

BOGINDERRA HILLS NATURE RESERVE

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change

July 2008

This plan of management was adopted by the Minister for Climate Change and the Environment on 21st July 2008.

For further information on Boginderra Hills Nature Reserve or this plan of management, contact the NPWS Western Rivers Region Office at 200 Yambil Street Griffith or by phone on (02) 6966 8100.

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FOREWORD

Boginderra Hills Nature Reserve, which was reserved in 1982, covers an area of 756 hectares and is located about 20 kilometres north of Temora in the NSW South Western Slopes Bioregion.

Boginderra Hills Nature Reserve is comprised entirely of Boginderra Granite, after which the reserve is named. These granites are relatively resistant to erosion and have resulted in several small ranges of hills in the area.

The reserve is important as a remnant of bushland in an area that has been largely cleared for agricultural production. It contains areas of the White Box Yellow Box Blakely's Red Gum Woodland, which is poorly conserved in New South Wales and listed as an Endangered Ecological Community. At least 65 bird species have been observed in the reserve, and an additional 69 in the surrounding area, including a number of threatened species.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A plan of management is a legal document that outlines how an area will be managed in the years ahead.

A draft plan of management for Boginderra Hills Nature Reserve was placed on public exhibition from 30th June until 9th October 2006. The submissions received were carefully considered before adopting this plan.

This plan contains a number of actions to achieve "Better environmental outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways" (Priority E4 in the State Plan) including vegetation and fauna surveys, monitoring of erosion and stabilisation works if necessary, further research into the impacts of fire on the reserve's vegetation, removal of introduced plants, and regeneration of the old homestead area.

This plan of management establishes the scheme of operations for Boginderra Hills Nature Reserve. In accordance with section 73B of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Verity Firth
Minister for Climate Change and the Environment

1 NATURE RESERVES IN NEW SOUTH WALES

1.1 LEGISLATIVE AND POLICY FRAMEWORK

Boginderra Hills Nature Reserve is managed under a legislative and policy framework that is the *National Parks and Wildlife Act 1974* (NPW Act), the National Parks and Wildlife Regulation, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of management. The policies arise from the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* requires the assessment and mitigation of the 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 Boginderra Hills Nature Reserve except in accordance with the plan. This plan will also apply to any future additions to Boginderra Hills Nature Reserve. Where management strategies or works are proposed for the nature reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

1.2 MANAGEMENT OBJECTIVES

Nature reserves are reserved under the National Parks and Wildlife 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 the provision of opportunities for visitor use.

2 BOGINDERRA HILLS NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTINGS

Boginderra Hills Nature Reserve is located about 20 kilometres north of Temora, between the Trungley and Morangerell Roads in the NSW South Western Slopes Bioregion. The reserve covers an area of 756 hectares.

The reserve occupies the central ridgeline of the Narraburra Hills and the name is derived from the underlying geology, Boginderra Granite. The attention of the National Parks and Wildlife Service was first drawn to the conservation values of the area by local conservationists Lyn and David Schlunke in 1972. The Service negotiated purchase of the land from the owner and 551 hectares was gazetted Boginderra Hills Nature Reserve on 12 November 1982. In August 2005 an additional 205 hectares was purchased adjoining the western boundary (the 'Penfold' addition).

The reserve lies within Temora Shire. The surrounding area has been extensively cleared for agricultural use, largely cropping together with sheep and cattle grazing. The reserve lies in the Central Western NSW wheat belt, and is important as a remnant of bushland in an area that has been largely cleared for agricultural production.

2.2 NATURAL HERITAGE

Landform, Geology and Soils

Boginderra Hills Nature Reserve covers part of the Narraburra Hills. The maximum elevation of the reserve is at Narraburra Trig, which, at 494 metres, rises some 200 metres above the surrounding plains. The spine of the Narraburra Hills trends roughly north-east to south-west, with a number of intermittent creeks cut into the flanks.

