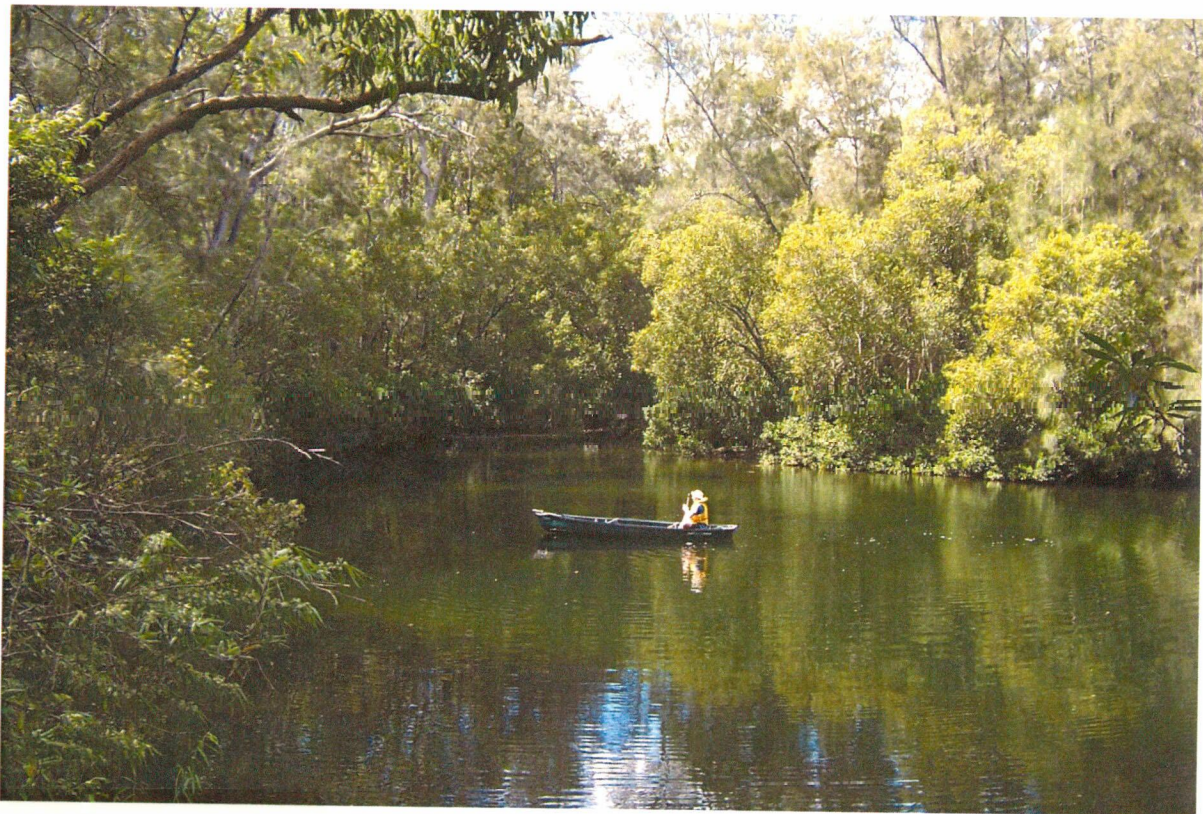




Brimbin Nature Reserve

Plan of Management



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**BRIMBIN NATURE RESERVE
PLAN OF MANAGEMENT**

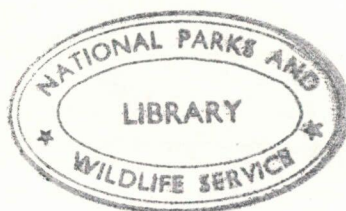
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May 2005

National Parks & Wildlife Service



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This plan of management was adopted by the Minister for the Environment on 27 May 2005.

ACKNOWLEDGMENTS

This plan of management was prepared by Kim Luckie with assistance from staff of the Mid North Coast Region of the NPWS, together with assistance of the Northern Directorate Planning Group. The contributions of the Regional Advisory Committee are greatly appreciated.

The valuable assistance of Greater Taree City Council, Department of Land and Water Conservation, Stephen Griffith, Warner Saunders, Wilfred Connors, and members of the community in providing specialist information is gratefully acknowledged.

Cover photograph of by Mike Pryjma.

For additional information or enquires on any aspect of the plan, contact the National Parks and Wildlife Service, Mid North Coast Regional Office, 152 Horton Street, Port Macquarie NSW 2444, or telephone (02) 6586 8300.

NSW National Parks and Wildlife Service

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Brimbin Nature Reserve : plan
of management

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FOREWORD

Brimbin Nature Reserve is located approximately 12 kilometres north west of Taree on the mid-north coast of NSW. The reserve currently covers an area of 40 hectares but a further 11 hectares has recently been acquired and will be added to the reserve in the near future.

Vegetation in the reserve is predominantly sclerophyll forest with a variety of coastal species and dry rainforest gullies. One forest community found in the reserve, the *Eucalyptus seeana* forest, was listed in 2002 as part of an endangered population under the *Threatened Species Conservation Act 1995*. *Eucalyptus seeana* is an important food and habitat tree for koalas, and has been greatly reduced due to clearing for agriculture and urban expansion.

The range of habitats in the reserve support a high faunal diversity. The threatened powerful owl and koala have been recorded in the reserve, and the area is potential habitat for other threatened species.

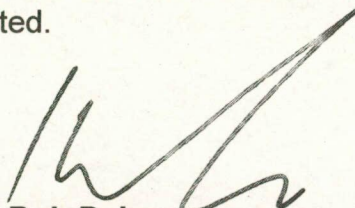
The planning area has a long history of European settlement and folklore. It contains part of the Old Port Macquarie Road and features named after Ms Isabelle Mary Kelly, a local identity, and Tommy Owens a local youth who drowned in 1850.

The proximity of the reserve to Taree, and the importance of the area to the local Aboriginal community, has led to the involvement of the local indigenous community in works programs on the reserve. The upgrading of the picnic facilities in the reserve in 2001 involved the local Community Development Employment Program and Purfleet-Taree Local Aboriginal Land Council

The *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 the area will be managed in the years ahead.

A draft plan of management for Brimbin Nature Reserve was placed on public exhibition from 14 November 2003 until 23 February 2004. The exhibition of the plan of management attracted 14 submissions that raised 8 issues. All submissions received were carefully considered before adopting this plan of management.

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



Bob Debus

Minister for the Environment

1. MANAGEMENT CONTEXT

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974*, 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 are compiled from the legislative background, the NPW Regulations 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.

The plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with the plan. This plan applies to Brimbin Nature Reserve, land acquired by NPWS but not yet gazetted as reserve and to any future additions. Where management strategies or works are proposed for the reserve or for any additions to the reserve that are not consistent with the plan, an amendment to the plan will be required.

