

**MOUNT SEAVIEW, JASPER AND KOOREBANG  
NATURE RESERVES**

**PLAN OF MANAGEMENT**

**NSW National Parks and Wildlife Service**

**February 2004**

**This plan of management was adopted by the Minister for the Environment on 10 February 2004.**

**Acknowledgments**

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## FOREWORD

Mount Seaview, Jasper and Koorebang Nature Reserves are located in the Hastings Valley approximately 60-70 km west of Port Macquarie on the Mid North Coast of New South Wales.

A total of 28 different forest ecosystems have been identified in the reserves, which is a very high number of communities relative to the total area of the reserves and indicates their outstanding value and the importance for the protection of biodiversity. Due to the relatively low levels of disturbance and generally low fire frequency, the vegetation in the reserves is considered to be in a condition similar to that when the Hastings Valley was first settled by Europeans.

Mount Seaview Nature Reserve is part of the Central Eastern Rainforest Reserves of Australia World Heritage Area, and part of the Mount Seaview Wilderness. Jasper Nature Reserve and Mount Seaview Nature Reserve are also listed on the National Estate for their natural heritage values.

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 Mount Seaview, Jasper and Koorebang Nature Reserves was placed on public exhibition for three months from 11<sup>th</sup> October 2002 until 3<sup>rd</sup> February 2003. The exhibition of the plan of management attracted 3 submissions which raised 4 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management provides for the protection of World Heritage and wilderness values of Mount Seaview Nature Reserve; protection of the high biodiversity values of the reserves including protection of threatened species, regionally uncommon orchids, and species at the southern limit of distribution; maintenance the reserves as part of a viable corridor; and provision of a low level of self-reliant visitor opportunities.

This plan of management establishes the scheme of operations for Mount Seaview, Jasper and Koorebang Nature Reserves. In accordance with section 76 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

**BOB DEBUS**  
**Minister for the Environment**

# 1 NATURE RESERVES IN NEW SOUTH WALES

## 1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in 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 and international agreements also apply to management of the nature reserves. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) requires the assessment and mitigation of environmental impacts of any works proposed in the nature reserves.

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.

### World Heritage

The International Convention for the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) provides a framework for international cooperation and the collective recognition of cultural and natural heritage of outstanding universal value. Under this convention Australia has obligations to ensure the identification, protection, conservation, presentation and rehabilitation of the World Heritage values of the area.

Mount Seaview Nature Reserve is part of the World Heritage listed Central Eastern Rainforest Reserves of Australia (CERRA), first accepted for listing in 1986.

The CERRA group of reserves meets the following criteria for World Heritage listing:

- outstanding examples representing the major stages of the earth's evolutionary history;
- outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment; and
- contain the most important and significant habitats where threatened species of plants and animals of outstanding universal value from the point of view of science and conservation still survive

Koorebang Nature Reserve has been identified as a potential future addition to the CERRA group of reserves (World Heritage CERRA Coordinating Committee, 2000).

This plan has been guided by the broader strategies for the management of the CERRA (CERRA 2000). It was also prepared having consideration to the Australian World Heritage Management Principles set out in the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

In accordance with Australia's obligations under the World Heritage Convention, the following management objectives apply to World Heritage listed parts of the reserves:

- strengthen appreciation and respect for the reserve's World Heritage values;
- integrate the reserve's protection into comprehensive planning programs;
- establish research to better understand threatening processes and the condition and management of the World Heritage values; and
- implement measures to identify, protect, conserve, present and rehabilitate World Heritage values so they can be transmitted to future generations. (CERRA 2000).

## **Wilderness**

Mount Seaview Nature Reserve is part of the declared Mount Seaview Wilderness which includes the adjoining Cottan-Bimbang National Park. Mount Seaview Nature Reserve will be managed in accordance with the following management principles under the *Wilderness Act 1987*:

- protection or, if applicable, restoration of the unmodified state of the area and its plant and animal communities;
- preservation of the capacity of the area to evolve in the absence of significant human interference; and
- provision of opportunities for solitude and appropriate self-reliant recreation.

## **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 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. In the past the area was regionally renowned for timber harvesting and mining. However only a small amount of logging and mining occurred in these reserves due to the very steep terrain.

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.

### **1.3 SPECIFIC OBJECTIVES FOR THE SEAVIEW GROUP**

In addition to the management objectives listed above, other specific objectives for the management of Mount Seaview, Jasper and Koorebang Nature Reserves include:

- identification, protection, conservation, presentation and where necessary, rehabilitation of World Heritage values;
- protection of the wilderness values of the Mount Seaview Wilderness;
- management of fire with the local community to protect the high biodiversity values of the 28 different forest ecosystems that have been identified in the reserves;
- protection of plant species, with emphasis on the regionally uncommon orchids: yellow rock orchid (*Liparis reflexa*), red rope orchid (*Bulbophyllum schillerianum*), and fairy tree orchid (*Liparis coelogynoides*); and three species at the southern limit of distribution including *Maytenus bilocularis*, *Pomaderris nitidula* and *Canthium vacciniifolium*;
- protection of the populations and habitat of native animals, including that of the endangered giant barred frog (*Mixophyes iteratus*);
- maintenance of a viable corridor for native plants and animals from the reserves to Cottan-Bimbang, Willi Willi and Oxley Wild Rivers National Parks;
- increased understanding of the natural and cultural heritage values of the Seaview Group of reserves, through scientific research and monitoring; and
- provision of a low level of self-reliant visitor opportunities.