Boginderra Hills Nature Reserve is comprised entirely of Boginderra Granite. These granites were formed during the Late Devonian period (about 370 million years ago) from cooling magma deep within the earth (plutons). These granites are relatively resistant to erosion and have resulted in several small ranges of hills in close proximity that include the Narraburra Hills and other elevated features such as Government Hill to the south-west of the reserve.

Soils in the reserve are of granitic origin - typically thin and coarse-grained, except where slabs and boulders are exposed. The plains surrounding the hills are Quaternary alluvium.

Native Plants

The reserve contains several plant communities, mapped by Lembit and Skelton (1998). Sheltered aspects with deeper soils and creek lines support a woodland dominated by Tumbledown Red Gum (*Eucalyptus dealbata*) and Red Stringybark (*E. macrorhyncha*). Shallow rocky soils over much of the eastern side of the reserve and in the south carry a Tick Bush (*Kunzea* sp. D) and Drooping Sheoak (*Allocasuarina verticillata*) community. The third major community consists of Dwyer's Red Gum (*Eucalyptus dwyeri*), Black Cypress Pine (*Callitris endlicheri*) and Currawang (*Acacia doratoxylon*) and is found on rocky soils and exposed aspects.

Smaller communities of White Box (*Eucalyptus albens*) woodland and Yellow Box (*E. melliodora*) woodland occur in the north-east of the reserve. Both of these communities fall into the White Box Yellow Box Blakely's Red Gum Woodland Endangered Ecological

Community and are significant as they are poorly conserved within formal reserves in New South Wales.

Two plant species of conservation significance have been found in the reserve. *Brunonia australis*, a small blue-flowering annual, was commonly found in the Dwyer's Red Gum – Currawang Woodland. It seems to favour granite soils, which are not well conserved in the Central West. *Mitrasacme paradoxa*, a small perennial herb, was found in moist sheltered sites in Dwyer's Red Gum – Currawang Woodland and Tumbledown Gum Woodland. The Boginderra Hills populations represent a new eastern limit in New South Wales for this species.

Most of the vegetation in the nature reserve has not been burnt for nearly 40 years, though a fire in 1985 did burn the southern-most two hills.

Native Animals

Few mammals have been recorded (DEC 2005). Those that have been observed include the Short-beaked Echidna (*Tachyglossus aculeatus*), Common Brushtail Possum (*Trichosurus vulpecula*), Eastern Grey Kangaroo (*Macropus giganteus*) and Swamp Wallaby (*Wallabia bicolor*). A neighbour has also reported sighting a Red-Necked Wallaby (*Macropus rufogriseus*). No survey targeting bats or small mammals has been undertaken, so no species have yet been recorded.

The bird list is more extensive, with at least 65 species having been observed in the reserve, and an additional 69 in the surrounding areas, many of which are likely to occur within the reserve. Threatened species recorded include the Turquoise Parrot (*Neophema pulchella*), Speckled Warbler (*Pyrrholaemus sagittatus*), Brown Treecreeper (*Climacteris picumnus*) and the Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*). Survey may reveal the presence of other threatened species, particularly other declining woodland bird species.

There has been no systematic survey for reptiles or amphibians. However, the following reptiles have been observed: Southern Spiny-tailed Gecko (*Diplodactylus intermedius*), Tree Dtella (*Gehyra variegata*), Thick-tailed Gecko (*Underwoodisaurus mili*), Nobbi Lashtail (*Amphibolurus nobbi*), Tree-crevice Skink (*Egernia striolata*) and Shiny-palmed Shinning-skink (*Cryptoblepharus carnabyi*).

2.3 CULTURAL HERITAGE

Aboriginal Heritage

The reserve falls within the boundaries of the Young Local Aboriginal Land Council.

No Aboriginal sites have been recorded in the reserve. A possible shelter overhang at a waterfall and a nearby stone core were reported by a ranger in 1983 in a creek on the eastern slopes of the reserve. However, a more recent inspection of the site found neither the overhang nor any Aboriginal objects, though the waterfall was located.