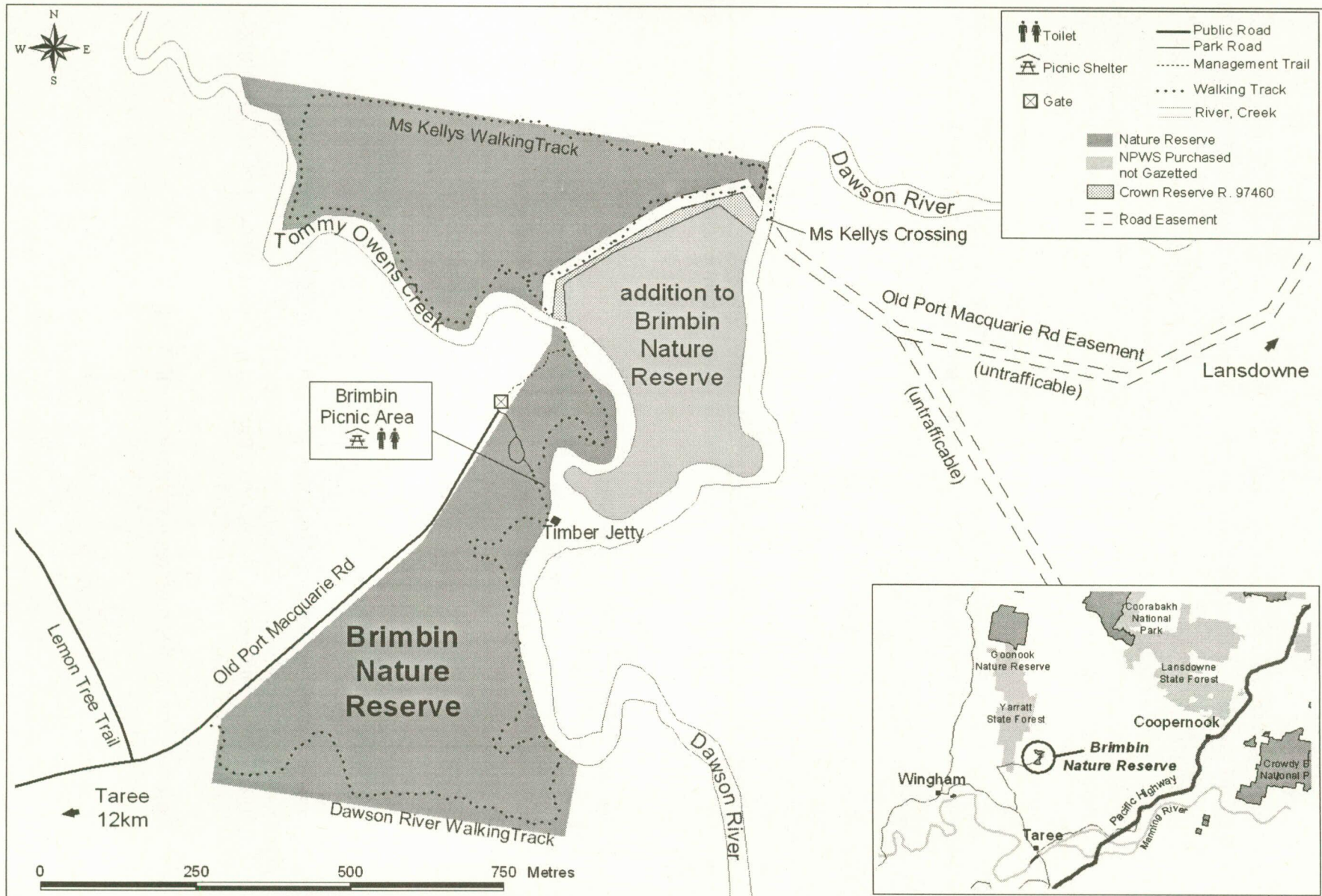
1.2 MANAGEMENT PURPOSES AND PRINCIPLES

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 planning areas natural and cultural values; and
- provide for appropriate research and monitoring.

2. Map: Planning Area



Brimbin Nature Reserve: Plan of Management

3. THE PLANNING AREA

3.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Brimbin Nature Reserve ('the reserve') is located approximately 12 kilometres north west of Taree on the mid-north coast of NSW. Access to the reserve is by the Old Port Macquarie Road through the Yarratt State Forest.

The reserve is approximately 40 hectares and is located beside the Dawson River and Tommy Owens Creek in the Manning River catchment. Prior to its dedication as a nature reserve in 2000, the area was Crown land managed by the then Department of Land and Water Conservation (DLWC).

Approximately 11 hectares has recently been acquired by NPWS as a future addition to the reserve. This area has significant flora and landscape values and consolidates the eastern boundary thus enhancing the viability of the reserve. It also includes the western foreshore of the Dawson River, which is land within the floodplain of a major coastal river system (the Manning River) which is under-represented in the existing reserve system.

Collectively, the reserve and acquired lands are referred to as the "planning area" in this document and cover an area of approximately 51ha (see map).

A small linear Crown Reserve (R 97460) is located between the reserve and the area recently acquired by NPWS (see map). This Crown Reserve is part of the original Brimbin Reserve, which was dedicated for the preservation of native flora and fauna in 1984.

The name 'Brimbin' is an Aboriginal word derived from 'Borembit' or stringybark (*Eucalyptus sp.*), which is a common tree in the area. The planning area is within the Taree local government area and the Purfleet -Taree Local Aboriginal Land Council (LALC).

Surrounding land use includes cattle grazing, small hobby farms, hardwood forestry and grazing. There are a number of rural residential subdivisions proposed for the surrounding area. Other reserves in the area include Goonook, Wingham Brush and Coocumbac Island Nature Reserves.

3.2 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. 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.

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.

3.3 MANAGEMENT DIRECTIONS

The management directions for the planning area are to:

- conserve native plants and animals, including threatened and regionally significant species;
- conserve the population of *Eucalyptus seeana*, which is listed as an endangered population under the TSC Act;
- maintain and enhance water quality, aquatic habitats and riparian vegetation along Dawson River and Tommy Owens Creek;
- continue to involve the local community in the management and protection of the planning area;
- integrate management of the reserve, land acquired by NPWS and any future additions as a single management unit;
- maintain the current low-key recreation setting for day use with basic facilities for nature based visitor use and as an educational resource;
- interpret the historic heritage including the Aboriginal association, European settlement and folklore;
- control and where possible eradicate pest species; and
- encourage opportunities for research, especially on Aboriginal cultural heritage, fauna and pest species.

3.4 NATURAL AND CULTURAL HERITAGE

3.4.1 Soils, landform and hydrology

The planning area is flat to gently undulating with gradients of approximately 10 -15m above sea level. The sedimentary geology is dominated by Permian mudstones with generally brown podsollic soils. Grey podsollic swamp soils have developed in the poorly drained areas and on the floodplain of the Dawson River.

"Rumbling" and "noticeable ground vibrations" have been reported in the area by the local community during major storms (Neville Bell, SFNSW and Uncle Warner Saunders *pers. comm*). It is thought that this may be attributed to possible limestone geology in the area.

The planning area is within the Lower North Coast Catchment Management Board.

3.4.2 Native plants

Vegetation in the reserve is predominantly sclerophyll forest with a variety of coastal species. The main forest ecosystems include grey gum – grey ironbark – thick leaved white mahogany (*Eucalyptus propinqua* - *Eucalyptus siderophloia* - *Eucalyptus carnea*), white stringybark (*Eucalyptus eugenioides*), tallowwood (*Eucalyptus microcorys*), narrow leaved red gum (*Eucalyptus seeana*) and turpentine – tallowwood – pink bloodwood (*Syncarpia glomulifera* - *Eucalyptus microcorys* - *Corymbia intermedia*). Common riparian trees include Grey Myrtle (*Backhousia myrtifolia*), Swamp Oak (*Casuarina glauca*) and watergum (*Tristaniopsis laurina*). River mangrove (*Aegiceras corniculatum*) and grey mangrove (*Avicennia marina*) line the riverbank below the tidal limit at the confluence of the Dawson River and Tommy Owens Creek.

Eucalyptus seeana is recorded as a forest ecosystem in the reserve. This species is an important food and habitat tree for koalas (*Phascolarctos cinereus*) and has been greatly reduced due to past clearing for agriculture and more recently by urban expansion. It was listed in 2002 as an endangered population under Schedule 1 of the TSC Act in the Greater Taree Local Government (LGA) Area. Although *E. seeana* has a wide distribution from Taree to Caloundra, the southern part of its range is ecologically restricted and sporadic in distribution. The population in the Greater Taree LGA is disjunct and at or near the southern limit for this species (NSW Scientific Committee, 2002).

Similar vegetation types are likely to occur in the proposed additions to the reserve, which are yet to be comprehensively surveyed.

Two significant plant species have been recorded in the reserve. An unusual occurrence of *Trochocarpa* sp., which is typically a high altitude species of the northern tablelands region, and the most northerly coastal record of *Melaleuca decora*.

The upgrading of the reserve's day use area in 2001 involved the planting of over 750 local endemic native plants, including a variety of local Aboriginal food plant species (refer 3.5 Recreation and Education Opportunities).

3.4.3 Native animals

The sclerophyll forest associations, dry rainforest gullies and estuarine environment provide a range of habitats supporting a high faunal diversity. The powerful owl (*Ninox strenua*) and koala (*Phascolarctos cinereus*) have been recorded in the reserve and are listed as vulnerable species under the TSC Act. The planning area is also potential habitat for other threatened species including the spotted tailed quoll (*Dasyurus maculatus*), brush-tailed phascogale (*Phascogale tapoatafa*) and glossy black-cockatoo (*Calyptorhynchus lathami*).

A Draft Recovery Plan for the koala (NPWS 2003) has been prepared which considers the conservation requirements of the species across its known range in NSW. It identifies actions to be taken to ensure the long-term viability of the koala in natural environments and provides a framework for localised koala recovery efforts. Amongst other things, the recovery actions are aimed at identifying koala habitat and prioritising on ground management actions; identifying research priorities; and increasing community and government awareness regarding the management and conservation of koalas. It is intended that the approved recovery plan will be implemented over a five-year period.

3.4.4 Aboriginal heritage

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

At the time of European settlement, the Manning Valley was occupied by the Biripi tribe. The Biripi people have traditionally used places like the planning area for the collection of bush tucker and other cultural purposes, such as social gatherings.

There are no recorded Aboriginal sites in the planning area, although no comprehensive surveys have been undertaken.

The Purfleet -Taree Local Aboriginal Land Council, relevant Elders groups, the Biripi people and other indigenous persons represent contemporary Aboriginal involvement in the reserve. It is NPWS policy to involve the Aboriginal community in the management of Aboriginal heritage.

The proximity to Taree and the importance of the area to the local Aboriginal community has led to the involvement of the local indigenous community in works programs on the reserve. The upgrade of the facilities in 2001, involved the local Community Development Employment Program (CDEP) and Purfleet-Taree Local Aboriginal Land Council (refer 3.5 Recreation and Education Opportunities). Future works programs will be encouraged with the local Aboriginal community in the planning area.

3.4.5 Historic heritage and previous land use

The planning area has a long history of European settlement and folklore. From the late 1830s, the first timber cutters reached the Manning Valley and formed logging camps along the Manning and Dawson Rivers. Evidence of logging and bullock dray routes can still be found throughout the area (Crowns Land Office, c1980).

The southern section of the nature reserve, south of Tommy Owens Creek, was gazetted as a stock camp in June 1881. The northern section of the nature reserve was included in the reserve for stock camping in October 1883.

Land recently acquired by NPWS as an addition to the nature reserve was originally part of the Travelling Stock Route associated with the stock camp that was sold as freehold in the 1960s.