## **2 MOUNT SEAVIEW, JASPER and KOOREBANG NATURE RESERVES**

This management plan applies to Mount Seaview, Jasper and Koorebang Nature Reserves (herein referred to as the reserves). These reserves are grouped under one plan due to their close proximity, similar natural and cultural values, and management issues and objectives.

### **2.1 LOCATION, GAZETTAL AND REGIONAL SETTING**

The reserves are located in the Hastings Valley approximately 60-70 km west of Port Macquarie on the Mid-north Coast of New South Wales (NSW) (see map). The nearest localities to the reserves are the village of Yarras to the south east and Long Flat to the east on the Oxley Highway.

Mount Seaview Nature Reserve is divided into two sections with a total area of approximately 1750 ha. The southern section is around 678 ha and is located in the top of the Tobins River catchment. The northern part of the reserve is located on the eastern face of Mount Seaview between Fenwicks and Cedar Creeks. The reserve was created in 1965 with additions in 1986 as an outcome of the NSW Government's Rainforest Decision.

Jasper Nature Reserve is located between Jasper Creek and the Hastings River and occupies an area of approximately 355 ha. The reserve was gazetted in June 1983.

Koorebang Nature Reserve is located to the north of Bitter Ground Creek, which flows east into the Forbes River. Formerly part of Mount Boss State Forest, the reserve is approximately 465 ha in area and was created in 1997.

The reserves area border a variety of land tenures. The two sections of Mount Seaview Nature Reserve share a common boundary with Cottan-Bimbang National Park to the west. A small section of Doyles River State Forest borders the southern portion of the reserve and private land lies to the north and east. Jasper and Koorebang Nature Reserves are surrounded by private land. The northern boundary of Koorebang Nature Reserve lies about 1km south of Werrikimbe National Park and is linked to the park by freehold land that supports rainforest and other forest communities.

The major land uses in the area are cattle grazing, timber harvesting and tourism.

The reserves are in the Hastings Local Government Area.

## **2.2 NATURAL AND CULTURAL HERITAGE**

### **2.2.1 Landform, Geology and Soils**

The reserves are located on prominent ridgelines in the upper catchment of the Hastings Valley. Mount Seaview Nature Reserve includes the eastern ridges and slopes associated with Mount Seaview. The Mount Seaview summit is a trigonometrical reserve administered by the Department of Land and Water Conservation (DLWC).

The elevation of the reserves ranges from 110m to 1112m. This large range in altitude over short distances results in very steep terrain, including exposed rock cliffs in Mount Seaview Nature Reserve. A large proportion of the reserves area is located on slopes over 30 degrees.

The reserves have a complex geology, comprising a mix of igneous (basalt and dolerite), sedimentary (slate and sandstone) and metasedimentary (jasper, chert and argillite) rocks (Myson 2001a-d). This complex geology has resulted in a wide range of minerals and soils. In general, the soils are fertile yet skeletal and prone to erosion.

### **2.2.2 Catchment values**

The reserves receive an average annual rainfall of 1650mm. Combined with the steep topography, this rainfall feeds a network of fast-flowing creeks, many of which are ephemeral. The relatively undisturbed catchment of the reserves provides high water quality to the creeks and rivers downstream of the reserves, providing quality habitat for animals including threatened frog species. All of these creeks and rivers flow into the Hastings River, one of the major rivers on the Mid North Coast of NSW and an important water source for the Hastings Valley and its communities.

### **2.2.3 Native Plants**

The wide range of altitudes, soils and aspects in the reserves has led to a high diversity of vegetation. The ridges with northerly aspects support dry sclerophyll vegetation while in the protected gullies with southerly aspects there is a range of wet forest types including rainforest. A total of 28 different forest ecosystems have been identified in the reserves. This is a very high number of communities relative to the total area of the reserves, indicating their outstanding value and the importance for the protection of biodiversity. As a comparison Cottan-Bimbang National Park contains 33 forest ecosystems and is eight times larger than the reserves' area. Due to the relatively low levels of disturbance and generally low fire frequency, the vegetation in the reserves is considered to be in a condition similar to that when the Hastings Valley was first settled by Europeans.

The large range in altitude results in a range of sclerophyll forest communities from coastal associations to higher altitude New England tablelands vegetation types. The reserves conserve several important communities, including examples of subtropical, temperate and dry rainforest all in close proximity to one another. Of particular note is the warm temperate rainforest at the head of Cedar Creek in which, due to the toxicity of the soils derived from the underlying serpentinite rocks, bonewood



(*Acradenia euodiiformis*) replaces the usually dominant coachwood (*Ceratopetalum apetalum*). Also of note is the small-leaved coffee tree (*Canthium vacciniifolium*), which has a well-established population in the dry rainforest communities of Mount Seaview and Jasper Nature Reserves. This species is only conserved within the reserves, and is at its southern limit of a disjunct distribution, making these populations important to conserve (Dodkin, 1981).

The less frequent fire regime in Mount Seaview Nature Reserve has led to a diverse sub canopy and ground cover in many of the sclerophyll forest communities. This is different to many reserves where frequent fire has led to the domination of sub canopies by blady grass (*Imperata cylindrica*) and other fire tolerant species. A good example of un-logged and unburned blackbutt (*Eucalyptus pilularis*) wet sclerophyll forest, with its transitions to rainforest, occurs in Mount Seaview Nature Reserve (Adam 1987).