Resources in the reserve appear limited. The granite does not erode in a manner that creates shelters and the rock, being coarse-grained, is unsuitable for shaping and unlikely to have been utilised for any purpose other than perhaps grinding. Water is ephemeral and more reliable sources were available at springs to the east of the reserve. Much of the vegetation in the reserve is scrubby and unpleasant to walk through and it is unlikely that Aboriginal people would have had reason to spend much time in the range.

Historic Heritage

Boginderra Hills Nature Reserve was acquired by the NSW NPWS in 1982 from Mrs P.J. Guest. Prior to acquisition, the property was called 'Hillview'. The only developments on the land are in the northern corner and include a weatherboard homestead probably dating to the 1930s, a number of sheds, a small orchard, a dam, and stock yards. The structures, including the house, are not unusual for the area and have minimal historic significance.

At the time of acquisition the buildings were described as being in poor condition, though useable. However, subsequent deterioration has rendered all the structures derelict. The homestead is missing most of its roofing iron and flooring, the windows have been smashed and anything of value has been removed. The sheds are constructed of corrugated iron nailed to a pine frame and are near collapse.

The only other structure in the reserve is the trigonometric station on Narraburra and the rough, unsealed track leading up to it. The track is becoming overgrown in places and is in poor condition.

2.4 USE OF THE AREA

There are no facilities for public use in Boginderra Hills Nature Reserve, nor will any be developed. The reserve is not promoted for recreation. Occasionally walkers access the reserve from the homestead precinct in the northern corner (which has vehicular access) and from a public road reserve on the eastern side of the reserve. There is no vehicular access along this route. This occasional low-impact use is acceptable. It is desirable that NPWS at Griffith be contacted before accessing the reserve in case of emergencies such as fire and for inclusion of any collected fauna/flora records within the Atlas of NSW Wildlife.