The Old Port Macquarie Road follows part of the track established in the late 1820s to link the settlement at Port Macquarie with the Australian Agricultural Company lands at Gloucester and Stroud (Crowns Land Office, c1980). The road allowed bullock drawn vehicles to cross the Dawson River on a flat natural rock feature at Kate Kellys Crossing.

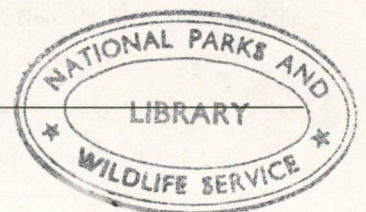
Kate Kellys Crossing is named after Ms Isabella Mary Kelly. Ms Kelly was a well known identity in the area in the mid 1800s and was known for her brave and courageous exploits. Stories also abound of her ruthlessness and cruel treatment of convicts and Aboriginal people (Beatty, 1967). A business woman and landowner, Ms Kelly was responsible for producing some of the best livestock in the district (Connors, 1997). Kate was a nickname for Ms Kelly, believed to be after Ned Kelly's sister Kate, as Ms Kelly's exploits were often exaggerated and compared to the Kelly gang. Kate Kellys Crossing was named after an incident where two convicts were said to have rescued Ms Kelly from the river (although there is some local debate whether this incident occurred at Brimbin or at another creek near Port Macquarie).

As Kate is not the original name of Ms Isabelle Mary Kelly, and to reflect the true name of Ms Kelly, it is deemed appropriate to change the name of Kate Kellys Crossing and Kate Kellys Walking Track to Ms Kellys Crossing and Ms Kellys Walking Track.

Tommy Owens Creek, north of the day use area, commemorates a local youth who drowned in 1850 when swept from his horse whilst attempting to cross the creek during a violent storm.

There are also a number of other stories associated with the area including earth shaking thunderstorms, savage dogs and the ghost of a servant girl who was believed to have been murdered just above the tidal limit of the Dawson River (Connors, 1997).

In the 1980s the reserve was a popular picnic area in the Manning Valley. The reserve was upgraded in the 1980s by the Department of Lands to provide shelter sheds, toilets and walking tracks. The Department of Lands also installed a small timber jetty with retaining wall and steps down to the Dawson River. In 1999, management of the reserve was vested in the NPWS and there has since been a complete upgrade of the day use facilities and southern section of the Old Port Macquarie Road (refer 3.5 Recreation and Education Opportunities).



3.5 RECREATION AND EDUCATION OPPORTUNITIES

The planning area's close proximity to Taree provides opportunities for low key recreational activities including bush walking, picnicking, canoeing, and bird watching. There is a low level of visitation to the reserve mainly by the local community, schools and tertiary institutions.

Two wheel drive vehicle access to the reserve is available along the Old Port Macquarie Road. The road reserve for the Old Port Macquarie Road continues east across Tommy Owens Creek towards Lansdowne, though this section is overgrown and is not suitable for vehicle access.

The planning area is also accessible via canoe or small watercraft from the Dawson River but such use is minimal. Access to the timber jetty needs improvement and is currently closed to the public use due to safety concerns. Visitors are encouraged to alight at the junction of Tommy Owens Creek and the Dawson River.

There are two walking tracks in the reserve. The northern track is called Ms Kellys Walking Track and the southern track is the Dawson River Walking Track (see map). Both walking tracks are in need of minor upgrading and erosion control works. Markers and track signs also need upgrading and some footbridges require repair.

Visitor facilities are provided in the day use area including a shelter shed, picnic tables and pit toilets. The day use area was upgraded in 2001 by NPWS and the community including members of the local Aboriginal CDEP and the Society for Growing Australian Plants.

The diverse natural and cultural values of the planning area also provides an opportunity for nature based education for locals schools and tertiary institutions. TAFE students have used the reserve for nature based field trips. The rich cultural heritage of the planning area also lends itself to interpretation and education.

3.6 RESEARCH AND MONITORING

There is very limited resource information and knowledge on the fauna of the planning area. A recent flora survey has been undertaken in the reserve, which provides a comprehensive list on the native species and some of the pest plants in the reserve (Griffith, 2002). A vegetation map is also currently in preparation for the reserve (McDonald, 2002). Comprehensive surveys would also be beneficial for the proposed additions to the reserve where there is very little information on natural or cultural values.

3.7 THREATS TO THE PLANNING AREA

3.7.1 Pest species

Pest plants can competitively exclude native plant species and provide habitat for feral animals. Pest animals can impact on native wildlife through competition for resources, predation, disturbance and transmission of diseases. A comprehensive survey of pest

species in the planning area has not yet been undertaken. The identification of pest species would assist in the implementation of appropriate pest control programs.

There are isolated occurrences of pest plant species recorded in the reserve including pink lantana (*Lantana camera*) and camphor laurel (*Cinnamomum camphora*). There are no known noxious plant species recorded on the reserve.

Pest animal species predicted to occur in the reserve include the wild dog (*Canis familiaris*), rabbit (*Oryctolagus cuniculus*), cat (*Felis catus*) and fox (*Vulpes vulpes*). Predation by the feral cat and the fox are both listed as threatening processes to native animals under the TSC Act and the Commonwealth *Environment Protection and Biodiversity Act 1999* (EPB Act). The NSW Threat Abatement Plan for the fox (NPWS, 2001) has recently been prepared and any fox control programs in the park will be guided by this document. Wild dogs have been declared as pest animals under the *Rural Lands Protection Act 1998* (RLP Act) throughout NSW.

3.7.2 Fire

The NPWS regards fire as a natural phenomenon and one of the continuing physical factors influencing the Australian environment. Inappropriate fire regimes have been identified as a key threatening process affecting the biological diversity of NSW. The fire history of the planning area is poorly documented, but the predominantly dry sclerophyll forest is conducive to frequent fire events. Areas near the reserve boundary show evidence of being frequently burnt. Small areas of dry rainforest and wet sclerophyll forest, riparian vegetation and mangroves are sensitive to fire and repeated fire is likely to cause impact on these communities and change composition of native vegetation.

Ecological research in fire-prone ecosystems has established some general principles about fire regimes and the conservation of biodiversity. That is, groups of plants and animals respond similarly to fire according to characteristics of their life history. Therefore it is not necessary to individually specify fire regimes for the conservation of every species. Requirements for most plant species can be summarised on the basis of vegetation communities and there is a threshold in fire regime variability which marks a critical change from high species diversity to low species diversity. The following fire regime guidelines have been identified for the reserve:

Table 1: Fire Regime Guidelines

Vegetation community	A decline in biodiversity is predicted if there is:		
Dry sclerophyll forests	Three or more consecutive fires, with each of the fires less than 5 years apart	No fire for more than 30 years	Successive fires that totally scorch or consume the tree canopy
Wet sclerophyll forests	More than one fire every 30 years	No fires for 200 years (upper threshold under review)	
Rainforests	Any fire occurrence		
Grasslands	not applicable		

Source: NPWS, 1998 based on Bradstock et al, 1995; Keith, 1996.

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 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, riparian and mangrove vegetation.

The HAMZ focuses on those actions appropriate to conserve biodiversity and cultural heritage including exclusion of fire from rainforest, riparian and mangrove vegetation. Management of fire regimes for other communities will be in accordance with fire regime guidelines identified in table 1.

While there is potential for fires to spread into the planning area from surrounding forests and cleared grasslands from the north, south and west, a number of natural and constructed barriers inhibit the spread of fire. This includes the Old Port Macquarie Road, Tommy Owens Creek and the Dawson River. Some limited fuel reduction burning may be required where fuel loads have accumulated to protect life and property.

3.7.3 Inappropriate visitor use

Prior to the area becoming a nature reserve, vegetation and infrastructure including facilities in the day use area had been subjected to vandalism. Visitation levels also noticeably declined during this period, which may have been a result of the vandalism and deterioration of facilities.

Activities such as trail bike riding and horse riding are generally inconsistent with the purposes of a nature reserve under the NPW Act. These activities occasionally occur in the reserve along walking tracks, resulting in soil erosion along some parts of the tracks. The narrow walking tracks are designated for walkers only and are unsuitable and not maintained for the purpose of trail bike riding, cycling or horse riding. Registered vehicles and bicycles are restricted to park roads and public roads. Horse riding is not permitted in the planning area in accordance with NPWS Horse Riding Policy for Nature Reserves.

There has been a decrease in vandalism and inappropriate recreational activities since the upgrading of visitor facilities, increased visitation and regular NPWS presence in the area.

3.7.4 Pit Toilets

The unsealed pit toilets at the day use area are located near to the Dawson River. A recent sewage management strategy prepared for the NPWS Mid North Coast Region, identified the pit toilets as a possible risk to the surrounding environment and recommend that they be replaced with a composting toilet or pump out system (NPWS 2001).