Several hundred plant species have been recorded in the reserves, including *Maytenus bilocularis* and *Pomaderris nitidula* which are at their southern limit of distribution. Three orchids found in the reserves, the fairy tree orchid (*Liparis coelogyoides*), yellow rock orchid (*Liparis reflexa*) and the red rope orchid (*Bulbophyllum schillerianum*) are uncommon in the region.

Mount Seaview Nature Reserve's diversity in vegetation, particularly its rainforest types, has been recognised as being highly significant and resulted in the reserve's inclusion on the World Heritage list as part of CERRA. The Australian Heritage Commission listed Jasper Nature Reserve and Mount Seaview Nature Reserve on the National Estate for their natural heritage values.

#### **2.2.4 Native Animals**

The reserves support a diverse range of habitat niches and animal species. There are 177 vertebrate species recorded for Mount Seaview Nature Reserve. These records are mainly derived from surveys conducted in 1982 as well as opportunistic sightings by neighbours and visitors over the last 10 years. There has been no fauna surveys conducted in the other reserves.

Mount Seaview Nature Reserve, combined with the neighbouring Cottan-Bimbang National Park, forms part of a large and nearly continuous tract of relatively undisturbed forest extending along the plateau escarpment from Dorrigo to the Manning Valley. This habitat connectivity is particularly important for maintaining viable populations of threatened species (NPWS 2001). Nine species known to occur in Mount Seaview Nature Reserve are listed as threatened under the TSC Act (Table 1). The presence of these threatened species supported the inclusion of Mount Seaview Nature Reserve on the World Heritage list. Habitat mapping has identified the potential for a further eleven threatened animal species to occur in the reserve (Table 2).

Table 1. Threatened species known to occur in the reserves.

Common Name	Scientific Name	TSC Status
<b>Amphibians</b>		
*Giant Barred Frog	<i>Mixophyes iteratus</i>	Endangered
<b>Mammals</b>		
Golden-tipped Bat	<i>Kerivoula papuensis</i>	Vulnerable
Yellow-bellied Glider	<i>Petaurus australis</i>	Vulnerable
Koala	<i>Phascolarctos cinereus</i>	Vulnerable
*Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	Vulnerable
<b>Birds</b>		
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable
Masked Owl	<i>Tyto novaehollandiae</i>	Vulnerable
Wompoo Fruit-dove	<i>Ptilinopus magnificus</i>	Vulnerable
Olive Whistler	<i>Pachycephala olivacea</i>	Vulnerable

Table 2. Threatened species predicted to occur in the reserves.

Common Name	Scientific Name	TSC Status
<b>Amphibians</b>		
*Stuttering Frog	<i>Mixophyes balbus</i>	Vulnerable
<b>Reptiles</b>		
Stephen's Banded Snake	<i>Hoplocephalus stephensii</i>	Vulnerable
<b>Mammals</b>		
Parma Wallaby	<i>Macropus parma</i>	Vulnerable
Common Bent-wing bat	<i>Miniopterus schreibersii</i>	Vulnerable
Little Bent-wing bat	<i>Miniopterus australis</i>	Vulnerable
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable
<b>Birds</b>		
Powerful Owl	<i>Ninox strenua</i>	Vulnerable
Rose-crowned Fruit-dove	<i>Ptilinopus regina</i>	Vulnerable
Rufous Scrub-bird	<i>Atrichornis rufescens</i>	Vulnerable
Sooty Owl	<i>Tyto tenebricosa</i>	Vulnerable
Superb Fruit-dove	<i>Ptilinopus superbus</i>	Vulnerable

\* Listed under the Commonwealth's Environmental Protection and Biodiversity Act 1999.

Most of the species identified in Mount Seaview Nature Reserve are expected to occur in the other two reserves, particularly bird and bat species, due to their close proximity, habitat corridors between the reserves' sections and their similar habitats.

### 2.2.5 Aboriginal Heritage

Aboriginal communities have an association and connection to the land. The land and water biodiversity values within a landscape are central to Aboriginal spirituality and contribute to Aboriginal identity. Aboriginal communities associate natural resources with the use and enjoyment of foods and medicines, caring for the land, passing on cultural knowledge and strengthening social bonds. Aboriginal heritage and nature are inseparable from each other and need to be managed in an integrated manner across the landscape.

The reserves lie within the area of the Birpai Local Aboriginal Land Council. The main tribal group associated with the area is the Birpai Aboriginal people, however, there is likely to be some overlap with the Dunghutti people to the north who are more associated with the Macleay-Apsley river systems (NPWS, 1981).

Aboriginal use of the foothill and gorge country of the upper Hastings Valley is not fully understood. It has been suggested that the reserves were part of a seasonal living area and provided access to the tablelands for trade and ceremonial purposes. Occupation of the area may have been year round by groups who did not have access to coastal resources (Godwin, 1985).

There has been no cultural study of the Aboriginal heritage values associated with the reserves or the identification of Aboriginal sites and places of significance to the Aboriginal community. There is one site recorded in the reserves, in the Mount Seaview area.

The area is significant as one of the first contact points between Europeans and local Aboriginals in the Hastings area. This occurred during John Oxley's expedition in 1818. In his journal he recorded sighting seven 'native huts' within two miles of Mount Seaview's summit (Oxley 1818 in Dodkin 1981).

