YINA NATURE RESERVE PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service
June 2006

This plan of management was adopted by the Minister for the Environment on 27 th June 2006.
Inquiries about this draft plan of management of Yina Nature Reserve should be directed to the ranger at the Armidale Area Office, 85 Faulkner Street, Armidale, or by telephone on 02 6776 0000.
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FOREWORD

Yina Nature Reserve is located on the eastern edge of the central New England Tablelands approximately 10 km east of Armidale.

The reserve protects a small but significant remnant of Tablelands dry open forest and woodland close to Armidale in a landscape of predominantly cleared pastoral land. The dry open forest and woodlands in the reserve are representative of those that covered much of the surrounding district prior to clearing for grazing. A total of 203 species of plants have been recorded in the reserve, with the most dominant species being snow grass.

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

A draft plan of management for Yina Nature Reserve was placed on public exhibition for three months from 13th September until 2nd December 2002. The exhibition of the plan of management attracted 7 submissions which raised 8 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management establishes the scheme of operations for Yina Nature Reserve. In accordance with section 73B 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 a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW 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 *NSW Environmental Planning and Assessment Act 1979* requires the assessment and mitigation of environmental impacts of any works proposed in this plan.

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.

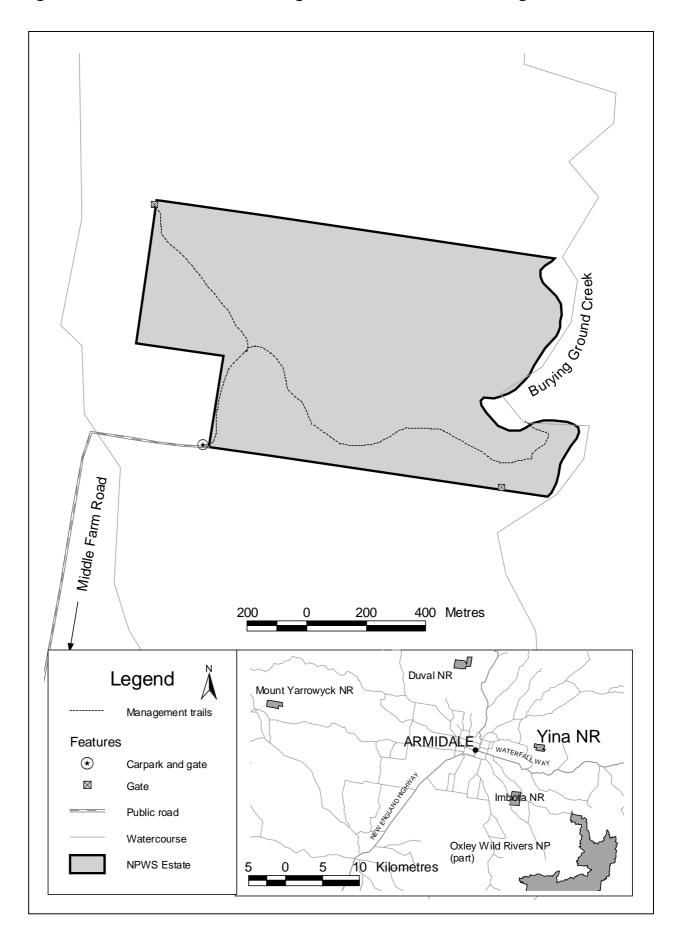
1.2 LANDSCAPE CONTEXT

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 day 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.

Figure 1: Yina Nature Reserve Management Infrastructure and Regional Context



2. YINA NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Yina Nature Reserve is located on the eastern edge of the central New England Tablelands approximately 10 km east of Armidale. The locations of the reserve, nearby Service estate and towns are shown in figure 1. The reserve is one of 12 small, isolated reserves in the south of the New England Tablelands bioregion (an area defined by a combination of repeated biological and geographic criteria, rather than geopolitical considerations). These reserves were gazetted to conserve remnants of previously widespread Tablelands vegetation communities as part of the Regional Forest Agreement (RFA) process.

The reserve has an area of 101 ha and was dedicated in 1999. Prior to that it was Hillgrove State Forest. The reserve name 'Yina' is derived from the Anaiwan Aboriginal name for box gum trees (Mathews, 1905).