MANAGEMENT STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>Pit toilets near Dawson River have been identified as a potential environmental risk to the surrounding environment (NPWS, 2001).</p> <p>There is some minor soil erosion along walking tracks from inappropriate visitor use.</p>	<ul style="list-style-type: none"> • Water quality in the planning area and catchment is maintained or improved. • Soil erosion in the planning area is minimised. 	<ul style="list-style-type: none"> • Install composting toilets or a pump out system to replace the current pit toilets near the Dawson River. • Undertake all works in a manner that minimises erosion and water pollution. • Work with the Lower North Coast Catchment Management Board and Mid Coast Water to ensure that the integrity of riparian vegetation and water quality in the catchment is maintained. • Undertake erosion control works along walking tracks and continue monitoring of visitor use (refer Recreation opportunities). 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>
<p>Native plants</p> <p>Vegetation is predominantly sclerophyll forest with a variety of coastal species. There are some dry rainforest plant species. Riparian vegetation, including mangroves, line the riverbank.</p> <p><i>E. seeana</i> is recorded in the reserve, and is listed as endangered population under the TSC Act.</p> <p>A vegetation map is being prepared for the reserve.</p>	<ul style="list-style-type: none"> • Native plant species and communities are conserved. • Improved knowledge of threatened and significant plants, ecology and habitat requirements. 	<ul style="list-style-type: none"> • Provide interpretation signs in the planning area on the importance of the endangered population of <i>E. seeana</i>. • Liaise with relevant neighbours to encourage the retention of key habitat and corridors in the vicinity of the planning area and to identify potential wildlife /habitat corridors to link to other remnant areas. • Complete the vegetation map for the reserve and newly acquired lands. 	<p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Long term conservation of the planning areas natural values would be enhanced by the retention of remaining vegetation on neighbouring lands.</p>		<ul style="list-style-type: none"> Encourage and assist the development of voluntary conservation agreements for protection of conservation values on surrounding properties. Priority areas include corridors linking the planning area with Yarratt State Forest and Goonook Nature Reserve. 	High
<p>Native animals</p> <p>There is limited information on the native animals in the planning area. The powerful owl and the koala, which are threatened species, have been recorded in the reserve.</p> <p>Other threatened species predicted to occur in the planning area include the spotted-tail quoll, brushtail phascogale and glossy black cockatoo.</p> <p>The draft Recovery Plan for the Koala (NPWS 2003) considers the conservation requirements of the species and provides a framework for localised koala recovery efforts.</p>	<ul style="list-style-type: none"> The habitat for native animals is conserved. Threatened animal populations do not decline. There is increased knowledge of the planning areas fauna and their ecological requirements. 	<ul style="list-style-type: none"> Implement recovery plans for threatened species when they are prepared. Encourage or undertake surveys for threatened animal species predicted for the planning area. 	<p>Medium</p> <p>High</p>
<p>Pest species</p> <p>A Regional Pest Management Strategy has been prepared by NPWS, which prioritises pest species control programs.</p> <p>Pest plant species recorded in the park are mainly confined to areas of previous disturbance and along roadsides.</p>	<ul style="list-style-type: none"> Introduced plants and animals are controlled, and where possible eradicated. 	<ul style="list-style-type: none"> Undertake pest species control and regeneration works in accordance with the Regional Pest Management Strategy and Threat Abatement Plans. Liase with neighbouring landholders, GTCC, and SFNSW to encourage the control of environmental weeds and pest animals on adjacent lands. 	<p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Pest animal species predicted for the planning area include wild dog, rabbit, cat, and fox.</p>	<ul style="list-style-type: none"> • The impact of pest species on native species and the environment is minimised. • Improve knowledge of pest species and their impact on the planning area. 	<ul style="list-style-type: none"> • Undertake pest control programs as required to eradicate pest species in conjunction with neighbours, SFNSW and the Gloucester Rural Lands Protection Board. • Undertake a survey of pest species and monitor and implement control programs when necessary. In particular, target the removal of lantana and camphor laurel. 	<p>Medium</p> <p>Medium</p>
<p>Cultural heritage</p> <p>Aboriginal people have a strong relationship with the area. The local indigenous community has also been involved in work programs in the reserve.</p> <p>No comprehensive survey of Aboriginal cultural values has been undertaken in the area.</p> <p>The planning area has a long history of early European settlement and folklore, dating back to the 1820s.</p> <p>Kate Kellys Crossing and Tommy Owens Creek are named after local historic identities.</p> <p>As Kate was a nickname for the local identity Ms Isabelle Mary Kelly, the name of Kate Kellys Crossing and Kate Kellys Walking Track should be changed to reflect the true name of Ms Kelly.</p>	<ul style="list-style-type: none"> • The cultural heritage of the planning area is recorded and sites protected. • Relevant persons are involved in the consultation and preservation of cultural heritage. • There is improved understanding of the cultural significance of the area. 	<ul style="list-style-type: none"> • Consult and involve the Purfleet –Taree Local Aboriginal Land Council, the Giiwan Elders, the Biripi and other relevant people in the management and interpretation of Aboriginal cultural heritage sites, places and values. • Undertake an archaeological site investigation in areas where any new developments or earthworks are proposed. • Provide interpretation material on the history of European settlement and folklore in the planning area including information on the travelling stock route, the Old Port Macquarie Road, Isabella Mary Kelly and Tommy Owens Creek (refer Recreation opportunities). • Change the name of Kate Kellys Crossing and Kate Kellys Walking Track to Ms Kellys Crossing and Ms Kellys Walking Track, and reflect this change in any new signs, brochures or maps for the reserve. 	<p>High</p> <p>Medium</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
		<ul style="list-style-type: none"> • Continue to involve the local community in the interpretation and management of European cultural heritage in the reserve. • Encourage research and studies into the Aboriginal heritage values of the planning area in consultation with the Purfleet - Taree Local Aboriginal Land Council, the Giuiwan Elders and the Biripi community. 	<p>Medium</p> <p>Medium</p>
<p>Recreational opportunities</p> <p>The planning area is accessed from Old Port Macquarie Road through Yarratt State Forest. Vehicle access to the planning area from Ms Kellys Crossing is inappropriate. The crossing has historical significance and would require considerable maintenance to upgrade the road to a trafficable condition.</p> <p>Low impact recreational opportunities in the planning area include bushwalking, picnicking, canoeing and bird watching. Facilities include a shelter shed, picnic tables and toilets.</p> <p>The walking track through the reserve is in need of minor upgrading. There are few markers on the track and some footbridges require maintenance.</p> <p>The timber jetty on the Dawson River is closed due to safety concerns and visitors are encouraged to alight from watercraft further upstream on the bank of the Dawson River.</p> <p>The reserve is used as educational resource for local schools and the TAFE.</p>	<ul style="list-style-type: none"> • Vehicle access to the reserve is maintained to a two wheel drive standard. • The walking track is maintained and provides opportunities not available in the surrounding locality. • Visitor use is nature based and ecologically sustainable. • The planning area is used for educational purposes. 	<ul style="list-style-type: none"> • Liaise with GTCC about maintenance of the Old Port Macquarie Road (southwest of the reserve). • Install a regulatory sign at Ms Kellys Crossing restricting vehicle access into the reserve. Monitor vehicle use and if necessary install a gate. • Maintain Ms Kellys and Dawson River walking tracks shown on the map. Indicate the route via markers or other appropriate methods. Upgrade the bridges on the walking track as required and install two bench seats along the walking track network. • Improve access and public safety issues on the timber jetty and undertake appropriate works as required. Until such works are undertaken, restrict public access to the jetty from the top of the stairs. • Promote the natural and cultural values of the planning area via: <ol style="list-style-type: none"> i. Install interpretation signs in the planning area; and ii. the promotion of the planning area as a study site to local schools and tertiary institutions. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>The interpretation signs are out dated and require upgrading and maintenance.</p>	<ul style="list-style-type: none"> • Visitation levels are maintained at a sustainable level. 	<ul style="list-style-type: none"> • Install regulatory signs about appropriate use of the nature reserve, noting that vehicles and bicycles are restricted to designated roads and horses and other domestic animals will not be permitted in the nature reserve. 	<p>Medium</p>
<p>Fire Management</p> <p>The fire history of the planning area has been poorly documented, but the nature of the dry vegetation lends itself to frequent fire. Areas near the planning area boundary show evidence of being frequently burnt. Most fires in the planning area are likely to be caused by incendiarism and escaped rural burns. The reserve has been designated as a HAMZ because of the sensitivity of rainforest, riparian and mangrove communities.</p> <p>There are a number of assets in the reserve that should be protected from fire including visitor facilities, the jetty and bridges.</p> <p>Old Port Macquarie Road and trails on neighbouring properties provide opportunities for strategic access for fire management purposes.</p> <p>Access to fresh water is available from Tommy Owens Creek, off Old Port Macquarie Road.</p> <p>Hazard reduction burning is required in some areas where heavy fuels loads accumulate.</p>	<ul style="list-style-type: none"> • Fire frequencies are appropriate for conservation of native plant and animal communities. • Fire is excluded from rainforest, riparian and mangrove communities. • Life, property including adjoining dwellings and infrastructure are protected from fire. 	<ul style="list-style-type: none"> • Manage the reserve as a Heritage Management Zone 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 1). • Exclude fire from rainforest, riparian and mangrove communities. • Participate in Greater Taree District Bush Fire Management Committee. Maintain cooperative arrangements with the Rural Fire Service Brigades, GTCC, SFNSW and surrounding landholders with regard to fuel management and fire suppression. • Protect assets such as day use facilities, jetty and bridges in the reserve from fire. • Assist with hazard reduction burns on adjacent lands and maintenance of fire trails on neighbouring properties as appropriate. • Undertake hazard reduction burning, east of the Old Port Macquarie Road and south of the day use area to maintain low fuel loads in this area. Ensure that hazard reduction is maintained as a narrow strip parallel to the road and does not impact on sensitive riparian vegetation along Tommy Owens Creek. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
		<ul style="list-style-type: none"> • Prescribed burning may be undertaken in other sections of the park to maintain ecological values consistent with Table 1 and the requirements for the protection of threatened species or where research indicates it is necessary. 	Medium
<p>Research and monitoring</p> <p>Other than studies on the flora and a report on the history and folklore of Brimbin Reserve there is limited information on the values and threats to the planning area.</p>	<ul style="list-style-type: none"> • Research enhances the knowledge and management of the planning area. • Research has minimal environmental impact on the planning area. 	<ul style="list-style-type: none"> • Encourage research into topics of relevance to management including: <ol style="list-style-type: none"> I. fauna surveys; II. Aboriginal cultural heritage; and III. pest species. • Ensure research involving Aboriginal cultural is carried out in consultation with the Aboriginal community. 	<p>Medium</p> <p>High</p>
<p>Reserve additions</p> <p>Approximately 11 hectares has recently been acquired by NPWS as an addition to the reserve.</p> <p>A remnant of Crown Reserve 97460 lies between the Old Port Macquarie Road easement and the recently acquired lands. Initial consultation with Lands has been undertaken to include this area into the reserve.</p>	<ul style="list-style-type: none"> • Any proposed additions of land to the reserve are managed in accordance with this plan of management. • The reserve boundary is consolidated to include other areas important to its management. 	<ul style="list-style-type: none"> • Seek gazettal of newly acquired lands into the reserve. • Liaise with Lands about inclusion of Crown Reserve 97460 into the reserve. • Seek inclusion of the Old Port Macquarie Road easement north of Brimbin picnic area to Ms Kellys Crossing into the reserve. • Manage any new additions to the reserve in accordance with this plan of management. 	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p>