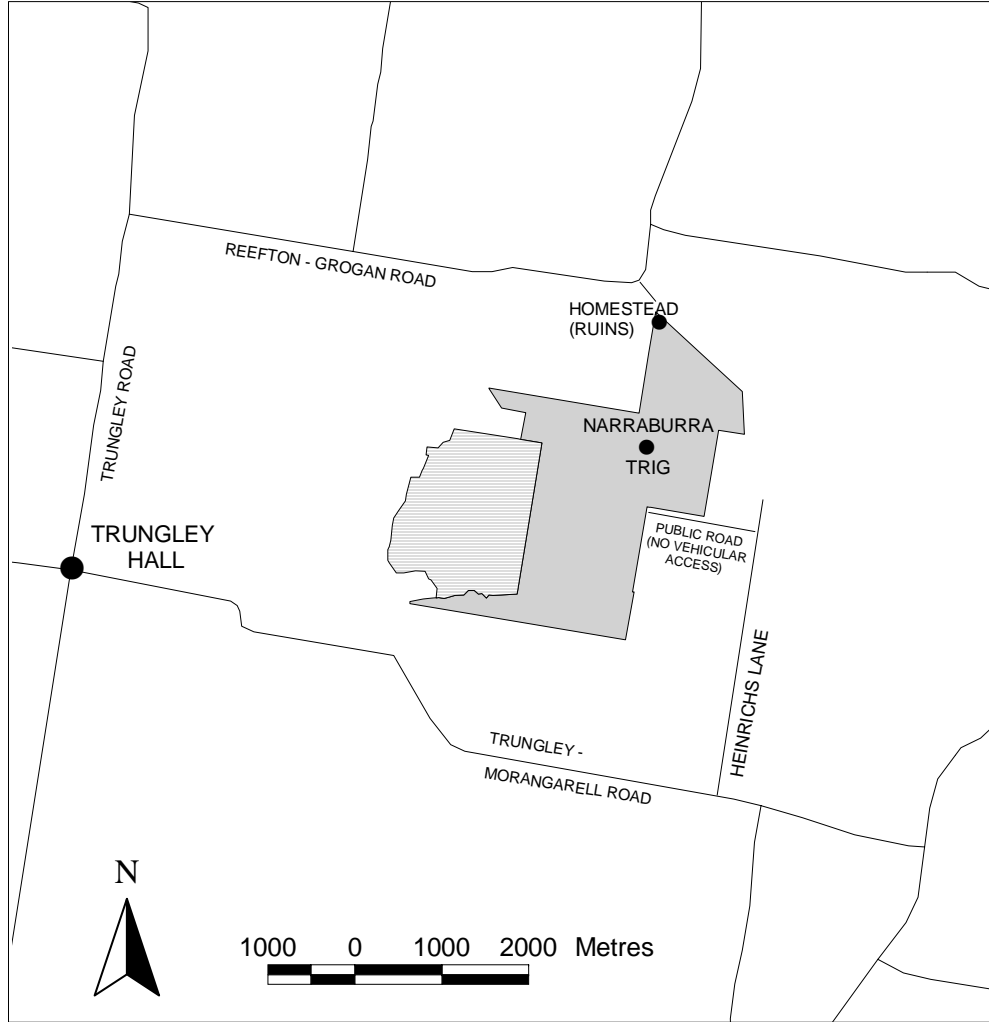
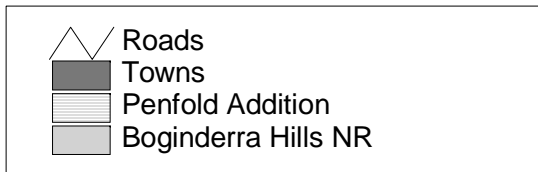
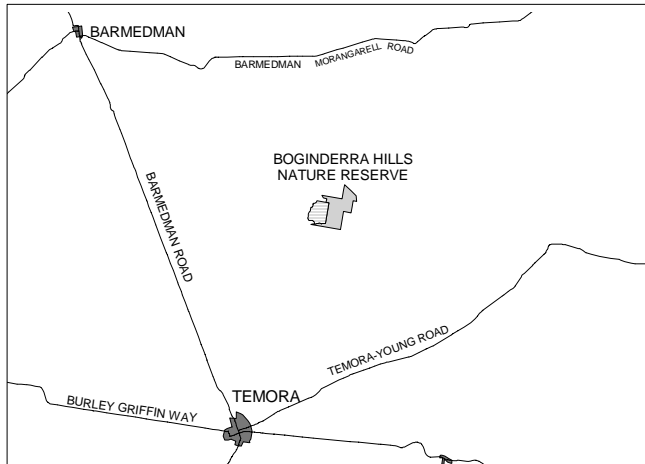
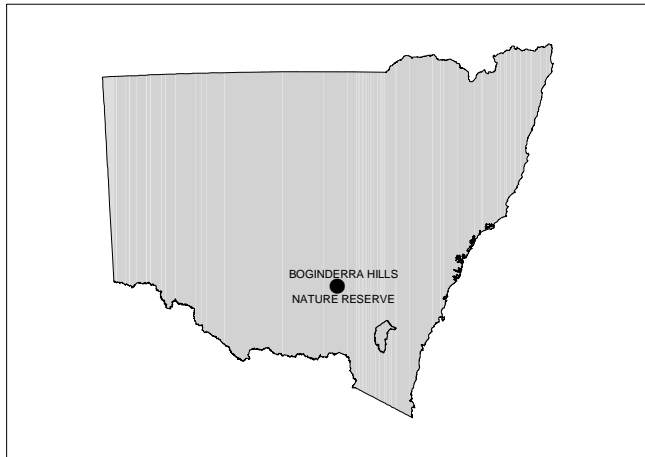
2.5 REFERENCES

DEC (2005) Atlas of NSW Wildlife. Data extracted October 2005.

