

ILLAWONG NATURE RESERVE

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change

July 2008

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

Acknowledgments

This plan of management is based on a draft plan prepared by staff of the Far South Coast Region of the National Parks and Wildlife Service (now the Parks and Wildlife Division of the Department of Environment and Conservation).

Inquiries about this reserve should be directed to the NPWS Narooma Office, PO Box 282, Narooma, 2546 or by telephone on (02) 4476 2888.

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ISBN 1 74122 314 8

FOREWORD

Illawong Nature Reserve is located on the South Coast of NSW immediately inland from the seaside village of Broulee, 23 kilometres south of Batemans Bay. The reserve, which is roughly rectangular in shape, encompasses 51 hectares.

Illawong Nature Reserve protects a section of Illawong Swamp and a small part of neighbouring Longvale Swamp which drains into Lynchs Creek, a tributary of Candlagan Creek. Although significant parts of the catchments of both of these wetlands have previously been cleared, the swamps themselves remain largely in a natural or near-natural state and provide important habitat for waterfowl.

The reserve provides habitat for a variety of other wildlife. The threatened yellow-bellied glider and long-nosed potoroo have been observed near the reserve and the threatened hooded robin has been recorded on the reserve. A pair of white-bellied sea eagles maintains a nest in a large spotted gum in the reserve.

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

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

This plan contains a number of actions to achieve “Better environmental outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways” (Priority E4 in the State Plan) including managing weeds, feral animals and fire so as to enhance the natural values of the reserve, and pursuing opportunities to improve the hydrological and biological condition of Illawong Swamp.

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

Verity Firth
Minister for Climate Change and the Environment

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1. MANAGEMENT CONTEXT

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in NSW is undertaken within the context of a legislative and policy framework. This primarily consists of the *National Parks and Wildlife Act 1974* (NPW Act) and Regulations, the *Threatened Species Conservation Act 1995* (TSC Act), the statewide policies of the National Parks and Wildlife Service (NPWS), and internationally accepted principles of park management. Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of management. These include nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to the management of Illawong Nature Reserve. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) requires the assessment and mitigation of the environmental impacts of any works proposed in this plan.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted this plan, no operations may be undertaken within Illawong Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to the nature reserve. Where management strategies or works are proposed that are inconsistent with this 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.

2. ILLAWONG NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Illawong Nature Reserve is located on the South Coast of NSW immediately inland from the seaside village of Broulee, 23 kilometres south of Batemans Bay (by road). The reserve, which is roughly rectangular in shape, encompasses 51 hectares (refer Map 1).

The land that now constitutes the reserve was formerly part of portion 13 in the Parish of Tomaga, County of St Vincent. Following an inspection by an officer of the Fauna Protection Panel in 1961, the area was recommended for reservation to protect waterfowl. In response, in 1964 the area was reserved under section 197 of the *Crown Lands Consolidation Act 1913* for “*the purpose of preservation of fauna*”. Later that year this gazettal was revoked and the area was proclaimed Illawong Faunal Reserve, No. 34, under section 9(1) of the *Fauna Protection Act 1948* “*for the purpose of the protection and care of fauna, the propagation of fauna and the promotion of the study of fauna*”. With the consolidation and amendment of the *National Parks and Wildlife Act* (NPW Act) in 1974 the faunal reserve was subsequently deemed to be dedicated as a nature reserve by virtue of clause 7(3) of the provisions of schedule 3 of the Act.

