

**BOORGANNA NATURE RESERVE**  
**PLAN OF MANAGEMENT**

**National Parks and Wildlife Service**

**Part of the Department of Environment and Conservation (NSW)**

**December 2005**

**This plan of management was adopted by the Minister for the Environment on 12 December 2005.**

### **Acknowledgments**

This plan of management is based on a draft plan prepared by John Gwalter, Kim Luckie and the staff of the Mid North Coast Region of NPWS.

Valuable information and comments were provided by, Northern Directorate Planning Staff, the Mid North Coast Regional Advisory Committee and members of the public.

Inquiries about this draft plan of management for Boorganna Nature Reserve should be directed to the NPWS Mid North Coast Regional Office, 152 Horton St, Port Macquarie or by telephone on (02) 6586 8300.

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## FOREWORD

Boorganna Nature Reserve covers 390 hectares and is located on the western edge of the Comboyne Plateau, approximately 35km southwest of Wauchope, 32km north of Taree and 6km west of the township of Comboyne.

The reserve was declared for the Preservation of Native Flora and Public Recreation in 1904, just over 100 years ago. In 1954 the reserve was dedicated as the second Faunal Reserve in NSW, and in 1967 it was renamed Boorganna Nature Reserve.

Vegetation communities in the reserve include subtropical, warm temperate, gully and dry rainforest, as well as wet and dry sclerophyll forests. Nine significant plant species have been recorded in the reserve. Seven threatened animal species have been recorded in the reserve and a further eight species are predicted to occur.

The reserve is popular for picnics, bush walking and bird watching. The majority of visitor use occurs in the eastern section of the reserve where there is a shelter shed, picnic tables and toilets. A 2.7km walking track leads from the picnic area to the base of Rawson Falls. The reserve also has had a long history as an educational resource and regularly receives visits from students.

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

A draft plan of management for Boorganna Nature Reserve was placed on public exhibition from 23 April until 2 August 2004. The exhibition of the draft plan attracted 10 submissions which raised 4 issues. All submissions received were carefully considered before adopting this plan.

This plan of management establishes the scheme of operations for Boorganna 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**

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# 1 MANAGEMENT CONTEXT

## 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 *Threatened Species Conservation Act 1995* (TSC Act), and policies of the NSW 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* (EPA 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 Boorganna Nature Reserve except in accordance with the plan. This plan applies both to the land currently reserved as Boorganna Nature Reserve and to any future additions to the 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 MANAGEMENT PURPOSES AND PRINCIPLES

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 (Section 30J).

### **1.3 MANAGEMENT DIRECTIONS**

#### **Specific management directions for Boorganna Nature Reserve:**

- conserve native vegetation including regionally significant species, rainforest, riparian and sclerophyll communities;
- conserve the diverse native fauna including the seven threatened species recorded in the reserve;
- manage the Aboriginal heritage of the reserve in consultation with the Biripi people, the Purfleet-Taree Local Aboriginal Land Council, and relevant Elders groups;
- preserve and promote historic heritage including relics from past timber harvesting and early track construction techniques;
- provide a low-key recreation setting for nature based visitor use which have minimal impact on the environment;
- control and where possible eliminate pest species in the reserve in consultation with relevant authorities and neighbouring landholders;
- encourage the retention and appropriate management of native vegetation bordering the reserve;
- provide educational material on the natural and cultural heritage values of the reserve; and
- encourage opportunities for research, especially on native vegetation, animals and pest species.

## 2 BOORGANNA NATURE RESERVE

### 2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Boorganna Nature Reserve (referred to hereafter as “the reserve”) is located on the western edge of the Comboyne Plateau, approximately 35km southwest of Wauchope, 32km north of Taree and 6km west of the township of Comboyne. The reserve is a remnant of the former extensive rainforest of the Comboyne Plateau. The area was reserved for the Preservation of Native Flora and Public Recreation on 12 March 1904. In 1954, the reserve was dedicated as the second Faunal Reserve in NSW under the *Fauna Protection Act 1948*. The faunal reserve was gazetted as a nature reserve in 1967 and covers 390 hectares.

Surrounding landuse is primarily grazing of dairy cattle. Most of the plateau lands adjoining the reserve have been cleared, except for the steep northern and western sides of Mumfords Creek.

The reserve is in the Hastings Local Government Area and the Purfleet-Taree Local Aboriginal Land Council Area.

### 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 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. The reserve was logged for rainforest and other native hardwood species, however the steep topography prevented total clearing.

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 VALUES**

### **2.3.1 Landform, Geology and Soils**

Elevations in the reserve range from 360m to 732m above sea level with steep to precipitous side slopes. Dominating the landscape is Mumfords Creek which runs along the northern boundary and occupies a steep gully exceeding 300m in depth below Rawson Falls.

The eastern section of the reserve consists of moist sheltered land that falls from the edge of the Comboyne Plateau to Mumfords Creek. The higher south-eastern elevations of the reserve are of Tertiary basalt rock forming deep red fertile soils which support sub-tropical rainforest. Further down the slope the soil is derived from the underlying Permian sedimentary rocks, enriched by the basalt soils. The slopes here are steeper and the soils shallower and warm temperate rainforest occurs. The small alluvial arcs along Mumfords Creek are enriched by sediments from upstream and occasionally support sub-tropical rainforest. By contrast the southern slope in this eastern section is sedimentary rock and, having a drier aspect (north facing), supports wet sclerophyll forest. The geological layers making up the reserve can be observed from the viewing platform beside Rawson Falls. This area of the reserve also contains examples of plunge pools and basalt flows.