### **2.2.6 Non-Aboriginal Heritage**

The reserves have an important association with the European exploration and early settlement of the region.

The early explorer John Oxley led the first European expedition to the area in 1818 on route from the Northern Tablelands to the coast. Mount Seaview was named because it was the first point where he saw the sea. This was a significant milestone for the expedition and played an important part in future planning for the area. The reserves protect part of the original scene of 'wild magnificence' as described by John Oxley in 1818 (Adam 1987).

After the penal settlement at Port Macquarie was founded in 1821, a road following a similar route to the Oxley Highway was constructed as a major access from the tablelands to the coast. This opened up the area to several industries later in the 1800s, notably mining and timber getting.

The Mount Seaview area is regionally renowned for its timber harvesting history (Fenning, 1997), though little logging occurred within Koorebang and Mount Seaview Nature Reserves due to the steep topography

The rich geology of the area resulted in early copper and gold mining between Jasper and Koorebang Nature Reserves (Myson, 2001d). Although there are no marked mines in the reserves, small informal mines may occur. Most of the mining and prospecting in this area occurred during the 1920s depression and were not very successful (Myson, 2001d).

The reserves contain a number of blazed trees that were used to mark out areas. These markers are physical evidence of historic associations with the early European settlement of the region.

### **2.2.7 Visitor Use**

There is little visitation to the reserves as a result of rugged terrain, limited access opportunities and the remote location. The western boundary of the northern section of Mount Seaview Nature Reserve can be accessed through Cottan-Bimbang National Park, however these trails are in poor condition and are either limited to dry weather access only or are impassable. The boundary of the southern section of Mount Seaview Nature Reserve can be accessed from the east (see Map). Access to Koorebang and Jasper Nature Reserves is across private land.

Public and park roads are available for public use, whilst management trails are not available for public vehicular use. There is no public vehicle access provided within any of the reserves.

No visitor facilities occur within the reserves, and there is no opportunity for major recreational activities. Self-reliant camping occasionally occurs.

### **2.2.8 Research**

Little scientific research has been undertaken in the reserves. A recent review of geological information in the area has been completed (Myson 2001a-d). No flora or fauna surveys have been carried out in the past 20 years. The relatively intact forests due to a limited history of logging and infrequent fire make these reserves important scientific reference sites. Their proximity to grazing country also offers a good opportunity to study edge effects.

Regular monitoring of Mount Seaview Nature Reserve's World Heritage values is required to ensure they are conserved by the NPWS through appropriate management.

## **2.3 THREATS AND ISSUES FOR MANAGEMENT OF THE RESERVES**

### **2.3.1 Introduced Species**

Pest plants known to occur in the reserves include blackberry (*Rubus fruticosus*), crofton weed (*Ageratina adenophora*) and lantana (*Lantana camara*) which is abundant in isolated pockets and along creeklines. All three species are listed as noxious in Hastings Shire. There has not been a comprehensive survey of introduced species in the reserves.

There are a number of pest plants found in neighbouring areas that are not yet established in the reserves but have a high capacity to disperse.

Rusa deer (*Cervus timoriensis*), cattle (*Bos sp*), wild dogs (*Canis familiaris*), feral cats (*Felis catus*) and foxes (*Vulpes vulpes*) have been recorded in the reserves. Predation by feral cats and foxes are listed as key threatening processes under the TSC Act.

The *Rural Lands Protection Act 1998 (RLP Act)* requires pest animals declared under the Act to be controlled. Wild dogs, including dingoes, have been declared

throughout NSW and hence, the NPWS has a statutory obligation to control wild dogs on its estate. Under the RLP Act, public lands considered to contain high quality dingo habitat have been listed as dingo management areas. This includes Mount Seaview Nature Reserve. The RLP Act requires public land managers, such as the NPWS, to assist in the preparation of a wild dog management plan for dingo management areas. These plans are to identify methods for the control of wild dogs and the conservation of dingoes in these areas and are to be approved by the local Rural Lands Protection Board (RLPB).

In some areas, livestock from neighbouring properties enter the reserves. Not all reserve boundaries are fenced due to limited access to these areas and high fence construction and maintenance costs. A memorandum of understanding between the NPWS Mid North Coast Region and the NSW Farmers Association outlines procedures for removing stock.

### **2.3.2 Fire**

Fire has the potential to have a major impact on the biodiversity of the reserves. In particular, fire poses a potential threat to rainforest and wet sclerophyll communities during extreme fire weather. Fire can destroy rainforest and threatens the biodiversity and structure of wet sclerophyll forest if it occurs more frequently than once every 50 years (Bradstock et al, 1995). Since these two vegetation types dominate the reserves, it is important to exclude or minimise fire in the area.

Parts of the northern section of Mount Seaview Nature Reserve contain dry sclerophyll forest dominated by New England blackbutt (*Eucalyptus campanulata*). Fire may be required in this forest ecosystem to maintain biodiversity.