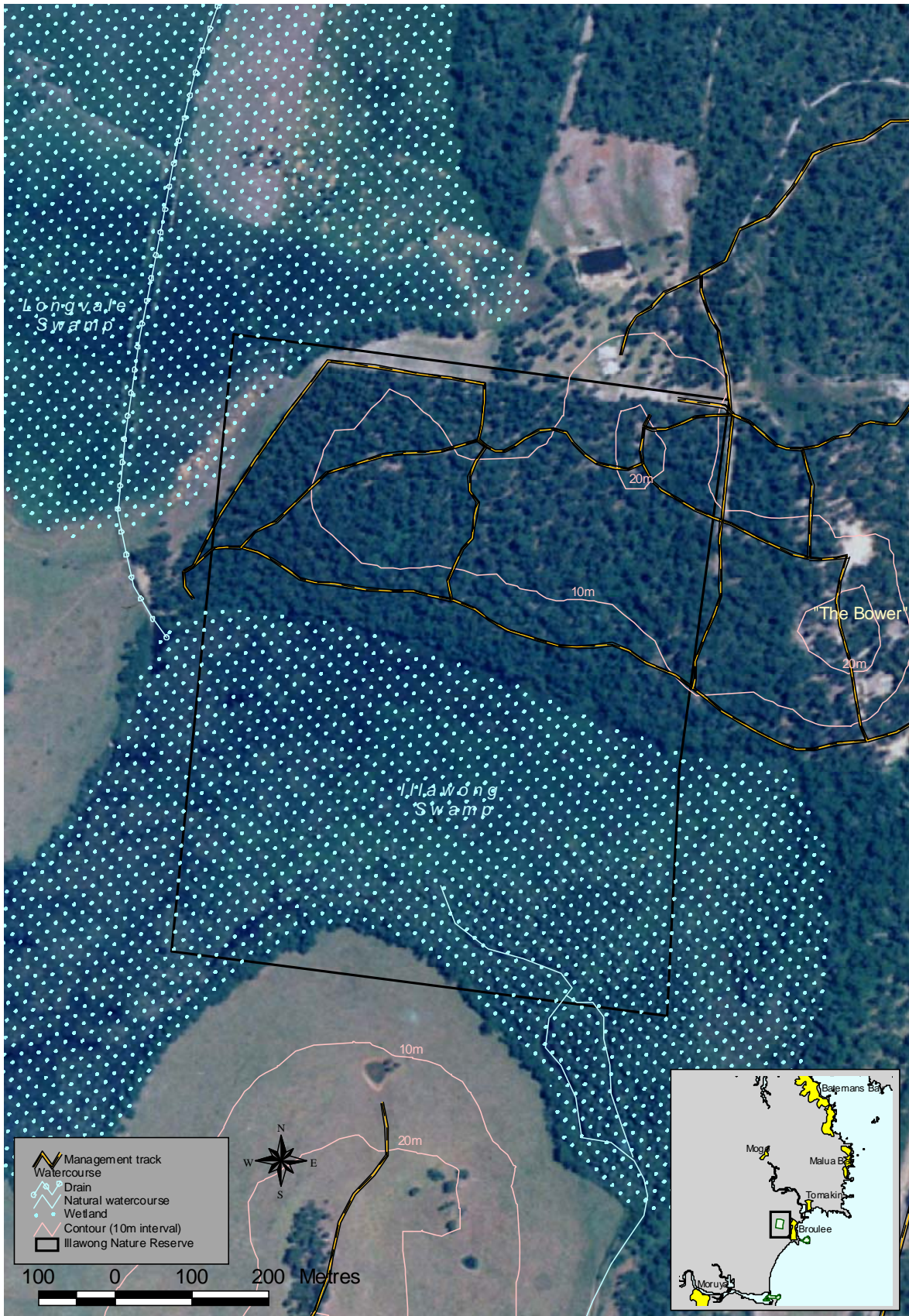
Illawong Nature Reserve protects a section of Illawong Swamp and a small part of neighbouring Longvale Swamp which drains into Lynchs Creek, a tributary of Candlagan Creek. The significance of this greater wetlands complex is recognised at a statewide level through listing as a State Environmental Planning Policy (SEPP) 14 coastal wetland (No. 186). This designation requires management to be in accordance with state environmental planning policies designed to preserve and protect wetlands. Although significant parts of the catchments of both of these wetlands have previously been cleared, the swamps themselves remain largely in a natural or near-natural state (refer Map 2).

The reserve is largely surrounded by freehold properties. Grazing properties adjoin the southern, western and part of the northern boundary of the reserve. Self-contained tourist accommodation is provided on a property that adjoins the northern part of the eastern boundary of the reserve. This property is a declared Wildlife Refuge. The southern section of the eastern boundary is shared with a parcel of land administered by Eurobodalla Shire Council.

The properties neighbouring the reserve are primarily zoned as Rural 1a under the *Eurobodalla Rural Local Environmental Plan (1987)*. This zone is managed so as to retain the existing rural character and environmental quality of the land. Those parts of the properties that contain sections of Illawong and Longvale Swamps are zoned as Environmental Protection – Wetlands 7a. The key management objectives for this zone are to ensure that the ecological, aesthetic and environmental attributes of wetlands are protected, and to encourage the rehabilitation of disturbed wetlands.

Illawong Nature Reserve is located entirely in Eurobodalla Shire and within the area of the Mogo Local Aboriginal Land Council.

Map 1 Illawong Nature Reserve



Map 2 Catchment of Illawong Swamp



2.2 LANDSCAPE

Natural and cultural heritage and ongoing use are strongly inter-related and together define 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, landforms, climate and plant and animal communities of the reserve, together with its location, have determined how the area has been - and continues to be - used by humans. Prior to the arrival of Europeans, the plant and animal resources of the area would have been utilised by Aboriginal people. To Europeans, the same area provided timber, pasture for livestock grazing and a source of sand and gravel for use in roadworks. Despite these previous uses, the reserve has retained important natural values typical of the open forests and wetlands of the South Coast of NSW.