The western section of the reserve follows the dry southern slopes of Mumfords Creek and has eroded to form many areas of shallow soil, rock outcrops and cliffs. Although the underlying Permian rocks are shown on geological maps as pebbly mudstone, conglomerate siltstone and shale of the Giro beds, outcrops of serpentine can also be seen (Department of Mineral Resources, 1987). The complex geology is reflected in the occurrence of knife-edge ridges, isolated resistant hills in the main valley, and deep gullies slicing back into the main range. Slumps and landslips occasionally occur due to the steep slopes and the basalt soils.

### **2.3.2 Catchment Values**

The reserve receives an average annual rainfall of 1930mm (Bureau of Meteorology, 2001) with the predominant rainfall during summer. A large part of the Comboyne plateau drains into Mumfords Creek, which flows into Ellenborough River 5km below Ellenborough Falls. The Ellenborough Falls are located approximately 25kms west of the reserve.

### **2.3.3 Native Plants**

The vegetation of the reserve is complex due to the varying soil types and aspect. The reserve contains representations of subtropical rainforest in the northeast, gully and warm temperate rainforest near streams and Rawson Falls, dry rainforest on the lower slopes. Wet and dry sclerophyll forests are also present on some of the upper slopes and ridges.

The vegetation is divided into 11 forest associations (Floyd 1976), which may be simplified by grouping into six forest types. Each type is distinguished by the species present and other factors such as the spacing and height of the trees, the presence



or absence of vines, ferns or shrubs and the amount of light penetrating through the forest canopy. The six forest types and main species present are:

**Sub-tropical rainforest:** The sub-tropical rainforest in the north-eastern section of the reserve contains rosewood (*Dysoxylon fraserianum*), black booyong (*Heritiera actinophylla*), red carabeen (*Geissois benthamiana*), figs (*Ficus sp.*) and stinging trees (*Dendrocnide excelsa*).

**Warm temperate rainforest:** The major trees are coachwood (*Ceratopetalum apetalum*), sassafras (*Cinnamomum oliveri*) and the occasional brush box (*Lophostemon confertus*). Along Mumfords Creek the dominant species is watergum (*Tristaniopsis laurina*).

**Gully rainforest:** This type of rainforest occurs below the cascades in very narrow steep sided gullies. This rainforest is a mixture of the preceding two groups. It is common in many coastal gullies on the North Coast. It is characterised by the association of bangalow palm (*Archontophoenix cunninghamiana*), whalebone (*Streblus brunonianus*), straw-tree fern (*Cyathea cooperi*) and the frequency of midginbil or walking stick palm (*Linospadix monostachya*).

**Dry rainforest:** This group is common on northerly aspects or on the exposed tops of falls where the soils are shallow. The key species are grey myrtle (*Backhousia myrtifolia*) and shatterwood (*Backhousia sciadophora*).

**Wet sclerophyll forest:** This forest of blue gum (*Eucalyptus saligna*) brush box, tallowwood (*E. microcorys*) and New England blackbutt (*E. campanulata*) is common on the more moist sections south of Mumfords Creek.

**Dry sclerophyll forest:** This forest of New England blackbutt and black she-oak (*Allocasuarina littoralis*) occupies the dry stony ridges and north facing slopes south of Mumfords Creek in the western section of the reserve.

In 1976, the reserve was surveyed for plant species (Floyd, 1976), and to date nine significant plant species have been recorded in the reserve as shown in Table 1. A total of 36 different fern species have also been found in the reserve (Society for Growing Australian Plants, 1991).

**Table 1** Significant plants recorded in the reserve

Common name	Scientific name	Significance
red carabeen	<i>Geissois benthamii</i>	southern limit
turnip wood	<i>Akania bidwillii</i>	southern limit
sour cherry	<i>Syzygium corynanthum</i>	southern limit
purple cherry	<i>Syzygium crebrinerve</i>	southern limit
Macleay laurel	<i>Anopterus macleayanus</i>	southern limit
honey bush	<i>Cuttsia viburnea</i>	southern limit
golden ash	<i>Hodgkinsonia ovatiflora</i>	southern limit
steelwood	<i>Sarcopteryx stipata</i>	southern limit
	<i>Pothos longipes</i>	southern limit

Models developed as part of the comprehensive regional assessment process have also predicted a number of significant plant species in the reserve (refer to table 2).

**Table 2** Significant plant species predicted for the reserve

Common name	Scientific name	Significance
Craven grey box	<i>Eucalyptus largeana</i>	ROTAP
	<i>Boronia chartacea</i>	ROTAP
ravine orchid	<i>Sarcochilus fitzgeraldii</i>	Vulnerable *
	<i>Calistemon acuminatus</i>	ROTAP

\* also listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*  
ROTAP - Rare or Threatened Australian Plant (Briggs and Leigh, 1996)

### 2.3.4 Native Animals

A fauna survey undertaken in the reserve in April 2003 (Bischoff, 2003) recorded four previously unrecorded species for the reserve making a total of seven threatened species known to occur within the reserve (refer to Table 3).