Lembit, R. and Skelton, N. (1998) Vegetation Survey of Copperhania, Barton, Dapper & Boginderra Hills Nature Reserves. Unpublished Report to the Central West District of NSW NPWS, Bathurst.

2.6 RESERVE MAP

BOGINDERRA HILLS NATURE RESERVE



3 MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and Water Conservation</p> <p>There is some very minor erosion in the creek bed south of the homestead where the orchard was planted. Control action is not required but it should be monitored.</p>	<p>Erosion remains stabilised.</p>	<p>The creek bed should be monitored on an annual basis to check for erosion, and stabilisation works undertaken if necessary.</p>	<p>Low</p>
<p>Native Plant and Animal Conservation</p> <p>A vegetation survey in 1998 found two species of conservation significance, <i>Brunonia australis</i> and <i>Mitrasacme paradoxa</i>. This also mapped five vegetation communities within the reserve (including the Penfold Addition), two of which match the poorly reserved White Box Yellow Box Blakely's Red Gum Endangered Ecological Community. It was suggested that a fire interval of greater than 30 years would result in heath gradually being replaced by woodland.</p> <p>Lembit and Skelton (1998) recommended that further sampling, particularly in sites with deeper soils on the edge of the reserve and following rainfall in spring may add further information on the communities present.</p> <p>The fauna recorded in the park is the result of opportunistic sightings. Systematic survey is required. Four threatened birds have been recorded in the reserve, and additional surveys may record more. At this stage Recovery Plans have not been written for any of the threatened species occurring within the reserve.</p>	<p>Maintenance of vegetation communities.</p> <p>Improved knowledge of flora in the reserve.</p> <p>Improved knowledge of fauna in the reserve.</p>	<p>Monitor the impacts of fire on the plant species and vegetation communities to determine whether, as suggested by Lembit and Skelton, the distribution of heath and woodland changes depending on the fire regime.</p> <p>Revisit existing sampling sites in suitable seasons and undertake vegetation surveys. If possible establish new sites in vegetation with deeper soils.</p> <p>Fauna surveys of the reserve will be encouraged.</p> <p>Implement relevant actions from recovery plans or priority action statements for species found in the reserve.</p>	<p>Medium</p> <p>Low</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced Species</p> <p>A variety of introduced plants occur in the homestead precinct, associated with agricultural activities prior to acquisition. A number of these are deliberate plantings, such as the row of almond trees on the access drive, quince and fig trees in the orchard area and various garden plants around the homestead. There was a past outbreak of St Johns Wort (<i>Hypericum perforatum</i>), but this has been controlled.</p> <p>Outside the homestead precinct there are few introduced species.</p> <p>Feral animals appear to be at low levels, though foxes have been occasionally recorded.</p>	<p>Prevent the spread of noxious weeds or introduced plants.</p> <p>Ensure fruit trees do not carry fruit fly or disease.</p> <p>The homestead precinct regenerates with native species.</p> <p>Prevent the build up of feral animals.</p>	<p>Noxious weeds and introduced plants with the potential to spread will continue to be removed.</p> <p>Fruit trees with the potential to carry fruit fly or disease will be felled. The other fruit and almond trees will be removed as part of the removal of the house and associated features or left in situ to become senescent and die.</p> <p>The garden plants will be either left to die, or may be actively removed as part of the removal of the house and associated features.</p> <p>The homestead precinct will be allowed to revegetate naturally. Photo points will be established to monitor progress. Some planting of locally indigenous species will be undertaken if necessary to assist regeneration.</p> <p>Undertake cooperative programs with reserve neighbours to bait foxes, and any other feral animal control as required.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>
