DUNGGIR NATIONAL PARK

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Conservation (NSW)

May 2004

This plan of management was adopted by the Minister for the Environment on 12 May 2004.

Acknowledgments

This plan is based on a draft plan prepared by Janelle Brooks and Denique Littler, with assistance from North Coast Region staff, Northern Directorate planning staff and volunteer student, Rachelle Cheers.

Thanks are extended to all members of the community who participated in the consultation process.

Cover photograph by Ian Hutton.

Inquiries

Inquiries about this draft plan of management should be directed to the Coffs Coast Area Office, Marina Drive, Coffs Harbour Jetty, on (02) 6652 0900.

ISBN 0 7313 6601 8

FOREWORD

Dunggir National Park is located in the Nambucca Valley, on the mid-north coast of NSW. The park comprises 2,651 hectares and contains Bowra Sugarloaf, which is a prominent landscape feature in the region.

Prior to gazettal in 1997, Dunggir National Park formed part of what was formerly Mistake State Forest which was the subject of numerous forest protests and court cases in the 1980s and 1990s.

The park contains areas of old growth forest, a large proportion of which have never been logged. Old growth forests are of high conservation value as reference points and because of features such as large tree hollows, fallen timber and complex layering of plant species which provide important habitat for many threatened plant and animal species.

Key recreational activities include bird watching, bushwalking and car touring. Kosekai Lookout is the only existing recreation facility in the park. The lookout provides a panoramic view to the east from the range across to the coast.

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

A draft plan of management for Dunggir National Park was placed on public exhibition from 28th June until 30th September 2002, and attracted 21 submissions which raised 11 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management provides for the protection of the natural and cultural heritage values of the park. Low-key day use facilities will be developed at Kosekai Lookout and interpretive information provided. Weed and feral animal control, and the development of fire management strategies for the park will be continued.

This plan of management establishes the scheme of operations for Dunggir National Park. In accordance with section 75 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

BOB DEBUS
MINISTER FOR THE ENVIRONMENT

1. NATIONAL PARKS IN NEW SOUTH WALES

1.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of national parks in New South Wales (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* and the Service's policies. The policies arise from the legislative background, the corporate goals of the National Parks and Wildlife Service (NPWS) and internationally accepted principles of park management. Other legislation, international agreements and charters may also apply to management of the area. In particular, the *NSW Environmental Planning and Assessment Act 1979* requires the assessment and mitigation of environmental impacts of any works proposed in this plan.

1.2 MANAGEMENT OBJECTIVES

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.

Under the Act, 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.

2. DUNGGIR NATIONAL PARK

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Dunggir National Park (referred herein as 'the park') is located in the Nambucca Valley on the mid-north coast of NSW (see Map). The park is within the area of the Gumbaynggirr Aboriginal People and the park name is derived from the local Gumbaynggirr dialect and means 'Koala'. The park is located approximately 20 kilometres west of Bowraville, and approximately 35 kilometres west of Nambucca Heads in the Nambucca Local Government Area. The park forms an eastern outlier of the Eastern Escarpment and Bowra Sugarloaf within the park is a prominent landscape feature in the region.

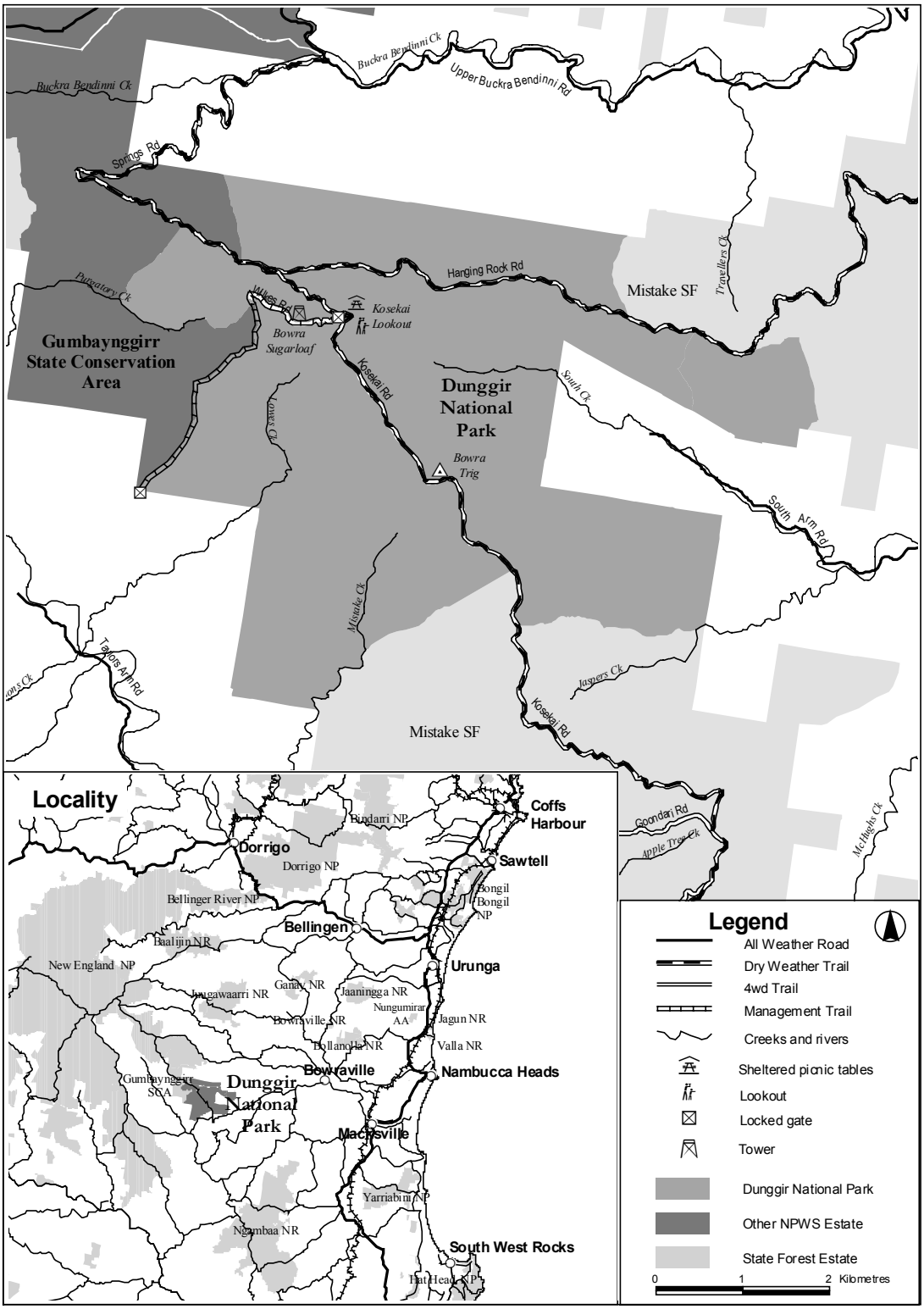
The park comprises 2,651 hectares of relatively undisturbed forest and was gazetted on 1 January 1997 under the first stage of the Regional Forest Agreement process for the lower north east NSW.

