

BINDARRI NATIONAL PARK

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change NSW

March 2009

This plan of management was adopted by the Minister for Climate Change and the Environment on 6th March 2009.

Acknowledgments

This plan of management is based on a draft plan prepared by staff of the Coffs Coast Area of the National Parks and Wildlife Service (NPWS).

Cover photograph of a pool in Urumbilum River by Shane Ruming, NPWS.

For additional information or enquires about this park or this plan of management, contact the NPWS Coffs Coast Area Office at Marina Drive (PO Box J200), Coffs Harbour NSW 2450 or by phone on (02) 6652 0900.

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ISBN 978 1 74232 257 5

DECC 2009/331

FOREWORD

Bindarri National Park is located approximately 20 kilometres west of Coffs Harbour. The park was dedicated on 1 January 1999 and covers a total area of 5,365 hectares.

Bindarri National Park provides a link between the plateau and coastal forests, and part of the dramatic escarpment hinterland of the mid north coast. It contains a complexity of landscapes creating a diversity of vegetation communities in a remote and rugged forest environment. Much of the park supports moist forest communities such as rainforest and wet sclerophyll forest. It also protects significant areas of old growth forest, which provide habitat for a number of threatened species, and protects the headwaters of the Orara River which is an important source of the water supply for Coffs Harbour.

Bindarri National Park contains sites and landscapes of importance to Aboriginal people, and heritage items that are a link to the park's history. It also contains lookouts at spectacular escarpment locations, roads for vehicle touring, picnic areas, and a range of walking opportunities.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park. 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 Bindarri National Park was placed on public exhibition from 13th December 2002 until 28th March 2003. The submissions received were carefully considered before adopting this plan of management.

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 implementation of recovery plans for threatened species, control of introduced species and encouragement of the retention and compatible management of adjoining areas of native vegetation. The plan also contains a number of actions to help achieve Priority E8 in the State Plan, "More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity", such as provision of directional signs and the development of new facilities, including a lookout and picnic area at Bangalore Falls, a picnic area on Urumbilum Creek, and a rainforest walking track.

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

Carmel Tebbutt MP
Deputy Premier
Minister for Climate Change and the Environment

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1. INTRODUCTION

1.1 LOCATION, RESERVATION AND REGIONAL SETTING

Bindarri National Park (referred to herein as 'the park') is located in the hinterland of the New South Wales (NSW) mid-north coast, approximately 20 kilometres west of Coffs Harbour (30°18'S, 153°07'E). The park was dedicated on 1 January 1999 and covers a total area of 5365 hectares. The park name is derived from the language of the local Gumbaynggirr Aboriginal peoples and is said to mean 'creek system'.

The park adjoins the World Heritage Dorrigo National Park on its south-western boundary. It comprises land formerly part of the Orara West and Tuckers Knob State Forests, including the former Wonga Wonga Flora Reserve and Cabbage Tree Palm Forest Preserve.

The park is a link between the plateau and coastal forests, and part of the dramatic escarpment hinterland of the mid north coast. It contains a complexity of landscapes creating a diversity of vegetation communities in a remote and rugged forest environment. Much of the park supports moist forest communities such as rainforest and wet sclerophyll forest.

Bindarri National Park protects the headwaters of the Orara River and is an important source of the water supply for Coffs Harbour.

The predominant land uses surrounding the park include cattle grazing, light agricultural activities, forestry, banana plantations and rural settlement.

The park lies within the local government areas of Coffs Harbour City Council and Bellingen Shire.

This plan applies both to the land currently reserved as Bindarri National Park and to any future additions to the protected area estate. Where management strategies or works are proposed for additions that are not consistent with this plan, an amendment to the plan will be required.

1.2 LANDSCAPE CONTEXT

Natural and cultural heritage and on-going use are strongly inter-related and together form the landscape of an area. The geology, landform, climate and vegetation, plus its location, have determined how a landscape has been and is being used by humans. 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.

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, matters relating to natural and cultural heritage, non-human threats and ongoing use are dealt with individually, but their inter-relationships are recognised.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of national parks in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). The policies arise from the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication. Other legislation, international agreements and charters may also apply to management of the area.

National parks are reserved under the NPW Act to protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features or landscapes or phenomena that provide opportunities for public appreciation and inspiration and sustainable visitor use.

National parks are part of the regional pattern of land use. Only those types of uses that are appropriate to the nature and purposes of national parks are permitted. Management of national parks aims to minimise disturbance to natural and cultural heritage. Other land uses, such as agriculture, forestry and mining, are characterised by an acceptance or encouragement of environmental modification. National parks, therefore, provide for only a limited part of the range of land uses in a region.

2.2 MANAGEMENT OBJECTIVES

Under the Act (section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes;
- conserve places, objects, features and landscapes of cultural value;
- protect the ecological integrity of one or more ecosystems for present and future generations;
- promote public appreciation and understanding of the park's natural and cultural values;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of natural and cultural values;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values; and
- provide for appropriate research and monitoring.

3. KEY VALUES AND MANAGEMENT DIRECTIONS

3.1 VALUES OF THE AREA

The park protects an area of international and national significance for its biological and landscape values and of regional significance for its cultural heritage and recreation values.

The key values of the park are summarised below;

Natural values include:

- a link between the plateau and coastal forests and environs;
- the headwaters of the Urumbilum River, which forms an important part of the catchment for the water supply of the nearby City of Coffs Harbour;
- diverse plant communities with a large number of rainforest, sclerophyll forests and riparian communities, several of which are rare and restricted;
- high biological diversity, biogeographically significant plant communities and species, and a number of threatened or rare plant and animal species;
- significant areas of old growth forest, which provide habitat for a number of threatened species;
- vegetation types, species and populations that are at the limits of their range or form highly significant newly discovered populations;
- vegetation within the park represents “Gondwanan” refugia – ‘areas in which a large number of primitive and ancient species occur’ and the provision of habitat for a large number of highly primitive plants, including one of the three most ancient/primitive flowering plants on Earth; and
- gorge systems which provide highly significant refuge environments with a large proportion of rare, threatened and significant species.

Landscape values include:

- a component of the spectacular NSW mid-north coast hinterland, coastal escarpment and valley floors (Bellingen and Orara);
- important geological and geomorphological features such as deep gorges along the Urumbilum and Wayper Creek systems which also provide a wonderful variety of impressive scenic formations including deep gorges, winding river systems and waterfalls;
- Tuckers Nob, a prominent feature of the region and a significant landscape component of the coastal range;
- numerous waterfalls along Bangalore, Urumbilum and Wayper creeks;
- panoramic views from locations along the escarpment edge;
- an important vegetative backdrop to the city of Coffs Harbour; and
- connection of the hinterland and plateau environments with the valleys and coastlines.

Cultural heritage values include:

- sites and landscapes of Aboriginal importance; and
- heritage items that are a link to the park’s history as a state forest and other past land use activities.

Recreation and tourism values include:

- easily accessible informal lookouts at spectacular escarpment locations;
- vehicle touring;
- an access route from Coffs Harbour to the Eastern Dorrigo plateau;
- a potential range of short to long day walks;
- self-reliant recreation in the rugged forest areas; and
- swimming and liloing along the creeks and rivers.

Research and educational values include:

- a history of scientific/educational use;
- geological processes, diverse and significant plant and animal communities, cultural features and a variety of management issues provide numerous opportunities for research; and
- the spectacular landscapes, biodiversity, cultural features and ready access to a variety of locations provide outstanding opportunities for community education.

3.2 MANAGEMENT DIRECTIONS

The park will be managed to conserve its natural and cultural heritage, while providing opportunity for sustainable public use.

This will be achieved through:

- protection of significant vegetation communities, threatened and biogeographically significant plant and animal species, and geomorphological features from disturbance and inappropriate use and works;
- implementation of recovery plans for threatened species;
- control of introduced species;
- management of fire to maintain plant and animal communities and provide for the special requirements of threatened species, or application of fire regimes designed to maintain ecosystems;
- encouraging retention and compatible management of areas of native vegetation on neighbouring lands that link sections of park or join park land to other large naturally vegetated areas;
- conservation of significant cultural values and sites as they relate to the past land use of the park including Aboriginal, forestry and agricultural uses;
- research and monitoring to improve knowledge of the area's resources and to evaluate and adapt management programs;
- providing an appropriate range of nature based recreation opportunities, which maintain the low-key natural settings in the park;
- providing opportunities for ecologically sustainable recreation, tourism and educational use within the park; and
- a cooperative approach with other agencies, adjoining land managers, neighbours and tour operators to ensure effective, efficient and cooperative management of the park.

4. CONSERVATION OF NATURAL AND CULTURAL HERITAGE

4.1 GEOLOGY, SOILS, EROSION AND LANDFORM

The park is located along the Great Dividing Range and incorporates large areas of escarpment, coastal range and to a lesser extent valley floors of the Bellinger and Orara catchments.

The park forms part of two main physiographic features known as the Orara Escarpment and Orara Valleys, both form part of the northern extension of the Great Escarpment. The terrain of the Orara Escarpment is characteristically steep, rugged and mountainous although less precipitous and less distinctively escarpment than other sections of the Great Escarpment. The park also incorporates, in part, what is commonly referred to as the Bushmans Range. The Bushmans Range commences near Guy Fawkes and terminates near the Clarence River and divides the subcatchments of Orara and Nymboida.

The geology is predominantly metasedimentary rocks dating from the Carboniferous geological period (360-286 million years before present) in particular the 'Coffs Harbour Association' which forms a unit of the 'Demon Block'. The higher-grade metamorphic rocks and metabasalts are typically resistant to weathering. Some deep weathering siltstone does occur within the park, especially in the southern half of the park (Milford 1996).

The Coffs Harbour Block is divided into three lithological units known as the Coramba Beds, the Brooklana Beds and the Moombil Siltstone. The Moombil Siltstone unit, adjoins in the far southern corner the Glenifer Adamellite and the Brooklana Beds dominate the northern half of the park with undifferentiated alluvial sediments encroaching into the eastern boundary of the park along the creek lines.

A description of the soil landscape units associated with the geology of the park and the erosive properties of those units is provided in appendix A. These units are mapped on the 'Soil Landscapes of Dorrigo 1:100,000' map sheet and accompanying report by the Department of Land and Water Conservation (Milford, 1996). All soils within the park have a high erosion hazard.

The high susceptibility of soil types in the park to erosion, in addition to erosive summer rainfall and the steep terrain, has implications for management as areas of soil disturbance inevitably require substantial works to stabilise and rehabilitate. Areas of specific concern include parts of the vehicle trail network, some popular informal walking tracks and disturbed areas used for informal picnicking and camping.

Many of the roads within the park will need substantial maintenance and upgrading to ensure that sediment loads from the roads do not impact heavily on the watercourses within the park. Some roads and trails developed to support logging are no longer required and will be rehabilitated and closed.

Tuckers Nob, a prominent feature within the park and the surrounding region, is the highest point within the park at an elevation of 920m above sea level (ASL). The majority of the park has an elevation greater than 500m ASL with a minimum of around 40m ASL in the southern section of the park.

The park as a whole forms a significant landscape component and vegetated backdrop to the surrounding localities including Coffs Harbour and the plateau towns of Ulong and Lowanna. It provides an important linking component of the plateau and coastal environs. There are a number of scenic locations within the park that provide a panoramic glimpse of the surrounding landscape.

Some of the most spectacular natural geological features within the park are found along the river systems such as the Urumbilum River, Wayper and Shingle Bed Creeks. These watercourses feature gorges and pristine waterfalls, where the rivers plunge over the escarpment.

Canyoning has the potential to damage the rock structure and the unique vegetation communities found in such localities. The remote localities and terrain of the gorge system are also a concern for visitor safety and management.

The siting of major infrastructure in visually prominent areas is the main threat to the landscape values of the park. Management of existing powerlines is also important as any additional infrastructure may have cumulative effects. The landscape values of the park can also be impacted by inappropriate development of park facilities.

Desired Outcomes

- Significant geological and geomorphological features are protected, in particular the escarpment and associated waterfalls and gorges.
- Scenic values and natural landscape features of the park are protected.
- Disturbed sites are rehabilitated.
- Human induced soil erosion in the park is minimised.