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, public use and threats to the values of the reserve are dealt with individually, though their inter-relationships are recognised.

2.3 NATURAL HERITAGE

2.3.1 Landforms, Geology, Soils and Hydrology

The nature reserve contains two distinct landforms. The northern half of the reserve primarily consists of an east-west aligned ridge that rises gently in elevation to just over 20m ASL. By contrast, the southern half of the reserve contains a section of the coastal hind dune wetland of Illawong Swamp. A small part of Longvale Swamp is included in the north-west corner of the reserve.

The surface geology of the reserve consists of Quaternary sand and swamp deposits. Massive earths and gradational soils occur in the north of the reserve with quartz gravel to a depth of 1m exposed in the former gravel pit located near the high point of the ridge. The soils of Illawong and Longvale Swamps consist of alluvial loams derived from basalt and shale.

The east-west ridge contains one defined drainage line, which is located on the north-facing slope. This narrow channel only contains water during heavy rainfall events. The southern slope of the ridge drains into Illawong Swamp, which in turn drains in a north-westerly direction into neighbouring Longvale Swamp.

The natural hydrological regime of Illawong Swamp has been altered through the clearing of most of its catchment and by the construction of a drain that extends from the edge of Illawong Swamp (just west of the reserve boundary) across Longvale Swamp to Lynchs Creek. This drain was excavated by Eurobodalla Shire Council in 1976 to alleviate the risk of flooding in the nearby village of Broulee which had been

inundated the previous year. It does not appear to have served this function and has since been superseded by other flood mitigation measures nearer Broulee village.

2.3.2 Native Plants

The native vegetation of Illawong Nature Reserve is typical of that found in similar environments along the South Coast of NSW.

The northern ridge of the reserve is covered by open forest dominated by spotted gum (*Corymbia maculata*), red bloodwood (*C. gummifera*) and a mixture of eucalypt species such as blackbutt (*Eucalyptus pilularis*), grey ironbark (*E. paniculata*), woollybutt (*E. longifolia*) and southern mahogany (*E. botryoides*). The forest was selectively logged prior to reservation leaving a small number of large spotted gums.

The composition of the understorey varies with aspect, but it is generally open and dominated by burrawangs (*Macrozamia communis*). The occasional cherry ballart (*Exocarpus cupressiformis*) grows on the northern slope of the ridge, with the understorey of the far western end dominated by spiny-headed mat-rush (*Lomandra longifolia*). Small trees, shrubs and bracken (*Pteridium esculentum*) increasingly occur towards the bottom of the south-facing slope of the ridge. Here, understorey species include saw banksia (*Banksia serrata*), coast banksia (*B. integrifolia*), hairpin banksia (*B. spinulosa*), black wattle (*Acacia mearnsii*), prickly beard-heath (*Leucopogon juniperinus*) and a small number of rough tree ferns (*Cyathea australis*). The lower part of the shallow drainage channel on the northern side of the ridge is lined by swordgrass (*Gahnia sieberana*).

Narrow thickets of swamp paperbarks (*Melaleuca ericifolia*), swamp oaks (*Casuarina glauca*), yellow tea tree (*Leptospermum flavescens*), black wattle, swordgrass and sedges (*Lepidosperma laterale*) mark the edges of Illawong and Longvale Swamps. Wetland species growing in the swamps, themselves, include cumbungi (*Typha orientalis*), common reeds (*Phragmites australis*) and rushes (*Juncus sp* and *Baumea sp*).

Little is known of the non-vascular plants (lichens, mosses, fungi, liverworts) of the reserve.

2.3.3 Native Animals

The vegetation communities of the reserve provide habitats for a variety of native animals that are commonly found along the South Coast.

Mammal surveys have not been undertaken in the reserve, though swamp wallabies (*Wallabia bicolor*) are known to inhabit the open forest. A number of possum species are also likely to be present, including the common brush-tailed possum (*Trichosurus vulpecula*), common ring-tailed possum (*Pseudocheirus peregrinus*) and the yellow-bellied glider (*Petaurus australis*). This glider species has been recorded on a neighbouring property and is listed as Vulnerable under the NSW *Threatened Species Conservation Act 1995* (TSC Act). The long-nosed potoroo (*Potorous tridactylus*) has also been observed near the reserve and is also listed as Vulnerable under the TSC Act.