Prior to gazettal, the park formed part of what was formerly Mistake State Forest and was subject to numerous forest protests and court cases in the 1980s and 1990s. In 1994, local conservation groups first formally submitted a proposal to the NPWS for the creation of the park (De Vires and McCauley 1994).

The park abuts private freehold land and Mistake State Forest. Mistake State Forest provides an important link between the park and New England National Park, particularly the Leagues Scrub area. This continuum of vegetative areas plays an important role in conservation throughout the landscape and provides important corridors for animal movements and refuge. The park is one of a number of reserves in the Nambucca Valley, including Ngambaa, Juugawaarri, Ganay, Bowraville, and Bollanolla Nature Reserves.

This plan of management includes consideration of Hanging Rock, Kosekai and Wilkes Roads where they traverse the park. These roads have been vested in the Minister for the Environment as Ministerial Roads to provide access to logging areas in State Forests and are not included in the park. Section 72(3) of the NPW Act allows for such roads to be included in plans of management.

This plan applies both to the land currently reserved as the park and to any future additions to the reserve. Where management strategies or works are proposed for additions that are not consistent with the plan, an amendment to the plan will be required.



Map: Dunggir National Park

2.2 LANDSCAPE CONTEXT

Natural and cultural heritage and on-going use are strongly inter-related and together form the landscape of an area. Much of the Australian environment has been influenced by past Aboriginal and non-Aboriginal land use practices, and the activities of modern day Australians continue to influence bushland through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

The geology, landform, climate and plant and animal communities of the area, plus its location, have determined how it has been used by humans.

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 usefulness natural and cultural heritage, non-human threats and on-going use are dealt with individually, but their inter-relationships are recognised.

2.2. NATURAL AND CULTURAL HERITAGE

Geology, Landform, Soils and Hydrology

The park ranges from approximately 100 metres above sea level in the Mistake Creek valley, to 870 metres at Bowra Sugarloaf. The three ridgelines, which run to the northwest, southeast and east from Bowra Sugarloaf and separate the valleys of Buckra Bendinni Creek, South Creek and Taylors Arm, are distinctive features in the landscape of the park. The park has a steep topography, with slopes generally greater than 11°.

The park lies within a geological province termed the Nambucca Block, which extends along the coast from near Sawtell to near South West Rocks and inland almost to the foot of the New England Tablelands. The major rock unit of this province in and around the park is the Five Day phyllite, probably of Early Permian age. Phyllite is a fine grained metamorphic rock rich in mica with a well-developed foliation (cleavage). This rock would originally have been deposited as mud on an ancient seabed and would have been later changed (metamorphosed) into phyllite through the effects of heat and pressure during one or more earth movements. This type of rock weathers deeply to produce an easily eroded regolith.

A brief description of the soil landscapes and the soil types characteristic of each landscape type found in the park is provided in table 4. The area is prone to major rainfall events and thunderstorms and this, together with the steep slopes and soils, results in high erodiblity (NSW NPWS 1999).

The park forms part of the Nambucca River catchment and is divided into three sub-catchments, Taylors Arm and South Creek, which drain the southern end of the park and Buckra Bendinni Creek, which drains the northern end. The park, as well as the adjoining areas of vegetation, plays an important role in maintaining and improving water quality within the surrounding sub-catchments and hence the Nambucca Catchment.

Native Flora

The park contains areas of old growth forest, a large proportion of which have never been logged due to the steep terrain. Old growth forests are of high conservation value as reference points and because of features such as large tree hollows, fallen timber and complex layering of plant species which provide important habitat for many threatened plant and animal species.

Past timber harvesting has led to the establishment of even aged stands of regrowth forest in some areas of the park.