Strategies

- Locate and design management infrastructure and visitor facilities to minimise their visual impact from public access roads, lookouts and other viewpoints.
- Liaise with other authorities and neighbours to minimise the impact of adjacent land use on the scenic values of key locations in the park.
- Manage existing infrastructure, such as communication towers and powerlines, to minimise visual impacts.
- Prohibit the extraction and removal of bushrock, clay, rock, river gravel or any like substance, except for essential management works where no practical alternative is available and where environmental impact is considered minimal.
- Prohibit visitor access to the gorge systems in the park to protect rock faces and significant vegetation communities with the exception of Bangalore and Urumbulum River gorges where access may be allowed subject to permit restrictions (refer sections 4.2 Native Plants and 6.2 Recreational Opportunities).
- Encourage research into the geological history and values of the gorge systems within the park. As part of this research, consult with the local Aboriginal community.
- Maintain all roads within the park to ensure soil erosion and sedimentation is minimised.
- Design and undertake all works in a manner that minimises soil erosion. Incorporate soil erosion management principles and practices into all management activities and facility design in accordance with NPWS Policy 1.4 (Soil Conservation and Rehabilitation).
- Undertake rehabilitation works on eroded areas where needed, particularly those areas near watercourses or with the potential to impact on watercourses such as along roads, walking tracks, bridges or disturbed areas.

- Implement soil erosion and sedimentation control measures in areas subject to accelerated erosion and instability arising from visitor use, management activities and adjacent land uses.
- Include objectives and actions for minimising erosion arising from prescribed fires and wildfires in fire planning and management programs (refer section 5.3 Fire Management).

4.2 NATIVE PLANTS

The park protects a diversity of plant communities and species, including a number of rare and threatened species. The park also provides connectivity between the hinterland and plateau habitats of the World Heritage listed Dorrigo National Park through the mountain ranges of Tuckers Nob, to the coastal habitats of Bongil Bongil National Park.

Broad scale vegetation studies have been completed for the park by State Forests of NSW (SFNSW) and NPWS. Vegetation in the park ranges from rainforest in the gullies, through wet sclerophyll forest on the slopes and ridges, to heathlands along exposed hilltops.

Past timber harvesting in some areas of the park has led to the establishment of even aged and multiple-aged stands of regrowth forests. However, extensive areas of old growth forest exist, protected from logging by the steep terrain. The old growth forests and rainforest areas have high scientific importance. The former Wonga Wanga Flora Reserve provides a spectacular example of the parks subtropical rainforest communities and an example of areas within the park that provide refuge for plants and animals in old growth and rainforest communities.

A number of areas within the park such as the Wayper, Shingle Bed and Bangalore gorges, the northern and southern flanks of Tuckers Nob, and some of the more remote areas of the park, are important because of their high diversity and significant vegetation communities. These include the cool temperate rainforest sub-alliance (Antarctic beech, hoop pine and mountain water gum) that occurs atop Tuckers Nob and the warm temperate rainforest with an overstorey of cabbage tree palm in the former Cabbage Tree Palm Forest Preserve.

The park is considered to be a 'biodiversity hotspot' due to the high number of rare and threatened species (Graham 2001(a)). Highly significant refuge environments within the park, such as the Urumbilum Creek gorge, contain a large number of rare, threatened and significant species. Species found within the gorge, such as the southern quassia (*Quassia bidwillii*), stinky lily (*Typhonium* sp. aff *brownii*), palm orchid (*Oberonia titania*) and fish bone fern (*Nephrolepis cordifolia*), represent range extensions or highly significant new populations (Graham 2001(a)). A list of rare or threatened plants species recorded within the park is provided in Table 1. It is likely that further surveys will locate other rare, threatened and significant plant species in the park.

Under the provisions of the TSC Act recovery plans must be prepared for all threatened species. None of the threatened plant species recorded within the park have had recovery plans prepared as yet.

Table 1. Rare or Threatened Plants in Bindarri National Park

Common Name	Scientific Name	Status [#]
Ravine orchid	<i>Sarcochilus fitzgeraldii</i>	Vulnerable*
Dorrigo waratah	<i>Alloxylon pinnatum</i>	3Rca
Rusty plum	<i>Amorphospermum whitei</i>	Vulnerable/ V 3RCa
Aniseed myrtle	<i>Anethelea anisata</i>	2R
Pink cherry	<i>Austrobuxus swainii</i>	3RCa
Five leaved bonewood	<i>Bosistoa floydii</i>	2RCi
Dorrigo laurel	<i>Cryptocarya dorrigoensis</i>	2RCa
Dorrigo plum	<i>Endiandra introrsa</i>	3RC
(A saw sedge)	<i>Gahnia insignis</i>	3RCa
Dorrigo or needle leaved hakea	<i>Hakea ochroptera</i>	2K
Slender marsdenia	<i>Marsdenia longiloba</i>	Endangered
Milky silkpod	<i>Parsonsia dorrigoensis</i>	Vulnerable
Stinky lily	<i>Typhonium sp. aff brownii</i>	Endangered
Southern quassia	<i>Quassia bidwillii.</i>	3VC-

Source: NPWS Atlas & Graham 2001 (b).

Status is given by the schedules of the TSC Act (either endangered or vulnerable) or, for non-threatened flora, by Briggs & Leigh (1995).

ROTAP (Rare or Threatened Australian Plant) codes from Briggs and Leigh (1995).

- 2 Geographic range in Australia less than 100 km
- 3 Geographic range in Australia greater than 100 km
- R Rare, species considered rare in Australia but does not currently have any identifiable threat
- K Poorly known, species suspected but not definitely known to belong to one of the above categories
- C Reserved, at least one population known to occur within a conservation reserve
- a 1000 plants or more are known to occur within a conservation reserve
- i less than 1000 plants are known to occur within a conservation reserve

* Species also recognised as nationally threatened by the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

In 1986, the neighbouring Dorrigo National Park and other rainforest reserves in central eastern Australia were inscribed on the World Heritage list because they represented outstanding examples of the earth's evolutionary history, ongoing evolutionary processes and hot spots of biodiversity. These areas were incorporated into the Central Eastern Rainforest Reserves of Australia (CERRA).

The park has significant natural values and it is possible that an assessment of the forests within the park may identify these values to be of outstanding universal significance, adding to the values already represented in CERRA. Several of the plant and animal species found in the park are recognised as being significant facets in the evolutionary history of flowering plants, including hoop pine (*Araucaria cunninghamii*), bolwarras (*Eupomatia* spp.), sassafras (*Doryphora sassafras*), various laurels (*Cryptocarya* spp.) and coachwood (*Ceratopetalum apetalum*) (Hunter 1999).

In addition to those individual species, the park supports plant communities that represent major stages in the evolution of rainforests and strengthens the representation of warm temperate and cool temperate rainforests. Both communities in the park indicate the important refuge nature of the area. The cool temperate rainforest suballiances sample the presumably ancient association of hoop pine and Antarctic beech (Hunter 1999).

Recent flora surveys describe most of the rainforest in the park as representing 'Gondwanan' refugia, 'areas in which a large number of primitive and ancient species occur' (Graham 2001(a)).

Inscription of all, or part of the park on the World Heritage List would require nomination for listing by the Commonwealth Government.

Strategies to protect native vegetation have been incorporated into other sections of this plan, including sections 5.2 Introduced Species, 5.3 Fire Management, 6 Visitor Opportunities and Education, 8 Other Uses and 9 NPWS Management Facilities and Operations.

Desired Outcomes

- The full range of native plant communities and species found in the park is conserved, and in particular, significant communities and species are protected from threatening processes.
- Increased knowledge of ecological requirements of vegetation communities, especially rare and threatened species.
- Park neighbours support retention of significant areas of privately owned native vegetation.
- The potential World Heritage values of the park are assessed and if determined as suitable for World Heritage listing they will be identified, protected, conserved, presented and, where necessary, rehabilitated in accordance with the principles of the World Heritage Convention.

Strategies

- Ensure that management and visitor facilities and activities do not impact on rare or threatened plant species or restricted plant communities (refer sections 5.2 Introduced Species, 5.3 Fire Management, 6 Visitor Opportunities and Education, 8 Other Uses and 9 NPWS Management Facilities and Operations)
- Restrict public use of the gorge systems in the park to protect significant plant species, populations and communities (refer section 6.2.7 Adventure Activities).
- Allow natural revegetation of cleared areas and take steps to assist revegetation where needed.
- Implement recovery plans for threatened species when prepared, and encourage involvement of other agencies and the local community where appropriate in the implementation of species recovery plans.
- Use prescribed fire to achieve a variety of fire regimes that maintain fire thresholds for each vegetation community in accordance with the Fire Management Plan (refer section 5.3 Fire Management).
- Liaise with neighbours, Landcare, vegetation management committees and other relevant agencies to encourage retention of areas of native vegetation near the park.
- Encourage research programs into the habitat requirements and threats to native plants and animals, with priority to threatened species, endangered populations and endangered ecological communities (refer to section 7 Research and Monitoring).
- Encourage research into the ecological effects of fire in the park (refer section 5.3 Fire Management and 7 Research and Monitoring).
- In consultation with the World Heritage Branch of Environment Australia, assess the park to ascertain its suitability for nomination on the World Heritage list on the basis of both the rainforest and eucalypt themes as an addition to the Central Eastern Rainforest Reserves of Australia.
- Facilitate appropriate research that allows identification and documentation of the values of the park, including potential World Heritage values.
- Manage the park, to a best practice standard, to ensure the protection conservation, presentation and, where necessary, rehabilitation of its values, including potential World Heritage values.

4.3 NATIVE ANIMALS

The park supports a diversity of habitats for native animals. Broad scale and site specific surveys were undertaken by SFNSW and others prior to the reservation of the park. NPWS has recently carried out a systematic survey of animals in the park indicating the area supports abundant wildlife including a number of rare and threatened species (refer to table 2). Further surveys may identify other threatened species.

Table 2: Threatened fauna species known to occur in Bindarri National Park

Endangered Fauna Species	
Common Name	Scientific Name
Giant Barred Frog	* <i>Mixophyes iteratus</i>
Stuttering Frog	* <i>Mixophyes balbus</i>
Vulnerable Fauna Species	
Common Name	Scientific Name
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>
Powerful Owl	<i>Ninox strenua</i>
Olive Whistler	<i>Pachycephala olivacea</i>
Wompoo Fruit-Dove	<i>Ptilinopus magnificus</i>
Masked Owl	<i>Tyto novaehollandiae</i>
Sooty Owl	<i>Tyto tenebricosa</i>
Koala	<i>Phascolarctos cinereus</i>
Yellow-bellied Glider	<i>Petaurus australis</i>
Sphagnum Frog	<i>Philoria sphagnicolus</i>
Pouched Frog	<i>Assa darlingtoni</i>
Little Bent-wing Bat	<i>Miniopterus australis</i>
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>
Stephens Banded Snake	<i>Hoplocephalus stephensii</i>

Source: NPWS Atlas

* Species Listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* as Endangered/Vulnerable nationally.

The park is considered to be a stronghold for a number of species that, due to habitat fragmentation and destruction elsewhere, have been considerably reduced in population and range. The park also connects the tableland with the coastal lowlands through a range of habitat types and is part of a significant ecological gradient that occurs from the New England Tablelands to the coast (Smith *et al.* 1995).

The habitats with the greatest diversity of native animals are the ecotones or areas where plant communities overlap. They add considerably to the overall biodiversity of the park. The most widespread and abundant habitat types found within the park are the rainforest dominated forest complexes.

The extensive rainforest and wet sclerophyll forest habitats within the park are expected to provide important resources for a number of rare fruitivorous birds including the rose-crowned fruit-dove and yellow-eyed cuckoo-shrike. The park also provides areas of suitable habitat for a number of other threatened species including the tiger quoll and olive whistler. The vulnerable parma wallaby (*Macropus parma*) and rufous bettong (*Aepyprymnus rufescens*) have both been recorded near the park.

The old growth forests within the park provide suitable habitat for the three large forest owls, powerful, masked and sooty, as well as the yellow-bellied glider, glossy black-cockatoo and microbats which rely on tree hollows for nesting. Thus the retention and enhancement of old growth forest in the park is important for their survival.

Significant habitat for koalas is found within the park, particularly in the vicinity of Langleys Road. The protection and retention of koala habitat, in areas such as the park, is considered to be crucial to the koalas long-term conservation on the NSW north coast (Lunney *et al.* 1999).

The park, in particular the pristine waters of the Urumbilum River, provide important habitat for a range of species, including the endangered giant barred frog (*Mixophyes iteratus*), the vulnerable stuttering frog (*Mixophyes balbus*), the sphagnum frog (*Philoria sphagnicolus*), large-footed myotis bat (*Myotis adversus*), platypus (*Ornithorhynchus anatinus*), Clarence River turtles and the endangered eastern freshwater cod (*Maccullochella ikei*) (CCM UNE 1994 & McDowall 1996).

In addition to the bat species recorded within the park, the greater broad-nosed bat (*Scoteanax rueppellii*), the little bent-wing bat (*Miniopterus australis*) and the vulnerable golden-tipped bat (*Kerivoula papuensis*) may also be found in the park.