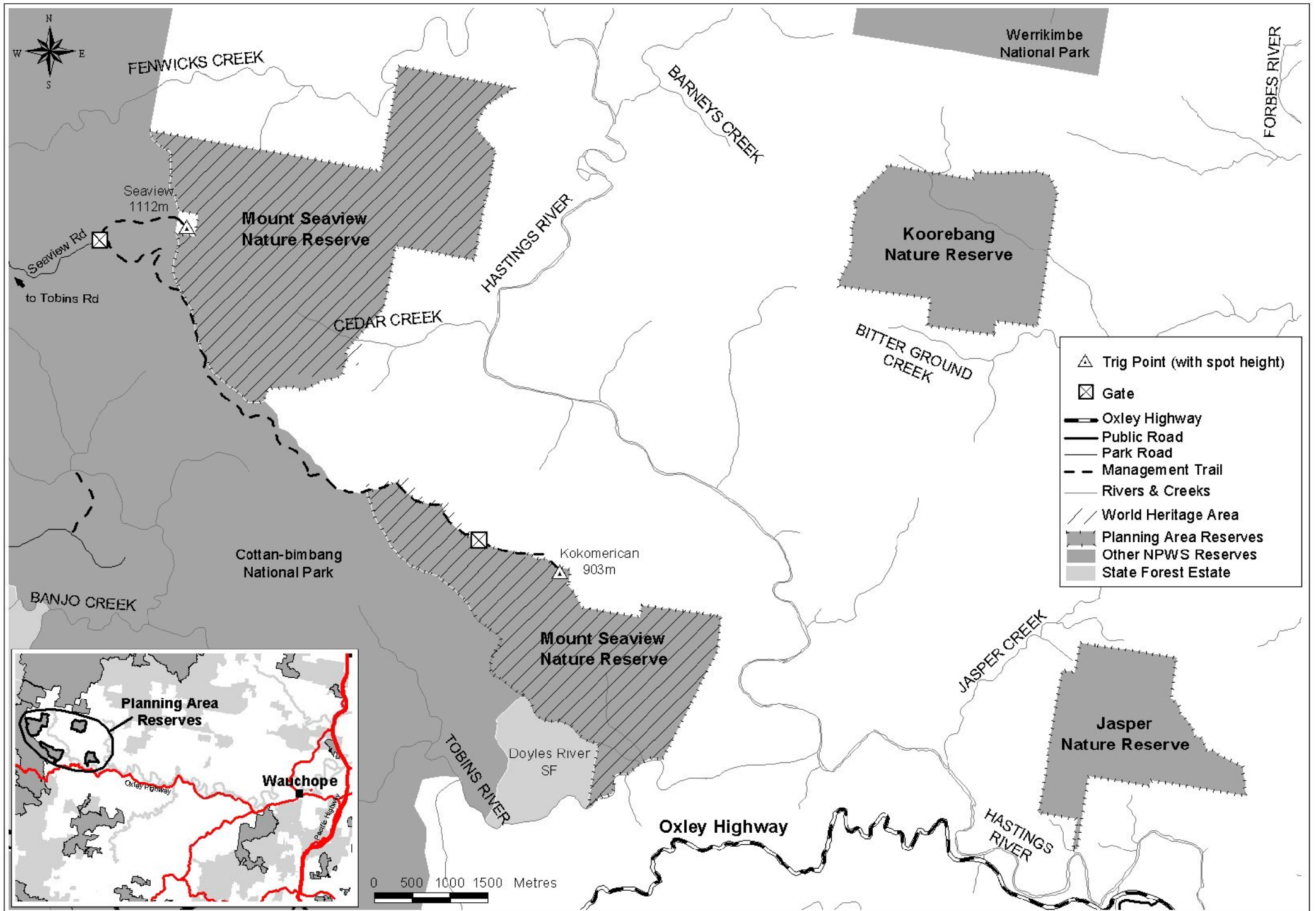
Areas on the northern side of Jasper Nature Reserve burnt twice in the last 10 years. Fires in 1994 and 2000 were particularly intense. Any further fire will exceed the appropriate fire frequency for the forest types in these areas (Bradstock et al, 1995). There have been no recorded fires in the southern section of Mount Seaview and Koorebang Nature Reserves since 1982. A fire in the northern section of Mount Seaview Nature Reserve in the 2000-2001 fire season burnt nearly all of the reserve north of Cedar Creek.

The terrain of the reserves is steep and dissected by narrow drainage lines. Poor access constrains fire suppression activities. Fire management therefore focuses on the boundaries of the reserves and requires working in cooperation with neighbours to control or mitigate fires.

Assets which border or are in close proximity to the reserve include cleared grazing lands and associated fencing, SFNSW estate, including plantations, as well as Seaview and Kokomeric trigonometrical sites.

NPWS uses a system of bushfire management zones for bushfire management in NPWS reserves. These zones are compatible with the system adopted by the Bushfire Coordinating Committee for use in District Bushfire Management Committee (DBFMC) bushfire risk management plans.

NPWS has assessed the reserves for fire management planning purposes and has zoned the reserves as a Heritage Area Management Zone (HAMZ). While the rainforest and wet sclerophyll communities are highly sensitive to fire, it is considered that there is a low risk of fire in the reserves. The primary fire management objectives within this zone is to prevent the extinction of any species that are known to occur naturally within the reserves, and to protect culturally significant Aboriginal and non-Aboriginal sites. The reserves have been designated as a HAMZ because of their high content of rainforest, the nine threatened animal species known to occur in the reserve and the likely presence of a further eleven threatened animal species and the listing of Mount Seaview Nature Reserve as a World Heritage and Wilderness area. The HAMZ does not require intensive management and focuses on those actions appropriate to conserve biodiversity and cultural heritage including exclusion of fire from the reserve.