There are three broad forest types within the park: wet sclerophyll forest, dry sclerophyll forest, and rainforest. The wet sclerophyll is dominated by associations of blackbutt (*Eucalyptus pilularis*), tallowwood (*Eucalyptus microcorys*), brushbox (*Lophostemon confertus*) and Sydney blue gum (*Eucalyptus saligna*). The dominant species of the dry sclerophyll forest are blackbutt (*Eucalyptus pilularis*), ironbark (*Eucalyptus paniculata*), northern grey gum (*Eucalyptus propinqua*) and white mahogany (*Eucalyptus acmenoides*). Detailed forest ecosystem mapping of the park was undertaken as part of the CRA process (NPWS 1999).

The small patches of rainforest within the park cover less than 10% of the park area. Rainforest is located on the eastern and southern slopes of the Bowra Sugarloaf and along riparian zones. Three different rainforest subforms, subtropical rainforest, warm temperate rainforest and dry rainforest occur in the park.

Table 1 (page 9) lists rare or threatened (ROTAP), or regionally significant plant species which have been recorded within the park. Other species considered likely to occur based on their distribution and habitat characteristics are also listed (DeVries and McCauley 1994). Field surveys undertaken in 2001 identified a large number of the threatened species in lowland areas of the park away from the road network and ridge tops (Graham 2001). These surveys targeted rare and threatened plant species, particularly in those areas likely to be affected by management actions and recreational activities.

Table 1: Rare, threatened or significant plants known or likely to occur in Dunggir National Park.

Species known to occur in Dunggir National Park*		
Common Name	**Scientific Name**	**Status**
Aniseed Tree	*Anetholea anisata*	ROTAP
Blunt Leaved Wisteria	*Milletia australis*	ROTAP 3RC -+
Five-leaved Bonewood*	*Bosistoa floydii*	ROTAP 2Rci
Queensland Greenheart	*Endiandra compressa*	ROTAP
Native Ramie	*Boehmeria platyphylla*	Regionally Significant
Species considered likely to occur in Dunggir National Park**		
Black Leaved Socketwood	*Daphnandra sp.*	Biogeographically Significant
Broad Leaved Palm Lily	*Cordyline petiolaris*	Biogeographically Significant
Callicarpa	*Callicarpa pedunculata*	Biogeographically Significant
Climbing Deeringia	*Deeringia arborescens*	Biogeographically Significant
Grey Ironbark	*Eucalyptus ancophila*	ROTAP 2K
Large Flowered Milk Vine	*Marsdenia liisae*	ROTAP 3RC-
Milky Silkpod*	*Parsonsia dorrigoensis*	Vulnerable[#]
Nambucca Ironbark	*Eucalyptus fusiformis*	ROTAP 2RC-
Rainforest Senna	*Senna acclinis*	*ROTAP 3RC-*
Ravine Orchid*	*Sarcochilus fitzgeraldii*	Vulnerable[#]
Red Boppel Nut*	*Hicksbeachia pinnatifolia*	Vulnerable[#]
Rusty Plum*	*Amorphospermum whitei*	Vulnerable[#]
Simple Spleenwort	*Asplenium attenuatum*	Biogeographically Significant
Small Bolwarra	*Eupomatia bennetti*	Biogeographically Significant
Soft Jasmine	*Jasminium dallachii*	Biogeographically Significant
Woolls' Tylophora	*Tylophora woollsii*	ROTAP 2E
Zig Zag Vine	*Rauwenhoffia leichhardtii*	ROTAP 3K

Source: *Graham 2001. ** DeVries and McCauley 1994
Note :[#] Denotes species listed on the Threatened species Conservation Act 1995.

Native Fauna

The vegetation communities in the park provide a range of habitats for native animals. A number of threatened fauna species have been recorded in the park and a number of others are considered likely to occur (DeVries and McCauley 1994). Table 2 lists fauna species that have been recorded and species that are likely to occur in the park, based on their distribution and habitat requirements.

Threatened bird species recorded in the park include many species dependant on rainforest or wet sclerophyll forest with a rainforest understorey. These include the sooty owl (*Tyto tenebricosa*), wompoo fruit-dove (*Ptilinopus magnificus*) and rufous scrub-bird (*Atrichornis rufescens*) which depend on the rainforest for roosting, nesting and feeding.

The sphagnum frog (*Philoria sphagnicolus)* has been recorded along Hanging Rock Road and in the South Arm catchment. Little is known about the habitat requirements of this species other than its preference for higher altitudinal rainforest streams and bogs, and surrounding foraging habitat in leaf litter.

Vegetated areas on State Forest and private land surrounding the park are important in providing connectivity between vegetation communities and habitats. Many of

these areas have been identified in the NPWS Key Habitats and Corridors work (NPWS 2001a).

Table 2: Threatened fauna known or considered likely to occur within Dunggir National Park