Under the TSC Act recovery plans must be prepared for all threatened species. None of the threatened species recorded within the park have had recovery plans prepared as yet. A recovery plan is currently being prepared for the yellow-bellied glider. The yellow-bellied glider has been described as an umbrella and/or indicator species due to its requirements for large areas of complex mature and old growth eucalypt forest and it has been suggested that this species may represent a good target species for monitoring (refer section 7 Research and Monitoring). The recovery plan for the glider identifies linear dispersal barriers such as electricity transmission lines, as a possible threat that may isolate and fragment populations. In order to minimise such threats it has been suggested that launch poles constructed under cleared power lines may help reduce the dispersive nature of such lines (NPWS In prep) (refer also to section 8 Other uses).

Key threats to native animal species include fire, introduced species and inappropriate human activities. Protection of habitat and appropriate bushfire regimes are a major determinant of the distribution and abundance of animals in the park.

Strategies to protect native animals have also been incorporated into other sections of this plan, including sections 5.1 Water Quality, 5.2 Introduced Species, 6 Visitor Opportunities and Education, 8 Other Uses and 9 NPWS Management Facilities and Operations.

Desired Outcomes

- The full range of native animals found in the park is conserved, including the habitats and populations of threatened species and biogeographically significant species.
- Greater understanding of species diversity, distribution and ecological requirements.

Strategies

- Protect the habitats of threatened and significant fauna species from visitor impacts, the effects of introduced species and inappropriate fire regimes (refer sections 4.2 Native Plants, 5.2 Introduced Species, 5.3 Fire Management and 6 Visitor Opportunities and Education).
- Liaise with NSW Fisheries to identify strategies for the protection of aquatic fish habitats within the park, particularly the Urumbilum River and other areas that are important for the protection of the endangered eastern fresh water cod (refer section 5.1 Water Quality).
- Implement recovery plans for threatened species, such as the yellow-bellied glider recovery plan when prepared.

- Use prescribed fire to achieve a variety of fire regimes that maintain fire thresholds for each vegetation community and optimal animal habitat in accordance with the Fire Management Plan (refer section 5.3 Fire Management).
- Implement fire management and suppression techniques in a manner that minimises ecological impact and enhances conservation outcomes.
- Encourage research and survey work into the distribution, habitat requirements and ecology of native animals, in particular threatened species.

4.4 ABORIGINAL HERITAGE

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

The park is within the country of the Gumbaynggirr Aboriginal people. A common language with few dialect variations united the Gumbaynggirr people. The names of a number of the towns within the region are derived from the Gumbaynggirr language, for example: Karang (duck); Lowanna (girl); Orara (home of the perch) and Coramba (the name for the district), (Yeates, 1990 & Secomb 1986) and the park name which is thought to mean 'creek system'.

Historic records suggest that occupation focused on the coastal plains and lowlands and that the fringing rangelands received comparatively little use. When the early European settlers moved into the north coast the local Aboriginal groups were displaced by farms and the population declined through the introduction of disease (Yeates 1990).

Two Aboriginal open campsites have been recorded in the park and contain what is typically described as 'artefact scatters' – sparse, disturbed scatters of Aboriginal stone artefacts (Navin Officer 1994). Only limited archaeological surveys have been undertaken in the park and it is possible that further surveys would identify many more sites.

Aboriginal sites are important to both Aboriginal and non-Aboriginal people as evidence of past use and culture. Aboriginal sites within the park are subject to deterioration from both natural and human processes. For example, open campsites can be damaged by vandalism, destroyed by land disturbance, tree falls and human interference. Some Aboriginal sites within the park may require active management to ensure their continued existence. The NPWS has a responsibility to ensure that these areas and the park's cultural values are not adversely impacted upon by inappropriate use or management activities.

While the NPWS presently has legal responsibility for the protection of Aboriginal sites it acknowledges the right of Aboriginal people to make decisions about their own heritage. It is therefore policy that Aboriginal communities be consulted and involved in the management of Aboriginal sites and related issues and the promotion and presentation of Aboriginal culture and history. The park is within the area of the Coffs Harbour Local Aboriginal Land Council. There may also be other Aboriginal community organisations and individuals with an interest in the park.

Some of the native plants within Bindarri National Park are significant to local Aboriginal people for medicinal usage, bush tucker and cultural purposes. Arrangements are

needed to cover access to and usage of the native plants for Aboriginal people, consistent with the NPW Act and NPWS policy.

Desired Outcomes

- Aboriginal sites are protected from damage by human activities.
- Aboriginal cultural heritage associated with the park is recognised, protected and preserved in partnership with local Aboriginal people.

Strategies

- Consult with traditional custodians, Elders Groups and the Coffs Harbour Local Aboriginal Land Council about identification and protection of cultural heritage values.
- Record the location of Aboriginal sites and places, and assess their condition, significance and threats to their long-term preservation in partnership with relevant Aboriginal people. Priority should be given to areas, which could be threatened by current or future disturbances.
- Prepare management strategies for the protection of the two campsites located in the park.
- Undertake site surveys and impact assessment prior to implementing activities or works with the potential to damage Aboriginal sites and places. Works will be modified or relocated to protect sites and places of cultural significance.
- Undertake and/or encourage an Aboriginal cultural heritage assessment of the park. This will include an assessment of the landscape, plants and animal values of cultural value.
- Support Aboriginal community proposals to undertake interpretation of Aboriginal culture in the area.
- Encourage research activities, which are supported by the Aboriginal community, in particular, non-destructive research to locate new sites or to assist in site conservation.
- Work with the local Aboriginal community to develop arrangements that are consistent with the NPW Act and NPWS policy and permit access to the park for educational activities and cultural outings.

4.5 HISTORIC HERITAGE

The first Europeans to arrive in the region in the mid 1800s were the cedar getters, however logging in the area did not commence until 1863. Around 1880 there was concern that the remaining timber in the Orara valley would be cleared by selectors and so Forest Reserve No 642 (extending upstream from Coramba and including the Orara headwaters) was declared. This reserve included parts of the park. In 1917, Orara West State Forest was dedicated.

Towards the later nineteenth century the lower reaches of the Eastern Dorrigo Plateau were being logged and by the early part of the twentieth century most of the red cedar had been logged from the Orara forests and the Eastern Dorrigo Plateau.

The shift from cedar to other timbers boosted local town settlement along with surrounding agricultural forest clearance. Sawmills opened in the Orara area in 1904 (Navin Officer 1994) and in the late 1800s and early 1900s in eastern Dorrigo (Bridger 1997). Brooklana Mill was established in 1914 and Ashton Mill was established in 1910. The Ashton Mill, operated by the Mulhearn Brothers was moved to Ulong in 1924. In connection with the mill a small village was established at Ashton on the Ulong side of the Lowanna turnoff, just a few 100 metres north west of the park (Bell 1977).

In more recent times Corfes Mill, which still stands today, was established in 1970 and is located along Corfes Road at the western entrance to the park (Bridger 1997). The Corfes are reported to have operated many other mills in the area prior to the establishment of this mill (Bell 1977).

In the early 1920s the construction of the North Coast and Dorrigo railway lines further assisted timber production and agriculture within the area.

Pine Road follows a track used for hauling hoop pine from the Eastern Dorrigo area to the Upper Orara via Dairyville. It was previously known as Alford's Track, named after the Alford family who lived at Dairyville and ran a bullock team. The Alford family was one of many who occupied land along the Urumbilum River.

Many of the roads within the planning area were named after pioneering families of the area including Corfes Road. Corfe's Mill at Ulong is evidence of the family's long milling history in the area.

Land selection around the Urumbilum River began in 1906 and at its upstream extent, included some of the river flats in the park. In 1943 several of these portions contained cleared paddocks and clusters of farm, dairy and other built structures, some of which are still evident in the lower eastern reaches of the park. In the 1950s many farms were abandoned and dedicated as state forest (Navin Officer 1994). Many of the previously cleared paddocks are now substantially reforested, though often marked by a lantana understorey, and the buildings are no longer standing, either as a result of natural deterioration or demolition.

The area's history of clearing and timber production has resulted in some forests with relatively young, even aged stands, while other areas have been selectively logged for particular species such as cedar. Evidence of the former logging activities can also be seen in the trail system (eg snig tracks) and old machinery left in the park. Other features of past use include picnic facilities, bridges, dams and weir structures, and plaques commemorating the deaths of forestry workers.

There are a number of historical sites recorded within the park and the surrounding area. Most of the recorded sites are focused around the Urumbilum River and include the site of several demolished buildings and ruins associated with dairy farming. West of the Urumbilum River is a site of several demolished buildings believed to be part of an old dairy farm present in the 1940s and a single building site of unknown origin but believed to be present in the 1940s.

Desired Outcomes

- Historic sites, features and places are identified and where appropriate conserved and interpreted.

Strategies

- Assess historic sites and places to determine their significance, condition, impact on other park values, threats to their conservation and suitability for interpretation or other use.
- Develop and implement conservation policies for significant places under threat based on the above assessment.
- Involve local historical societies and members of the community in the identification, assessment, planning and management of historic items where possible.

- Encourage research into the history of the park including surveys to locate and record historic places, with priority to areas threatened with human impact, development or natural deterioration.
- Record all past land use sites, features and places within the park and leave in situ if found not to be of conservation significance or needed for essential management purposes such as bridges.

5. PARK PROTECTION

5.1 WATER QUALITY

The park is divided into two major catchments by Tuckers Nob Range, the Bellinger and Clarence River Catchments. Land north of the range drains into the sub-catchments of the Orara and Little Nymboida rivers, within the Clarence River catchment. South of the range the land drains into sub-catchments of Never Never, Hydes, Pine-Bundagaree and Bonville Creeks, within the Bellinger River catchment.

The catchments in the park make significant contributions to maintaining water quality in these river systems providing drinking water for adjoining communities and maintaining important plant and animal habitat.

The values of watercourses in the park include ecological, aesthetic, recreational, functional (ie water supply), social and economic. In particular, the majority of the park is within and protects the tributaries of the upper catchment of the Orara River, which flows into the major water supply catchment for Coffs Harbour.

The park also protects the headwaters of the Urumbilum River, which has its source under the northern fall of Tuckers Nob. The park is one of the few areas where the river is in pristine condition, with bank stability appearing to be in equilibrium.

As part of the Coffs Harbour Water supply augmentation, water quality tests were carried out on the Urumbilum River, with some test sites occurring along Bangalore Creek as well. The tests indicated that the river environment is in near pristine condition. This is also highlighted by the occurrence of a number of frog species found within the catchment, such as the sphagnum and giant barred frogs, which rely on high quality water environments (GHD 1994). The creeks are also home to Clarence River turtles, platypus and a number of fish species, including the endangered freshwater cod.

Catchment disturbance and pollution in these waterways can have serious impacts downstream on the river hydrology, habitat use and recreational enjoyment. Careful consideration will need to be given to identifying the road access network required, road work within the park, and any future facilities to ensure that the near pristine quality of the watercourses is maintained.

The *Catchment Management Act 1989* provides an umbrella framework to aim for, amongst other matters, cleaner water, less soil erosion, improved vegetation cover, the maintenance of ecological processes and a balanced and healthier environment. It also provides a focus to balance conservation needs and development pressures and encourages a more aware and involved community. An important means of achieving these aims is the formation and support of catchment management boards at a local level. The park is within the area of the Upper North Coast Catchment Management Board.

Desired Outcomes

- Maintenance or improvement of the catchment values, water quality and health of park streams.

Strategies

- Design and undertake all park works in a manner that minimises water pollution. This will include: maintain roads, trails and tracks in accordance with erosion and

sediment control practices to minimise sedimentation of waterways refer Soil Conservation Guidelines outlined in NPWS Policy 1.4 (Soil Conservation and Rehabilitation).

- Continue to participate as a member of the Upper North Coast Catchment Management Board.
- Exclude livestock from entering the park with park boundary fencing (refer section 5.2 Introduced Species);
- Liaise with Upper North Coast Catchment Management Board, local government, other authorities and landowners with the following specific aims:
 - to achieve coordinated water quality monitoring programs;
 - to identify, control, reduce and where possible eliminate sources of water pollution; and
 - to reduce the impact of upstream land uses on water quality and quantity entering the park.
- Liaise with appropriate authorities regarding preparation of contingency plans for accidents with the potential to result in water pollution in the park.
- Investigate Urumbilum River and its tributaries for declaration as a Wild River under section 61 of the NPW Act.

5.2 INTRODUCED SPECIES

Introduced species are those plant or animal species not indigenous to an area. Introduced species within the park and on adjoining land have the potential to have detrimental effects on ecological values and can spread to and from neighbouring land. Impacts on the native plant and animal communities can be through competition for resources, predation, disturbance and transmission of diseases. Pest plants and animals also have the potential to have an adverse economic impact on neighbouring properties.

