visitor facilities are provided nearby within Oxley Wild Rivers National Park at Wollomombi Gorge, Gara Gorge and Dangar Falls.

Illegal entry and use of the reserve by motorcycles does occur. Visitor access to the reserve, other than for passive recreation, is not encouraged because of its small size, lack of roads and the fragile highly erodible soils in this area. Activities such as horse riding, motorcycle riding, mountain biking and orienteering have the potential to expose soils and cause erosion.

4. THREATS TO THE RESERVE

4.1. Pest Animals

The Northern Tablelands Regional Pest Management Strategy (NPWS, 2007) broadly identifies the pest priorities and feral animal control options for the region and includes the management of pests within this reserve.

Foxes (*Vulpes vulpes*), Rabbits (*Oryctolagus cuniculus*), Starlings (*Sturnus vulgaris*) and Hares (*Lepus capensis*) are found in the reserve in small numbers and are also present on surrounding lands. Other vertebrate pests such as Feral Cats (*Felis catus*) may also occur within the reserve. These species can prey on native fauna and competitively exclude native wildlife. Predation by the Red Fox has been listed as a key threatening process under the TSC Act.

4.2. Introduced Plants

Black Thistle (*Cirsium vulgare*), Dandelion (*Taraxacum officinale*), Chilean Whitlow Wort (*Paronychia brasiliensis*), Self Heal (*Prunella vulgaris*), Scarlet Pimpernel (*Anagallis arvensis*), Blackberry (*Rubus fruticosus* complex) and Blanket Weed (*Verbascum thapsus*) have been found in the reserve (NPWS & NPA Biodiversity Survey, 2004). Blackberry is a declared noxious weed throughout NSW.

The Northern Tablelands Regional Pest Management Strategy (NPWS, 2007) broadly identifies the weed priorities and control options for the region, and provides for the management of weeds in this reserve.

4.3. Fire Management

Fire is a natural feature of many environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities, and high frequency fires have been listed as a key threatening process under the TSC Act.

The primary fire management objectives of the NPWS are to protect life, property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (NPWS, 2005). The NPWS uses a zoning system for bushfire management in NPWS reserves which is compatible with the zoning used by the New England District Bush Fire Management Committee (BFMC) in its bush fire risk management plan.

The reserve is dominated by Tablelands dry open forest in a landscape of predominantly cleared pastoral land. Forests NSW records indicate there were no fires within the reserve between 1975 and 1995. It is unlikely there were any fires within the reserve from 1995 until December 2002, when a small fire occurred on the eastern side of the reserve. The fire history of the reserve prior to 1975 is unknown.

A separate fire management strategy has been prepared for Avondale State Conservation Area. This identifies the reserve as a Land Management Zone (LMZ).

Hazard reduction programs, which may include prescribed burning, are submitted to the BFMC for endorsement.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service brigades and is actively involved with the New England BFMC. Cooperative arrangements include fire planning, fuel management and information sharing.

4.4. Isolation and Fragmentation

The area surrounding the reserve has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat. Long term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. Nearby vegetated areas contribute to the habitat values of the reserve and provide ecological corridors to other forested areas. Maintaining the integrity of the remaining habitat within the reserve and, where possible, linking this to adjacent areas of bushland to facilitate wildlife corridors is important in ensuring the long term viability of the reserve's biological values.

4.5 Mining and Mineral Exploration

The principle authority for mining, mineral exploration and mine site rehabilitation in NSW is the Minerals and Energy Division of the Department of Industry and Investment. This Department is required under the *Environmental Planning and Assessment Act 1979* to undertake an environmental assessment for mining activities in consultation with the NPWS through the issuing of licences for mineral exploration and mining in state conservation areas. The written concurrence of the Minister for the Environment is required before a mining interest can be granted in state conservation areas. The Department of Industry and Investment has identified the reserve as a highly mineralised area which may warrant investigation in the future.

4.6 Climate Change

Climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for NSW include higher temperatures, increasing sea levels and water temperatures, elevated CO₂, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporation. These changes are likely to lead to greater intensity, duration and frequency of fires, more severe droughts and increased regional flooding.