<p>Research</p> <p>Scientific study is necessary to improve understanding of the reserve's natural and cultural heritage, the processes which affect them and the requirements for management of particular species. Some specific topics requiring survey work have been mentioned previously. Resources are limited, however, and research by other organisations will be encouraged.</p>	<p>Improved knowledge of the reserves natural and cultural heritage to assist management decisions.</p>	<p>Undertake and/or encourage research into the reserve. Priority research areas are:</p> <ul style="list-style-type: none"> • Fire regimes • Fauna survey • Aboriginal sites survey • Native plant survey/monitoring 	<p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire Management</p> <p>A wildfire burnt most of the reserve in 1966. Arson was the suspected cause. The only subsequent fire in the reserve burnt the two most southerly hills of the range in January 1985. This fire was started by lightning.</p> <p>Little is known about the ecological fire needs of the reserve. Cypress pine is fire sensitive but other species may require fire for regeneration. A fire interval of greater than 30 years would probably result in gradual replacement of heath by woodland (Lembit and Skelton 1988) but the interval that would result in complete loss of heathland is unknown.</p> <p>Fire management access within the reserve is limited. The terrain is steep and rocky. It is not suitable for the construction and maintenance of fire trails, which would erode.</p>	<p>Wild fire in the reserve will be controlled.</p> <p>Knowledge about the ecological impact of fire on the vegetation will be improved.</p> <p>Fire management strategies will be in place.</p>	<p>Fire response guidelines will be prepared for the reserve as part of the Region's Incident Procedures. The guidelines will detail life, property and natural and cultural resource protection principles, strategies and cooperative arrangements. Liaison will be made with the local Bush Fire Management Committee and neighbours regarding fire management within the reserve</p> <p>The use of heavy machinery for fire suppression will be avoided because of the rocky nature of the hills and difficulties in rehabilitation.</p> <p>Fire operations should be planned to avoid locations of rare plants and any Aboriginal sites that are identified.</p> <p>Permanent fire trails will not be constructed in the reserve. Any trails constructed during the course of wildfire suppression will be closed and revegetated as soon as possible after the fire to prevent erosion.</p> <p>Prescribed fire will not be used in the reserve due to the absence of suitable control lines. Future reviews of this strategy may be required depending on the ecological requirements of the vegetation in the reserve.</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p>Utilities</p> <p>The only utility on the reserve is the Narraburra Hills Trigonometric Station and the track leading to it. The track has not been used by vehicles for many years and is slowly revegetating.</p>	<p>The public utility does not adversely impact on the reserve.</p>	<p>Future use of the road to service the trigonometric station will be discouraged in favour of access by air.</p>	<p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural Heritage</p> <p>Built structures in the reserve are principally the rural developments in the northern corner, where there is a derelict homestead and associated outbuildings. These structures have minimal historic significance and are steadily deteriorating.</p> <p>There has been no survey for Aboriginal sites, though the likelihood of these being found is not high.</p>	<p>Removal of the structures and associated debris.</p> <p>Improved knowledge of Aboriginal heritage.</p>	<p>A photographic record will be made of all structures on the site. A cost effective means of removing the structures and associated debris will then be investigated and implemented.</p> <p>The dam will be in-filled and allowed to revegetate.</p> <p>An Aboriginal sites assessment will be conducted in consultation with the local Aboriginal community.</p>	<p>High</p> <p>Low</p> <p>Medium</p>
<p>Public Use</p> <p>There is little public use of the reserve apart from the occasional bushwalker or naturalist. No facilities are provided. The only public access points are from the homestead area in the north east of the reserve or by foot along the public road reserve off Heinrichs Lane.</p>	<p>Visitors do not impact on the reserve.</p>	<p>It is desirable that all visitors wishing to access the reserve gain permission from NPWS Griffith.</p> <p>The existing low level of visitation will be permitted for nature study and bushwalking.</p> <p>No facilities will be provided for visitors though the existing signage will be maintained.</p> <p>No competitive sporting activities will be permitted in the reserve.</p> <p>Visitors will be permitted to park vehicles in the homestead precinct but must walk elsewhere in the reserve.</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Key to priorities

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

Medium priority activities are those that are necessary to achieve the objectives and desired outcomes but are not urgent.

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