The NPWS North Coast Region Pest Management Strategy (NPWS 2002a) provides management direction at a broad level and is the principal strategy for the management of introduced animals and plants.

A Pest Management Plan has been prepared for the park (NPWS 2002b). As part of this plan a weed survey was carried out along many of the parks roads and trails. The plan describes the density and distribution of current and potential weed species, identifies known pest animal species and provides control priorities and techniques (refer to table 4).

Table 4. Priority introduced plant and animal species.

Introduced Plant Species		Introduced Animal Species	
Common Name	Scientific Name	Common Name	Scientific Name
Groundsel bush*	<i>Baccharis halimifolia</i>	Red fox	<i>Vulpes vulpes</i>
Camphor laurel	<i>Cinnamomum</i>	Wild dog	<i>Canis familiaris</i>
Small-leaved privet * (ir)	<i>Ligustrum sinense</i>	Cattle	<i>Bos taurus</i>
Japanese honeysuckle	<i>Lonicera japonica</i>	Feral cat	<i>Felis catus</i>
Blackberry*	<i>Rubus fruticosus</i>		
Lantana**	<i>Lantana camara</i>		
Crofton weed*	<i>Ageratina adenophora</i>		
Smooth cassia	<i>Senna x floribunda</i>		
Montbretia	<i>Crocasmia x</i>		
Giant Parramatta	<i>Sporobolus fertilis</i>		

Source: NPWS (2002b)

* declared noxious under *Noxious Weeds Act 1993* (October 1999)

+ only red flowering form of Lantana is declared noxious.

Previous land use has disturbed a number of areas within the park resulting in weed invasion. Some areas have almost entire understoreys of lantana, particularly where continued disturbance is evident. Cattle straying into the park have impacted on park values by trampling vegetation, selectively grazing native plants, fouling springs and waterways, spreading weeds and causing soil erosion. The abundance of pest animals and their impact on native flora and fauna in the park is unknown.

Wild dogs, including dingoes, have been declared as pest animals under the Rural Lands Protection Act 1998 (RLP Act) throughout NSW. Hence, the NPWS has a statutory obligation to control wild dogs on its estate. Under the RLP Act, however, public lands which are identified as significant habitat for dingoes in Schedule 2 of the Wild Dog Control Order will be managed with the dual objectives of managing wild dogs while at the same time conserving dingoes. Bindarri National Park is a Schedule 2 area, requiring public land managers, such as the NPWS, to assist in the preparation of a local wild dog management plan in accordance with the RLP Act. These plans are to identify methods for the control of wild dogs and the conservation of dingoes.

A wild dog is defined as any dog, including a dingo, which has become wild. Wild dog control should be undertaken in cooperation with the RLPB and neighbours, in areas where wild dogs are causing problems.

Recovery Plans and Threat Abatement Plans, including 'predation by the red fox', prepared under the TSC Act also include specific control programs for introduced animals and the RLP Act identifies statutory requirements relating to management of declared noxious pest animals (NPWS 2001). In addition, the *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands.

Desired Outcomes

- A reduction in the distribution, abundance and impacts of introduced species.
- Introduced species are controlled and eradicated from the park where possible, with emphasis on those with high invasive potential.

Strategies

- Implement the Pest Management Plan for the park;
- Ensure control programs consider the requirements of any Threat Abatement Plans including 'predation by the red fox' or Recovery Plans for threatened species as prepared.
- Give priority in control programs to the control of introduced species that:
 - are declared noxious;
 - have a significant environmental impact, including damage to threatened species, catchment values and recreation values;
 - may affect neighbouring lands or are considered of high priority by the community;
 - where management is needed to maintain benefits gained from previous control programs or to allow another high priority management program to be effective;
 - are identified as new infestations; or
 - where a window of opportunity occurs.
- Avoid unnecessary environmental disturbances when undertaking park management activities. Where disturbance is likely, put in place controls or programs to avoid the introduction of pest species.

- Support research programs into effective biological control of weed species.
- Assist the Grafton and Kempsey RLPBs in the preparation of a wild dog management plan, which addresses the management of wild dogs and the conservation of dingoes in the park, including in consultation with neighbouring landholders.
- Undertake control programs for wild dogs along boundary areas where there is significant economic loss resulting from wild dog attack, consistent with NPWS policy and in consultation with affected landholders and Wild Dog Associations.
- Encourage research into DNA analysis to determine the degree of hybridisation of dingoes in the park.
- Carry out pest control programs in conjunction with the local RLPBs, local councils and adjoining landholders where appropriate. Continue to liaise with the North Coast Vertebrate Pest Working Group.
- Liaise with adjacent landholders about joint maintenance and effective fencing of boundaries to prevent domestic stock from entering the park.
- Continue to monitor and assess existing programs and to research and develop new control methods for introduced species in order to maximise efficiency and effectiveness and minimise non-target impacts.
- Amend the Pest Management Plan annually or as necessary and review every 5 years.

5.3 FIRE MANAGEMENT

Fire is a natural feature of the Australian environment and one of the physical factors considered essential for maintaining native plant, animal and habitat diversity of some species and communities.

Inappropriate fire regimes can, however, damage natural and cultural heritage values, property and endanger park visitors and neighbours. Fire management must aim to achieve long-term conservation of native plant and animal communities and ongoing protection of life and property within and adjacent to the park. The predicted bushfire danger season for the park is early spring to summer, based on the recorded temperature, relative humidity and rainfall trends for the area. The rainfall within the park is comparable to Dorrigo and is significantly higher than Coffs Harbour.

The risk of fire in the park is believed to be low because of the high rainfall, moist undergrowth and the good natural fire breaks provided by the creeks and streams within the park. There have been three wildfires recorded within the park in the past 25 years (in 1980/81, 1994/95 and 2002). The 1980/81 and 1994/95 fires were relatively small and confined to the lower elevations near Dairyville. The fire in 2002 started from a lightning strike and burnt below Tuckers Nob on the southern side. Anecdotal information suggests that the last major wildfire occurred in the 1960s and burnt a large portion of the southern end of the park. The low risk is also due to the predominance of northeast to southeast aspects in the park, which usually pose a reduced bushfire concern.

It can be assumed therefore that the frequency of wildfire has been very low within the park. Prescribed burning has been relatively infrequent, although post logging burning of drier forest types was carried out by SFNSW on ridges. Records of the areas burnt are limited.

Under the *Rural Fires Act 1997* the NPWS is a fire authority and is responsible for controlling fires on the national park and ensuring that they do not cause damage to other land or property. An important part of the NPWS fire management is participation in local cooperative fire management arrangements, including implementation of Bush Fire Risk Management Plans developed by District Bush Fire Management Committees. The NPWS is a member of the Coffs Harbour and Bellingen Bush Fire Management Committees.

A fire management strategy has been prepared for the park by NPWS which identifies the bushfire threat, requirements for the conservation of native plants and animals as well as community protection measures in areas where it is identified that fire is a threat to property. A variety of fire management strategies have been developed including fuel reduction, fire trails, strategic ecological burning, detection and cooperative arrangements. Close to boundary areas, fuel reduction programs and fire trail maintenance will be designed and implemented in cooperation with neighbours. Fire management guidelines for threatened fauna species recorded or predicted to occur in the park mainly involve protection of potential nesting sites and the forest canopy and sensitive ground habitats.

The draft fire plan provides a low frequency strategic pattern of burning based upon ecological burning principles. This strategy, plus a good standard of fire trail access, will provide fire mitigation and conservation of biodiversity with the primary fire protection for property achieved through the strategies identified in the fire plan.

Desired Outcomes

- To reduce the risk of bushfire damage to life and property within and adjacent to the park.
- To manage bushfires for the protection and conservation of the natural, cultural, scenic and recreational features of the park.
- To promote effective and efficient utilisation of local bushfire fighting resources through cooperative planning and operational arrangements.

Strategies

- Implement the fire management strategy for Bindarri National Park and update as required.
- Maintain fire history records.
- Close the park to public use during periods of extreme fire danger if necessary.
- Use prescribed burning to achieve a variety of fire regimes that maintain fire thresholds for vegetation communities in accordance with the Fire Management Plan and protection of life and property.
- Implement fire management and suppression techniques in a manner that minimises ecological impact and enhances conservation outcomes.
- Avoid use of heavy machinery for fire suppression in areas of rare plants, Aboriginal sites and historic places where possible.
- Ensure that appropriate sediment control measures are in place when carrying out fire suppression works or prescribed burns near watercourses.
- Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.
- Continue to participate in the Coffs Harbour and Bellingen Bush Fire Management Committee.
- Liaise with bushfire brigades, local government and neighbours, to develop cooperative strategic plans which ensure coordination of fire management in the park and adjoining lands.
- Encourage research into the fire history and ecological effects of fire in the park, particularly the fire response of significant plant species and communities and the effect of fire on Aboriginal cultural heritage values.

6. VISITOR OPPORTUNITIES AND EDUCATION

6.1 PROMOTION, INTERPRETATION AND EDUCATION

Promotion and presentation of natural and cultural heritage is a core function of NPWS. Information provision covers a series of processes that build upon one another. These begin with satisfying visitor needs to know what they can expect to see and do in the area and how to comfortably and safely get around (promotion and orientation). This progresses to learning about some of the natural and cultural processes (interpretation), developing skills to recognise these elsewhere in the landscape (education) and ultimately to sharing this knowledge and skills with others (advocacy). Communication programs will help to foster a greater understanding of the area's natural and cultural values, influence visitor use and reduce management problems.

NPWS will continue to work in conjunction with the community and local government on promotion, interpretation and education.

Information provision in general assists the protection of natural and cultural heritage, promotes support for conservation and increases the enjoyment and satisfaction of visitors.

The park has a number of natural and cultural features of interest to visitors particularly the rivers, waterfalls, rainforests and areas of old growth forest. These features will be promoted and interpreted to visitors in a manner which protects their special values and encourages appropriate use.

Promotion of the park is currently directed towards neighbours and park visitors. This includes providing directional signs and a park brochure as well as features in the Orara Valley News, a local community newsletter.

Desired Outcomes

- Visitors and the local community understand and support the area's natural and cultural values.
- Visitors are aware of the park's recreation opportunities and can easily find their way to park facilities.
- There is increased awareness and use of the area as an educational resource by educational institutions and community organisations.
- There is widespread community understanding and cooperation with management programs such as fire management, introduced species control and visitor use management.

Strategies

Signage and Displays

- Provide directional and/or interpretive signage at key locations. This will include directional signage at the intersection of Upper Orara Way and Dairyville Rd; main entrance turn-off from the Eastern Dorrigo Way onto Corfes Rd; and interpretive signage at the entrance on Dairyville Rd. Liaise with and seek the cooperation of Council as required to install this signage.
- Promote minimal impact recreation practices through track head signs and displays.

Publications

- Maintain and update the existing park information brochure and develop educational material for distribution to tourist information centres and other appropriate locations, as needed and as visitor facilities are installed. Update the park brochure to include information on Aboriginal cultural heritage and values.
- Promote minimal impact recreation in publications.

Education Programs

- Promote community understanding of park values and management strategies with neighbours and local community.
- Continue to promote the importance and purpose of management programs relating to natural and cultural heritage protection, fire management and control of introduced species within the local community and particularly neighbours.
- Support and assist educational use of the park by schools, community groups and individuals through provision of information and programs such as walks and talks where appropriate, specifically through the use of NPWS 'Discovery Programs'.
- Emphasise the following themes in promotion and interpretation programs:
 - wild, pristine and scenic rivers such as the Urumbilum, Wayper and Bangalore Creek systems;
 - biodiversity and threatened species;
 - Aboriginal and non-Aboriginal values and history, including former State Forests Reserves/Preserves, Wonga Wanga Flora Reserve and Cabbage Palm Forest Preserve;
 - origins of names;
 - catchment values of the Orara and Bellinger river; and
 - recreation opportunities ranging from readily accessible facilities at the lookouts and waterfalls along the escarpment and self-reliant recreation elsewhere in the park.

Liaison with Other Stakeholders

- Involve Aboriginal community members in interpretation of Aboriginal heritage values (refer section 4.4 Aboriginal Heritage).
- Provide assistance where appropriate to tourism promotion and interpretation of the park.
- Liaise with tourism associations about providing accurate and informative information on park values and appropriate visitor behaviour as well as park facilities as they become available.

6.2 RECREATION OPPORTUNITIES

The park caters mainly for day visitors seeking a remote and rugged rainforest escarpment experience. Activities in the park include bush walking, swimming, picnicking, bird watching, four-wheel driving, canyoning, rock hopping and adventure type activities.