Seventy-four native bird species have been recorded in the nature reserve (refer Appendix A). Illawong and Longvale Swamps provide habitats for a range of common waterbirds including white-faced herons (*Ardea novaehollandiae*), sacred ibis (*Threskiornis aethiopicus*), great egrets (*Egretta alba*), black swans (*Cygnus atratus*), purple swamphens (*Porphyrio porphyrio*), black ducks (*Anas superciliosa*) and chestnut teals (*Anas castanea*). The open forest is inhabited by species such as the Australian magpie (*Gymnorhina tibicen*), white-throated treecreeper (*Cormobates leucophaeus*), Australian raven (*Corvus coronoides*), king parrot (*Alisterus scapularis*), crimson rosella (*Platycercus elegans*), red wattlebird (*Anthochaera carunculata*) and kookaburra (*Dacelo novaeguineae*). A large number of small forest birds are present including various fantails, whistlers, thornbills, wrens, finches and robins. Of these, the south-eastern form of the hooded robin (*Melanodryas cucullata*) is listed as Vulnerable under the TSC Act. A pair of white-bellied sea eagles (*Haliaeetus leucogaster*) maintains a nest in a large spotted gum in the reserve.

The following five frog species have been recorded on a neighbouring property and are likely to occur in the reserve - common eastern froglet (*Crinia signifera*); striped marsh frog (*Limnodynastes peronii*); Tyler's toadlet (*Uperoleia tyleri*); Peron's tree frog (*Litoria peronii*); Verreaux's tree frog (*Litoria verreauxii*).

Little is known of the reptile or invertebrate fauna, though red-bellied black snakes (*Pseudechis porphyriacus*) and eastern brown snakes (*Pseudonaja textilis*) have been recorded near the reserve.

2.4 CULTURAL HERITAGE

2.4.1 Aboriginal Heritage

Illawong Nature Reserve lies within Yuin country, which extends southwards from the Shoalhaven River to near the Victorian border and inland to the eastern edges of the tablelands. Documentary records provide several different names for the small groups of people who occupied the Broulee area, though no single name has been verified as correct.

Prior to the arrival of Europeans, the plant and animal resources of the Broulee hinterland would have been utilised by Aboriginal people for food, clothing, shelter, decoration, ceremonial and medicinal purposes, bonding agents and the production of tools and utensils. Certain plants, animals and landforms would also have been imbued with spiritual meanings and associations.

Historical estimates of the Aboriginal population in the Broulee area are limited in extent and accuracy. The settler Francis Flanagan recorded that in 1834 there were 28 Aborigines living in the Broulee area. In 1842, Captain William Oldrey listed 194 Aboriginal people by name at the Broulee Post Office at the time of the annual blanket distribution. Some of these people, he noted, had travelled there from places as distant as 60 miles away. An 1845 report estimated that the Aboriginal population in the district had halved in the previous five to ten years due to deaths from cutaneous and venereal diseases.

By the late 1850s, Aboriginal people of the South Coast were involved in a variety of economic activities. Many worked for European settlers gathering maize and potatoes, stripping bark, as domestic labourers, or in the whaling industry, while a small number

were self-employed as farmers or contractors. From the 1860s onwards, the displacement of the Yuin from their country and culture was further entrenched as many people were moved to government reserves established in the region or as far afield as northern NSW.

Despite resettlement, the separation of family members, the forced abandonment of traditional practices and a great loss of cultural knowledge, the Yuin people of the area have retained important strands of their culture, including a sense of identity and belonging. While much of their country has been significantly altered, the reserve remains relatively undisturbed and represents samples of coastal environments utilised by the Yuin people for thousands of years.

No archaeological surveys have been undertaken in the nature reserve. Evidence of Aboriginal use and occupation is likely to exist in the northern (hill) half of the area, as people are likely to have camped there and hunted waterfowl around the fringes of the swamp. Individual stone artefacts and an open campsite have been recorded immediately to the east of the reserve on a neighbouring property. A scar tree is located less than 1km south of the reserve and numerous middens occur along the beach dunes of the Broulee coastline.

2.4.2 Non-Aboriginal Heritage

The earliest plan of the Broulee district shows the land now included in Illawong Nature Reserve as a part of portion 13 in the Parish of Tomaga, County of St Vincent. In 1840, this area was included in a 4010 acre property granted to Captain William Oldrey, one of the first European settlers in the district. Known as Mt Oldrey Estate, his property was subsequently split up and sold. A number of these small holdings were purchased by a John Lyons in 1892 and amalgamated into a property of 2000 acres that incorporated the reserve land. The Lyons family retained ownership of the property until the 1930s when it was once again subdivided and sold. By 1961 when a field officer of the Fauna Protection Panel recommended that part of portion 13 be reserved, the land was found not to have an owner.