Threatened fauna known to occur *		
Common Name	***Scientific Name***	**Status**
Common Bentwing Bat	*Miniopterus schreibersii*	Vulnerable
Golden-tipped Bat	*Kerivoula papuensis*	Vulnerable
Koala	*Phascolarctos cinereus*	Vulnerable
Yellow Bellied Glider	*Petaurus australis*	Vulnerable
Bush Stone-curlew	*Burhinus grallarius*	Endangered
Powerful Owl	*Ninox strenua*	Vulnerable
Rufous Scrub-bird	*Atrichornis rufescens*	Vulnerable
Sooty Owl	*Tyto tenebricosa*	Vulnerable
Sphagnum Frog	*Philoria sphagnicolus*	Vulnerable
Wompoo Fruit-dove	*Ptilinopus magnificus*	Vulnerable
Threatened fauna considered likely to occur within Dunggir National Park**		
Brush-tailed Phascogale	*Phascogale tapoatafa*	Vulnerable
Eastern Cave Bat	*Vespadelus troughtoni*	Vulnerable
Eastern Little Mastiff Bat	*Mormopterus norfolkensis*	Vulnerable
Eastern Long-eared Bat	*Nyctophilus bifax*	Vulnerable
Eastern Quoll	*Dasyurus viverrinus*	Endangered
Giant-barred Frog	*Mixophyes iteratus*	Endangered
Greater Broad-nosed Bat	*Scoteanax rueppellii*	Vulnerable
Large-footed Myotis	*Myotis adversus*	Vulnerable
Little Bentwing Bat	*Miniopterus australis*	Vulnerable
Long-nosed Potoroo	*Potorous tridactylus*	Vulnerable
Parma Wallaby	*Macropus parma*	Vulnerable
Red-legged Pademelon	*Thylogale stigmatica*	Vulnerable
Rufous Bettong	*Aepyprymnus rufescens*	Vulnerable
Stephen's Banded Snake	*Hoplocephalus stephensii*	Vulnerable
Tiger Quoll (Spotted-tailed Quoll)	*Dasyurus maculatus*	Vulnerable
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	Vulnerable
Glossy Black Cockatoo	*Calyptorhynchus lathami*	Vulnerable
Great Pipistrelle	*Falsistrellus tasmaniensis*	Vulnerable
Masked Owl	*Tyto novaehollandiae*	Vulnerable
Red Goshawk	*Erythrotriorchis radiatus*	Endangered

* NSW Atlas 2001
**Source: DeVries and McCauley 1994

Cultural Heritage

The park is located within the area of the Bowraville Local Aboriginal Land Council and within the country of the Gumbaynggirr Aboriginal people. Dunggir is derived from the Gumbaynggirr dialect and is said to mean Koala.

Aboriginal communities have an association and connection to the land. The land and water biodiversity values within a whole landscape context are the centre of Aboriginal spirituality and contribute to Aboriginal peoples identity. Aboriginal

communities associate natural resources with the use and enjoyment of valued foods and medicines, caring for the land, passing on cultural knowledge and strengthening social bonds. Aboriginal heritage and nature are inseparable from each other and need to be managed in an integrated manner across the landscape.

The Bowra Sugarloaf and the three prominent ridges separating the Buckra Bendinni, South Arm and Taylors Arm catchments are thought to be important to the local Aboriginal people as areas of spiritual significance. Areas within the park also form part of the traditional hunting grounds for the Gumbayngirr people. There has not, however, been any detailed cultural heritage survey work undertaken in the park.

European settlement of the Nambucca Valley began when it was first visited by cedar cutters and loggers in the 1830s, although there are stories of escaped convicts surviving shipwrecks and living in the area before this time (Townsend 1993). The difficult entrance to the Nambucca River and dense rainforest on the valley floor meant that settlement in the valley occurred relatively slowly. Agricultural development in the valley was mainly as an outpost of the Macleay Valley settlements.

In 1841, Colonial surveyor, Clement Hodgkinson, embarked on a major exploratory journey through the upper Nambucca catchment from his base on the Macleay River. His trip was notable for the good relations he enjoyed with local Aboriginal people. The precise route taken is not known but the journal kept by Clement Hodgkinson described vegetation and topography similar to that still found today in the park.

In 1889 discovery of antimony in the nearby upper Buckra Bendinni Creek by James Mackay led to the development of a number of small scale mines around the Mistake Mountains. The shafts are no longer in use but some remain in the country west of the park. There are a number of prospecting and mining sites within the park including Dunghill Prospect, Flemmings Mine and Prospect, Grahams Hope and Grahams Mistake (Mineral Resources NSW 2002). These require assessment to determine any heritage values and safety issues.

The area of the Mistake State Forest was notified as a timber reserve due to local concern over clearing rates in 1891 and was gazetted as Mistake State Forest in 1917.

2.3 RECREATION

The park currently receives a low level of visitation. Key recreational activities include bird watching, bushwalking and car touring. The park also receives occasional use by horse riders. There are numerous alternative locations for horse riding including state forest and large rural holdings in the area. Horses have the potential to impact on park values and conflict with other users. There are also safety concerns where the road network is narrow and bordered by very steep slopes and is used by logging trucks. There are often no clear lines of sight due to the steep slopes and few locations to move off the road to avoid vehicles. In addition the local road network follows ridgelines without any watering locations for horses.

A recreation management zoning framework has been developed for all protected areas in the NPWS Northern Directorate (NPWS 2002). The framework is a tool to assist reserve management. It designates areas of land into zones and indicates which recreational activities and developments are acceptable, where they may be

undertaken and what levels of use or visitation are acceptable. The park falls within zone 3, which provides opportunities for car touring, and basic visitor facilities.

Other parks and reserves in the region provide a range of complementary recreation opportunities and facilities. Day use areas and walking tracks are provided in Ngambaa Nature Reserve, New England and Hat Head National Parks and Arakoon State Recreation Area. All these parks and reserves, excluding Ngambaa Nature Reserve also provide formal camping areas. Council and private camping and caravan park facilities are located at Nambucca Heads, Gumma Crossing Reserve, Scotts Head, Grassy Head and Stuarts Point.

The establishment and maintenance of recreational opportunities within the park has been explored in the context of opportunities provided within the region as a whole and not just within NPWS estate but also on State Forest, private and Council land.