KEY TO PRIORITIES

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

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

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

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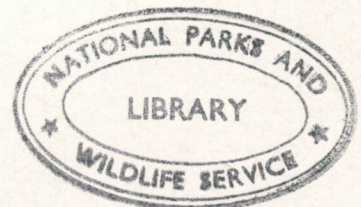
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Draft Plan of Management

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**BRIMBIN NATURE RESERVE
DRAFT PLAN OF MANAGEMENT**

NSW National Parks and Wildlife Service

October 2003

National Parks & Wildlife Service



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ACKNOWLEDGMENTS

This draft plan of management was prepared by Kim Luckie with assistance from staff of the Mid North Coast Region of the NPWS, together with assistance of the Northern Directorate Planning Group. The contributions of the Regional Advisory Committee are greatly appreciated.

The valuable assistance of Greater Taree City Council, Department of Land and Water Conservation, Stephen Griffith, Warner Saunders, Wilfred Connors, and members of the community in providing specialist information is gratefully acknowledged.

For additional information or enquires on any aspect of the plan, contact the National Parks and Wildlife Service, Mid North Coast Regional Office, 152 Horton Street, Port Macquarie NSW 2444, or telephone (02) 6586 8300.

NSW National Parks and Wildlife Service

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INVITATION TO COMMENT

The *National Parks and Wildlife Act 1974* (NPW Act) requires that a plan of management be prepared for each nature reserve. A plan of management is a legal document that outlines how the area will be managed in the years ahead by the National Parks and Wildlife Service (NPWS).

The procedures for the adoption of a plan of management are specified in the NPW Act and involve the following stages:

- The draft plan is placed on public exhibition for at least 90 days and any person may comment on it;
- The plan and all submissions received on the plan are referred to the Regional Advisory Committee for consideration;
- The plan, submissions and any advice from the Regional Advisory Committee are referred to the National Parks and Wildlife Advisory Council for consideration;
- The recommendations of the Advisory Council are referred to the Minister for the Environment, and a copy referred to the Regional Advisory Committee;
- After considering the submissions, the recommendations of the Advisory Council and any advice from the Regional Advisory Committee, the Minister may adopt the plan or may refer the plan back to the NPWS and Council for further consideration.

Members of the public, whether as individuals or as members of community interest-groups, are invited to comment on this plan of management. Submissions should be in writing, and as detailed and specific as possible; however any comments, no matter how brief, are welcome.

Comments should be forwarded to:

The Planning Officer
Brimbin Nature Reserve
Draft Plan of Management
National Parks and Wildlife Service
PO Box 61
Port Macquarie NSW 2444

The closing date for comments on this plan is Monday 23rd February 2004.

All submissions received by NPWS are a matter of public record and are available for public inspection upon request to NPWS. Your comments on this draft plan of management may contain information that is defined as "personal information" under the *NSW Privacy and Personal Information Protection Act 1998*. The submission of personal information with your comments is voluntary.

1. MANAGEMENT CONTEXT

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974*, 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 are compiled from the legislative background, the NPW Regulations 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.

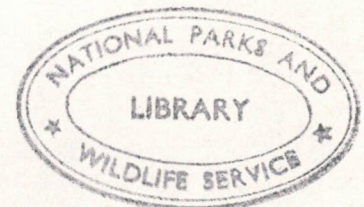
The plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with the plan. This plan applies to Brimbin Nature Reserve, land acquired by NPWS but not yet gazetted as reserve and to any future additions. Where management strategies or works are proposed for the reserve or for any additions to the reserve that are not consistent with the plan, an amendment to the plan will be required.

1.2 MANAGEMENT PURPOSES AND PRINCIPLES

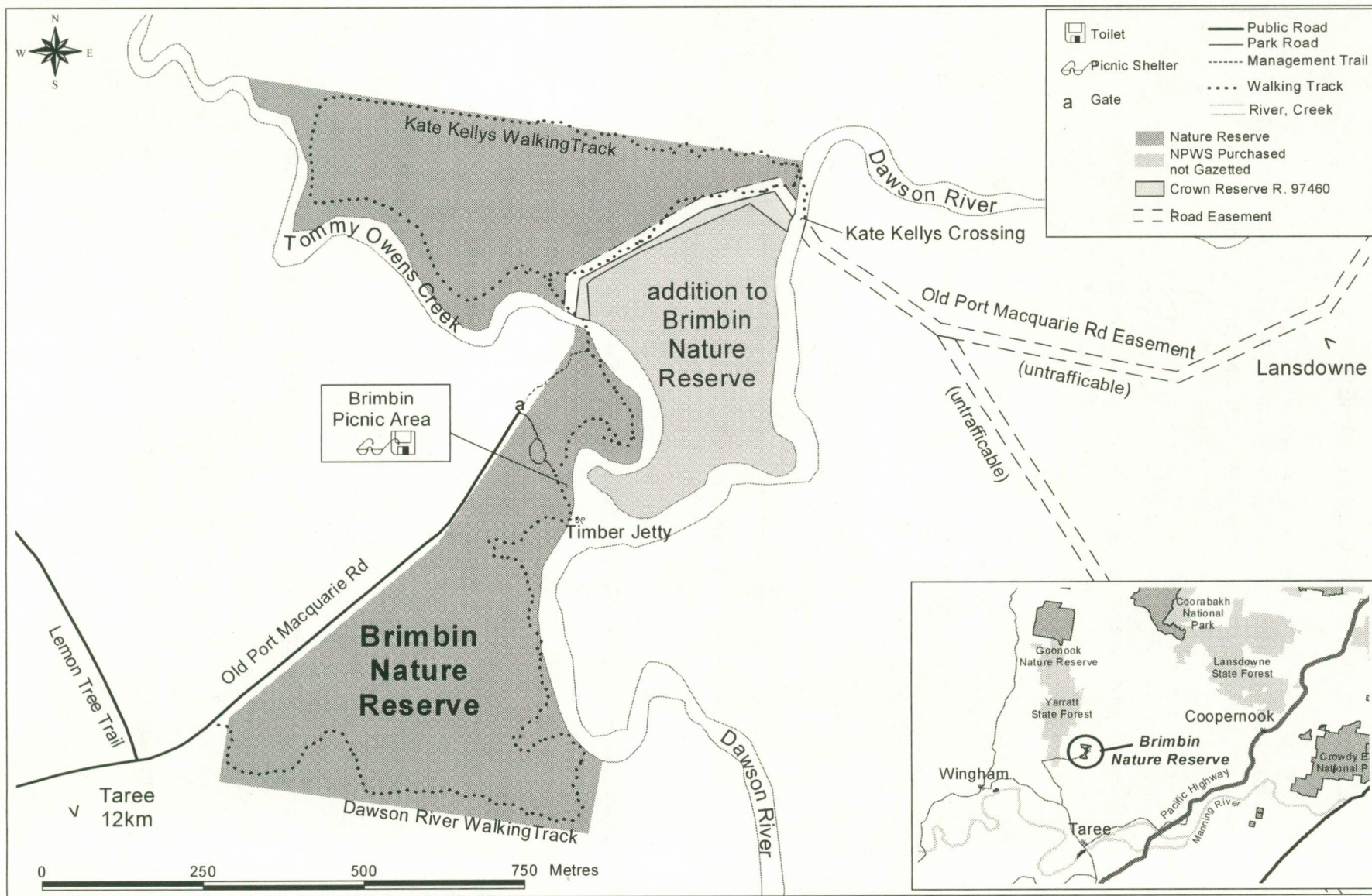
Nature reserves are reserved under the NPW Act to protect and conserve areas containing outstanding, unique or representative ecosystems, species, communities or natural phenomena.