**Table 3** Threatened species recorded in the reserve

Common name	Scientific name	Significance
spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable
yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable
glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable
masked owl	<i>Tyto novaehollandiae</i>	Vulnerable
sooty owl	<i>Tyto tenebricosa</i>	Vulnerable
wompoo fruit-dove	<i>Ptilinopus magnificus</i>	Vulnerable
sphagnum frog	<i>Philoria sphagnicolus</i>	Vulnerable

**Source:** Atlas of NSW Wildlife, and Bischoff (2003)

A total of 38 bird species have been recorded in the reserve, including two vulnerable forest owls (Bischoff, 2003). In addition to the threatened species recorded, a number of bird species uncommon to the region were recorded including: topknot pigeon (*Lopholaimus antarcticus*), bassian thrush (*Zoothera lunulata*), rose robin (*Petroica rosea*) and yellow-throated scrubwren (*Sericornis citreogularis*). It is believed that these species are declining in number due to habitat modification in the surrounding areas (Tony Bischoff *pers.obs*).

In addition to the species recorded, the reserve was modelled during the comprehensive regional assessment process as providing suitable habitat for eight species listed as vulnerable on the TSC Act (refer to Table 4, page 7).

The reserve forms a part of the Tapin Tops/Killabakh regional wildlife corridor (Scotts, 2003) which allows for the movement of fauna, including five vulnerable species: yellow-bellied glider (*Petaurus australis*), long nosed potoroo (*Potorous tridactylus*), parma wallaby (*Macropus parma*), rufous scrub bird (*Atrichornis rufescens*) and Stephen's banded snake (*Hopoecephalus stephensii*).

**Table 4** Significant animals predicted to occur within the reserve

Common name	Scientific name	Significance
<b>Mammals</b>		
koala	<i>Phascolarctos cinereus</i>	Vulnerable <sup>r</sup>
long-nosed potoroo	<i>Potorous tridactylus</i>	Vulnerable *
parma wallaby	<i>Macropus parma</i>	Vulnerable <sup>r</sup>
eastern freetail-bat	<i>Mormopterus norfolkensis</i>	Vulnerable <sup>r</sup>
golden-tipped bat	<i>Kerivoula papuensis</i>	Vulnerable
<b>Amphibians</b>		
stuttering frog	<i>Mixophyes balbus</i>	Vulnerable
green-thighed frog	<i>Litoria brevipalmata</i>	Vulnerable
glandular frog	<i>Litoria subglandulosa</i>	Vulnerable

<sup>r</sup> recovery plan in preparation

\* also listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*

### 2.3.5 Aboriginal Heritage

Aboriginal communities have an association and sense of ownership of 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 Purfleet-Taree Local Aboriginal Land Council and the Biripi people represent the contemporary Aboriginal involvement in the reserve. Prior to European occupation, the rainforest in the reserve would have extended over much of the Comboyne Plateau.

The Biripi people are known to have used rainforests such as those found in the reserve, for a variety of cultural purposes such as the gathering of plants and animals for food and medicinal purposes. There are no recorded Aboriginal sites in the reserve.

### 2.3.6 History since European Occupation

The eastern part of the nature reserve, where the visitor facilities are now situated, was declared a reserve for the Preservation of Native Flora and Public Recreation on 12 March 1904. The majority of the western part of the nature reserve was declared a reserve for the Preservation of Native Flora and Fauna in 1936. In 1954 the western area was dedicated as a faunal reserve under the *Fauna Protection Act 1948*. It was the second faunal reserve established in NSW (after Little Broughton Island Nature Reserve near Nelson Bay) (Faunal Protection Panel, 1964). In 1962 the eastern section was added to the faunal reserve, and in 1967 the faunal reserve was dedicated as Boorganna Nature Reserve under the *National Parks and Wildlife Act 1967*.

There are three historic sites listed on the NPWS historic register in the reserve, including two registered timber industry relics and the nature reserve itself. There are also a number of tree stumps in the reserve with springboard notches from early timber harvesting operations. The Boorganna Walking Track (see map) partly follows an old snig track which was used as a haulage route for red cedar (*Toona ciliata*), brush box, tallowwood and other tree species. The foot track has many sections of hand stacked rock walls that typify early track construction in steep terrain.

### 2.3.7 Visitor Use

The reserve is popular for picnics, bush walking and bird watching. The majority of visitor use occurs in the eastern section of the reserve where there are picnic facilities (four picnic tables, a shelter shed and toilet), a walking track, lookout platform and interpretation signs.

The 2.7km Boorganna Walking Track leads from the day use area to the base of Rawson Falls. A viewing platform is located approximately 1.7km along the track and provides views to Rawson Falls. There are interpretive signs along the track and the walk takes approximately 1½ hours for the return trip.

The reserve has had a long history as an educational resource and regularly receives visits from TAFE students, schools and the University of the Third Age (U3A).

Vehicle access to the reserve is along a gravel road off Innes View Road (see map). Carparking facilities are provided near the picnic area. There are no park roads or management trails in the reserve. The western section of the reserve has no walking tracks or facilities.