During the century-long period of private ownership, the forested part of the reserve was selectively logged for mining pit props and grazed by livestock, and a small gravel pit was excavated as a source for road base material. Land abutting the southern edge of Illawong Swamp, part of which is now within the reserve, was completely cleared for grazing and sown with pasture species.

In deciding to dedicate the land as a Faunal Reserve in 1964, the Fauna Protection Panel noted that the value of the proposed reserve was enhanced by the gazettal of the adjoining Illawong property as a Wildlife Refuge (No. 45) under the *Fauna Protection Act 1948*. (This designation no longer applies to the Illawong property.) The Fauna Protection Panel approved a Scheme of Operations for the reserve in the following year. This included proposals to:

- Introduce an access permit system designed to control visitation (considered necessary due to the small size of the reserve, sensitivity of the wetland and lack of formal public access);
- Erect interpretive display signs; and
- Construct a fireplace.

There is no evidence that any of these recommended actions were implemented.

The most obvious legacies of past European land uses are:

- The pasture areas adjoining the southern margin of Illawong Swamp;
- Numerous tree stumps;
- The naturally revegetating gravel pit in the north-east corner of the reserve; and
- A section of old fenceline south of the gravel pit.

As noted in Section 2.3.1, Eurobodalla Shire Council constructed a drain in 1976 linking Illawong and Longvale Swamps. (The drain is situated just beyond the southern boundary of the reserve.)

Archaeological surveys have not been undertaken in the nature reserve.

2.5 PUBLIC USE

Public access to the reserve is not readily available as it is largely surrounded by freehold land. Gaining access through the parcel of Council-owned land (located west of George Bass Drive) is impractical as it would require wading through a section of Illawong Swamp.

Visitation is extremely low though some guests staying in the tourist accommodation on the neighbouring property walk along the management trails in the reserve. Visitor-related infrastructure in the reserve is limited to:

- Two reserve entry signs (located where management trails enter the reserve in the north-east and south-east from the neighbouring property); and
- A number of directional signs located along reserve management trails.

The entrance signs inform visitors that domestic pets, camping and campfires are not permitted in the reserve.

2.6 THREATS TO RESERVE VALUES

2.6.1 Introduced Plants

The principal weed species in the nature reserve is bitou bush (*Chrysanthemoides monilifera*), which occurs in the open forest. Control efforts by the Service and an adjoining landowner in recent years have reduced infestations to a number of isolated populations and individuals.

Previous clearing of native vegetation on neighbouring properties has encroached upon the southern and north-western parts of the reserve. These parts of the reserve have been sown with exotic pasture species. A portion of this cleared land in the north-western corner of the reserve has been fenced into the neighbouring property.

Management of introduced plant species in the reserve is undertaken in accordance with the provisions of the Far South Coast Region Pest Management Strategy (2003-2006). This document details weed control priorities and describes the control methods, management strategies and performance measures that apply to individual species.

2.6.2 Introduced Animals

Only two introduced animal species are known to currently inhabit the reserve, red foxes (*Vulpes vulpes*) and starlings (*Sturnus vulgaris*). Both are widespread species on the South Coast of NSW and are likely to occur throughout the greater Broulee area.

Although there are no records of the presence of rabbits (*Oryctolagus cuniculus*), wild dogs (*Canis familiaris*) or feral cats (*Felis catus*) in the reserve, it is likely that cats, at least, are present.

Management of introduced animal species in the reserve is undertaken in accordance with the provisions of the Far South Coast Region Pest Management Strategy (2003-2006). This document details feral animal control priorities and describes the control methods, management strategies and performance measures that apply to individual species.

A combination of stockproof fences and the natural barrier of Illawong Swamp prevent livestock from entering the reserve from neighbouring properties.

2.6.3 Fire

This section of the plan outlines the basis and proposed strategies for fire management within Illawong Nature Reserve. In this respect, the following information constitutes a Type 1 Reserve Fire Management Strategy as defined by the National Parks & Wildlife Service Fire Management Planning Policy 2.1.

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 sites, recreation and management facilities and can threaten visitors and neighbouring land.

The reserve was last burnt in 1984 from a wildfire that originated on a nearby property. Historically, fires have burnt through the Candlagan Creek area during high fire danger periods under west to north-westerly winds. High intensity fires or fires burning under extreme conditions have the potential to burn through the reserve and threaten holdings located to the east and south-east of the reserve. Cleared paddocks adjoining the western and northern boundaries of the reserve, together with the presence of Longvale Swamp to the north-west, reduce the probability of such fires occurring under all but the most extreme weather conditions.