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

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

2.2 NATURAL AND CULTURAL HERITAGE

Landform, Geology and Soils

The reserve encompasses a minor ridge with gentle north-east facing slopes (ranging from 5-10%). Elevations range from approximately 960 to 1 030 m above sea level.

Poorly defined ephemeral streams drain eastwards into Burying Ground Creek, which lies along the eastern boundary of the reserve. This creek flows south into Commissioners Waters, then into the Gara River before flowing over the escarpment into the upper Macleay River.

The reserve lies on a geological formation known as the Sandon beds, which are characterised by metasedimentary rock consisting predominantly of lithic greywacke, slate, chert, jasper, metabasalt, phyllite and schist. The Sandon beds are approximately 1000 km² in size.

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 upslope areas and drainage lines. The solods occur on flat and relatively dry areas and are generally powdery.

Native Flora

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

The dry open forest and woodlands in the reserve are representative of those that covered much of the surrounding district prior to clearing for grazing. Modelling using various environmental variables has predicted that since clearing for grazing began, over 70% of those vegetation communities present in the reserve have been cleared across the New England Tablelands bioregion. Those remnants that remain are often highly fragmented across the landscape, making the reserve highly significant as a relic of a once widespread vegetation community.

A total of 203 species of plants have been recorded in the reserve (Hunter 2003). The most dominant species is snow grass (*Poa sieberiana*). Seven of the most dominant species were herbs, four of which were grasses. Across the reserve, the grass understorey, is characterised by snow grass (*Poa sieberiana*), wire grass (*Aristida ramosa*), rats tail grass (*Sporobolus creber*) and weeping meadow grass (*Microlaena stipoides*). The overstorey is characterised by the dominance of broad-leaved stringybark (*Eucalyptus caliginosa*), Blakely's red gum (*E. Blakelyi*), and yellow box (*E. melliodora*). Two shrub species of dominance within the reserve are peach heath (*Lissanthe stringosa*) and small-leaved pea bush (*Pultenaea microphylla*).

No rare or threatened species have been recorded in the reserve (Copeland 1999; Hunter 2003). A total of ten regionally significant species were found, most of which are regionally rare. They are:

Species Conservation Status

Acacia viscidula

Austrodanthonia penicillata

Bothriochloa bladhii

Brachyscome radicans

Echinopogon nutans

Disjunct

Regionally Rare

Regionally Rare / Disjunct

Regionally Rare

Eragrostis molybdea Regionally Rare
Lomandra filiformis Disjunct

Typha orientalis

Vittadinia muelleri

Vittadinia sulcata

Depleted Taxa

Regionally Rare

Regionally Rare

Three of the four communities within the reserve are of regional conservation concern:

Floristic Assemblage Conservation Status

Broad-leaved Stringybark Grassy

Poor in general but of lesser concern in

Woodlands this region.

Red Gum – Yellow Box community Endangered.

Manna Gum – New England Endangered.

Manna Gum – New England Endangered. Peppermint

Riparian Herbfields

Vulnerable. Highly modified in almost all instances

The reserve is one of the few remaining uncleared areas that have had little disturbance from either intensive grazing or fire. State Forests records indicate there have been no fires within the reserve between 1959-1971. It appears that there has only been one small grassfire on the northern side of the reserve (approximately in the 1980s) between

1971 and dedication of the reserve in 1999. There have been no fires in the reserve since gazettal.

Native Fauna

The forest and woodland ecosystems of the reserve support a range of vertebrate fauna. Surveys have identified 46 bird and 7 mammal species (NPWS, 1999). The vulnerable koala (*Phascolarctos cinereus*) has recently been observed in the reserve (S. Debus, pers. comm).

The reserve provides seasonal habitat and resources for nomadic nectarivorous bird species and declining woodland bird species. The vulnerable hooded robin (south-eastern species (*Melanodryas cucullata*)), a bird typically of drier western districts, has recently been recorded in the reserve. It is likely that the vulnerable painted honeyeater (*Grantiella picta*) and barking owl (*Ninox connivens*) occur in the reserve (S. Debus, pers. comm).

Models developed as part of the comprehensive regional assessment (CRA) process predict that the reserve provides potential habitat for several other significant species including the endangered bush stone-curlew (*Burhinus grallarius*) and vulnerable common bent-wing bat (*Miniopterus schreibersii*).