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 planning areas natural and cultural values; and
- provide for appropriate research and monitoring.



2. Map: Planning Area



3. THE PLANNING AREA

3.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Brimbin Nature Reserve ('the reserve') is located approximately 12 kilometres north west of Taree on the mid-north coast of NSW. Access to the reserve is by the Old Port Macquarie Road through the Yarratt State Forest.

The reserve is approximately 40 ha and is located beside the Dawson River and Tommy Owens Creek in the Manning River catchment. Prior to its dedication as a nature reserve in 2000, the area was Crown land managed by the then Department of Land and Water Conservation (DLWC).

Approximately 11 hectares has recently been acquired by NPWS as a future addition to the reserve. This area has significant flora and landscape values and consolidates the eastern boundary thus enhancing the viability of the reserve. It also includes the western foreshore of the Dawson River, which is land within the floodplain of a major coastal river system (the Manning River) which is under-represented in the existing reserve system.

Collectively, the reserve and acquired lands are referred to as the "planning area" in this document and cover an area of approximately 51ha (see map).

A small linear Crown Reserve (R 97460) is located between the reserve and the area recently acquired by NPWS (see map). This Crown Reserve is part of the original Brimbin Reserve, which was dedicated for the preservation of native flora and fauna in 1984.

The name 'Brimbin' is an Aboriginal word derived from 'Borembit' or stringybark (*Eucalyptus sp.*), which is a common tree in the area. The planning area is within the Taree local government area and the Purfleet -Taree Local Aboriginal Land Council (LALC).

Surrounding land use includes cattle grazing, small hobby farms, hardwood forestry and grazing. There are a number of rural residential subdivisions proposed for the surrounding area. Other reserves in the area include Goonook, Wingham Brush and Coocumbac Island Nature Reserves.

3.2 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. 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.

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.

3.3 MANAGEMENT DIRECTIONS

The management directions for the planning area are to:

- conserve the population of *Eucalyptus seeana*, which is listed as a endangered population under the TSC Act;
- maintain and enhance water quality, aquatic habitats and riparian vegetation along Dawson River and Tommy Owens Creek;
- continue to involve the local community in the management and protection of the planning area;
- integrate management of the reserve, land acquired by NPWS and any future additions as a single management unit;
- maintain the current low-key recreation setting for day use with basic facilities for nature based visitor use and as an educational resource;
- interpret the historic heritage including the Aboriginal association, European settlement and folklore;
- control and where possible eradicate pest species ; and
- encourage opportunities for research, especially on Aboriginal cultural heritage, fauna and pest species.

3.4 NATURAL AND CULTURAL HERITAGE

3.4.1 Soils, landform and hydrology

The planning area is flat to gently undulating with gradients of approximately 10 -15m above sea level. The sedimentary geology is dominated by Permian mudstones with generally brown podsollic soils. Grey podsollic swamp soils have developed in the poorly drained areas and on the floodplain of the Dawson River.

"Rumbling" and "noticeable ground vibrations" have been reported in the area by the local community during major storms (Neville Bell, SFNSW and Uncle Warner Saunders *pers. comm*). It is thought that this may be attributed to possible limestone geology in the area.

The planning area is within the Lower North Coast Catchment Management Board.

3.4.2 Native plants

Vegetation in the reserve is predominantly sclerophyll forest with a variety of coastal species. The main forest ecosystems include grey gum - grey ironbark – thick leaved white mahogany (*Eucalyptus propinqua* - *Eucalyptus siderophloia* - *Eucalyptus carnea*), white stringybark (*Eucalyptus eugenioides*), tallowwood (*Eucalyptus microcorys*), narrow leaved red gum (*Eucalyptus seeana*) and turpentine – tallowwood - pink bloodwood (*Syncarpia glomulifera* - *Eucalyptus microcorys* – *Corymbia intermedia*). Common riparian trees include Grey Myrtle (*Backhousia myrtifolia*), Swamp Oak (*Casuarina glauca*) and watergum (*Tristaniopsis laurina*). River mangrove (*Aegiceras corniculatum*) and grey mangrove (*Avicennia marina*) line the riverbank below the tidal limit at the confluence of the Dawson River and Tommy Owens Creek.

Eucalyptus seeana is recorded as a forest ecosystem in the reserve. This species is an important food and habitat tree for koalas (*Phascolarctos cinereus*) and has been greatly reduced due to past clearing for agriculture and more recently by urban expansion. It was listed in 2002 as an endangered population under Schedule 1 of the TSC Act in the Greater Taree Local Government (LGA) Area. Although *E. seeana* has a wide distribution from Taree to Caloundra, the southern part of its range is ecologically restricted and sporadic in distribution. The population in the Greater Taree LGA is disjunct and at or near the southern limit for this species (NSW Scientific Committee, 2002).

Similar vegetation types are likely to occur in the proposed additions to the reserve, which are yet to be comprehensively surveyed.

Two significant plant species have been recorded in the reserve. An unusual occurrence of *Trochocarpa sp.* which is typically a high altitude species of the northern tablelands region and the most northerly coastal record of *Melaleuca decora*.

The upgrading of the reserve's day use area in 2001 involved the planting of over 750 local endemic native plants, including a variety of local Aboriginal food plant species (refer 3.5 Recreation and Education Opportunities).

3.4.3 Native animals

The sclerophyll forest associations, dry rainforest gullies and estuarine environment provide a range of habitats supporting a high faunal diversity. The powerful owl (*Ninox strenua*) has been recorded in the reserve and is listed as a vulnerable species under the TSC Act. The planning area is also potential habitat for other threatened species such as koala (*Phascolarctos cinereus*) and spotted tail quoll (*Dasyurus maculatus*). The NSW Wildlife Atlas records brushtail phascogale (*Phascogale tapoatafa*), glossy black cockatoo (*Calyptorhynchus lathami*) and koala within a 2km of the reserve. Koalas are known to be common in the nearby Yarratt State Forest and they are likely to be in the planning area.

A Draft Recovery Plan for the koala (NPWS 2003) has been prepared which considers the conservation requirements of the species across its known range in NSW. It identifies actions to be taken to ensure the long-term viability of the koala in natural environments and provides a framework for localised koala recovery efforts. Amongst other things, the recovery actions are aimed at identifying koala habitat and prioritising on ground management actions; identifying research priorities; and increasing community and government awareness regarding the management and conservation of koalas. It is intended that the approved recovery plan will be implemented over a five-year period.

3.4.4 Aboriginal heritage

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

At the time of European settlement, the Manning Valley was occupied by the Biripi tribe. The Biripi people have traditionally used places like the planning area for the collection of bush tucker and other cultural purposes, such as social gatherings.

There are no recorded Aboriginal sites in the planning area, although no comprehensive surveys have been undertaken.

The Purfleet -Taree Local Aboriginal Land Council, relevant Elders groups, the Biripi people and other indigenous persons represent contemporary Aboriginal involvement in the reserve. It is NPWS policy to involve the Aboriginal community in the management of Aboriginal heritage.

The proximity to Taree and the importance of the area to the local Aboriginal community has led to the involvement of the local indigenous community in works programs on the reserve. The upgrade of the facilities in 2001, involved the local Community Development Employment Program (CDEP) and Purfleet-Taree Local Aboriginal Land Council (refer 3.5 Recreation and Education Opportunities). Future works programs will be encouraged with the local Aboriginal community in the planning area.

3.4.5 Historic heritage and previous land use

The planning area has a long history of European settlement and folklore. From the late 1830s, the first timber cutters reached the Manning Valley and formed logging camps along the Manning and Dawson Rivers. Evidence of logging and bullock dray routes can still be found throughout the area (Crowns Land Office, c1980).

The southern section of the nature reserve, south of Tommy Owens Creek, was gazetted as a stock camp in June 1881. The northern section of the nature reserve was included in the reserve for stock camping in October 1883.

Land recently acquired by NPWS as an addition to the nature reserve was originally part of the Travelling Stock Route associated with the stock camp that was sold as freehold in the 1960s.

The Old Port Macquarie Road follows part of the track established in the late 1820s to link the settlement at Port Macquarie with the Australian Agricultural Company lands at Gloucester and Stroud (Crowns Land Office, c1980). The road allowed bullock drawn vehicles to cross the Dawson River on a flat natural rock feature at Kate Kellys Crossing.

Kate Kellys Crossing is named after Miss Isabella Mary Kelly. Miss Kelly was a well known identity in the area in the mid 1800s and was known for her brave and courageous exploits. Stories also abound of her ruthlessness and cruel treatment of convicts and Aboriginal people (Beatty, 1967). A business woman and landowner, Miss Kelly, was responsible for producing some of the best livestock in the district (Connors, 1997). Kate was a nickname for Miss Kelly, who was believed to be named after Ned Kelly's sister Kate, as Miss Kelly's exploits were often exaggerated and compared to the Kelly gang. Kate Kellys Crossing was named after an incident where two convicts were said to have rescued Miss Kelly from the river (although there is some local debate whether this incident occurred at Brimbin or at another creek near Port Macquarie).

Tommy Owens Creek, north of the day use area, commemorates a local youth who drowned in 1850 when swept from his horse whilst attempting to cross the creek during a violent storm.