The park attracts relatively low numbers of visitors compared to other parks and reserves in the area. This is due in part to the ruggedness of the park, with few destinations or facilities accessible by two-wheel drive vehicles. It is also a relatively new park.

The park is approximately 20 minutes drive from Coffs Harbour and offers opportunities for a short day trip in a rugged rainforest environment. It has a number of spectacular waterfalls and creek systems.

Visitor facilities and recreation opportunities can enhance appreciation and enjoyment of the park. However, they also have the potential to impact on the values of the park from on-site impacts (eg clearing, effluent disposal, soil erosion etc for facilities) and off-site impacts (eg litter and landscape intrusion). It is important that recreational use of the park does not threaten the values of the park and be ecologically sustainable. Management of ecologically sustainable visitor use requires placing limits on the number of access points, design of facilities to ensure that numbers of visitors and the style of use is appropriate for the site, and promotion of minimal impact use.

As part of the preparation of this plan, NPWS undertook consultation with neighbours and other stakeholders to help determine community aspirations for management of the park. A major outcome of the consultation was the need for day use facilities in the park for visitors from coastal populations such as Coffs Harbour and rural communities such as Ulong (refer section 6.2.2 Day Use).

The range of nature based recreational opportunities in the park is complemented by opportunities provided in the adjoining Dorrigo National Park and other public and private lands, where there is a more extensive range of visitor facilities. Public land managed by NPWS and other authorities elsewhere in the region provides diverse opportunities for recreational opportunities such as formalised camping, car touring, caravan parks and visitor information centres. Accordingly, this plan seeks to provide a recreation experience that complements, rather than replicates, facilities provided elsewhere.

The provisions below are designed to maintain the low key, scenic, natural settings, which are the special feature of the park and to provide for future use in a manner which protects ecological integrity and cultural heritage values.

Desired Outcomes

- An appropriate range of nature based recreational opportunities and facilities are provided with minimal impact on natural and cultural values.
- Visitor facilities are safe, accessible and contribute to a positive visitor experience.

Strategies

- Provide opportunities for recreation in a low key, scenic, natural setting which have minimal impact on ecological integrity and cultural heritage values.
- Develop and maintain visitor facilities and infrastructure consistent with Table 5.
- Undertake risk assessment of visitor facilities on a regular basis and implement precautionary action to maintain visitor safety.
- Monitor the impacts of visitor use and if necessary close areas permanently or temporarily or otherwise restrict access if there is unacceptable damage to natural or cultural values.
- Encourage minimal impact recreation practices through information signs and other means.

6.2.1 Vehicle Access

Access to the park is via Dairyville Road from the east or via Corfes Road from Ulong to the west. Currently vehicle access within the park is on four-wheel drive, dry-weather roads. Park roads include Pine, Range and Urumbilum Creek Roads and part of Bangalore Range and Langleys Roads.

The road network within the park was largely established to provide access for logging operations when the area was management by SFNSW. It has also been used for other uses, such as vehicle touring and recreation, a through route between Eastern Dorrigo and the Dairyville area, access to private property and maintenance of the transmission lines and communication tower.

Many trails in the park constructed for timber extraction are now disused, have no management function and impact on the park's natural and cultural values. In addition, these trails are often accessed for illegal activities, such as car dumping, rubbish dumping, timber extraction, illegal cropping and arson.

Several access roads within the park have been identified as Ministerial roads to ensure harvesting access to adjacent state forests. Ministerial roads are vested in the Minister for the Environment on behalf of the Crown for the purposes of Part 11 of the NPW Act. They were created under the *Forestry and National Parks Estate Act 1998* to ensure the continuation of access arrangements existing immediately before the park's creation. Although Ministerial roads do not form part of the gazetted park area, the management of these roads is subject to the provisions of this plan, the NPW Regulation and the requirements of the *Environmental Planning and Assessment Act 1979*.

The Ministerial roads in the park are:

- Corfes Road (from park boundary to Range Road);
- Urumbilum Creek Road (the lower section, from the eastern park boundary to the Urumbilum River);
- Tuckers Nob Road (part);
- McMullens Road (part);
- Howards Road (part); and
- Suttons Road (part).

Of these, only Corfes Road, McMullens Road and Howards Road are open to public vehicular access. The others are maintained as management trails, except for Tuckers Nob Road. This is now overgrown and will require significant works to be re-opened to a standard suitable for vehicles. Such works would only be carried out following an assessment of potential environmental impacts.

There are also a number of crown road reserves that are surrounded wholly or partly by Bindarri National Park, the majority of which are 'unmade'.

Due to the high rainfall, difficult terrain and erosive subsoils in the area, considerable resources are required to maintain roads in the park to a safe and environmentally sustainable condition.

In response to community aspirations for vehicle access within the park, an assessment was undertaken to determine the feasibility and estimated cost of upgrading Jersey Bull Road to two wheel drive all weather standard for access to a possible day use site further along this road, up stream from the park boundary. The assessment identified a number of constraints to upgrading the road including steep slopes, large trees along the road edge and hazards associated with the proximity of creek, creek crossing and other watercourses that cross the road and concluded that 'given the financial and environmental cost the road upgrade should not proceed (Mead 2001). However, it is

appropriate to maintain Jersey Bull Rd as a public access road to the Bindarray day use area, located approximately 1.5 km from the park entrance (refer 6.2.2 Day Use). Public vehicle access will not be permitted across the second Urumbilum River crossing on Jersey Bull Rd. As users will still need to navigate one creek crossing (the condition of which can be dramatically affected by floodwaters), NPWS will advise that 4WD vehicles may be needed on this section of road. A car park for 2WD vehicles will be provided near the entrance to the park.

Public vehicle access is proposed along Urumbilum Creek Rd as far as the Urumbilum River crossing to provide vehicle access for day visitors (refer Table 5 and section 6.2.2 Day Use). Urumbilum Creek Rd may be closed during periods of wet weather. Due to the landscape traversed by the road, NPWS will warn visitors of the slippery and rocky nature of the road, and advise against its use by 2WD vehicles.

Strategies

- Maintain a system of 2WD park roads, (with the exception of Pine and Langleys Roads and a small section of road between Range and Jersey Bull Roads, which will remain 4WD standard) for public vehicle access (see map 1).
- Maintain a system of management trails (see map 1).
- Maintain Ministerial roads for access for relevant stakeholders. Negotiate with SFNSW and Transgrid about an agreement regarding maintenance of roads (refer section 8 Other Uses).
- Allow public vehicle use of Ministerial roads, other than Suttons Road and Jersey Bull Road which are for management purposes only.
- Seek the closure of those crown road reserves that are surrounded wholly or partly by the park and the incorporation of these into the park.
- Following final approvals from Coffs Harbour City Council and the Department of Land and Water Conservation restrict access to Jersey Bull Road (see map 1).
- Review the need for Ministerial roads with any changes to land tenures.
- Special conditions may be imposed on recreational use of the park during periods of high to extreme fire danger or in the event of bushfires (refer Section 5.3 Fire Management) or periods of high rainfall. This may include temporary closure of the park or some roads within the park.

6.2.2 Day Use

In determining the provision of day use facilities within the park, the NPWS undertook an assessment to determine existing levels of use and the potential impact the provision of facilities at these locations may or may not have on the natural, cultural and recreational values of the park, including the park's aesthetic and landscape values. Decisions to close and/or maintain some public access roads and the proposed level of facilities were based on the above assessment and the deemed level of impact (refer to section 6.2.1 Vehicle access).

In addition to the Binderay picnic site along Jersey Bull Road adjacent to the Urumbilum River, there are a range of other potential recreational destinations in the park including: near the intersection of Pine and Range Roads; Bangalore Falls; the former Wonga Wanga Flora Reserve and the Urumbilum River crossing on Urumbilum Creek Road.

Day use visitor facilities are proposed at these key locations in accordance with Table 5 which details the proposed management of day use facilities in the park, including provision for toilets, lookouts, picnicking and car parking.

Strategies

- Develop and maintain day use facilities consistent with Table 5 and in accordance with established environmental assessment procedures.
- Prohibit camping in day use areas.
- Require visitors to take rubbish home.
- Prohibit open fires in the park, except in constructed fire places.
- Encourage visitors to use gas/fuel stoves.

6.2.3 Walking Tracks

Walking tracks are a valuable means of promoting the natural and cultural heritage of the park. Walking tracks provide park visitors with the opportunity to experience undeveloped recreational settings of the park and to reach particular destinations.

Bush walking is undertaken throughout the park along roads and management trails, informal paths and cross-country walks.

Walking destinations in the park include Bangalore Falls and various locations along the Urumbilum River. These locations provide accessible natural areas for those seeking undeveloped settings and self-reliant walking. Opportunities for isolation and solitude are also available in much of the park, particularly the rugged remote core of Tuckers Nob and the gorges. Because of the terrain, access for remote area walkers in the park is mainly along old logging snig tracks and management trails many of which have become unsuitable for vehicle use.

Walking tracks within the park were constructed before park reservation. The tracks were built to various standards and a review of their environmental sustainability is now required. Management of bush walking will need to ensure that the natural and cultural values of the park are protected and impacts of the walking track system are minimised.

Strategies

- Provide walking opportunities at Tuckers Nob, Bangalore Falls, former Wonga Wanga Flora Reserve and Urumbilum Creek as described in table 5.
- Signpost and maintain walking tracks to acceptable NPWS standards which are appropriate to the recreational setting in which they occur (refer 6.2 Recreational Opportunities).
- Investigate the suitability of utilising and linking existing access trails within the park for use as walking tracks. If deemed feasible and if demand warrants, construct the necessary low key linkages and install directional signs as required.

Table 5. Bindarra National Park Recreational Facilities (refer to Map 1 for site locations)

Area	Description	Facility
Existing facilities		
Dairyville entrance Located at the bottom of Pine and Jersey Bull Roads	The area is popular for swimming, picnicking and camping. Platypus, Clarence River turtles and threatened frog and fish species are found in the River. The area is highly disturbed and there are problems with rubbish dumping, human waste, unauthorised camping and fires. Uncontrolled car parking has damaged vegetation and is a traffic hazard.	A formal parking area suitable for 4 vehicles. No facilities, other than interpretation and orientation signage, are to be provided, in preference to encouraging use of Bindarray (see below).
Bindarray Located on Jersey Bull Rd, Urumbilum River.	A day use area on the banks of the Urumbilum River, this site on newly acquired land is popular for swimming and picnicking, and has been established on an existing clearing. Located approximately 1.5 km along Jersey Bull Rd, the site is accessible only by 4WD vehicles.	Facility to remain a low-key day use area. Limits are 6 picnic tables, 2 barbecues and a toilet, and designated car park spaces for up to 10 vehicles. No public vehicles allowed across the 2 nd crossing of the Urumbilum River.
Facilities proposed to be developed, subject to available resources.		
Bangalore Falls	Bangalore Falls is one of the spectacular falls within the park. An 'unofficial' walking track off Bangalore Rd was constructed, before reservation of the park, to gain access to the falls. Some sections of the track are subject to erosion and may impact on significant vegetation values.	Formalise the access track and re-route it to a more suitable path in sections to avoid steep slopes and significant vegetation. Construct a small viewing platform near the termination of the walk before the falls. Gate Bangalore Rd near the beginning of the walk. Construct a low-key day use area with a single toilet and up to four picnic tables and parking for a maximum of 8 vehicles.
Former Cabbage Palm Tree Forest Preserve	Spectacular landscape feature of an unusual rainforest alliance.	Provide interpretation sign indicating the history of the former preserve and its significance. Provide for short-term vehicle parking.
Former Wonga Wonga Flora Reserve	Spectacular subtropical and warm temperate rainforest with old growth trees.	Construct a walking track, approximately 200m, beginning and terminating along Urumbilum Creek Rd and winding through the rainforest. Monitor use of the track and any adverse impacts and, if necessary, consider provision of a boardwalk. Formalise a car park if required.
Near intersection of Pine & Range Rd	The location of an old log dump and is used as an informal lookout.	Install a low key lookout facility at a suitable location. Provide parking for 4 cars. No toilets or other facilities to be provided.
Tuckers Nob	Tuckers Nob is a prominent feature of the coastal range and is accessed by adventure enthusiasts who climb to the summit. Currently access to the summit is mostly on former SFNSW management trails.	Investigate the suitability of a hiking/walking track on the southern and eastern approach of Tuckers Nob using existing access trails, including the former Tuckers Nob Rd and link to Urumbilum Creek day use area. Undertake trail stabilisation works in the interim. If deemed feasible and following environmental assessment, pursue the formal signposting of a hiking track.
Urumbilum Creek	This area has been used for informal walking tracks, picnicking and camping. The creek has high environmental values as the headwaters of the Coffs Harbour water supply and the large number of threatened plants and animal species that occur. In order to allow ongoing recreational use, while protecting the natural values of the area, the site will be managed as a low key day use area accessible by 4WD vehicle but may be subject to closure during wet conditions. The old log bridge is unsuitable for vehicles but could be maintained for foot traffic.	Maintain and upgrade the existing bridge as a footbridge to allow people to cross the river. In the clearing east of the crossing, provide for basic day use only with up to 4 picnic tables and possibly a barbecue. Camping will be prohibited. On the western side of the crossing, provide an interpretation panel, a car park for a maximum of 8 vehicles and a 'sealed system' toilet above flood level. Investigate the suitability of a loop-walking track linking two former access trails. If feasible and following environmental assessment, pursue the creation of a loop walking track from the day use area.