## 2.4 THREATS TO THE RESERVE'S VALUES

### 2.4.1 Pest Plants

The reserve has relatively few pest plant species. Species of concern that are or may be present in small numbers include small-leaved privet (*Ligustrum sinense*), large-leaved privet (*Ligustrum lucidum*) camphor laurel (*Cinnamomum camphora*), lantana (*Lantana camara*), blackberry (*Rubus fruticosus*) and crofton weed (*Ageratina adenophora*). Blackberry, lantana (red flowering) and crofton weed are declared noxious weeds in the Hastings local government area.

There are a few occurrences of bushland and aquatic weeds at the base of Rawson Falls and along the walking track. Other weeds present in the reserve are occasionally found in previously disturbed areas and along the reserve boundary. In 1995, a major landslip cleared an area of about 2ha in the south eastern part of the reserve which allowed weed invasion. This area has been subject to weed control programs and is regenerating well with pioneer species such as celerywood (*Polyscias elegans*), brush box and native tamarind (*Diploglottis australis*).

### 2.4.2 Pest Animals

Pest animal species known to occur in the reserve include the fox (*Vulpes vulpes*) and black rat (*Rattus rattus*). Other pest animals predicted to occur in the reserve include wild dog (*Canis familiaris*), feral deer (*Axis sp. and Cervus sp.*), feral goat (*Capra hirtus*), feral cat (*Felix domesticus*) and rabbit (*Oryctolagus cuniculus*). Predation by the feral cat and the fox are both listed as threatening processes to native animals under the TSC Act and the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The NSW Threat Abatement Plan for the fox (NPWS, 2001) has recently been prepared and any fox control programs in the reserve will be guided by this document.

### 2.4.3 Fire

Fire is a natural feature of many environments and is essential to the survival of some plant communities. Inappropriate fire regimes, however, can lead to loss of particular plant and animal species and communities. Fire can also damage cultural heritage, recreation and management facilities and can threaten visitors and neighbouring land.

In January 1985, a wildfire burnt approximately 142ha of the south-western part of the reserve. The fire originated 1km to the south of the reserve and burned in the dry and moist sclerophyll forest. There have been no further fires in the reserve since this time. It is reported that fire occurred in drier parts of the reserve in 1966/67 and 1957/58 (I. Gardner 2002 *pers comm.*). There is no early fire history available for the reserve.

The reserve is covered by the Hastings Council Bush Fire Risk Management Plan prepared under the *Rural Fires Act 1997*. The Hastings Council Bush Fire Risk Management Plan has identified the reserve as having a low risk to private property assets outside the reserve.

The NPWS considers that it is appropriate to include the specific fire management strategies for the reserve in this plan of management because there is a very low level of fire risk to life, property and biodiversity, and the reserve requires minimal fire-related activities. There are no management trails in the reserve and fire related operations will normally take place outside of the reserve.

The NPWS approach to fire management planning uses a system of zones which are compatible with district bushfire risk management plans. NPWS has assessed the reserve for fire management planning purposes and has zoned the reserve as a Land (Heritage Area) Management Zone (HAMZ). The primary fire management objectives for this zone are to prevent the extinction of all species that are known to occur naturally within the reserve, and to protect culturally significant sites. The reserve has been designated as a HAMZ because of the sensitivity of rainforest vegetation.

The HAMZ focuses on those actions appropriate to conserve biodiversity and cultural heritage including exclusion of fire from rainforest and wet sclerophyll vegetation (see Map 2). Management of fire regimes for the vegetation communities depicted in Map 2 will be in accordance with fire regime guidelines identified in Table 5.

**Table 5: Fire Regime Guidelines**

<b>Vegetation type</b>	<b>Minimum interval</b>	<b>Maximum interval</b>	<b>Notes</b>
Rainforest	n/a	n/a	Exclude all fire
Wet sclerophyll forest	25	60	Crown fires should be excluded in the lower end of the range
Shrubby dry sclerophyll forest	7	30	

Source: Bradstock *et al* (2003).

NPWS maintains cooperative arrangements with surrounding landowners and Rural Fire Service brigades and is actively involved in the Hastings District Bush Fire Management Committee. Cooperative arrangements include fuel management, support for neighbours fire management efforts and information sharing.