Aboriginal History

Aboriginal communities have an association and connection to the land. The land and water biodiversity values within a whole landscape context are the centre of Aboriginal spirituality and contribute to Aboriginal peoples identity. Aboriginal communities associate natural resources with the use and enjoyment of valued 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 main Aboriginal language group of the area is the Nganyaywana, who inhabited the Tablelands between Walcha and Tingha. The traditional land of the Anaiwain language group also included this area.

Prior to European arrival, it is believed that the Tablelands provided resources for year-round occupation, by Aboriginal people, 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 a broad range of landscapes in the region. There has been no study or research to determine the Aboriginal heritage values of the reserve. There is however substantial evidence of Aboriginal occupation in close proximity to the reserve, with 6 open camp sites recorded within 5 km, as well as evidence of Aboriginal occupation at the Blue Hole, 10 km to the south-east.

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

History since European Occupation

The first European to visit the New England Tablelands in 1818 was John Oxley. From about 1832, European squatters began to occupy land in the area.

The area was set aside for the preservation and growth of timber in 1888, and gazetted as Hillgrove Creek State Forest in 1917. Harvesting of hardwood commenced in these forests in the 1920s. In general, harvesting was sporadic because of the relative isolation of the area, unsuitability of the timber and the consequent difficulty in marketing New England timbers. Some logging has occurred in the reserve area but no systematic logging has taken place since the 1930s. Prior to the dedication of the reserve, some removal of firewood and fence posts for local purposes did take place.

Some light grazing by cattle and horses occurred over much of the reserve from the 1930s until the 1980s.

2.3 RESEARCH AND EDUCATION

The reserve is one of the most easily accessible remnant woodlands of the Tablelands, and has been used by local universities and schools for scientific research and educational purposes. There is a long history of use by the University of New England (UNE) for teaching and extension purposes, specifically pertaining to woodland birds.

2.4 VISITOR USE

There are no visitor facilities within the reserve. Reserve identification signs are located at the south-west corner of the reserve where the public road terminates on the reserve boundary. Prior to gazettal of the reserve horse riders used some trails in the reserve on an irregular basis but at a relatively low level of use. Current use of the reserve is limited to passive recreation including bird watching, walking and photography. Extensive visitor facilities exist within Oxley Wild Rivers National Park at Dangars Falls, Wollomombi Falls, Gara Gorge and Long Point, all within 30 km of the reserve.

Recreational activities not consistent with the study of nature and natural environments are generally considered inappropriate uses of a nature reserve. Activities such as horse riding, mountain biking, camping, orienteering are inconsistent with the purposes of a nature reserve under the NPW Act.

2.5 THREATS TO RESERVE VALUES

Introduced Plants

Blackberry (*Rubus fruticosus*), sweet briar (*Rosa rubiginosa*), prickly pear (*Opuntia* spp.) and willows (*Salix* spp) have been found within the reserve. Blackberry is under control due to spraying. Sweet briar, prickly pear and willows are only known from small isolated occurrences.

A high voltage electricity transmission line was constructed in the south-east corner of the reserve in 2000. Maintenance of the line may provide a vector for introduction of weed species (refer 2.6 Other Uses).

Introduced Animals

Foxes (*Vulpes vulpes*) are found in the reserve as are hares (*Lepus capensis*), rabbits (*Oryctolagus cuniculus*) and pigs (*Sus scrofa*). Feral cats (*Felis catus*) may also occur within the reserve.

Fire

Fire is a natural feature of the environment of the reserve and is essential to the survival of some plant communities. Frequent or regular fire, however, can cause loss of particular plant and animal species and communities. The effects of fire on the biota of the reserve remain unclear. An inappropriate burning regime or wildfire may contribute to a loss of biodiversity within the reserve. Fire could also damage fences and threaten neighbouring land. Fires may occur within the reserve due to natural causes, and may also spread into the reserve from neighbouring land.

The fire history of the reserve prior to gazettal is incomplete. Available records suggest that fire has been absent from the reserve for more than 50 years. However, anecdotal reports suggest that a fire did cross the northern side of the reserve in the 1980s. It is unclear if this fire impacted on the reserve.