6.2.4 Camping

Self-reliant overnight camping (pack camping) occurs in some of the more remote and rugged areas of the park and on the fringe areas of the park. Current use levels and impacts are relatively small but are increasing. It is not intended to prohibit overnight pack camping within the park, however pack camping needs to be carefully monitored to determine if any issues arise such as user conflict or environmental concerns such as degradation of vegetation.

There is potential for the development of private camping facilities on properties in the vicinity of the park.

Strategies

- Allow pack or bush camping throughout the park at locations more than 200m from vehicular access routes, watercourses or constructed walking tracks within the park.
- Place restrictions on pack camping if needed in the future to minimise impacts on natural or cultural values and other users.
- Encourage minimal impact camping and 'no trace' camping ethic.
- Prohibit camping at all day use areas.

6.2.5 Bicycling

The park offers opportunities for cycling along a number of scenic and rugged tracks, trails and roads. The current level of use by cyclists is low.

Strategies

- Allow cycling on roads and management trails.
- In accordance with NPWS Field Management Policy 5.13 (Cycling), cycling will not be permitted on walking tracks (see map 1).

6.2.6 Horse Riding

Recreational horse riding occurs within the park, although it is believed to be infrequent and not in large numbers and is mostly confined to the road system.

All soils within the park have a high erosion hazard and horse riding can have unacceptable impacts in terms of erosion as well as increase nutrient inputs into watercourses and safety concerns. A large part of the park is very steep and has high conservation values. There may be conflict between horse riders and other park users, especially at recreation nodes such as day use areas and on steep and narrow roads. The surrounding region provides numerous opportunities for horse riding on large rural holdings and in state forests. For these reasons, in accordance with the NPWS Field Management Policy 5.8 (Horse riding), horse riding is considered inappropriate.

Strategies

- Horse riding, including recreational, group and commercial horseriding will not be permitted within the park.

6.2.7 Adventure Activities

Canyoning occurs in the park particularly along the gorges of the Urumbilum River. Canyoning involves traversing narrow, slot-like chasms by a combination of rock scrambling, walking, swimming, liloing and/or abseiling. This activity is characterised by both large organised groups at popular locations and small groups and individuals in more remote locations.

Abseiling and canyoning activities are becoming increasingly popular and have led to the formation of new footpads in recent years and the disturbance of the pristine riverine habitats of the creeks and rivers within the park.

The gorges within the park are known habitats of threatened orchids and ferns, such as the southern quassia, stinky lily, palm orchid and fish bone fern. Such significant populations need protection from disturbance.

Other water-based activities such as liloing also occur in the park generally along the more accessible areas of the Urumbilum River and its eastern reaches near Dairyville Road.

Under the National Parks and Wildlife Regulation consent is required from NPWS to undertake adventure activities in national parks. The Regulation can be applied to exclude activities which are inappropriate in the park or at particular locations or at particular times of the year.

Strategies

- Abseiling, rock climbing, canyoning and other adventure activities will not be permitted in the park's gorges, apart from the Bangalore Creek and Urumbilum River gorges.
- Permit abseiling, rock climbing, and canyoning in the Bangalore Creek and Urumbilum River gorges provided that activities are undertaken in accordance with:
 - the provisions of this plan, including approved sites, closures and group size;
 - any code of conduct developed by the NPWS;
 - any other restrictions, exclusions or closures which may from time to time be introduced by the NPWS; and
 - the issuing of a consent under regulations to the NPW Act.
- Allow commercial and group abseiling, rock climbing and canyoning activities subject to licence/ permit, with conditions to protect natural and cultural values, to minimise conflicts between user groups, to maintain the quality of visitor experience, and to encourage safety principles, self sufficiency and responsibility.
- If adverse impacts from these activities become evident, the permissibility of abseiling, rock climbing and canyoning activities will be reviewed and may be prohibited.
- No facilities will be provided or may be installed for these activities.

6.2.8 Commercial tour operations

Commercial recreation activities require a licence under the NPW Act to operate in national parks in NSW. The NPWS commercial licence has a number of requirements that must be met by operators to enable them to operate within the park. The NPWS is currently reviewing its licensing system.

Commercial operations within the park are continuing to grow steadily. These operations contribute to the regional economy and provide recreational opportunities

that may not otherwise be available to park visitors. If conducted properly, commercial tours provide high quality visitor experiences, foster a greater appreciation and understanding of park values, and allow for better management of visitor impacts and visitor safety.

Conversely, these activities have the potential to impact on park values and on the experience of other visitors due to competition for facilities and overcrowding at sites. Commercial recreation can also lead to the deterioration of some sites if not carefully managed.

At present the only commercial activities licensed to operate within the park are 4WD-based tour operations. Commercial 4WD tours occur regularly, with an average group size of 15 people.

Strategies

- Ensure all commercial activities operating within the park are licensed.
- Implement a system of allocating times and/or limiting group sizes and activities, if commercial operations are impacting on park values and or operations overcrowd sites in the park.

7. RESEARCH AND MONITORING

Research in the park has largely focused on broadscale flora and fauna surveys undertaken by SFNSW and NPWS. Some preliminary site specific surveys have also been undertaken along the Urumbilum and Bangalore gorges, Tuckers Nob and other more remote areas and along the Urumbilum River and the track and trail system within the park.

Research and monitoring can improve understanding of the park's natural and cultural heritage, and the processes which affect them. Research and monitoring can also help identify the requirements for management of particular species and assist in understanding visitor use, impacts and expectations.

Further study is required to ascertain the distribution and occurrence of threatened species, as well as habitat requirements and threats to native plants and animals in the park. This plan takes a precautionary approach to visitor use, and restrictions on activities such as canyoning and abseiling in gorges are proposed to protect threatened species. Information on cultural values, visitor use and expectations is also limited.

An opportunity exists within the park for species specific surveys and monitoring of target species such as the yellow-bellied glider (described as an umbrella and/or indicator species) (NPWS in Prep).

Because of the accessibility of the park to Coffs Harbour and educational institutions in the area, it has the potential to play an important role in environmental education for schools, universities and the wider community.

Desired Outcomes

- Research and monitoring enhances the information base on the park's natural and cultural values and visitor use, and assists management of the park.
- Research and monitoring detects any changes in the status of natural and cultural resources and values.
- Research causes minimal environmental damage.

Strategies

- Conduct and encourage research and monitoring, with priority to:
 - completion of vegetation community mapping;
 - the ecology, status and distribution of rare communities, and rare and threatened plant and animal species;
 - the effects of fire on plant and animal communities;
 - the impacts of introduced species and potential control measures;
 - species specific surveys including the yellow-bellied glider;
 - surveys of Aboriginal sites and other places of cultural heritage significance; and
 - visitor use, visitor expectations and visitor impacts.
- Permit research where:
 - the research has the potential to facilitate better management;
 - the research leads to a better understanding of conservation issues and/or biodiversity/ecology; and
 - the research does not conflict with the objectives of management.

- Make a list of priority research projects (based on the above) available to relevant tertiary and research organisations.
- Encourage bird watchers or similar groups to pass on information gathered in the park and incorporate into NPWS databases.
- Incorporate outcomes of research into NPWS databases and modify park management practices where there is an opportunity to improve management.

8. OTHER USES

There are currently a number of non-park uses that predate reservation of the park. These include public utilities such as electricity transmission lines and communication towers.

At present two transmission lines traverse the park. A 132kV line (the 96C Armidale to Coffs Harbour line) traverses the park from west to east just south of the former Cabbage Palm Forest Preserve, crossing Range, Pine and Jersey Bull Roads. The second transmission line (the 89 Armidale to Lismore line) is a 330kV line which traverses the park on a north east axis, crossing Range, Bangalore and Jersey Bull Roads. These transmission lines were previously issued with an Occupation Permit No. 1A when the park was under the management of SFNSW. The transmission lines do not have an easement

Management of transmission lines in the park is under the 2002 Agreement between the NPWS and TransGrid for the inspection and maintenance of TransGrid infrastructure on NPWS areas. Amongst other matters, the Agreement addresses threatened species and cultural heritage issues; sets up consultation and notification processes regarding maintenance and inspection works; and provides a framework for the progressive preparation of environmental management plans specific to reserves. The Agreement applies only to existing transmission lines. Any new activities are subject to the normal approval processes.

The main access roads to the lines are Jersey Bull and Bangalore Roads. Other roads used when carrying out management of the lines include Pine and Range Roads and informal snig tracks. An access track that traverses a small section of the eastern portion of the park down the bottom of Pine and Jersey Bull Roads is also needed for access for line maintenance purposes (refer also section 6.2.1 Vehicle Access). Countrywide Communications constructed the road originally before the park's creation and continue to maintain it to their requirements.

Countrywide Communications (Coffs Harbour) have a radio communications facility on Mount Wondurrgan. The facility is not located within the park however access to the site is via Range Road and Barree Fire Trail, which pass in and out of the park at a number of locations.

The facility was installed some 15 years ago and services Coffs Harbour and the surrounding areas and maintenance is carried out once every three to four months. The Rural Fire Service, State Emergency Services, SFNSW and other bodies use this facility. An access agreement is being pursued between NPWS and Countrywide Communications for the ongoing use of Barree Fire Trail.

Powerlines, communication towers and associated developments generate impacts such as clearing of vegetation, use of herbicides and the maintenance of access trails, as well as the visual impact of the lines and towers.

The draft recovery plan being prepared for the yellow-bellied glider has identified electricity transmission lines as having the potential to act as linear dispersal barriers to animal movement. The recovery plan for the glider identifies such barriers as a possible threat that may isolate and fragment populations (NPWS in prep).

This plan aims to restrict any further non-park related uses in the park and manage existing uses to minimise potential impacts on natural, cultural and recreational values of the park, including the park's aesthetic and landscape values. In particular, care needs

to be taken in the area between Urumbulum Creek Road and Howards Road which is designated as a Remote Natural Area.

Desired Outcomes

- No new transmission lines, towers or other non-park infrastructure are developed in the park.
- Existing non-park infrastructure is managed to minimise impacts on natural and cultural values, scenic values and park infrastructure.

Strategies

- Ensure that the management of powerlines in the park is in accordance with the Agreement between the NPWS and TransGrid for the inspection and maintenance of TransGrid infrastructure on NPWS areas – October 2002. This will include access by TransGrid along existing formed roads and tracks to inspect and maintain its infrastructure subject to directions of NPWS.
- Continue to allow Countrywide Communications to maintain Barree Fire Trail as required to their standards.
- Allow access at all times for emergency purposes to the Countrywide Communications radio facility.
- Prohibit installation of new non-park infrastructure in the park except as allowed under the NPW Act.

9. NPWS MANAGEMENT FACILITIES AND OPERATIONS

The park is administered by the Coffs Coast Area of the NPWS. The area office is located at the Jetty Marina in Coffs Harbour and an area workshop is located in Toormina.

Implementation of the management programs identified in this plan requires a system of management trails in addition to that provided by the public road system. Management trails are shown on Map 1. The purpose of management trails is to enable fire, weed, feral animal and public activity management. Vehicle access to the management trails is restricted to essential NPWS management purposes and other essential purposes authorised by the regional manager. Walkers and cyclists may use these trails.

Some roads through the park are excluded from the park but provide access for park visitors and management staff. These include Corfes Road, part of Range Road, Dairyville Road, Glennifer Road and Langleys Road. A Memorandum of Understanding has been developed with Coffs Harbour City Council and SFNSW regarding maintenance of these roads.

A section of Corfes Road, which is one of the major access points into the park, is located within private property. Corfes Road provides access for management and public access purposes and an access agreement is being pursued with the land owner to allow the NPWS and park visitors to travel through this section of private land.