There are also a number of other stories associated with the area including earth shaking thunderstorms, savage dogs and the ghost of a servant girl who was believed to have been murdered just above the tidal limit of the Dawson River (Connors, 1997).

In the 1980s the reserve was a popular picnic area in the Manning Valley. The reserve was upgraded in the 1980s by the Department of Lands to provide shelter sheds, toilets and walking tracks. The Department of Lands also installed a small timber jetty with retaining wall and steps down to the Dawson River. In 1999, management of the reserve was vested in the NPWS and there has since been a complete upgrade of the day use facilities and southern section of the Old Port Macquarie Road (refer 3.5 Recreation and Education Opportunities).

3.5 RECREATION AND EDUCATION OPPORTUNITIES

The planning area's close proximity to Taree provides opportunities for low key recreational activities including bush walking, picnicking, canoeing, and bird watching. There is a low level of visitation to the reserve mainly by the local community, schools and tertiary institutions.

Two wheel drive vehicle access to the reserve is available along the Old Port Macquarie Road. The road reserve for the Old Port Macquarie Road continues east across Tommy Owens Creek towards Lansdowne, though this section is overgrown and is not suitable for vehicle access.

The planning area is also accessible via canoe or small watercraft from the Dawson River but such use is minimal. Access to the timber jetty needs improvement and is currently closed to the public use due to safety concerns. Visitors are encouraged to alight at the junction of Tommy Owens Creek and the Dawson River.

There are two walking tracks in the reserve. The northern track is called Kate Kellys Walking Track and the southern track is the Dawson River Walking Track (see map). Both walking tracks are in need of minor upgrading and erosion control works. Markers and track signs also need upgrading and some footbridges require repair.

Visitor facilities are provided in the day use area including a shelter shed, picnic tables and pit toilets. The day use area was upgraded in 2001 by NPWS and the community including members of the local Aboriginal CDEP and the Society for Growing Australian Plants.

The diverse natural and cultural values of the planning area also provides an opportunity for nature based education for locals schools and tertiary institutions. TAFE students have used the reserve for nature based field trips. The rich cultural heritage of the planning area also lends itself to interpretation and education.

3.6 RESEARCH AND MONITORING

There is very limited resource information and knowledge on the fauna of the planning area. A recent flora survey has been undertaken in the reserve, which provides a comprehensive list on the native species and some of the pest plants in the reserve (Griffith, 2002). A vegetation map is also currently in preparation for the reserve (McDonald, 2002). Comprehensive surveys would also be beneficial for the proposed additions to the reserve where there is very little information on natural or cultural values.

3.7 THREATS TO THE PLANNING AREA

3.7.1 Pest species

Pest plants can competitively exclude native plant species and provide habitat for feral animals. Pest animals can impact on native wildlife through competition for resources, predation, disturbance and transmission of diseases. A comprehensive survey of pest

species in the planning area has not yet been undertaken. The identification of pest species would assist in the implementation of appropriate pest control programs.

There are isolated occurrences of pest plant species recorded in the reserve including pink lantana (*Lantana camera*) and camphor laurel (*Cinnamomum camphora*). There are no known noxious plant species recorded on the reserve.

Pest animal species predicted to occur in the reserve include the wild dog (*Canis familiaris*), rabbit (*Oryctolagus cuniculus*), cat (*Felis catus*) and fox (*Vulpes vulpes*). Predation by the feral cat and the fox are both listed as threatening processes to native animals under the TSC Act and the Commonwealth *Environment Protection and Biodiversity Act 1999* (EPB Act). The NSW Threat Abatement Plan for the fox (NPWS, 2001) has recently been prepared and any fox control programs in the park will be guided by this document. Wild dogs have been declared as pest animals under the *Rural Lands Protection Act 1998* (RLP Act) throughout NSW.

3.7.2 Fire

The NPWS regards fire as a natural phenomenon and one of the continuing physical factors influencing the Australian environment. Inappropriate fire regimes have been identified as a key threatening process affecting the biological diversity of NSW. The fire history of the planning area is poorly documented, but the predominantly dry sclerophyll forest is conducive to frequent fire events. Areas near the reserve boundary show evidence of being frequently burnt. Small areas of dry rainforest and wet sclerophyll forest, riparian vegetation and mangroves are sensitive to fire and repeated fire is likely to cause impact on these communities and change composition of native vegetation.

Ecological research in fire-prone ecosystems has established some general principles about fire regimes and the conservation of biodiversity. That is, groups of plants and animals respond similarly to fire according to characteristics of their life history. Therefore it is not necessary to individually specify fire regimes for the conservation of every species. Requirements for most plant species can be summarised on the basis of vegetation communities and there is a threshold in fire regime variability which marks a critical change from high species diversity to low species diversity. The following fire regime guidelines have been identified for the reserve:

Table 1: Fire Regime Guidelines

Vegetation community	A decline in biodiversity is predicted if there is:		
Dry sclerophyll forests	Three or more consecutive fires, with each of the fires less than 5 years apart	No fire for more than 30 years	Successive fires that totally scorch or consume the tree canopy
Wet sclerophyll forests	More than one fire every 30 years	No fires for 200 years (upper threshold under review)	
Rainforests	Any fire occurrence		
Grasslands	not applicable		

Source: NPWS, 1998 based on Bradstock et al, 1995; Keith, 1996.

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 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, riparian and mangrove vegetation.

The HAMZ focuses on those actions appropriate to conserve biodiversity and cultural heritage including exclusion of fire from rainforest, riparian and mangrove vegetation. Management of fire regimes for other communities will be in accordance with fire regime guidelines identified in table 1.

While there is potential for fires to spread into the planning area from surrounding forests and cleared grasslands from the north, south and west, a number of natural and constructed barriers inhibit the spread of fire. This includes the Old Port Macquarie Road, Tommy Owens Creek and the Dawson River. Some limited fuel reduction burning may be required where fuel loads have accumulated to protect life and property.

3.7.3 Inappropriate visitor use

Prior to the area becoming a nature reserve, vegetation and infrastructure including facilities in the day use area had been subjected to vandalism. Visitation levels also noticeably declined during this period, which may have been a result of the vandalism and deterioration of facilities.

Activities such as trail bike riding and horse riding are generally inconsistent with the purposes of a nature reserve under the NPW Act. These activities occasionally occur in the reserve along walking tracks, resulting in soil erosion along some parts of the tracks. The narrow walking tracks are designated for walkers only and are unsuitable and not maintained for the purpose of trail bike riding, cycling or horse riding. Registered vehicles and bicycles are restricted to park roads and public roads. Horse riding is not permitted in the planning area in accordance with NPWS Horse Riding Policy for Nature Reserves.

There has been a decrease in vandalism and inappropriate recreational activities since the upgrading of visitor facilities, increased visitation and regular NPWS presence in the area.

3.7.4 Pit Toilets

The unsealed pit toilets at the day use area are located near to the Dawson River. A recent sewage management strategy prepared for the NPWS Mid North Coast Region, identified the pit toilets as a possible risk to the surrounding environment and recommend that they be replaced with a composting toilet or pump out system (NPWS 2001).

MANAGEMENT STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>Pit toilets near Dawson River have been identified as a potential environmental risk to the surrounding environment (NPWS, 2001).</p> <p>There is some minor soil erosion along walking tracks from inappropriate visitor use.</p>	<ul style="list-style-type: none"> • Water quality in the planning area and catchment is maintained or improved. • Soil erosion in the planning area is minimised. 	<ul style="list-style-type: none"> • Install composting toilets or a pump out system to replace the current pit toilets near the Dawson River. • Undertake all works in a manner that minimises erosion and water pollution. • Work with the Lower North Coast Catchment Management Board and Mid Coast Water to ensure that the integrity of riparian vegetation and water quality in the catchment is maintained. • Undertake erosion control works along walking tracks and continue monitoring of visitor use (refer Recreation opportunities). 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>
<p>Native plants</p> <p>Vegetation is predominantly sclerophyll forest with a variety of coastal species. There are some dry rainforest plant species. Riparian vegetation, including mangroves, line the riverbank.</p> <p><i>E. seeana</i> is recorded in the reserve, and is listed as endangered population under the TSC Act.</p> <p>A vegetation map is being prepared for the reserve.</p>	<ul style="list-style-type: none"> • Native plant species and communities are conserved. • Improved knowledge of threatened and significant plants, ecology and habitat requirements. 	<ul style="list-style-type: none"> • Provide interpretation signs in the planning area on the importance of the endangered population of <i>E. seeana</i>. • Liaise with relevant neighbours to encourage the retention of key habitat and corridors in the vicinity of the planning area and to identify potential wildlife /habitat corridors to link to other remnant areas. • Complete the vegetation map for the reserve and newly acquired lands. 	<p>High</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Long term conservation of the planning areas natural values would be enhanced by the retention of remaining vegetation on neighbouring lands.</p>		<ul style="list-style-type: none"> Encourage and assist the development of voluntary conservation agreements for protection of conservation values on surrounding properties. Priority areas include corridors linking the planning area with Yarratt State Forest and Goonook Nature Reserve. 	Medium
<p>Native animals</p> <p>There is limited information on the native animals in the planning area. The threatened powerful owl has been recorded in the planning area.</p> <p>Other threatened species predicted to occur in the planning area include the koala, spotted-tail quoll, brushtail phascogale and glossy black cockatoo.</p> <p>The draft Recovery Plan for the Koala (NPWS 2003) considers the conservation requirements of the species and provides a framework for localised koala recovery efforts.</p>	<ul style="list-style-type: none"> The habitat for native animals is conserved. Threatened animal populations do not decline. There is increased knowledge of the planning areas fauna and their ecological requirements. 	<ul style="list-style-type: none"> Implement recovery plans for threatened species when they are prepared. Encourage or undertake surveys for threatened animal species predicted for the park. 	Medium Medium
<p>Pest species</p> <p>A Regional Pest Management Strategy has been prepared by NPWS, which prioritises pest species control programs.</p> <p>Pest plant species recorded in the park are mainly confined to areas of previous disturbance and along roadsides.</p>	<ul style="list-style-type: none"> Introduced plants and animals are controlled, and where possible eradicated. 	<ul style="list-style-type: none"> Undertake pest species control and regeneration works in accordance with the Regional Pest Management Strategy and Threat Abatement Plans. Liase with neighbouring landholders, GTCC, and SFNSW to encourage the control of environmental weeds and pest animals on adjacent lands. 	High High