#### 4 MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priorities
<p><b>Soil and Hydrology</b></p> <p>The reserves occupy the upper catchments of several creeks that provide habitat for threatened frog species such as the endangered giant barred frog and supply high quality water to downstream neighbours.</p> <p>The terrain of the reserves is very steep and erosion (and subsequent siltation of the creeks) can occur after fire and on poorly maintained trails.</p>	<ul style="list-style-type: none"> <li>The hydrology of the reserves is managed to support the preservation of water quality and associated catchment values.</li> <li>Soil disturbance and erosion are minimised.</li> </ul>	<ul style="list-style-type: none"> <li>Implement erosion and sediment control and revegetation works where necessary for any disturbed areas. Maintenance and operation works will be undertaken to improve water quality and stream hydrology.</li> <li>Management trails providing access to the reserves will be maintained to appropriate standards in conjunction with surrounding land holders.</li> <li>Participate in and support the Mid North Coast Catchment Management Board.</li> </ul>	<p>High</p> <p>High</p> <p>Medium</p>
<p><b>Native Plants and Animals</b></p> <p>The reserves contain a wide range of flora and fauna including nine threatened species. This diversity forms part of the World Heritage values for Mount Seaview Nature Reserve. The NPWS is required to prepare recovery plans for all listed threatened species and threat abatement plans for threatening processes such as foxes and cats.</p> <p>Threats to the giant barred frog include changes in water flow patterns, reduction in water quality, sedimentation and pesticide spray close to streams.</p> <p>Fauna and flora surveys were undertaken in Mount Seaview nature reserve in the early 1980s. No fauna survey work has been undertaken in Koorebang and Jasper Nature Reserves.</p> <p>Private lands with reasonable forest cover adjoin parts of the reserves.</p>	<ul style="list-style-type: none"> <li>Biodiversity of the reserves is maintained</li> <li>Knowledge of the natural heritage values of the reserves is improved and documented.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake flora and fauna surveys in the reserves, with emphasis on Jasper and Koorebang Nature Reserves.</li> <li>Undertake an amphibian survey within the reserves with emphasis on the giant barred frog.</li> <li>Implement relevant recovery plans and threat abatement plans upon their completion.</li> <li>Maintain the habitat values and diversity of the reserves through appropriate management of fire, erosion control, chemical control, maintenance works and access restrictions .</li> <li>Liaise with neighbours, Landcare, vegetation management committees and other land use authorities to encourage retention and, if possible, expansion of areas of native vegetation close to the reserves .</li> </ul>	<p>Medium</p> <p>Medium</p> <p>High</p> <p>High</p> <p>Low</p>