Isolation and fragmentation

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

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

2.6 OTHER USES

A transmission line is located along the south-eastern corner of the reserve (see Figure 1). The line supplies a connection for power sharing between Queensland and NSW.

The electricity supplier will require ongoing access for management of the line. Ongoing management of the line will include management of vegetation growing within the line easement. The requirement to maintain vegetation below specified heights will require that any replanting within the easement be with species of an appropriate height. Replanting restrictions may affect the value of habitat linkages for certain species.

3. MANAGEMENT ISSUES AND STRATEGIES

Current situation	Desired outcomes	Strategies	Priority
Soil conservation			
The soils of the reserve are easily eroded when disturbed.	Soil erosion is minimised.	 Maintain management trails to appropriate standards (refer to <i>Management Operations</i> below). 	High
Access roads, reserve entrances, the electricity transmission line access and Burying Ground Creek are specific		 Ensure any ground disturbance works are undertaken in a manner that minimises erosion and water pollution. 	High
areas where soil erosion is a problem.		 Monitor gully erosion along ephemeral creeks and instigate control measures if necessary. 	Medium
Moderate gully erosion exists along some ephemeral watercourses		 Ensure erosion control measures are incorporated for works on management trails by the electricity provider in accordance with their management agreement (refer to Management Operations). 	Low

Current situation	Desired outcomes	Strategies	Priority
Native plant and animal conservation			
There is limited knowledge about the reserve's rare or threatened species and reptiles, frogs and turtles. 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	All native plant and animal species and communities are conserved and enhanced where possible.	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.	High
of substantially cleared grazing land. Long term conservation of the reserve's plant and animal species would benefit		 Encourage and assist the development of voluntary conservation agreements where appropriate for protection of conservation values on adjacent lands. 	High
from the retention of remaining vegetation on neighbouring properties and roadsides.		 Encourage surveys for rare or threatened plant and animal species and reptiles, frogs and turtles. Ensure appropriate vegetation management 	Medium Medium
There are some cleared areas within the reserve which should be rehabilitated to improve habitat values and reduce the prevalence of weeds.		within the electricity easement by the electricity provider in accordance with their management agreement (refer to <i>Management Operations</i>).	
Maintenance of the electricity transmission line may require lopping of vegetation for safety purposes.			
Unauthorised firewood gathering and unrestricted vehicle access have degraded significant areas of the reserve's vegetation.			

Current situation	Desired outcomes	Strategies	Priority
Introduced species			
At least 4 weed species have been identified, but are not widespread. These include blackberry, prickly pear,	 Introduced species are controlled and where possible 	 Control and where possible eradicate introduced plants and animals from the reserve. 	High
sweet briar and willows, which are subject to ongoing control programs in accordance with the regional Pest	eradicated.	Develop and implement a program to monitor the distribution of introduced species in the reserve.	High
Management Strategy and individual pest management control plans.		 Undertake integrated weed control programs in liaison with the New England Weeds Authority. 	Medium
A survey for other weeds in the reserve has not been undertaken.		Undertake regular integrated feral animal control programs with Armidale Rural Lands	Medium
The small size of the reserve and proximity to other areas with introduced plants increases the opportunity for ongoing weed invasion.		 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>). 	Low
Foxes occur in the reserve. This species can have significant adverse effects on the natural values of the reserve. Pigs, rabbits, hares and feral cats may also occur.			
Domestic stock sometimes enter the reserve.			

Current situation	Desired outcomes	Strategies	Priority
Fire management			
	 Persons and property are protected from bushfire. Fire regimes are 	 Prepare and implement a fire management strategy for the reserve. Participate in district Bush Fire Management Committees. Maintain coordination and cooperation with Rural Fire Service brigades, Council fire control officers and neighbours with regard to fuel management and fire suppression. As far as possible, a fire free interval of at least 10 to 15 years will be maintained in all dry sclerophyll forest types within the reserve. Prepare agreements with neighbours for access to water sources during fire emergencies. Prohibit camp fires and other open fires to remove potential ignition sources for fires (refer to <i>Public Use</i> below). 	High High High High High
Burying Ground Creek and dams on neighbouring properties provide resources for fire fighting.	the reserve are controlled. • All of the reserve is not burnt in a single wildfire event.	 Encourage further research into appropriate fire regimes for the reserve. Prescribed fire will only be used to achieve fire regimes appropriate for maintenance of habitat in accordance with the fire management strategy. 	Medium