The *National Biodiversity and Climate Change Action Plan 2004-2007* (NBCCAP) points out that "Climate change is expected to increase the risk of invasion by alien organisms, including pests, weeds and diseases from neighbouring territories. Climate change may also favour some established alien and native organisms that are currently restricted, causing them to become invasive."

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates. The potential impact of climate change is difficult to assess since it depends on the

compounding effects of other pressures, particularly barriers to migration and pressure from weeds and feral animals. Programs to reduce pressures arising from such threats will help reduce the severity of the effects of climate change.

For the reserve the warm to cool temperate Sclerophyll forests and woodlands typical of the Tablelands region will see an increased fire risk resulting from more droughts with a decline in shrub species and potentially an increase in invasive grasses (Bradstock, 2007).

5. MANAGEMENT STRATEGIES AND ACTIONS

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.1. Soil and water conservation</p> <p>Soils in the reserve are easily eroded when disturbed.</p> <p>Fencing along the reserve boundary is inadequate in some places and stock from neighbouring properties occasionally stray into the reserve. Motorcycles also occasionally enter the reserve from neighbouring properties and off Lyndhurst Road.</p>	<p>Minimise activities likely to create soil erosion.</p>	<p>5.1.1. Upgrade boundary fences to minimise illegal entry of vehicles or stock into the reserve, thereby reducing erosion potential. Work with neighbours to maintain fences where appropriate.</p>	<p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.2. Native plant and animal conservation</p> <p>The reserve is one of a few conserved areas on the New England Tablelands that provide resources and habitat for woodland and open forest fauna in a landscape of substantially cleared grazing land.</p> <p>Long term conservation of the reserve's flora and fauna would benefit from the retention of remaining vegetation on neighbouring properties and roadsides.</p> <p>Shrub and herb layers have been degraded due to past grazing</p> <p>Fauna surveys have recorded 5 threatened fauna species in the reserve and a number of rare birds.</p>	<p>All native plant and animal species and communities are conserved and enhanced where possible.</p> <p>There is greater understanding of species diversity, distribution and ecological requirements.</p>	<p>5.2.1. Work with relevant neighbours, Landcare groups, and local Citizens' Wildlife Corridors groups and others to encourage conservation of remnant native vegetation in the vicinity of the reserve and to identify potential wildlife and habitat corridors to link the reserve to other remnant native vegetation. Encourage and assist the development of voluntary conservation agreements where appropriate.</p> <p>5.2.2. Encourage surveys for rare or threatened plant and animal species.</p> <p>5.2.3. Implement relevant strategies in the Priorities Action Statement and Recovery Plans for threatened species. These include the control of rabbits, hares, starlings and foxes in order to protect fauna habitat in the reserve.</p> <p>5.2.4. Allow the shrub and herb layer to regenerate by maintaining boundary fencing to stop stray cattle entering the reserve.</p>	<p>High</p> <p>Low</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.3. Cultural Heritage</p> <p>Little is known about past Aboriginal association with the reserve and there are no recorded sites. However it is possible there may be unrecorded sites within the reserve.</p> <p>There are no recorded historic sites in the reserve, however mining activity may have occurred in the north-west corner</p>	<p>Cultural heritage values of the reserve are identified and protected.</p> <p>Improved understanding of cultural heritage values.</p>	<p>5.3.1. Precede any ground disturbance work with a check (site assessment) for cultural features.</p> <p>5.3.2. Involve the local Aboriginal community in any work affecting Aboriginal sites and interpretation of Aboriginal values.</p> <p>5.3.3. Survey the north-west corner of the reserve for evidence of past mining, investigate heritage value and public safety implications and undertake any necessary remedial actions.</p>	<p>High</p> <p>High</p> <p>Medium</p>
<p>5.4. Introduced Species</p> <p>A Regional Pest Management Strategy has been endorsed that prioritises pest species control programs for the Region including this reserve.</p> <p>The NPWS & NPA (2004) Biodiversity Survey identified seven weed species (of which only Blackberry is noxious) and four introduced feral animals in the reserve.</p> <p>Predation by the Fox has been listed as a key threatening process under the TSC Act.</p>	<p>Introduced species are controlled and where possible eradicated.</p> <p>Pest control programs are undertaken in consultation with neighbours.</p>	<p>5.4.1. Undertake pest species control in the reserve in accordance with the Regional Pest Management Strategy. Priority will be given to the control of Blackberry.</p> <p>5.4.2. Undertake integrated weed control programs in liaison with the New England Weeds Authority.</p> <p>5.4.3. Undertake regular integrated feral animal control in cooperation with the New England Livestock Health and Pest Authority, Landcare groups and neighbours; with priority given to the control of foxes.</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.5. Fire Management</p> <p>A separate Reserve Fire Management Strategy has been prepared for this reserve.</p> <p>Frequent or regular fire can cause loss of particular plant and animal species and communities. Fire can also damage cultural features, fences and threaten neighbouring land.</p> <p>As little is known about appropriate fire regimes for the reserve further research is required.</p> <p>It is likely that there have been no fires within the reserve from 1975 until December 2002, when a small fire occurred on the eastern side of the reserve. The fire history of the reserve prior to 1975 is unknown.</p>	<p>Persons and property are protected from bushfire.</p> <p>Fire regimes are appropriate for conservation of plant and animal species and communities.</p> <p>Fires do not leave or enter the reserve.</p>	<p>5.5.1. Implement the Reserve Fire Management Strategy.</p> <p>5.5.2. Participate in the New England Bush Fire Management Committee. Maintain cooperation with neighbours with regard to fuel management and fire suppression.</p> <p>5.5.3. Encourage further research into appropriate fire regimes for the reserve.</p>	<p>High</p> <p>High</p> <p>Low</p>