A number of former snig tracks and other short logging trails in the park have no significant value for visitor or management access. They are generally dead-end roads that do not lead to features of interest and can have significant environmental impacts. Closure and rehabilitation is desirable.

In many places the park boundaries are immediately adjacent to farming land. Where possible, fencing is maintained and management vehicle access is established in cooperation with neighbours. In some areas of the park, the impact of grazing stock can be significant on important and vulnerable plant communities. Exclusion of domestic livestock from these areas will be given a high priority.

Desired Outcomes

- Park management facilities are maintained to a high standard.
- Management facilities adequately serve the needs of park management and have acceptable environmental impact.

Strategies

- Maintain management trails shown on map 1. All other trails will be allowed to overgrow or will be actively rehabilitated using indigenous plants and soil material.
- Park management trails will not be available for public vehicle access. Gate park management trails as needed.
- No additional park management trails will be constructed except in the following situations:
 - re-alignment of an existing route to a more environmentally acceptable location;
 - protection of specific natural and cultural heritage values, property or life where such protection is more important than the impact of the track; and
 - emergency situations (eg wildfire control) where there is no practical or prudent alternative and closed as soon as possible after the fire.

- Liaise with the private landowner about formalising access for park management and public access through that section of Corfes road that traverses private property.
- Work cooperatively with neighbours to facilitate establishment and maintenance of boundary fencing and vehicle access where practicable and required.
- No other additional park infrastructure will be provided in the park other than temporary minor storage facilities associated with visitor facility maintenance.

10. PLAN IMPLEMENTATION

This plan of management is part of a system of management developed by the NPWS. The system includes the NPW Act, management policies, and strategic planning at corporate, directorate and regional levels. The latter may include development of related plans such as regional recreation plans, species recovery plans, fire management plans and conservation plans.

Section 81 of the Act requires that this plan of management shall be carried out and given effect and that no operations shall be undertaken in relation to the park unless they are in accordance with the plan.

Relative priorities for identified activities are set out in the table below. These priorities are determined in the context of directorate and regional strategic planning, and are subject to the availability of necessary staff and funds and to any special requirements of the Director-General or Minister.

The environmental impact of proposed activities will be assessed at all stages in accordance with established environmental assessment procedures. Where impacts are found to be unacceptable, activities will be modified in accordance with the plan policies.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with section 73B of the NPW Act. The implementation of the plan will be monitored and its success in achieving the identified objectives will be assessed.

Strategies

- Undertake an annual review of progress in implementing this plan of management.
- Undertake an assessment after 5 years of the effectiveness of managing the park in accordance with this plan and of the degree of success in achieving the plan's objectives and desired outcomes. Base the evaluation on the monitoring programs set out in this plan and any others that may be developed.

Implementation Table (summary – see plan for details)

Section	Activity	Priority
4. Conservation of Natural and Cultural Heritage		
4.1 Geology, Soils, Erosion and Landform	<ul style="list-style-type: none"> • Minimise visual impact of park facilities. • Liaise with neighbours and other authorities to minimise the impact of adjacent land use on scenic values. • Manage non-park infrastructure to minimise visual impacts (refer section 8 Other uses). • Prohibit the extraction and removal of bushrock, clay, rock, river gravel or any like substance, except for essential management works. • Prohibit visitor access to the gorge systems in the park to protect rock faces and significant vegetation communities with the exception of Bangalore and Urumbulum River gorges where access may be allowed subject to permit restrictions (refer sections 4.2 Native Plants & 6.2 Recreational Opportunities). • Encourage research into the geological history and values of the gorge systems. • Maintain roads to minimise soil erosion and sedimentation. • Ensure road closures are done in a manner that minimises soil erosion and in accordance with NPWS Policy 1.4 (Soil Conservation and Rehabilitation). • Design and undertake all works in a manner that minimises soil erosion. • Undertake rehabilitation works on eroded areas where needed. • Implement soil erosion and sedimentation control measures in areas subject to accelerated erosion and instability. • Include objectives and actions for minimising erosion in fire planning and management programs (refer section 5.3 Fire Management). 	<p>High Medium High High High Low Ongoing High Ongoing High Ongoing Ongoing</p>
4.2 Native Plants	<ul style="list-style-type: none"> • Protect rare or threatened significant plant species or restricted plant communities (refer sections 5.2 Introduced Species, 5.3 Fire Management, 6 Visitor Opportunities and Education, 8 Other Uses and 9 Management Operations). • Allow natural revegetation of cleared areas and take steps to assist revegetation where needed. • Implement recovery plans for threatened species. • Develop specific conservation programs where required for native plant species, populations and communities. • Use prescribed fire to maintain vegetation communities (refer section 5.3 Fire Management). • Liaise with neighbours, Landcare, vegetation management committees and other relevant agencies to encourage retention of areas of native vegetation. • Encourage research (refer to sections 5.3 Fire Management 7 Research and Monitoring). • Assess suitability for nomination on the World Heritage list as an addition to the Central Eastern Rainforest Reserves of Australia. • Facilitate appropriate research. 	<p>High Ongoing High Medium Ongoing Low Low Medium Medium</p>

	<ul style="list-style-type: none"> Protect, conserve, present and, where necessary, rehabilitate values, including potential World Heritage values. 	Ongoing
4.3 Native Animals	<ul style="list-style-type: none"> Protect the habitats of threatened and significant fauna species (refer sections 4.2 Native Plants, 5.2 Introduced Species, 5.34 Fire Management, 6 Visitor Opportunities and Education). 	Ongoing
	<ul style="list-style-type: none"> Maintain or improve habitat of creeks and rivers (refer section 5.1 Water Quality). 	Ongoing
	<ul style="list-style-type: none"> Liase with NSW Fisheries about protection of aquatic fish habitats within the park (refer section 5.1 Water Quality). 	Low
	<ul style="list-style-type: none"> Implement recovery plans for threatened species. Implement appropriate fire management and suppression techniques. 	Ongoing Ongoing
	<ul style="list-style-type: none"> Encourage research, in particular threatened species. 	Medium
4.4 Aboriginal Heritage	<ul style="list-style-type: none"> Consult with traditional custodians, Elders Groups and the Coffs Harbour Local Aboriginal Land Council about identification and protection of cultural heritage values. 	High
	<ul style="list-style-type: none"> Record sites and places and assess the condition of sites, significance and threats in partnership with relevant Aboriginal people 	High
	<ul style="list-style-type: none"> Prepare management strategies for the protection of the two campsites. 	High
	<ul style="list-style-type: none"> Undertake site surveys and impact assessment prior to implementing management activities or visitor facilities with the potential to damage Aboriginal sites and places. 	Ongoing
	<ul style="list-style-type: none"> Undertake and/or encourage an Aboriginal cultural heritage assessment of the park. This will include an assessment of the landscape, plants and animal values of cultural value. 	Medium
	<ul style="list-style-type: none"> Support Aboriginal community proposals to undertake interpretation of Aboriginal culture in the area. 	Ongoing
	<ul style="list-style-type: none"> Encourage research activities, which are supported by the Aboriginal community. 	Low
4.5 Historic Heritage	<ul style="list-style-type: none"> Work with the local Aboriginal community to develop arrangements that are consistent with the NPW Act and NPWS policy and permit access to the park for educational activities and cultural outings. 	Medium
	<ul style="list-style-type: none"> Assess historic places. 	Medium
	<ul style="list-style-type: none"> Protect historic places, including cultural landscape elements, from threatening processes 	High
	<ul style="list-style-type: none"> Conserve and manage historic places/sites in accordance with the Burra Charter (ICOMOS, 1988). 	Ongoing
	<ul style="list-style-type: none"> Record all past land use sites, features and places and leave in situ if found not to be of conservation significance or needed for management purposes such as bridges. 	Low
	<ul style="list-style-type: none"> Involve local historical societies and members of the community in management where possible. 	Low
	<ul style="list-style-type: none"> Develop and implement conservation policies for significant places under threat. Encourage research into the history of the park. 	Low Ongoing

5. Park Protection		
5.1 Water Quality	<ul style="list-style-type: none"> Design and undertake all park works in a manner that minimises water pollution. 	Ongoing
	<ul style="list-style-type: none"> Continue participation on the Upper North Coast Catchment Management Board. 	Ongoing
	<ul style="list-style-type: none"> Exclude livestock from entering the park (refer section 5.2 Introduced Species); 	High
	<ul style="list-style-type: none"> Liaise with Upper North Coast Catchment Management Board, local government, other authorities and landowners. 	Ongoing
	<ul style="list-style-type: none"> Liaise with appropriate authorities about contingency plans for accidents. 	Medium
	<ul style="list-style-type: none"> Investigate Urumbilum River and its tributaries for declaration as a Wild River under the NPW Act. 	Low
5.2 Introduced Species	<ul style="list-style-type: none"> Implement the Pest Management Plan. 	High
	<ul style="list-style-type: none"> Implement introduced species control programs in accordance with Threat Abatement Plans and Recovery Plans for threatened species. 	High
	<ul style="list-style-type: none"> Give priority for the control of introduced species as described. 	High
	<ul style="list-style-type: none"> Avoid unnecessary environmental disturbances when undertaking park management activities. 	Ongoing
	<ul style="list-style-type: none"> Support research programs into effective biological control of weed species. 	Ongoing
	<ul style="list-style-type: none"> Assist the Grafton and Kempsey RLPBs in the preparation of a wild dog management plan. 	Medium
	<ul style="list-style-type: none"> Undertake control programs for wild dogs consistent with NPWS policy and in consultation with affected landholders and Wild Dog Control Associations. 	High
	<ul style="list-style-type: none"> Encourage research into DNA analysis to determine the degree of hybridisation of dingoes. 	Ongoing
	<ul style="list-style-type: none"> Carry out pest control programs in conjunction with the Rural Lands Protection Board, Noxious Plants County Councils and adjoining landholders where appropriate. 	Ongoing
	<ul style="list-style-type: none"> Prohibit domestic animals other than guide dogs. 	Ongoing
	<ul style="list-style-type: none"> Liaise with adjacent landholders regarding fencing of boundaries. 	High
	<ul style="list-style-type: none"> Continue to monitor and assess existing programs. 	Ongoing
	<ul style="list-style-type: none"> Amend the Pest Management Plan annually or as necessary, and review every 5 years. 	Ongoing
5.3 Fire Management	<ul style="list-style-type: none"> Implement the fire management strategy and update as required. 	High
	<ul style="list-style-type: none"> Close the park to public use during periods of fire danger if necessary. 	Ongoing
	<ul style="list-style-type: none"> Maintain fire history records. 	Ongoing
	<ul style="list-style-type: none"> Use prescribed burning to achieve a variety of fire regimes that maintain vegetation communities and protection of life and property. 	Ongoing
	<ul style="list-style-type: none"> Implement fire management and suppression techniques in a manner that minimises ecological impact and enhances conservation outcomes. 	Ongoing
	<ul style="list-style-type: none"> Implement appropriate sediment control measures. 	Ongoing
	<ul style="list-style-type: none"> Rehabilitate areas disturbed by fire suppression operations as soon as practical after fire. 	High
	<ul style="list-style-type: none"> Continue to participate in district bush fire committees and the Coffs Harbour and Bellingen Bush Fire 	Ongoing

	<p>Management Committee.</p> <ul style="list-style-type: none"> • Liaise with, and develop cooperative strategic plans with bushfire brigades, local government and neighbours. • Encourage research into the fire history and ecological and heritage effects of fire in the park. 	<p>Ongoing</p> <p>Low</p>
6. Visitor Opportunities and Education		
6.1 Information Provision	<ul style="list-style-type: none"> • Provide directional and interpretative signage at appropriate locations. • Promote minimal impact recreation practices. • Maintain and update the existing park information brochure and develop educational material. Update the park brochure to include information on Aboriginal cultural heritage and values. • Promote minimal impact recreation in publications. • Promote community understanding of park values and management strategies. • Support and assist educational use of the park. • Emphasise the following themes in promotion and interpretation programs: <ul style="list-style-type: none"> - wild, pristine and scenic rivers; - biodiversity and threatened species; - Aboriginal and non-Aboriginal values and history; - Catchment values; and - Recreation opportunities. • Involve Aboriginal community members in interpretation of Aboriginal heritage values (refer section 4.4 Aboriginal Heritage). • Provide assistance where appropriate to tourism promotion and interpretation of the park. • Liaise with tourism associations. 	<p>Medium</p> <p>High</p> <p>Ongoing</p> <p>High</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Medium</p> <p>Ongoing</p>
6.2 Recreational Opportunities	<ul style="list-style-type: none"> • Develop and maintain visitor facilities and infrastructure consistent with Table 5. • Undertake risk assessment of visitor facilities. • Monitor the impacts of visitor use and if necessary close areas permanently or temporarily or otherwise restrict access. • Encourage minimal impact recreation practices. <p>6.2.1 Vehicle Access</p> <ul style="list-style-type: none"> • Maintain a system of vehicle access roads for public vehicle access (see map 1). • Maintain a system of management trails for management vehicles (see map 1). • Maintain Ministerial roads for access for relevant stakeholders and/or State Forests logging areas. Negotiate with SFNSW and Transgrid about an MOU regarding maintenance of roads (refer section 8). • Allow public vehicle use of Ministerial roads, other than Suttons Road and Jersey Bull Road. • Review the need for Ministerial roads with any changes to land tenures. • Seek the closure of crown road reserves. • Following final approvals from Coffs Harbour City Council and the Department of Land and Water Conservation restrict access to Jersey Bull Road (see map 1). <p>6.2.2 Day Use</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>High</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing/High</p> <p>Ongoing</p> <p>Ongoing</p> <p>High</p> <p>High</p>