Kosekai Lookout is the only existing recreation facility in the park. The lookout is a cleared grass area along Kosekai Road on top of one of the ridgelines. It provides a panoramic view to the east from the range across to the coast.

There is currently a proposal by Kyeewa Bushwalking Group to establish a long distance walking route to commemorate the journey of Clement Hodgkinson in 1841. The route is proposed to begin from his base on the Macleay River and travel through the upper Nambucca catchment, traversing the park.

Given the steep terrain and erodible substrates of soil in the Park, construction of new tracks would have high environmental impacts and would be very costly to maintain. It is proposed therefore, that any walking route promoted through the park should follow existing tracks and trails and not involve construction of new walking tracks.

There is currently no formal educational or interpretative material provided by NPWS on the values of the park.

The park will be managed to preserve its remote recreation opportunities and to provide for the development of areas for car touring, bushwalking and basic visitor facilities only. Opportunities for camping within the park are limited because of the steep terrain and highly erodible soils. Camping is not appropriate within the existing day use areas, however other opportunities for camping are available nearby, outside the park.

The park in conjunction with other facilities in the surrounding region has the ability, through promotion of passive recreation, to stimulate the local tourism industries of the surrounding small rural communities and towns and also to reinforce the importance of nature conservation in the region.

2.4 THREATS TO RESERVE VALUES

Fire

The fire history of the park is not well known, however a major wildfire in the late 1960s burnt most of the park and a large area of the escarpment to the north. In 2000, three fires burnt along Kosekai Road and through the top western and eastern corners of the park.

The substantial areas of fire sensitive rainforest within the park suggest that these areas have not been subject to regular intense fires.

A Fire Management Strategy will be prepared for the park and include a detailed assessment of the risk to life, property and conservation values, and outline the actions proposed over a five year period to address these risks. It will also consider the past wildfire history of the park and its frequency. Management will aim to maintain biodiversity by restricting fires to only part of the distribution of a vegetation community at any one time, ensuring that the fire thresholds are not exceeded and by excluding fire from some communities such as rainforest (see table 3).

Table 3: Fire regime guidelines for major vegetation communities [*1]

Community	A decline in biodiversity is predicted if:			Regime[#2]
Dry open forest, disturbed remnant vegetation, taller dry eucalypt, dry blackbutt, dry sclerophyll forest woodland, dry spotted gum, non-timber eucalypts	1. Three or more consecutive fires, with each of the fires less than 5yrs apart.	1. Non fire for more than 30yrs	1. 2 or more fires that totally scorch or consume the tree canopy. 2. Three or more consecutive of low intensity.	a
Moist open forest, moist coastal eucalypts, moist blackbutt, flooded gum, and moist tableland eucalypts.	2. More than one fire every 30yrs.	2. No fire for 200yrs (upper threshold under review).		c
Brushbox, rainforest	Any fire occurrence.			d
Cleared land	Not applicable.			

A variable fire regime within the above thresholds is required to avoid species decline. This requires varying fire frequency and intensity, and the season and pattern of burn.

[*1]. Source: Bradstock et al 1995, Keith 1996

[*2.] Regime type b is for heath and shrublands however it is not used as these communities are not recorded within the study area.

No hazard reduction burning is planned for the period of the plan (5 years), since the majority of the reserve was burnt in 2000 and 2001. The remaining areas are to be left as refuge and also to allow some variation in time since fire. Further burning in those areas burnt in 2000/2001 would breach vegetation thresholds.

More than half of the fuel groups within the park are classified as having a low or negligible fire risk. Strategic Fire Management Zones and Strategic Wildfire Control Zones have been identified within and outside of the park to protect property and assets. Asset protection will be undertaken around the tower on Bowra Sugarloaf and a fire exclusion zone established.

Introduced Plants and Animals

A Pest Management Plan has been prepared for the park, which identifies management priorities and strategies for pest plant and animal species. The Pest Management Plan also includes a survey of weeds along the roadsides (NPWS 2001b).

A number of feral animals have been recorded within the park including wild dogs, cats, foxes, goats and fallow deer. NPWS undertakes cooperative control programs with State Forests of NSW and adjacent landholders for feral animals including trapping and baiting. Cattle stray into the park from neighbouring properties which are not well fenced.

Weeds within the park are concentrated along roadsides and in disturbed areas such as at the Kosekai Lookout and the Bowra Sugarloaf tower site. Weed species include noxious weeds such as crofton weed (*Ageratina adenophora)*, fireweed (*Senecio madagascariensis*), giant Parramatta grass (*Sporobolus fertilis),* red lantana (*Lantana camara*) and mistflower (*Ageratina riparia*). Environmental weeds of concern recorded in the park include pink lantana (*Lantana camara*) and smooth senna (*Senna* x *floribunda*).

Many of the higher elevation roadside areas are subject to weed infestation, in particular mistflower. Mistflower produces copious amounts of seed and is extremely invasive along rainforest gullies. There is concern that the use of herbicide to control weeds may affect the sphagnum frog and other frog species inhabiting these areas. Also, any large scale removal of these weed species may damage potential rufous scrub-bird habitat along roadside. The Pest Management Plan offers a number of possible options and recommendations for the future control of mistflower whilst protecting the sphagnum frog.

Soil Erosion

The majority of the park is within the Snowy Range and Mistake Soil Landscapes.

Soils in the park are prone to a range of erosion hazards including moderate to high mass movement, sheet erosion and gully erosion (see table 4, page 15). This causes a number of concerns for management particularly the maintenance of roads within the park.