Given the lack of access to the reserve for the general public, the likelihood of fires originating within the reserve is regarded as extremely low. A network of vehicular trails, totalling 2.3km in length, is maintained within the reserve primarily for fire management purposes (refer Map 1). One trail follows the western fence line located within the reserve and continues along approximately half of the northern boundary fence. Another trail runs down the unfenced eastern boundary of the reserve as far as Illawong Swamp. The swamp acts as a natural firebreak under all but the most extreme fire conditions. Another trail bisects the timbered country (running from the swamp in the south to the northern boundary trail) providing a strategic control line for fires approaching from the north-west.

The Service has assessed Illawong Nature Reserve for fire management planning purposes and has zoned the entire reserve as a Heritage Management Zone (HAMZ). The primary fire management objectives within this zone are to prevent the extinction of all species that are known to occur naturally within the reserve, and to protect cultural heritage values. The reserve has been designated as a HAMZ because it does not have a history of frequent bushfire ignitions or known areas of high bushfire behaviour potential. The HAMZ does not require intensive management and focuses on those actions appropriate to conserve biodiversity and cultural heritage values. Prescribed burning may be undertaken in HAMZ to maintain fire regimes appropriate for the conservation of biodiversity.

The following table outlines key vegetation types occurring in the reserve and fire regime guidelines.

Vegetation Type	Fire Regime
Swamp/Wetland Complex – rushes, reeds	No fires
Coastal Wet Heath Swamp Forest – <i>Melaleuca ericifolia</i>	A decline in biodiversity is predicted if there is no fire for more than 30 years
Spotted Gum / <i>Macrozamia</i>	Needs fire between 5 to 30 years

A diversity of fire regimes is needed to maintain natural plant diversity in forested areas. Management of fire should ideally aim to provide a pattern of fires of high, moderate and low intensity, frequency and extent. Extinctions are most likely when fire regimes of relatively fixed intensity, frequency and extent prevail without variation. Further, areas burnt too frequently are reduced to pyrogenic species such as bladey grass (*Imperata cylindrica*) and bracken (*Pteridium esculatum*), an understorey that accumulates fuel quickly and is capable of further frequent burning.

Fire management strategies such as fire trail maintenance, detection and cooperative arrangements are applied where appropriate to best protect life, property and natural and cultural assets within and adjacent to the reserve. The Service may, together with neighbours, maintain fuel reduced management zones on adjoining properties.

The southern half and north-western corner of the reserve are designated SEPP 14 wetland areas. In these parts of the reserve, the use of heavy plant or equipment and retardants to suppress or contain unplanned fires is considered to be inappropriate.

The Service maintains cooperative arrangements with Eurobodalla Shire Council and local Rural Fire Service brigades and is actively involved in the Eurobodalla Bush Fire Management Committee. Cooperative arrangements include approaches to fuel management, support for neighbours fire management efforts and information sharing.