#### **2.4.4 Isolation and Fragmentation**

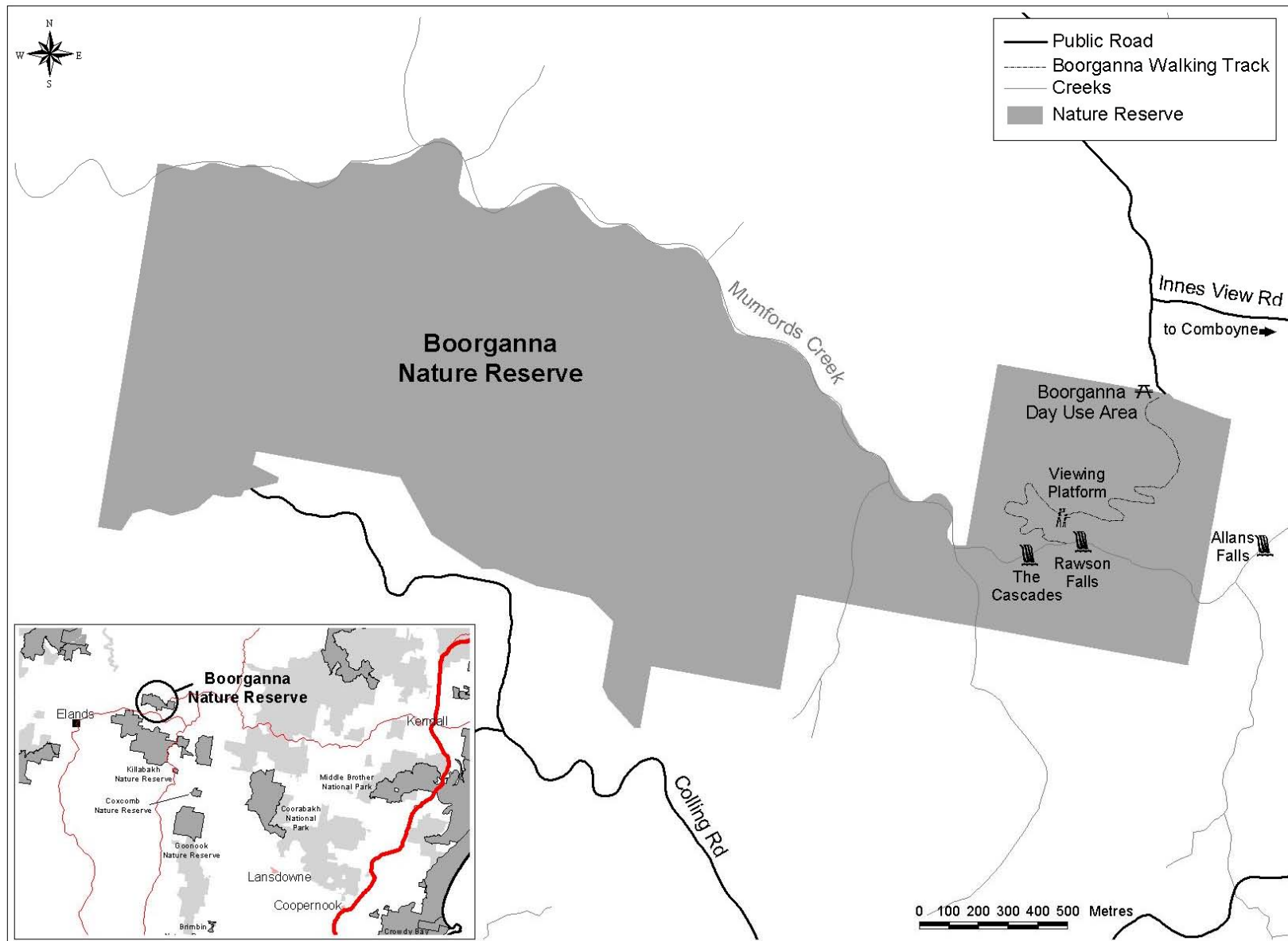
Most of the plateau lands adjoining the reserve have been cleared for grazing and this has resulted in a loss of biodiversity and fragmentation of habitat. The long-term conservation of biodiversity of the reserve will be enhanced by the protection, enhancement and connection of remaining habitat across the landscape involving vegetation remnants on both public and private lands.

Due to the small size of the reserve, it is important 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.