	<ul style="list-style-type: none"> Develop and maintain day use facilities consistent with table 5 and subject to environmental assessment. Prohibit camping in day use areas. Require visitors to take rubbish home. Prohibit open fires in the park, except in constructed fire places. Encourage visitors to use gas/fuel stoves. Special conditions may be imposed on recreational use of the park due to fire danger (refer Section 5.3 Fire Management). <p>6.2.3 Walking Tracks</p> <ul style="list-style-type: none"> Maintain a system of walking tracks as described in table 5. Encourage adherence to minimal impact bushwalking codes. Investigate utilising existing access trails for use as walking tracks and pursue the formal signposting and maintenance of these existing trails as walking tracks. <p>6.2.4 Camping</p> <ul style="list-style-type: none"> Allow pack or bush camping. Place restrictions on pack camping if needed. Encourage minimal impact camping. Prohibit pack camping at day use areas. <p>6.2.5 Bicycling</p> <ul style="list-style-type: none"> Allow cycling on roads and management trails. <p>6.2.6 Horse Riding</p> <ul style="list-style-type: none"> Horse riding will not be permitted within the park. <p>6.2.7 Adventure Activities</p> <ul style="list-style-type: none"> Allow canyoning, abseiling and rock climbing at Bangalore and Urumbilum River gorges subject to permit restrictions. Review the permissibility of abseiling, rock climbing and canyoning activities if adverse impacts from these activities become evident. <p>6.2.8 Commercial tour operations</p> <ul style="list-style-type: none"> Ensure all commercial activities are licensed. Commercial canyoning, abseiling and rock climbing will not be permitted (refer section 6.2.7 Adventure Activities). Consider a system of timing and/or limits on group sizes and activities if needed. 	<p>Medium</p> <p>Ongoing High</p> <p>Ongoing High Ongoing</p> <p>Medium</p> <p>Ongoing</p> <p>Low</p> <p>Ongoing Ongoing Medium High</p> <p>Ongoing</p> <p>High</p> <p>High</p> <p>High</p> <p>High High</p> <p>Medium</p>
7. Research and Monitoring		
	<ul style="list-style-type: none"> Conduct and encourage research and monitoring with priority to areas identified in this plan. Prepare a list of priority research projects. Encourage bird watchers or similar groups to pass on information gathered in the park and incorporate into NPWS databases. Incorporate outcomes of research into NPWS databases and modify park management practices where there is an opportunity to improve management. 	<p>Ongoing</p> <p>Low Ongoing</p> <p>Ongoing</p>
8. Other Uses		

	<ul style="list-style-type: none"> • Ensure that the management of powerlines in the park is in accordance with the Agreement between the NPWS and TransGrid. • Continue to allow Countrywide Communications to maintain Barree Fire Trail as required to their standards. • Allow access at all times for emergency purposes to the Countrywide Communications radio facility. • Prohibit installation of new non-park infrastructure in the park except as allowed under the NPW Act. 	High Ongoing Ongoing High
9. NPWS Management Facilities and Operations		
	<ul style="list-style-type: none"> • Maintain management trails shown on map 1. • Park management trails will not be available for public vehicle access. Gate park management trails as needed. • No additional park management trails will be constructed. • Liaise with private landowner about formalising access for park management and public access through that section of Corfes road that traverses private property. • Work cooperatively with neighbours to facilitate establishment and maintenance of boundary fencing and vehicle access. • No other additional park infrastructure will be provided in the park other than temporary minor storage facilities associated with visitor facility maintenance. 	Ongoing Ongoing Ongoing High High Ongoing
10. Plan Implementation		
	<ul style="list-style-type: none"> • Undertake an annual review of plan implementation. • Undertake an assessment after 5 years. 	Ongoing Low

LEGEND FOR PRIORITIES

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

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

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

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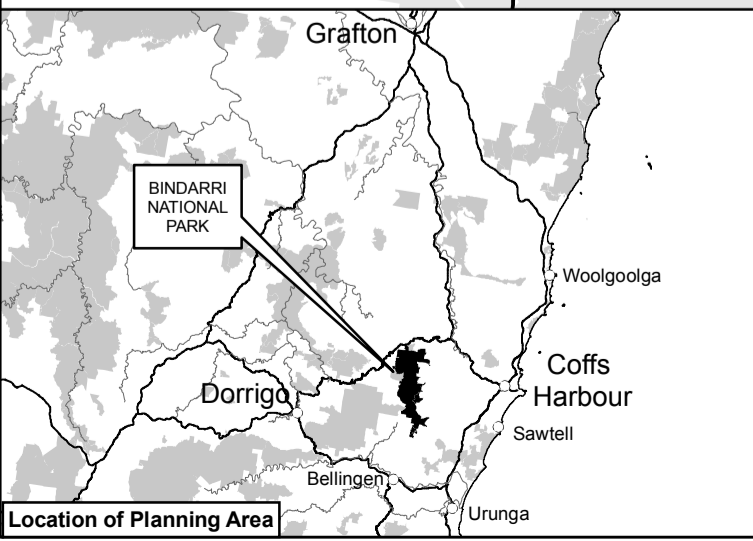
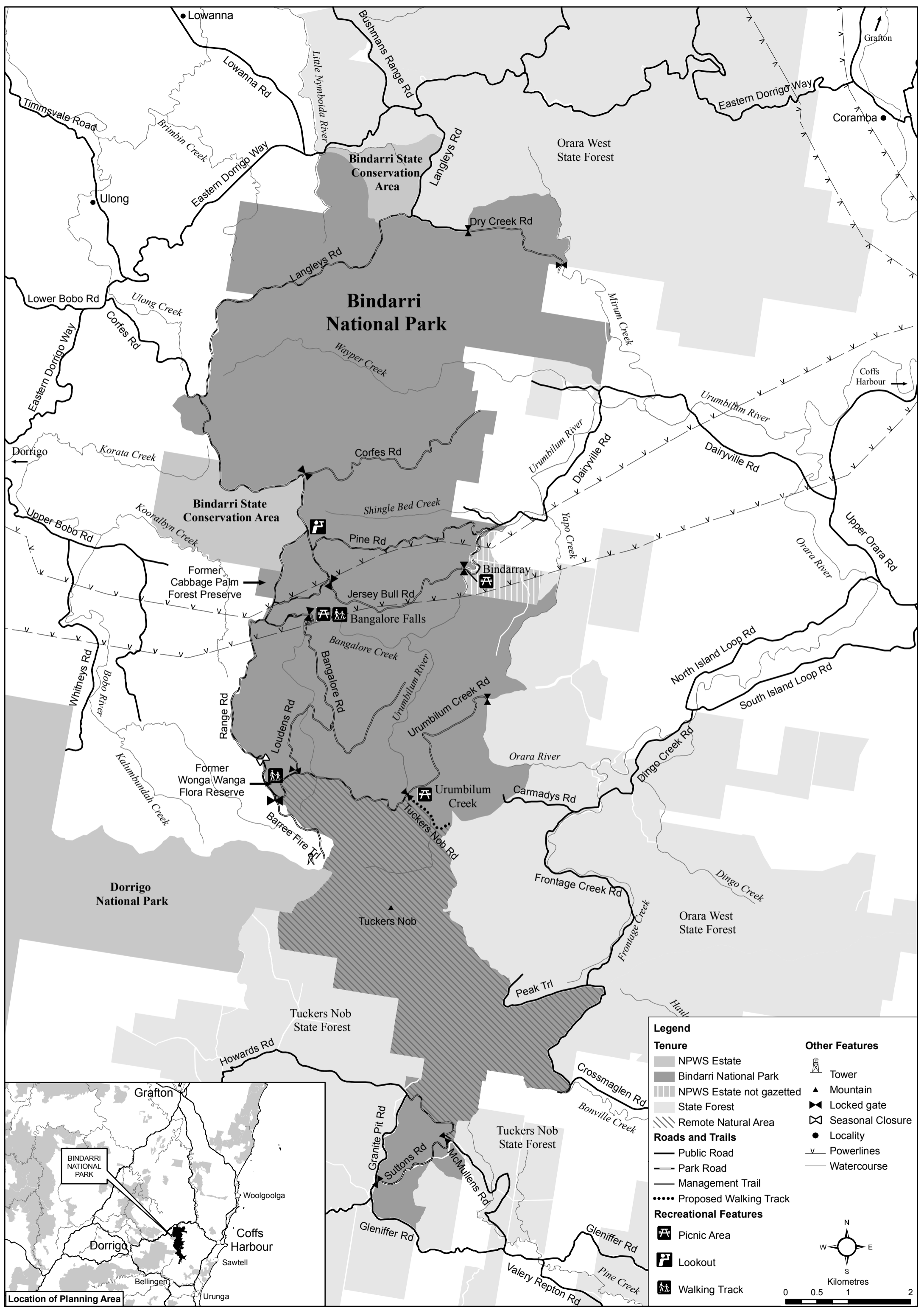
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APPENDIX A

Soil Landscapes found within Bindarri National Park

Soil Landscape	Description	Erosion Hazard
<i>Erosional</i>		
Ulong	Moderately deep to deep, well-drained structured Red Earths and structured Yellow Earths on crests and ridges, and deep well drained Kranozems and Red Podsolc soils on mid slopes and lower slopes. Low fertility.	<ul style="list-style-type: none"> - High subsoil erodibility. - Water erosion hazard, localised.
Megan	Moderately deep to deep structured Red Earths and Prairie Soils, with deep structured Yellow Earths on highly silty rocks and deep Kranozems in the moistest sites. Stony (localised), low subsoil fertility.	<ul style="list-style-type: none"> - High Erodibility. - Steep slopes, localised mass movement hazard and high water erosion hazard.
<i>Colluvial</i>		
Bobo	Moderately deep, well-drained weakly structured Red Earths, with deep, imperfectly drained Red Podsolc Soils on footslopes and very shallow, well-drained Lithosols on very steep slopes with shallow soils. Stony, shallow soils with low fertility.	<ul style="list-style-type: none"> - Very steep slopes, high mass movement hazard, high water erosion hazard.
Suicide	Moderately deep to deep, well drained stony structured Yellow Earths on crests and upper slopes, with deep, stony structured Red Earths on midslopes and footslopes. Stony, low fertile soils.	<ul style="list-style-type: none"> - High to very high subsoil erodibility. - Steep slopes, high water erosion hazard, localised mass movement hazard.
Never Never	Deep, moderately well drained structured Red Earths. Stony and low fertility.	<ul style="list-style-type: none"> - Steep to very steep slopes, high to severe water erosion hazard, high mass movement hazard (localised).
<i>Alluvial</i>		
Dairyville	Moderately deep to deep, moderately well drained Alluvial soils on floodplains, with deep, moderately well drained Structured sands in sandy channel deposits and moderately deep to deep well drained structured Brown Earths on terraces. Low subsoil fertility and extreme subsoil stoniness. Flood hazard (localised), seasonal waterlogging (localised) and high water tables (localised).	<ul style="list-style-type: none"> - High localised water erosion hazard.
Transferral		
Kooralbyn	Deep, moderately well drained Soloths on footslopes, and deep poorly drained Soloths on drainage plains. Low to very low fertility, localised seasonal waterlogging.	<ul style="list-style-type: none"> - High water erosion hazard.

Source: Adapted from Milford 1996



Legend

Tenure		Other Features	
NPWS Estate	Bindarra National Park	Tower	Mountain
NPWS Estate not gazetted	State Forest	Locked gate	Seasonal Closure
Remote Natural Area	Roads and Trails		
Public Road	Park Road	Management Trail	Proposed Walking Track
Management Trail	Proposed Walking Track	Picnic Area	Lookout
Proposed Walking Track	Walking Track	North arrow	Scale bar

Scale: 0 0.5 1 2 Kilometres