Hanging Rock and Kosekai Roads are located on extremely steep and unstable slopes. To address concerns about the safety, stability and environmental impacts of these roads a geotechnical assessment has been undertaken. The geotechnical assessment found that “with proper maintenance and upgrading there is no reason to believe that Hanging Rock Road and Kosekai Roads are, or will be, any less stable than other roads in similar hilly country that are reasonably maintained” (Armstrong & Associates 2001).

Both Hanging Rock and Kosekai Roads are required for community access, State Forests of NSW access to manage land beyond the park, and park management including fire management. As such these roads will be maintained to two wheel, dry weather standard.

Table 4: Soil Landscapes of Dunggir National Park

Soil Landscape	Description	Erodibility
Colluvial		
Mistake (mk)	Rolling to steep mountains with long sideslopes, narrow crests, simple slopes, and Colluvial footslopes on metasediments of the Nambucca Beds. Well drained Red Dermosols (Brown Earths), Red Ferrosols (Krasnozems) on footslopes and Paralithic Tenosols (Lithosols) on upper slopes.	Moderate to high mass movement risk , high sheet erosion risk and moderate gully erosion risk.
Variant of Mistake (mka)	Occurs at a higher elevation than Mistake (mk). Well-drained stony, shallow to moderately deep Red Dermosols (Brown Earths) on sideslopes on weathered substrates, with deep well drained Red Ferrosols (Krasnozems) and Red Dermosols on footslopes and Paralithic Tenosols (Lithosols) on upper slopes.	Moderate to high mass movement risk , high sheet erosion risk and moderate gully erosion risk.
Snowy Range (sn)	Very steep mountains . Ridge and ravine terrain on metasediments o the Nambucca Block. Paralithic Leptic Rudosols (Litosols) with well drained, gravelly, moderately deep Red and Brown Dermosols (Brown Earths) on weathered substrate and colluvium. Complex soils.	Extreme mass movement hazard, high water erosion risk.
Alluvial		
Thumb Creek(tc)	Narrow, discontinuous valley flats below steep hills and mountains. Shallow to moderately deep stony Brown Kandosols (Prairie soils) with shallow Clastic Rudsols (Stony Alluvial soils) and gravel beds.	High erodibility, gully erosion risk, stream bank erosion hazard.

Source: Adapted from Eddie (2000).

2.5 OTHER USES

A radio tower is located on Bowra Sugarloaf just inside the park boundary. It was constructed under a permit, which lapsed in 1996, from State Forests of NSW prior to declaration of the park. The tower provides services for State Emergency Services, Rural Fire Services and other bodies and is maintained by Countrywide Communications.

The tower is believed to be located on a significant Aboriginal site. Anecdotal evidence suggests that the values of this site may be compromised by the presence of the tower and access to the tower for ongoing maintenance.

In recognition of this, Nambucca Council in conjunction with Countrywide Communication conducted a review of alternative sites for the tower. This review found that no suitable alternative sites existed.

Ongoing maintenance of the tower is important because of its value to emergency service organisations, however, its use needs to be formalised and consideration given to its potential impact on the significance of the site to the local Aboriginal community.