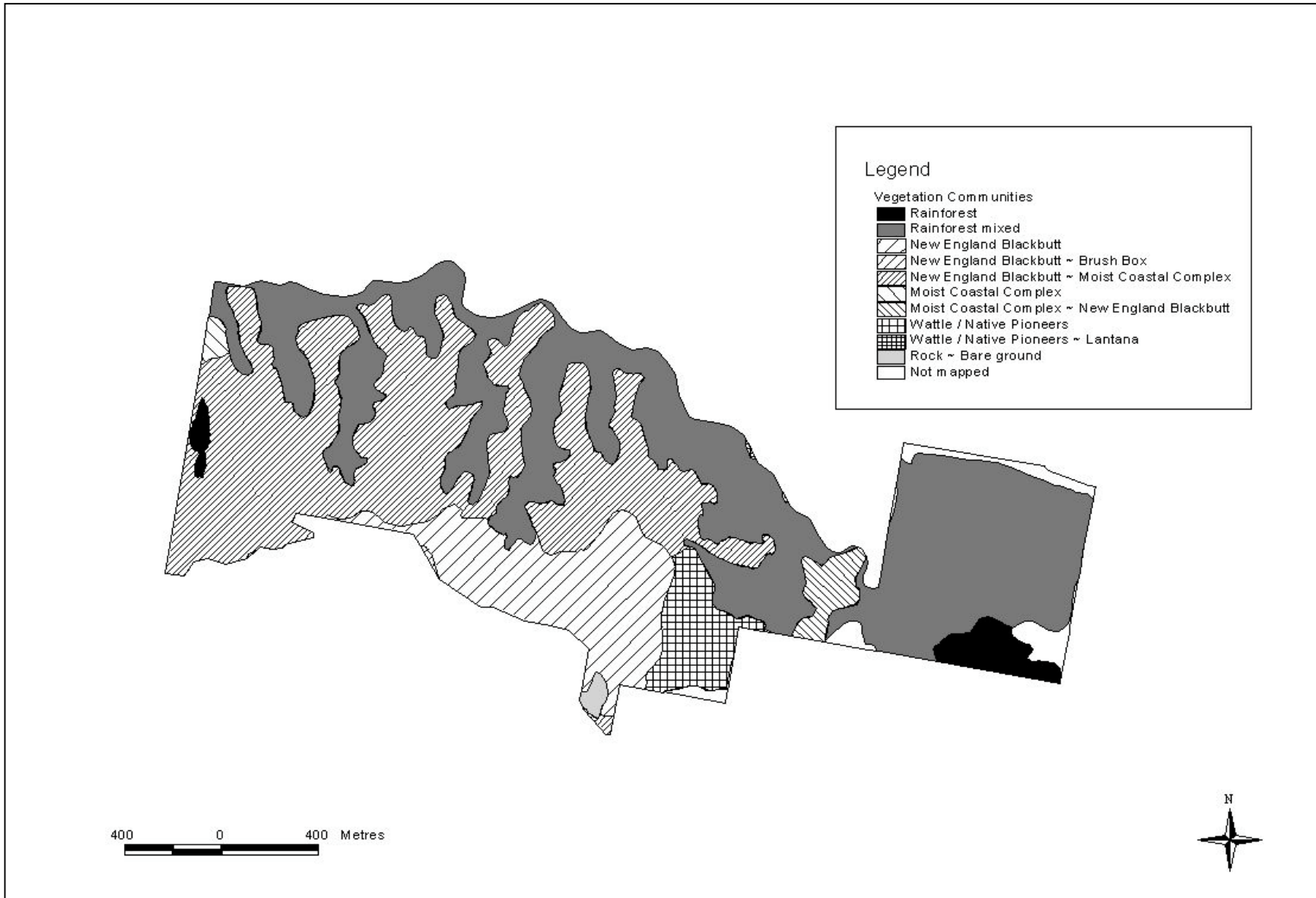
## **2.5 MANAGEMENT OPERATIONS**

There are no park roads or management trails in the reserve. The gravelled Crown road reserve (off Innes View Road) that leads to the reserve is administered by the Department of Lands. NPWS currently undertakes road maintenance on this road which is the only public access road to the reserve.