Current situation Cultural heritage	Desired outcomes	Strategies	Priority
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. Little is known about the European history of the reserve other than that it was a state forest.	Cultural heritage values of the reserve are identified and protected.	 Consult with the local Aboriginal community, traditional groups and the Armidale Local Aboriginal Land Council about Aboriginal sites, places and other values. Undertake a cultural heritage assessment before undertaking works which may have the potential to impact on cultural sites and places. Involve the local Aboriginal community in any works affecting Aboriginal sites and in any interpretation of Aboriginal values. Encourage research and surveys into the cultural heritage values of the reserve. 	High Medium Medium Low

Current situation	Desired outcomes	Strategies	Priority
Public use			
Public access to the reserve is available from Middle Farm Road. No facilities exist within the reserve and general recreational use is not permitted.	The local community is aware of the values of the reserve and of management programs.	 Provide a parking area for up to 6 cars off Middle Farm Road with the agreement of Armidale Dumeresq Council. No clearing of trees within the reserve will be undertaken to construct the carpark. Install a locked gate at the reserve boundary 	Medium High
Other areas of NPWS estate nearby provide visitor facilities and recreation opportunities.	 Visitor use remains low, nature-based and minimal impact. 	 to prevent public vehicle access to management trails in the reserve. Install a sign, near the gate, explaining the values and appropriate uses of the reserve. 	Medium Medium
The reserve receives low levels of visitation and is visited mainly for walking, bird watching and nature study. The reserve has a history of public uses,		Promote community understanding and appreciation of the conservation values of the reserve through contact with neighbours, community organisations and media releases, NPWS Discovery programs and interpretive	Wediam
many of which are no longer appropriate within a nature reserve.		 material as appropriate. Public vehicle use (including trail bikes), horse riding, orienteering, camping and open 	Medium
Use of the reserve must be carefully managed as it is a relatively small and significant area of remnant vegetation.		 fires will not be permitted in the reserve. Encourage nature appreciation activities such as bushwalking, bird watching and nature 	Medium
organican area or reminant regetation.		study within the reserve.Monitor levels and impact of visitor use.	Medium

Current situation	Desired outcomes	Strategies	Priority
Research			
Research is needed to improve understanding of the natural and cultural heritage values of the reserve, threatening processes and the requirements for management of significant plant and animal communities and species.	Research assists management of the reserve and has minimal impact.	 Encourage research to improve knowledge and management of natural and cultural heritage of the reserve. Liaise with the UNE and other tertiary education providers about priorities for research in the reserve. 	High Medium
The UNE is conducting research on the decline of woodland birds using the reserve as one of a number of sites in the area.			

Current situation	Desired outcomes	Strategies	Priority
Management operations			
The management trails in the reserve have been assessed as necessary for fire control and other management purposes.	 Management facilities adequately serve management needs and have acceptable impact. 	NPWS and the electricity provider with respect to access and management operations along the powerline easement to ensure that the reserve's values are not	High
Fencing along the reserve boundary is inadequate in some places to exclude stock. Access to reserve is required by the electricity provider for routine maintenance of the electricity transmission line.	 Maintenance of electricity transmission line has minimal impact on reserve. Domestic animals do not enter the reserve. 	 diminished. In conjunction with neighbours, maintain fences and determine strategies to exclude stock in areas where construction of boundary fences is difficult. Enforce NPWS policy prohibiting domestic animals within the reserve, with the exception of assistance animals under the <i>Disability Discrimination Act 1992</i>. Liaise with neighbours to detect illegal activities. Only authorised vehicles are permitted to access the reserve. Any vehicles accessing the reserve must remain on management trails to the extent possible. 	High High Medium Medium

Legend for priorities:

High priority strategies are those that are imperative to the achievement of management objectives and desired outcomes. They must be undertaken in the near future to avoid significant degradation of the natural, cultural or management resources of the reserve. **Medium** priority strategies are those that are necessary to achieve management objectives and desired outcomes but will be implemented as resources become available because the time frame for their implementation is not urgent.

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

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