Current Situation	Desired Outcomes	Strategies	Priority
<p>Pest animal species predicted for the planning area include wild dog, rabbit, cat, and fox.</p>	<ul style="list-style-type: none"> • The impact of pest species on native species and the environment is minimised. • Improve knowledge of pest species and their impact on the planning area. 	<ul style="list-style-type: none"> • Undertake pest control programs as required to eradicate pest species in conjunction with neighbours, SFNSW and the Gloucester Rural Lands Protection Board. • Undertake a survey of pest species and monitor and implement control programs when necessary. In particular, target the removal of lantana and camphor laurel. 	<p>Medium</p> <p>Medium</p>
<p>Cultural heritage</p> <p>Aboriginal people have a strong relationship with the area. The local indigenous community has also been involved in work programs in the reserve.</p> <p>No comprehensive survey of Aboriginal cultural values has been undertaken in the area.</p> <p>The planning area has a long history of early European settlement and folklore, dating back to the 1820s.</p> <p>Kate Kellys Crossing and Tommy Owens Creek are named after local historic identities.</p>	<ul style="list-style-type: none"> • The cultural heritage of the planning area is recorded and sites protected. • Relevant persons are involved in the consultation and preservation of cultural heritage. • There is improved understanding of the cultural significance of the area. 	<ul style="list-style-type: none"> • Consult and involve the Purfleet –Taree Local Aboriginal Land Council, the Giiwan Elders, the Biripi and other relevant people in the management and interpretation of Aboriginal cultural heritage sites, places and values. • Undertake an archaeological site investigation in areas where any new developments or earthworks are proposed. • Provide interpretation material on the history of European settlement and folklore in the planning area including information on the travelling stock route, the Old Port Macquarie Road, Isabella Mary Kelly and Tommy Owens Creek (refer Recreation opportunities). • Encourage research and studies into the Aboriginal heritage values of the planning area in consultation with the Purfleet - Taree Local Aboriginal Land Council, the Giiwan Elders and the Biripi community. 	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Recreational opportunities</p> <p>The planning area is accessed from Old Port Macquarie Road through Yarratt State Forest. Vehicle access to the planning area from Kate Kellys Crossing is inappropriate. The crossing has historical significance and would require considerable maintenance to upgrade the road to a trafficable condition.</p> <p>Low impact recreational opportunities in the planning area include bushwalking, picnicking, canoeing and bird watching. Facilities include a shelter shed, picnic tables and toilets.</p> <p>The walking track through the reserve is in need of minor upgrading. There are few markers on the track and some footbridges require maintenance.</p> <p>The timber jetty on the Dawson River is closed due to safety concerns and visitors are encouraged to alight from watercraft further upstream on the bank of the Dawson River.</p> <p>The reserve is used as educational resource for local schools and the TAFE.</p> <p>The interpretation signs are out dated and require upgrading and maintenance.</p>	<ul style="list-style-type: none"> • Vehicle access to the reserve is maintained to a two wheel drive standard. • The walking track is maintained and provides opportunities not available in the surrounding locality. • Visitor use is nature based and ecologically sustainable. • The planning area is used for educational purposes. • Visitation levels are maintained at a sustainable level. 	<ul style="list-style-type: none"> • Liaise with GTCC and SFNSW to ensure Old Port Macquarie Road (southwest of the reserve) is maintained to a two wheel drive standard. • Install a regulatory sign at Kate Kellys Crossing restricting vehicle access into the reserve. Monitor vehicle use and if necessary install a gate. • Maintain Kate Kellys and Dawson River walking tracks shown on the map. Indicate the route via markers or other appropriate methods. Upgrade the bridges on the walking track as required and install two bench seats along the walking track network. • Improve access and public safety issues on the timber jetty and undertake appropriate works as required. Until such works are undertaken, restrict public access to the jetty from the top of the stairs. • Promote the natural and cultural values of the planning area via: <ul style="list-style-type: none"> i. Upgraded interpretation signs in the reserve; and ii. the promotion of the planning area as a study site to local schools and tertiary institutions. • Install regulatory signs about appropriate use of the nature reserve, noting that vehicles and bicycles are restricted to designated roads and horses and other domestic animals will not be permitted in the nature reserve. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire Management</p> <p>The fire history of the planning area has been poorly documented, but the nature of the dry vegetation lends itself to frequent fire. Areas near the planning area boundary show evidence of being frequently burnt. Most fires in the planning area are likely to be caused by incendiarism and escaped rural burns. The reserve has been designated as a HAMZ because of the sensitivity of rainforest, riparian and mangrove communities.</p> <p>There are a number of assets in the reserve that should be protected from fire including visitor facilities, the jetty and bridges.</p> <p>Old Port Macquarie Road and trails on neighbouring properties provide opportunities for strategic access for fire management purposes.</p> <p>Access to fresh water is available from Tommy Owens Creek, off Old Port Macquarie Road.</p> <p>Hazard reduction burning is required in some areas where heavy fuels loads accumulate.</p>	<ul style="list-style-type: none"> • Fire frequencies are appropriate for conservation of native plant and animal communities. • Fire is excluded from rainforest, riparian and mangrove communities. • Life, property including adjoining dwellings and infrastructure are protected from fire. 	<ul style="list-style-type: none"> • Manage the reserve as a Heritage Management Zone 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 1). • Exclude fire from rainforest, riparian and mangrove communities. • Participate in Greater Taree District Bush Fire Management Committee. Maintain cooperative arrangements with the Rural Fire Service Brigades, GTCC, SFNSW and surrounding landholders with regard to fuel management and fire suppression. • Protect assets such as day use facilities, jetty and bridges in the reserve from fire. • Assist with hazard reduction burns on adjacent lands and maintenance of fire trails on neighbouring properties as appropriate. • Undertake hazard reduction burning, east of the Old Port Macquarie Road and south of the day use area to maintain low fuel loads in this area. Ensure that hazard reduction is maintained as a narrow strip parallel to the road and does not impact on sensitive riparian vegetation along Tommy Owens Creek. • Prescribed burning may be undertaken in other sections of the park to maintain ecological values consistent with Table 1 and the requirements for the protection of threatened species or where research indicates it is necessary. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Research and monitoring</p> <p>Other than studies on the flora and a report on the history and folklore of Brimbin Reserve there is limited information on the values and threats to the planning area.</p>	<ul style="list-style-type: none"> • Research enhances the knowledge and management of the planning area. • Research has minimal environmental impact on the planning area. 	<ul style="list-style-type: none"> • Encourage research into topics of relevance to management including: <ol style="list-style-type: none"> I. fauna surveys; II. Aboriginal cultural heritage; and III. pest species. • Ensure research involving Aboriginal cultural is carried out in consultation with the Aboriginal community. 	<p>Medium</p> <p>High</p>
<p>Reserve additions</p> <p>Approximately 11 hectares has recently been acquired by NPWS as an addition to the reserve.</p> <p>A remnant of Crown Reserve 97460 lies between the Old Port Macquarie Road easement and the recently acquired lands. Initial consultation with Lands has been undertaken to include this area into the reserve.</p>	<ul style="list-style-type: none"> • Any proposed additions of land to the reserve are managed in accordance with this plan of management. • The reserve boundary is consolidated to include other areas important to its management. 	<ul style="list-style-type: none"> • Seek gazettal of newly acquired lands into the reserve. • Liaise with Lands about inclusion of Crown Reserve 97460 into the reserve. • Seek inclusion of the Old Port Macquarie Road easement north of Brimbin picnic area to Kate Kellys Crossing into the reserve. • Manage any new additions to the reserve in accordance with this plan of management. 	<p>High</p> <p>High</p> <p>Medium</p> <p>High</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.

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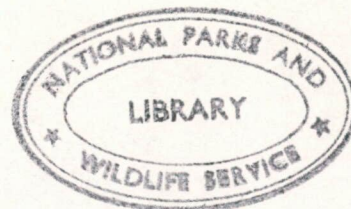
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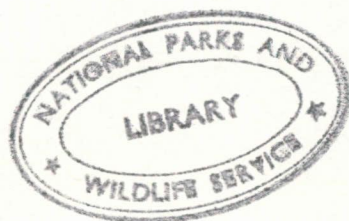
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