MANAGEMENT ISSUES AND STRATEGIES

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Soils, Landforms and Hydrology Very steep slopes and highly erosive soils occur throughout most of the park. Erosion hazards include sheet, gully, water and stream bank erosion as well as mass movement. Hanging Rock and Kosekai roads are located on extremely steep and unstable slopes.	• Minimal erosion as a result of park management activities, vehicle access and visitor use. • Water quality and health of watercourses in the park are maintained or improved.	• Undertake all works in manner that minimises soil erosion. • Upgrade and maintain Hanging Rock and Kosekai Roads to provide safe and environmentally sustainable access to the park by two wheel drive vehicles during dry weather.	**Ongoing** **High**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Native Flora and Fauna Although no comprehensive surveys have been undertaken, high numbers of threatened flora and fauna species are known or likely to occur within the park. Old growth forests and rainforests in the park have high conservation value and are sensitive to fire. Vegetated areas on State Forest and private land surrounding the park are important in providing connectivity between vegetation communities and habitats, many of which have been included in the NPWS Key Habitats and Corridors work (NPWS 2001a).	• All native plants and animal species and communities are conserved, including significant species. • An increased understanding and knowledge of the ecological needs and characteristics of flora and fauna in the park. • Conservation values of the park are enhanced by sympathetic management of adjacent land.	• Implement measures included in recovery plans and threat abatement plans for threatened species as prepared. • Encourage research within the park that increases knowledge of native flora and fauna distribution and conservation needs. • Exclude fire from fire sensitive communities, such as rainforest. • Support the protection of high conservation value vegetation on private land adjacent to the park through Voluntary Conservation Agreements (VCAs) or other appropriate strategies.	**High/ Ongoing** **Medium** **Ongoing** **High**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Cultural Heritage No comprehensive surveys have been undertaken within the park for sites of indigenous or non-indigenous cultural significance. The Local Aboriginal community has indicated that areas within the park have high cultural sensitivity, in particular Bowra Sugarloaf. Some of the native plants within Dunggir National Park are significant to local Aboriginal people for medicinal usage, bush tucker and cultural purposes and there is a need for an agreement to cover access to and usage of the native plants for Aboriginal people. It is important that the local Aboriginal community is involved in the protection of cultural values in the park.	• Cultural heritage features are identified, conserved and managed in accordance with their significance. • Aboriginal heritage values are protected in partnership with the local Aboriginal community.	• Work with the local Aboriginal community and Bowraville Local Aboriginal Land Council to identify the cultural significance of the park and to manage cultural heritage values. • Gate Wilkes Road near its junction with Kosekai Road and at the western park boundary (see Map), to protect significant cultural values. Assess the need for additional strategies to protect Aboriginal heritage values in conjunction with the local Aboriginal community. • Install an interpretation panel/sign, developed in consultation with the local Aboriginal Community, in the vicinity of Wilkes Rd. • Liaise with the local Aboriginal community during the development of licence conditions for the radio tower on Bowra Sugarloaf (refer Other Uses). • Work with the local Aboriginal community to develop an agreement that is consistent with the NPW Act and NPWS policy and permits access to the park for educational activities and cultural outings. • Encourage research into cultural heritage values in the park and develop strategies for their protection. • Pursue opportunities for interpretation of cultural heritage values with the local Aboriginal community. • Assess the requirements for protection of cultural heritage values, site rehabilitation and public safety of the five known prospecting and mining areas.	**High** **High** **High** **High** **High** **Medium** **Medium** **Medium**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Fire Management A draft Fire Management Plan for the park identifies threats and management strategies for protection of life, property, natural and cultural values. Rainforest communities are fire sensitive.	• Life, property, natural and cultural values in and adjacent to the park are protected from fire. • Fire regimes are appropriate for conservation of native flora and fauna communities.	• Prepare and implement a Fire Management Strategy for the park. • Monitor the impacts of fire on ecosystems in the park. • Exclude fire from rainforest and other fire sensitive communities and areas. • Encourage further research into the ecological effects of fire in the park. • Participate in district Bush Fire Management Committees. Maintain coordinated and cooperative arrangements with Rural Fire Service Brigades, Nambucca Council, State Forest NSW and neighbours with regard to fuel management and fire suppression.	**High** **Ongoing** **Ongoing** **Low** **Ongoing**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Pest Species A Pest Management Plan has been prepared for the park, which outlines management strategies and priorities. Weeds are concentrated along roadsides and in disturbed areas, such as the lookout and Bowra Sugarloaf. Some native species in the park, in particular the sphagnum frog, are likely to be sensitive to herbicides. Crofton weed and mistflower also exist in areas of potential habitat for the rufous scrub-bird along roadsides and other disturbed areas at higher elevations. Wild dogs, cats and cattle have been reported within the park, but a comprehensive survey has not been undertaken.	• Pest species are controlled, and eradicated where possible. • Threats to park values and adjacent land as a result of pest species are reduced.	• Carry out pest species control as recommended by the Pest Management Plan. Carry out control on those species identified as noxious, environmental weeds and feral animals. • Continue cooperative feral animal control with Kempsey Rural Lands Protection Board, State Forests NSW and adjacent neighbours. • Investigate fencing agreements with adjacent landowners to exclude cattle from the park in accordance with NPWS Boundary Fencing Policy. • Before any control works are undertaken in areas that may contain sphagnum frog habitat undertake a survey to assess the distribution of the frogs. • Investigate alternatives to herbicide control of weeds in areas where sphagnum frogs and other herbicide sensitive species are known to occur. • Carry out feral animal surveys to determine the number, distribution and impact of feral animals. • Continue to research the impacts of pest species and control methods on the conservation values of the park. • Where appropriate, liaise with landowners about cooperative management of pest species to prevent the spread and reintroduction of weeds and pest animals into the park from adjoining areas.	**High** **Ongoing** **High** **High/ Ongoing** **High** **Low** **Low** **Ongoing**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Access Kosekai, Wilkes and Hanging Rock Roads are Ministerial Roads for access by State Forest of NSW and are not included in the park. Hanging Rock and Kosekai Roads are located on very steep and erodible slopes. Wilkes Road to Bowra Sugarloaf is located in an area of cultural sensitivity.	• Roads do not impact on the natural and cultural values of the park. • Public access roads are maintained to two wheel drive, dry weather access.	• Upgrade and maintain Hanging Rock and Kosekai Roads as two wheel drive, dry weather roads. • Gate and close Wilkes Road to public vehicle access to protect significant cultural values. Maintain for management purposes. • Close, rehabilitate and where necessary revegetate all old logging tracks and any trails not identified for public or management access (see Map). • Undertake regular maintenance of drainage on existing roads in order to minimise the risk of road slips. • Review the need for ministerial roads with any changes in land tenure.	**Ongoing** **High** **Medium** **Ongoing** **Low**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Recreational/ Visitor Use Access to the park is from Kosekai and Hanging Rock Roads, which are Ministerial Roads. The park experiences a low level of recreational use. Kosekai Lookout is the only recreational facility in the park. There are no interpretive or directional signs to indicate Kosekai Lookout. There is a proposal for a long distance walking track using existing tracks along the route followed by Clement Hodgkinson.	• An appropriate range of nature based recreational opportunities and facilities are provided with minimal impact on natural and cultural values. • The local community and visitors understand the park values and support management programs. • Educational opportunities are provided consistent with park values.	• Develop low-key day use facilities at Kosekai Lookout and the adjacent cleared area, including a toilet, 4 picnic tables and car park for 4 vehicles in the existing clearing, and additional car parking for 4 cars opposite the lookout. No BBQ facilities will be provided and park visitors will be encouraged to bring their own gas BBQ. • Install speed limit and pedestrian crossing signs near the Kosekai Lookout day use area. • Camping and the lighting of fires will not be permitted within the park. Indicate on signage that these activities are prohibited. • Allow cycling on public roads only. • Provide interpretive signage at Kosekai Lookout identifying the values of the park and at other key locations such as local tourist information centres and towns such as Bowraville. Provide directional signage for Kosekai Lookout and the park at key locations such as Bowraville and Upper Taylors Arm (refer also Cultural Heritage). • Promotion of the proposed Clement Hodgkinson long distance walking track, using existing tracks, will be subject to favourable assessment.	**Medium** **Ongoing** **Ongoing** **Ongoing** **High** **Low**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Recreational/ Visitor Use continued… Horse riding in the park has the potential to impact upon park values and conflict with other users. No formal material is provided in the park for educational purposes. Local school groups and adjacent landholders use the park for educational purposes.		• Horse riding will not be permitted within the park or on any Ministerial Roads. • Allow group educational activities which are consistent with the values of the park and subject to conditions on group size, activities and location as determined by the Area and Regional Manager to protect park values and minimise conflict with other users. • Review applications for other recreation activities, including adventure activities, to determine their potential impact on natural and cultural values. Approval will only be given in accordance with NPWS recreational field management policy and conditions as determined by the Area and Regional Manager. • Develop interpretation material on recreational opportunities, natural and cultural values.	**Ongoing** **Ongoing** **Low** **Low**