Current Situation	Desired Outcomes	Strategies	Priorities
<p><b>Interpretation and Visitor Use</b></p> <p>There is very little visitor use of the reserves due to the lack of access, the ruggedness and remote locality of the reserves. Occasional self-reliant walking and camping occur within the reserves.</p>	<ul style="list-style-type: none"> <li>• Visitation is maintained at low levels and has minimal impact.</li> <li>• The local community is informed of park values and management programs.</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor facilities and public vehicle access will not be provided in the reserves.</li> <li>• Commercial activities and horse riding will not be permitted in the reserves consistent with Service policy for nature reserves.</li> <li>• Provide information on management programs and the values of the reserves to neighbours and the local community through media releases and correspondence.</li> </ul>	<p>High</p> <p>High</p> <p>Low</p>
<p><b>Cultural Heritage</b></p> <p>The reserves are part of a landscape that is significant to the Birpai and possibly the Dughutti Aboriginal people.</p> <p>Mount Seaview was visited by John Oxley.</p> <p>Although no mines are recorded within the reserves, some evidence of past mining may occur. The reserves also contain a number of blazed trees.</p> <p>There has been no formal study of Aboriginal or non-Aboriginal cultural heritage values associated with the reserves.</p>	<ul style="list-style-type: none"> <li>• Improved understanding of the cultural heritage significance of the reserves.</li> <li>• Increased involvement of the local Aboriginal community in cultural heritage management of the reserves.</li> </ul>	<ul style="list-style-type: none"> <li>• Consult and involve the local Aboriginal community including the Biripai Local Aboriginal Land Council, elder groups and traditional owners on all aspects of management of Aboriginal sites, places and values within the reserves.</li> <li>• Prepare and implement management strategies for known Aboriginal sites and places of significance where necessary.</li> <li>• Photographically record and map the blazed trees.</li> <li>• Encourage research into the early European history associated with the reserves, including surveys for historic mining sites.</li> <li>• Any mines found will be assessed for public risk and fenced to ensure visitor safety and rehabilitated if necessary.</li> </ul>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priorities
<p><b>Introduced Species</b></p> <p>Pest animals recorded in the reserves include, rusa deer, foxes, feral cats, wild dogs and cattle. Control methods for these introduced species is addressed under the regional pest management strategy (NPWS, 2002).</p> <p>Mount Seaview Nature Reserve is listed as a dingo management area under the RLP Act, which requires the preparation of a wild dog management plan.</p> <p>In some areas, stock stray into the reserves from neighbouring grazing properties as not all reserve boundaries are fenced. Although NPWS has no legal responsibility for boundary fencing, it is NPWS policy to provide some assistance in certain circumstances.</p> <p>Pest plants of concern within the reserves include lantana, blackberry and crofton weed. Neighbours have reported concerns about the potential for weeds within the reserves to invade their lands.</p>	<ul style="list-style-type: none"> <li>• Introduced species are controlled and where possible eradicated.</li> <li>• The control of introduced species does not impact on threatened species within the reserves.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare a pest management plan for the reserves in accordance with the regional pest management strategy.</li> <li>• Prioritise weed control through the identification and mapping of weed species. Emphasis will be placed on disturbed areas, reserve boundaries, small infestations of new weeds and isolated pockets of weeds that threaten to affect the integrity of the surrounding habitat.</li> <li>• The use of chemicals near streams will be avoided and alternatives used where appropriate (see <i>Native plants and Animals</i>).</li> <li>• Encourage research into the distribution and abundance of pest animal species in the reserves.</li> <li>• Conduct pest control programs in conjunction with other stakeholders such as the Kempsey RLPB, the Mid North Coast Weeds Council, State Forests NSW and reserve neighbours.</li> <li>• Rusa deer will be controlled in accordance with the Mid North Coast Feral Deer Strategy which currently recommends monitoring and the development of an overview report.</li> <li>• In conjunction with neighbours, ensure fencing of priority sections of accessible boundaries to prevent stock access to the reserves. Determine other strategies with neighbours to exclude stock from the reserves where fencing is not practical.</li> <li>• Assist in the preparation and implementation of a wild dog management plan incorporating Mount Seaview NR to be approved by the Kempsey RLPB.</li> </ul>	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priorities
<p><b>Fire Management</b></p> <p>Areas of Jasper Nature Reserve have been subject to an inappropriate fire regime and there is a need to exclude fire from the reserve to maintain existing vegetation types. Similarly, vegetation in Koorebang Nature Reserve and the southern section of Mount Seaview Nature Reserve are predominantly wet sclerophyll forest or rainforest. It is important to exclude fire in these areas. The reserves are zoned as a Heritage Management Zone for fire management purposes.</p> <p>The main sources of fire in the past have been wildfires entering from adjoining lands and occasional lightening strikes.</p> <p>Remote and limited access to the reserves makes fire fighting operations difficult. Cooperative fire management with neighbours and other fire authorities is integral in achieving effective fire management in the reserves.</p>	<ul style="list-style-type: none"> <li>• Fire in the reserves is managed to protect biodiversity, human life and property.</li> <li>• A co-operative approach is developed for fire management with neighbours and other fire authorities.</li> </ul>	<ul style="list-style-type: none"> <li>• Manage the reserve as a Heritage Area Management Zone.</li> <li>• Exclude fire from the rainforest and wet sclerophyll forest communities of the reserves.</li> <li>• Prescribed burning may be undertaken on the reserves in dry sclerophyll areas if research indicates that fire is necessary to protect biodiversity values, or there is a perceived risk to adjoining or nearby assets.</li> <li>• Establish and maintain cooperative arrangements with neighbours, the Rural Fire Service, local brigades and NSW State Forests to manage and control fire on neighbouring land.</li> <li>• Continue to participate in the Hastings Bushfire Management Committee.</li> </ul>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><b>World Heritage</b></p> <p>Mount Seaview Nature Reserve is included on the World Heritage list as part of the CERRA. As a signatory to this agreement, the Australian government has committed to preserve the World Heritage values of the area.</p> <p>Under the World Heritage Convention, there is an obligation to ensure the identification, protection, conservation, presentation and rehabilitation of World Heritage values to enable the transmission of these places of international significance to future generations.</p>	<ul style="list-style-type: none"> <li>• Improved understanding in the community of the world heritage areas in the local region, their purpose and values.</li> <li>• Australia's obligations under the World Heritage Convention are met.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement the actions contained in this plan in accordance with the 'Strategic Overview for Management of World Heritage CERRA'.</li> <li>• Manage the reserves to ensure the identification, protection, conservation, presentation and, where necessary, rehabilitation of the values of the reserves including potential World Heritage values.</li> <li>• Implement appropriate management programs to mitigate threatening processes to the reserves, such as introduced species, fire and inappropriate visitor activities.</li> <li>• Assess Koorebang Nature Reserve as a possible</li> </ul>	<p>Medium</p> <p>Medium</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priorities
<p>Koorebang Nature Reserve demonstrates values which warrant investigation for its nomination for World Heritage listing as part of the CERRA</p>		<p>addition to the World Heritage CERRA.</p> <ul style="list-style-type: none"> <li>• Promote information and education on World Heritage values of the area including the: <ul style="list-style-type: none"> <li>– creation of a portable display on World Heritage CERRA for local NPWS Discovery programs;</li> <li>– implementation of signage and information consistent with other World Heritage CERRA in NSW.</li> </ul> </li> </ul>	<p>Low</p>
<p><b>Wilderness</b></p> <p>The Mount Seaview Wilderness encompasses Mount Seaview Nature Reserve and the majority of the neighbouring Cottan-Bimbang National Park. This wilderness is a significant component in an integrated wilderness network across the region. It forms a part of a large and nearly continuous tract of rather undisturbed forested land extending along the edge of the eastern escarpment and plateau at Dorrigo to the Hastings Valley.</p>	<ul style="list-style-type: none"> <li>• Wilderness landscapes plants and animals continue to evolve in an unmodified environment and without human interference.</li> <li>• Opportunities for solitude and appropriate self-reliant recreation are maintained.</li> </ul>	<ul style="list-style-type: none"> <li>• No additional signs will be placed in the wilderness area with the exception of public safety signs where appropriate.</li> <li>• Only appropriate self-reliant recreation will be allowed.</li> </ul>	<p>Medium</p> <p>Medium</p>
<p><b>Research</b></p> <p>Flora and fauna surveys to assess the conservation significance of Mount Seaview Nature Reserve were undertaken in 1981-82. Since this time, little research and monitoring has occurred in the reserve to assess threats to biodiversity and the current state of conservation of its values.</p> <p>There has been no surveys or research undertaken in Koorebang and Jasper Nature Reserves.</p>	<ul style="list-style-type: none"> <li>• Increased knowledge of the area's World Heritage values, biodiversity and cultural resources which is incorporated into park management.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a research prospectus to encourage higher education studies in the reserves with a focus on the following: <ul style="list-style-type: none"> <li>– inventory data on the distribution and abundance of native and introduced plant and animal species and groups, including invertebrates;</li> <li>– distribution, abundance and biology of threatened species with emphasis on the endangered giant barred frog;</li> <li>– identification of Aboriginal cultural heritage values of the reserves;</li> <li>– identification of World Heritage values with emphasis on Koorebang Nature Reserve;</li> <li>– distribution of weed and pest animal species.</li> </ul> </li> </ul>	<p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priorities
<p><b>Reserve Additions</b></p> <p>The summit of Mount Seaview is located immediately adjoining Mount Seaview Nature Reserve on crown land administered by the DLWC. This peak has significant natural and cultural heritage values and would be a valuable addition to this reserve.</p>	<ul style="list-style-type: none"> <li>• Mount Seaview summit is acquired as an addition to Mount Seaview Nature Reserve.</li> </ul>	<ul style="list-style-type: none"> <li>• Liaise with the Department of Land and Water Conservation about the acquisition of the Mount Seaview summit area as an addition to Mount Seaview Nature Reserve.</li> </ul>	Low
<p><b>Management Operations</b></p> <p>Access to the reserves is via neighbouring lands which requires management agreements with relevant neighbours. There are no roads or trails in the reserves with the exception of a disused and overgrown trail bordering Mount Seaview Nature Reserve and Cottan-Bimbang National Park in part.</p> <p>Many reserve boundaries are poorly defined and unfenced. This can make management of these areas in coordination with neighbours difficult, particularly for pest and fire control and the exclusion of cattle.</p>	<ul style="list-style-type: none"> <li>• Access arrangements with neighbours are formalised.</li> <li>• Boundary identification and fencing is adequate.</li> </ul>	<ul style="list-style-type: none"> <li>• Negotiate access agreements with neighbours to ensure ongoing access across their properties to the reserves. Such agreements should include responsibility for maintenance of access and boundary trails, and may include the creation of formal access points to the reserve where necessary (<i>see Fire Management</i>).</li> <li>• Gate the disused trail in Mount Seaview Nature Reserve (see map). The trail may be occasionally re-opened for fire and pest management purposes and as an east-west access point to Tobins Rd in Cottan-Bimbang National Park</li> <li>• Vehicle access for management purposes to Jasper and Koorebang Nature Reserves will be limited to reserve boundaries via adjoining properties.</li> <li>• Erect or maintain fences along the reserves boundaries where necessary (<i>see Introduced Species</i>).</li> </ul>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Low</p>