### MAP 1: THE RESERVE



**MAP 2: VEGETATION COMMUNITIES IN BOORGANNA NATURE RESERVE**





### 3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p><b>Soil and water conservation</b></p> <p>There are currently no major problems with erosion or water quality, though the soils are occasionally prone to slumping.</p> <p>There has been a landslip in the south-eastern section of the reserve that needs to be monitored.</p>	<ul style="list-style-type: none"> <li>• Soil erosion is minimised.</li> <li>• Water quality and health of reserve streams is maintained.</li> <li>• Landslips and slumps are revegetated with native species.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake all works in a manner that minimises erosion and water pollution.</li> <li>• Continue to monitor the existing landslip area.</li> <li>• Revegetate landslips and slumps with native species to minimise erosion where necessary.</li> </ul>	<p>High</p> <p>Medium</p> <p>Medium</p>
<p><b>Native plant and animal conservation</b></p> <p>Vegetation communities in the reserve include subtropical, warm temperate, gully and dry rainforest, as well as wet and dry sclerophyll forests. Nine significant plant species have been recorded in the reserve. There are no known threatened plants in the reserve.</p> <p>There are seven threatened animal species recorded in the reserve. A further eight species are predicted to occur.</p> <p>Long term conservation of the reserve's plant and animal species would benefit from the retention of remaining vegetation on neighbouring properties.</p>	<ul style="list-style-type: none"> <li>• Native plant and animal species, and communities are conserved.</li> <li>• Improved knowledge of threatened and significant plants and animals and their ecology and habitat requirements.</li> <li>• Retention of key habitat and corridors in the vicinity of the reserve that link to other remnant areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement measures included in recovery plans for threatened species that are relevant to the reserve.</li> <li>• Liaise with relevant neighbours to encourage the retention of key habitat and corridors in the vicinity of the reserve and to identify potential wildlife/habitat corridors to link to other remnant areas.</li> <li>• Investigate the possibility of adding the reserve to the World Heritage listing of the Central Eastern Rainforest Reserves of Australia</li> <li>• Encourage native plant researchers to compile a collection on the native plants in the reserve.</li> </ul>	<p>High</p> <p>High</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
		<ul style="list-style-type: none"> <li>• Encourage and assist the development of voluntary conservation agreements for protection of conservation values on surrounding properties. Priority areas include corridors linking the reserve to Killabakh Nature Reserve and along Mumfords Creek.</li> <li>• Encourage research into the ecological requirements of significant species in the reserve.</li> <li>• Encourage surveys of native animals. In particular surveys will focus on reptiles, amphibians and bats.</li> </ul>	<p>Medium</p> <p>Medium</p> <p>Low</p>
<p><b>Cultural heritage</b></p> <p>The reserve lies within the Purfleet-Taree Local Aboriginal Land Council Area. There are no recorded Aboriginal objects or places.</p> <p>The reserve was declared a Reservation of Native Flora and Public Recreation on 12 March 1904. The centenary of the reserve was in March 2004.</p> <p>The reserve was gazetted as a faunal reserve in 1954 and it is the second oldest nature reserve in NSW.</p> <p>There are two recorded timber industry relics in the reserve.</p>	<ul style="list-style-type: none"> <li>• Aboriginal people are involved in management of the Aboriginal cultural values in the reserve.</li> <li>• Cultural features and values are identified, recorded and appropriately conserved and managed.</li> <li>• The community and other relevant persons are involved in the consultation and preservation of cultural heritage sites and information.</li> </ul>	<ul style="list-style-type: none"> <li>• Protect and manage Aboriginal heritage in consultation with the Purfleet-Taree Local Aboriginal Land Council, the Biripi people and other relevant Aboriginal community organisations.</li> <li>• Encourage research and studies into the Aboriginal heritage values of the reserve in consultation with the Purfleet-Taree Local Aboriginal Land Council, Elders and the Biripi community.</li> <li>• Promote the reserve as the second oldest nature reserve in NSW.</li> <li>• Provide interpretation material on the historical features in the reserve.</li> </ul>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>The walking track contains examples of early track construction using hand stacked rock walls in steep terrain.</p>		<ul style="list-style-type: none"> <li>Maintain the existing foot track using materials and reconstruction methods sympathetic with the original track design.</li> </ul>	High
<p><b>Visitor Use</b></p> <p>The reserve is a popular day use destination, although actual visitor numbers are unknown. Facilities include a shelter shed, picnic tables, toilets, walking track and viewing platform. No barbecues or rubbish bins are provided.</p> <p>The walking track is occasionally in need of repair due to erosion and loose rocks.</p> <p>Some interpretation signs in the reserve are damaged and are in need of upgrading.</p> <p>The reserve has a long history as an educational resource for the study of rainforest communities.</p>	<ul style="list-style-type: none"> <li>The reserve provides opportunities for day visitor use that is nature based with minimal impact on natural and cultural heritage values.</li> <li>Use of the day use area does not encroach on the surrounding rainforest.</li> <li>Walking tracks and facilities are maintained to a suitable standard and provide opportunities not available elsewhere in the area.</li> <li>The community is educated on the significance of the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain the existing walking track and viewing platform. Repair sections of the track, particularly corners and step treads, as required.</li> <li>Develop and implement improved interpretation for the reserve which includes:               <ol style="list-style-type: none"> <li>Upgrading of the interpretation display at the shelter shed;</li> <li>Upgrading the signs along the walking track and;</li> <li>New signs about the conservation values, public safety and protection of the reserve.</li> </ol> </li> <li>Prepare an educational kit on the significance of the reserve to be available for schools and education institutions.</li> <li>Camping will not be permitted in the reserve. Fuel stoves only will be permitted and rubbish bins will not be provided.</li> <li>Install a traffic counter to monitor visitor numbers in the reserve.</li> </ul>	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p>
<p><b>Pest species</b></p>			