Issue	Desired Outcomes	Proposed Actions and Guidelines	Priority
Research Research is needed to improve understanding of the parks natural and cultural heritage and requirements for management of particular species. Priority topics include, Aboriginal heritage and distribution of threatened species in the park.	• Research that enhances the management information base and has minimal environmental impacts.	• Undertake and encourage research to improve knowledge and management of natural and cultural heritage. • Prepare a prospectus to encourage and guide research by educational organisations and others in the park.	**Medium** **Low**
Other Uses The radio tower on Bowra Sugarloaf is not currently licensed under the NPW Act. The radio tower is believed to be located at a site of high significance to the local Aboriginal community.	• All existing non-park infrastructure is licensed consistent with the NPW Act. • No further non-park infrastructure is developed in the park.	• Develop license conditions for maintenance and access to the radio tower on Bowra Sugarloaf in consultation with the local Aboriginal community, Countrywide Communications, Rural Fire Service and Nambucca Council. • Fuel reduction will be undertaken around the radio tower by manual clearing. • Prohibit any new non-park infrastructure within the park.	**High** **High** **Ongoing**

Legend for priorities
High priority actions are those that are imperative to the achievement of management objectives identified in this plan and need to be implemented in the near future to prevent degradation of the natural and cultural values or physical resources of the park, significant costs associated with rehabilitation at a later date, and/ or unacceptable risk to the public.
Medium priority actions are those that are necessary to achieve management objectives but will be implemented as resources become available because the time frame for their implementation is not urgent.
Low priority actions are desirable to achieve management objectives but can wait until resources become available.

REFERENCES:

Armstrong & Associates. (2001). *Dunggir National Park Geotechnical Assessment, Road Stability. Hanging Rock and Kosekai Roads*. Unpublished report.

Bradstock, R.A., Keith, D.A. and Auld,T.D. (1995) *Fire and conservation: imperatives and constraints on managing for biodiversity*. In: R.A Bradstock, T.D. Auld, D.A., Keith,. R.T. Kingsford,.D. Lunney.D.P. Sivertsen. (Eds). *Conserving biodiversity: threats and solutions*. Surrey, Beatty and sons, Chipping Norton.

DeVries, R. and A. McCauley. (1994). *The Dunggir Conservation Proposal*. Earthspan, Bellingen.

Eddie M.W. (2000). *Soil Landscapes of the Macksville and Nambucca 1:100 000 Sheets Report*. Department of Land and Water Conservation Sydney.

Graham M. (2001). *Threatened and Rare Plant Surveys in New Reserves in the Coffs Coast Area*. Unpublished NPWS Report.

Harden G.J. (1990-1993) *Flora of New South Wales Volumes 1-4*. New South Wales University Press, Kensington.

Keith D.A. (1996) *Fire driven extinctions of plant populations: a synthesis of theory and review of evidence from Australian vegetation*. Proceedings of the Linnean Society of NSW. 116:37-187.

Mineral Resources NSW (2002) Submission on the draft Dunggir National Park Plan of Management. Correspondence

NSW National Parks and Wildlife Service (1999a). *Forest Ecosystem Classification and Mapping for the Upper and Lower North East.* A project undertaken for the Joint Commonwealth NSW Regional Forest Agreement Steering Committee as part of the NSW Comprehensive Regional Assessments.

NSW National Parks and Wildlife Service. (1999b) *Dunggir National Park – Draft Fire Management Plan*. NSW National Parks and Wildlife Service, North Coast Region.

NSW National Parks and Wildlife Service. (2001a) Key Habitats and Corridors for fauna as a framework for Regional biodiversity conservation planning in North-East NSW. NSW National Parks and Wildlife Service, Coffs Harbour.

NSW National Parks and Wildlife Service. (2001b) *Dunggir National Park – Pest Management Plan*. NSW National Parks and Wildlife Service, North Coast Region.

The Forestry Commission of N.S.W. (1991) *Proposed Forestry Operations in Mistake State Forest – Environmental Impact Statement*. The Forestry Commission of N.S.W., Sydney.

Townsend N. (1993) *Valley of the Crooked River.* New South Wales University Press, Sydney.