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.7. Recreation Opportunities</p> <p>The reserve receives low level visitation mainly for walking, bird watching and nature study, however, illegal entry and use of the reserve by motorcycles does occur.</p> <p>Public access to the reserve is available from Lyndhurst Road, approximately 54 kilometres by road north-east of Armidale.</p> <p>No facilities exist at the reserve other than a small car park located off Lyndhurst Road. No regulatory signage currently exists.</p>	<p>The local community is aware of the values of the reserve and of management programs.</p> <p>Visitor use remains low and is self reliant and ecologically sustainable.</p>	<p>5.7.1. Promote community understanding and appreciation of the conservation values of the reserve through contact with neighbours and community organisations, and media releases and interpretive material if necessary.</p> <p>5.7.2. Allow use of the reserve for passive appreciation and recreation activities including walking, bird watching and nature study.</p> <p>5.7.3. Public vehicle use (including motorcycles), cycling and horse riding are permitted on Lyndhurst Road and in the car park but not be permitted in the reserve.</p> <p>5.7.4 Camping is not permitted in the reserve.</p> <p>5.7.5. Provide signage at the car park access point to the reserve on Lyndhurst Road, detailing appropriate uses of the reserve.</p> <p>5.7.6. Liaise with neighbours to detect illegal or inappropriate activities.</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>Low</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies or Actions	Priority
<p>5.8. Management Operations</p> <p>No trails currently exist within the reserve. Given the steepness of the terrain, no vehicle other than a quad-bike can safely traverse the reserve. The northern edge of the reserve is so steep that access to this area for management operations for fire and pest management must be from neighbouring properties.</p> <p>There are no known current mining leases or applications for mining and/or exploration activities within the reserve.</p>	<p>Management operations have minimal impact and facilitate the conservation of the reserve values.</p> <p>Mining and mineral exploration activities have minimal impact on natural and cultural values.</p>	<p>5.8.1. Only authorised vehicles will be permitted to access the reserve for management or emergency activities, i.e. survey work or fire suppression.</p> <p>5.8.2. Negotiate agreements with neighbours to enable safe vehicular access by management vehicles to the northern boundary of the reserve.</p>	<p>Medium</p> <p>Medium</p>
<p>5.9. Climate Change</p> <p>Climate change has been listed as a key threatening under the TSC Act.</p>	<p>The impacts of climate change on natural systems are minimised.</p>	<p>5.9.1. Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.</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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