3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Natural Heritage</p> <p>There is incomplete knowledge of the native plant and animal species and communities present.</p> <p>Threatened species including the yellow-bellied glider and long-nosed potoroo may be present in the reserve.</p> <p>The hydrology and biology of Illawong Swamp are likely to have been affected by the construction of a drain.</p>	<p>Improved knowledge of the native plant and animal species and communities.</p>	<p>Investigate and pursue opportunities to survey and map the flora and fauna of the reserve through the involvement of field naturalists or other appropriate groups or individuals.</p>	<p>Medium</p>
	<p>All native plant and animal species and communities are conserved.</p>	<p>Survey for the presence of threatened species including the yellow-bellied glider and long-nosed potoroo.</p> <p>Implement the relevant provisions of recovery plans for all plant and animal species in the reserve that are listed under the TSC Act.</p> <p>Manage weeds, feral animals and fire so as to enhance the natural values of the reserve (refer also to the Introduced Species and Fire Management prescriptions).</p> <p>Encourage neighbouring landowners to enter into Voluntary Conservation Agreements.</p>	<p>Medium</p> <p>High (o)</p> <p>High (o)</p> <p>Medium (o)</p>
	<p>The hydrological and biological condition of Illawong Swamp is improved.</p>	<p>Investigate and pursue opportunities to improve the hydrological and biological condition of Illawong Swamp through the Southern Rivers Catchment Management Authority, and through discussions with neighbouring landowners and Eurobodalla Shire. In particular, investigate impacts associated with the drain from Illawong Swamp and, if appropriate, implement remediation measures.</p>	<p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural Heritage</p> <p>There is incomplete knowledge of the cultural heritage values of the reserve and relevant conservation requirements.</p> <p>A section of old fenceline and a quarry that is naturally revegetating remain from past use of the area.</p>	<p>Improved knowledge and conservation management of the cultural heritage values of the reserve.</p>	<p>Undertake and/or encourage research into the Aboriginal heritage values of the reserve in association with appropriate Aboriginal people including the Mogo Local Aboriginal Land Council.</p> <p>Encourage research into the non-Aboriginal values of the reserve.</p> <p>Undertake annual monitoring of the condition of all cultural sites found in the reserve and undertake maintenance work as necessary.</p> <p>Retain the section of old fenceline and allow the quarry to continue to naturally revegetate.</p>	<p>Medium</p> <p>Low</p> <p>Medium (o)</p>
<p>Public Use</p> <p>Existing recreational use is limited due to the surrounding land tenure and swampland. Current access is through private property and results in minimal environmental degradation.</p> <p>No visitor facilities other than signs are provided in the reserve and none are proposed.</p>	<p>Visitor use continues to be undertaken in ways that minimise disturbance to the natural and cultural values of the reserve.</p>	<p>Continue to prohibit camping, pets, the lighting of fires and public vehicular access in the reserve.</p> <p>Walking will be permitted throughout the reserve provided permission has been obtained from neighbouring property owners to cross their land to access the reserve.</p> <p>Neighbours will be requested to maintain a register of the dates and numbers of people accessing the reserve through their property.</p>	<p>High (o)</p> <p>High (o)</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
Introduced species			
There is good knowledge of the weed species present and their distributions.	Updated knowledge of weed species present and their distributions.	Continue to survey and map all major weed species present in the reserve.	High (o)
Priority has been given to reduction in the distribution of bitou bush, the key weed species in the reserve.	Continued reduction in the distribution of bitou bush and other weed species.	Continue to undertake weed control programs in accordance with the Regional Pest Management Strategy.	High (o)
There is incomplete knowledge of the introduced animal species present and their distributions.	Improved knowledge of the introduced animal species present and their distributions.	Continue to monitor and map changes in the distribution of major weed species in response to control programs. Alter control programs as required in response to monitoring results.	High (o)
Impacts of feral animal species are not considered to be significant. Coordinated pest animal control with neighbours is likely to have the best results.	The impact of introduced animal species on the values of the reserve is minimised.	Liaise with Eurobodalla Shire and neighbouring landowners concerning the coordination of weed control programs.	Medium (o)
There is incomplete knowledge of the introduced animal species present and their distributions.	Improved knowledge of the introduced animal species present and their distributions.	Survey for the presence of feral animals.	High (o)
Impacts of feral animal species are not considered to be significant. Coordinated pest animal control with neighbours is likely to have the best results.	The impact of introduced animal species on the values of the reserve is minimised.	Undertake feral animal control programs in accordance with the Regional Pest Management Strategy.	High (o)
Impacts of feral animal species are not considered to be significant. Coordinated pest animal control with neighbours is likely to have the best results.	The impact of introduced animal species on the values of the reserve is minimised.	Liaise with Eurobodalla Shire and neighbouring landowners concerning the coordination of pest animal control programs.	Medium (o)

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire Management</p> <p>The incidence of wildfires in the reserve in the recent past is low.</p> <p>Fire management in the reserve has been confined to the suppression of all wildfires and maintenance of the fire trail network within and adjacent to the reserve.</p> <p>It is desirable to exclude all fires from Illawong Swamp. Other vegetation communities in the reserve may be considered for prescribed burns in the future under carefully controlled conditions to maintain biodiversity.</p>	<p>Manage fire to:</p> <ul style="list-style-type: none"> • protect human life and property within and adjacent to the reserve; • maintain plant and animal species and communities through the provision of fire regimes compatible with their conservation; and • protect Aboriginal and European cultural sites and management infrastructure. <p>Control all wildfires occurring in the reserve and minimise impacts associated with fire suppression operations.</p>	<p>Maintain and annually inspect all existing management trails within the reserve.</p> <p>Continue to map and enter prescribed and unplanned burn areas into the Service corporate GIS database.</p> <p>Continue to participate in the Eurobodalla Bush Fire Management Committee and maintain cooperation with local Rural Fire Service brigades.</p> <p>Exclude fire from Illawong Swamp (Swamp/Wetlands Complex). Consider prescribed burning of other vegetation communities present if the fire regime thresholds described in Section 2.6.3 of this plan are reached.</p> <p>Maintain close contact with planning authorities and neighbours to promote awareness of fire and conservation management issues, including maintenance of planning constraints, responsible residential property design and property protection practices.</p> <p>Control all unplanned fires in the reserve as soon as possible.</p> <p>Do not use heavy plant or equipment or retardants in wetland areas.</p> <p>Rehabilitate any areas disturbed by fire suppression operations as soon as practical after a fire.</p>	<p>High (o)</p> <p>High (o)</p> <p>High (o)</p> <p>High (o)</p> <p>High (o)</p> <p>High (o)</p> <p>High (o)</p> <p>High (o)</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.