**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.

## 5 REFERENCES

Adam, P. (1987) *New South Wales Rainforests: The Nomination for the World Heritage List*, NPWS.

Bradstock, R.A., Keith, D.A., & Auld, T.D. (1995) "Fire and Conservation: Imperatives and constraints on managing for Biodiversity, in Bradstock, R.A. et al (1995) *Conserving Biodiversity: threats and solutions*. Surrey Beatty and Sons, Sydney.

CERRA (2000) *Strategic Overview for Management of the World Heritage Central Eastern Rainforest Reserves of Australia*, Department of Environment and Heritage, Canberra.

Dodkin, M.J. (1981) *Mount Seaview Nature Reserve - Proposed Additions*. NPWS, unpublished Internal report.

Fenning, C. (1997) *Echoes of the Axe: The stories of the people who made the timber industry on the Mid-north Coast of NSW*. Self-published. Port Macquarie.

Godwin, L. (1985) *A Report on the Archaeology of the Apsley-Macleay Gorge System*, Unpublished.

James (2001) NPWS Mid North Coast Region Feral Deer Pest Species Strategy. *In preparation*.

Myson, R. (2001a) *Seaview Nature Reserve 1: Geology and Geomorphology*, Unpublished report for Mid-North Coast NSW National Parks and Wildlife Service.

Myson, R. (2001b) *Seaview Nature Reserve 2: Geology and Geomorphology*, Unpublished report for Mid-North Coast NSW National Parks and Wildlife Service

Myson, R. (2001c) *Jasper Nature Reserve: Geology and Geomorphology*, Unpublished report for Mid-North Coast NSW National Parks and Wildlife Service

Myson, R. (2001d) *Koorebang Nature Reserve: Geology and Geomorphology*, Unpublished report for Mid-North Coast NSW National Parks and Wildlife Service.

NPWS (1983) *Jasper Nature Reserve Proposal*. NSW National Parks and Wildlife Service, Hurstville.

NPWS (2002) *Draft Mid North Coast Region Pest Management Strategy*, NSW National Parks and Wildlife Service, Hurstville

World Heritage CERRA Coordinating Committee (2000), *Minutes of the CERRA Coordinating Committee Meeting, 30-31 May 2000*, Unpublished.