Current Situation	Desired Outcomes	Strategies	Priority
<p>The Regional Pest Management Strategy identifies pest species in the region, priorities for control and suggested control methods. There is currently no Pest Management Strategy for the reserve.</p> <p>There are no recorded noxious plants, though blackberry and lantana are predicted to occur in some limited areas.</p> <p>Foxes wild dog, feral deer, cat, and goat have been recorded on the Comboyne Plateau and are predicted to occur in the reserve.</p> <p>In 1995, a major landslip occurred in the reserve that cleared approximately 2ha. The area is revegetating with native species, though is threatened occasionally by weed species. A weeding and monitoring program continues in this area.</p>	<ul style="list-style-type: none"> <li>• The impact of pest species on the reserve and neighbouring lands is minimised.</li> <li>• The impact of pest species on native species and the environment is minimised.</li> <li>• Improve knowledge of pest species and their impact on the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake pest plant and animal control and bush regeneration works in accordance with the Regional Pest Management Strategy and relevant Threat Abatement Plans.</li> <li>• Prepare a pest management strategy for the reserve, which prioritises control programs for the management of weeds and feral animals.</li> <li>• Liaise with Kempsey Rural Lands Protection Board (RLPB), neighbouring landholders, Hastings Council, and SFNSW to encourage the control of environmental weeds and pest animals on surrounding lands.</li> <li>• Continue to weed and monitor the existing and any future landslips for weed invasion, and regenerate with native species if necessary (refer to <i>Soil and Water Conservation</i>).</li> <li>• As required, undertake priority weed control work in the reserve and regenerate with native species when funds permit.</li> </ul>	<p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>
<p><b>Fire management</b></p> <p>There are no early fire records. The last fire in the reserve occurred in the south western section of the reserve in January 1985.</p> <p>The reserve has been designated as a</p>	<ul style="list-style-type: none"> <li>• Fire frequencies are appropriate for conservation of native plant and animal communities.</li> <li>• Fire is excluded from</li> </ul>	<ul style="list-style-type: none"> <li>• Manage the reserve as a Land (Heritage Area) Management Zone (HAMZ) where fire is managed to protect biodiversity in accordance with the identified fire frequency thresholds for vegetation communities and any fire sensitive communities (refer Table 5 &amp; see Map 2).</li> <li>• Exclude fire from rainforest and riparian</li> </ul>	<p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>HAMZ because of the sensitivity of rainforest and riparian vegetation.</p> <p>There are few assets at risk within the reserve. The Hastings Bush Fire Risk Management Plan has identified the Reserve as having a low risk to private property assets outside the reserve.</p> <p>Hazard reduction burning may be required in some areas if heavy fuel loads accumulate.</p>	<p>rainforest and riparian communities.</p> <ul style="list-style-type: none"> <li>Life, property including adjoining dwellings and infrastructure are protected from fire.</li> </ul>	<p>communities.</p> <ul style="list-style-type: none"> <li>Continue to participate in Hastings District Bush Fire Management Committee. Maintain cooperative arrangements with the Rural Fire Service Brigades, Hastings Council, SFNSW and surrounding landholders with regard to fuel management and fire suppression.</li> <li>Prescribed burning may be undertaken in some sections of the reserve to maintain ecological values and the requirements for the protection of threatened species if research indicates it is necessary.</li> </ul>	<p>High</p> <p>High</p>
<p><b>Research</b></p> <p>Further information is needed to improve the understanding of the reserve's natural and cultural heritage values.</p>	<ul style="list-style-type: none"> <li>Research enhances the information base and assists management of the reserve.</li> </ul>	<ul style="list-style-type: none"> <li>Encourage research that improves knowledge and management of natural and cultural heritage.</li> </ul>	<p>Medium</p>
<p><b>Management operations</b></p> <p>The road off Innes View Road is a Crown road reserve administered by Department of Lands. NPWS undertakes maintenance of the road. There is a strip of cleared land on either side of the road within the road reserve. It would be beneficial for this land to be revegetated to link with the reserve.</p>	<ul style="list-style-type: none"> <li>The reserve remains free of management facilities, including management trails.</li> <li>Domestic animals are not found in the reserve.</li> <li>Visitors are able to</li> </ul>	<ul style="list-style-type: none"> <li>Maintain the road and monitor its use. If required, upgrade the road to a hardened surface.</li> <li>In consultation with Department of Lands and local Landcare groups, revegetate the sides of the road reserve.</li> <li>No management facilities will be constructed in the reserve.</li> <li>Remove the garbage pit and water tank from</li> </ul>	<p>Medium</p> <p>Medium</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>There are no management facilities in the reserve and none are seen as necessary at this time.</p> <p>There is a garbage pit in the day use area, which detracts from the conservation values of the reserve.</p> <p>The water tank in the day use area occasionally may be polluted and is a risk to public safety.</p> <p>Dismantled sections of the old viewing platform are stacked beside the new platform.</p> <p>Occasionally cattle stray in to the reserve due to damaged fences.</p> <p>Domestic dogs are sometimes seen in the reserve.</p> <p>Directional signs for the reserve at Comboyne Village are inadequate.</p>	<p>locate the reserve.</p>	<p>the reserve and rehabilitate these areas. Install signs encouraging visitors to take their rubbish with them.</p> <ul style="list-style-type: none"> <li>• Remove the dismantled sections of the old viewing platform.</li> <li>• In consultation with neighbouring landholders, maintain fences particularly along northern boundary and the road to the reserve.</li> <li>• Provide signs to indicate that domestic animals are prohibited in the reserve, and undertake law enforcement if required.</li> <li>• In consultation with Hastings Council and Comboyne Progress/Tourist Association, install directional signs to the reserve in Comboyne and the surrounds.</li> </ul>	<p>High</p> <p>High</p> <p>High</p> <p>Medium</p>

### Legend for 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.

#### 4. REFERENCES

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## 5. GLOSSARY

### ACRONYMS USED

NPW Act	NSW <i>National Parks and Wildlife Act</i> (1974)
NPWS	NSW National Parks and Wildlife Service
TSC Act	NSW <i>Threatened Species Conservation Act</i> (1995)
RLPB	Rural Lands Protection Board

### SELECTED DEFINITIONS

**Biodiversity** Biological diversity, namely the variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem

#### Cultural heritage

Encompasses past and present cultural associations of all people in Australia, including tradition, knowledge and customs. It can be tangible (i.e. have physical manifestations in the form of art, buildings etc.) or intangible (i.e. spiritual or social associations, songs, stories and cultural practices). Cultural significance includes values that are social, spiritual, aesthetic, historic and scientific. When natural resources acquire meaning for a particular group, they become cultural resources as well.

**Fauna** Any mammal, bird, reptile or amphibian. NPWS has responsibility for the conservation of fauna. Note this definition excludes fish or invertebrates.

#### Fire management

Includes all activity associated with the use and control of fire in bushland designed to achieve stated objectives for the protection of life and property, and the maintenance of wildlife communities.

#### Pest species

A species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities. Also known as exotic, introduced or alien species.

#### Policy

A statement of attitude and courses of action, directed toward the attainment of NPWS corporate goals and/or objectives.

#### Recovery plan

A document prepared under the TSC Act, which identifies the actions to be taken to promote the recovery of a threatened species, or endangered population or ecological community.

#### Threat abatement plans

A document prepared under the TSC Act, which identifies: actions to manage a key threatening process; how these actions will be monitored; which authority is responsible and possible cost and timetable for implementing the plan.