(o) Ongoing activities are those that are undertaken in the course of day-to-day reserve management.

APPENDIX A BIRD LIST

peaceful dove	<i>Geopelia placida</i>
brush bronzewing	<i>Phaps elegans</i>
purple swamphen	<i>Porphyrio porphyrio</i>
masked lapwing	<i>Venellus miles</i>
sacred ibis	<i>Threskiomis aethiopica</i>
great egret	<i>Egretta alba</i>
white-faced heron	<i>Ardea novaehollandiae</i>
striated heron	<i>Butorides striatus</i>
black duck	<i>Anas superciliosa</i>
maned duck	<i>Chenonetta jubata</i>
black swan	<i>Cygnus atratus</i>
chestnut teal	<i>Anas castanea</i>
white-bellied sea eagle	<i>Haliaeetus leucogaster</i>
whistling kite	<i>Haliastur sphenurus</i>
southern boobook	<i>Ninox boobook</i>
rainbow lorikeet	<i>Trichoglossus haematodus</i>
musk lorikeet	<i>Glossopsitta concinna</i>
little lorikeet	<i>G. pusilla</i>
yellow-tailed black cockatoo	<i>Calyptorhynchus funereus</i>
gang-gang cockatoo	<i>Callocephalon fimbriatum</i>
sulphur-crested cockatoo	<i>Cacatua galerita</i>
little corella	<i>C. sanguinea</i>
galah	<i>C. roseicapilla</i>
Australian king parrot	<i>Alisterus scapularis</i>
crimson rosella	<i>Platycercus elegans</i>
eastern rosella	<i>P. eximius</i>
dollarbird	<i>Eurystomus orientalis</i>
azure kingfisher	<i>Ceyx azurea</i>
laughing kookaburra	<i>Dacelo novaeguineae</i>
sacred kingfisher	<i>Halcyon sancta</i>
white-throated needletail	<i>Hirundapus caudacutus</i>
fan-tailed cuckoo	<i>Cuculus pyrrhophanus</i>
common koel	<i>Eudynamis scolopacea</i>
welcome swallow	<i>Hirundo neoxena</i>
grey fantail	<i>Rhipidura rufiventris</i>
rufous fantail	<i>R. rufifrons</i>
willie wagtail	<i>R. leucophrys</i>
jacky winter	<i>Microeca leucophaea</i>
rose robin	<i>Petroica rosea</i>
eastern yellow robin	<i>Eopsaltria australis</i>
hooded robin	<i>Melanodryas cucullata</i>
golden whistler	<i>Pachycephala pectoralis</i>
rufous whistler	<i>P. rufiventris</i>
grey shrike-thrush	<i>Colluricincla harmonica</i>
Australian magpie-lark	<i>Grallina cyanoleuca</i>
crested shrike-tit	<i>Falcunculus frontatus</i>
eastern whipbird	<i>Psophodes olivaceus</i>
black-faced cuckoo-shrike	<i>Coracina novaehollandiae</i>
white-throated gerygone	<i>Gerygone olivacea</i>

striated thornbill	<i>Acanthiza lineata</i>
brown thornbill	<i>A. pusilla</i>
yellow-rumped thornbill	<i>A. chrysorrhoa</i>
white-browed scrubwren	<i>Sericornis frontalis</i>
southern emu-wren	<i>Stipiturus malachurus</i>
superb fairy-wren	<i>Malurus splendens</i>
variegated fairy-wren	<i>M. lamberti</i>
red-browed finch	<i>Neochima temporalis</i>
dusky woodswallow	<i>Artamus cyanopterus</i>
varied sittella	<i>Daphoenositta chrysoptera</i>
white-throated treecreeper	<i>Climacteris leucophaea</i>
spotted pardalote	<i>Pardalotus punctatus</i>
silveryeye	<i>Zosterops lateralis</i>
eastern spinebill	<i>Acanthorhynchus tenuirostris</i>
little wattlebird	<i>Anthochaera lunulata</i>
red wattlebird	<i>A. carunculata</i>
yellow-faced honeyeater	<i>Lichenostomus chrysops</i>
noisy friarbird	<i>Philemon corniculatus</i>
red-browed firetail	<i>Emblema temporalis</i>
olive-backed oriole	<i>Oriolus sagittatus</i>
pieb currawong	<i>Strepera graculina</i>
grey butcherbird	<i>Cracticus torquatus</i>
Australian magpie	<i>Gymnorhina tibicen</i>
Australian raven	<i>Corvus coronoides</i>
spotted turtle-dove	<i>Streptopelia chinensis</i>
common starling	<i>Sturnus vulgaris</i>

Note: This list is considered to be incomplete.