

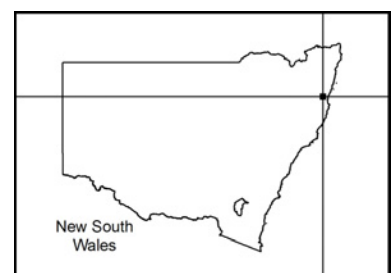


Plan of Management



Babadaga Group of Reserves

Incorporating Bollanolla, Bowraville, Ganay, Jaaningga
and Juugawaarri Nature Reserves



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and Juugawaarri Nature Reserves

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

February 2012

This plan of management was adopted by the Minister for the Environment on 1 February 2012.

Acknowledgments

The NSW National Parks and Wildlife Service (NPWS) acknowledges that the Babadaga Group of Reserves is in the traditional country of the Gumbaynggirr Aboriginal people.

This plan of management is based on a draft plan prepared by the staff of the North Coast Region of the NSW National Parks and Wildlife Service, part of the Office of Environment and Heritage, Department of Premier and Cabinet.

FRONT COVER: Burrawang (*Lepidozamia peroffskyana*) in Ganay Nature Reserve. Photo by Martin Smith, NPWS.

For additional information or any inquiries about the Babadaga Group of Reserves or this plan of management, contact the NPWS Coffs Coast Area Office, 32 Marina Drive, Coffs Harbour NSW 2450 or by telephone on (02) 6652 0900.

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FOREWORD

The Babadaga Group of Reserves is located on the lower north coast of New South Wales, inland from Nambucca Heads. The group comprises five closely aligned nature reserves, Bollanolla, Bowraville, Ganay, Juugawaarri and Jaaningga nature reserves, and collectively cover an area of 4800 hectares. The reserves are part of the traditional lands of the Gumbaynggirr Aboriginal people and have been given the collective name of 'Babadaga', which is a Gumbaynggirr word meaning 'in single file'. This is because they occur 'one after the other' along the long forested ridge-line which separates the Bellinger/ Kalang and Nambucca catchments.

The reserves are part of a major regional vegetated corridor, linking the coast to the tablelands. One endangered and four vulnerable plant species, plus two rare and endemic tree species have been recorded in the reserves. In addition, 11 threatened animal species have been recorded, with a further 15 threatened animal species considered likely to be present.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A draft plan of management for the Babadaga Group of Reserves was placed on public exhibition from 9 November 2007 until 11 February 2008. The submissions received were carefully considered before adopting this plan.

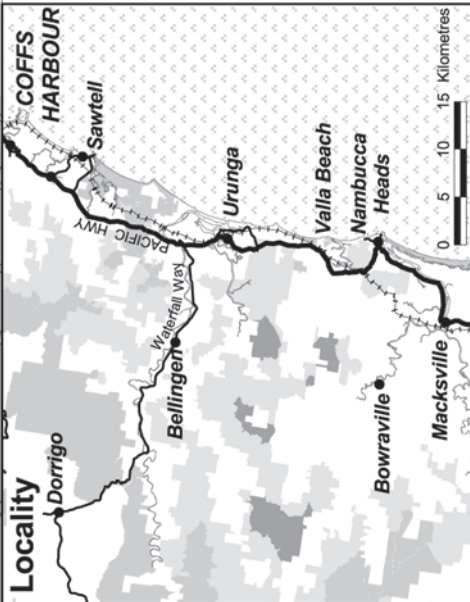
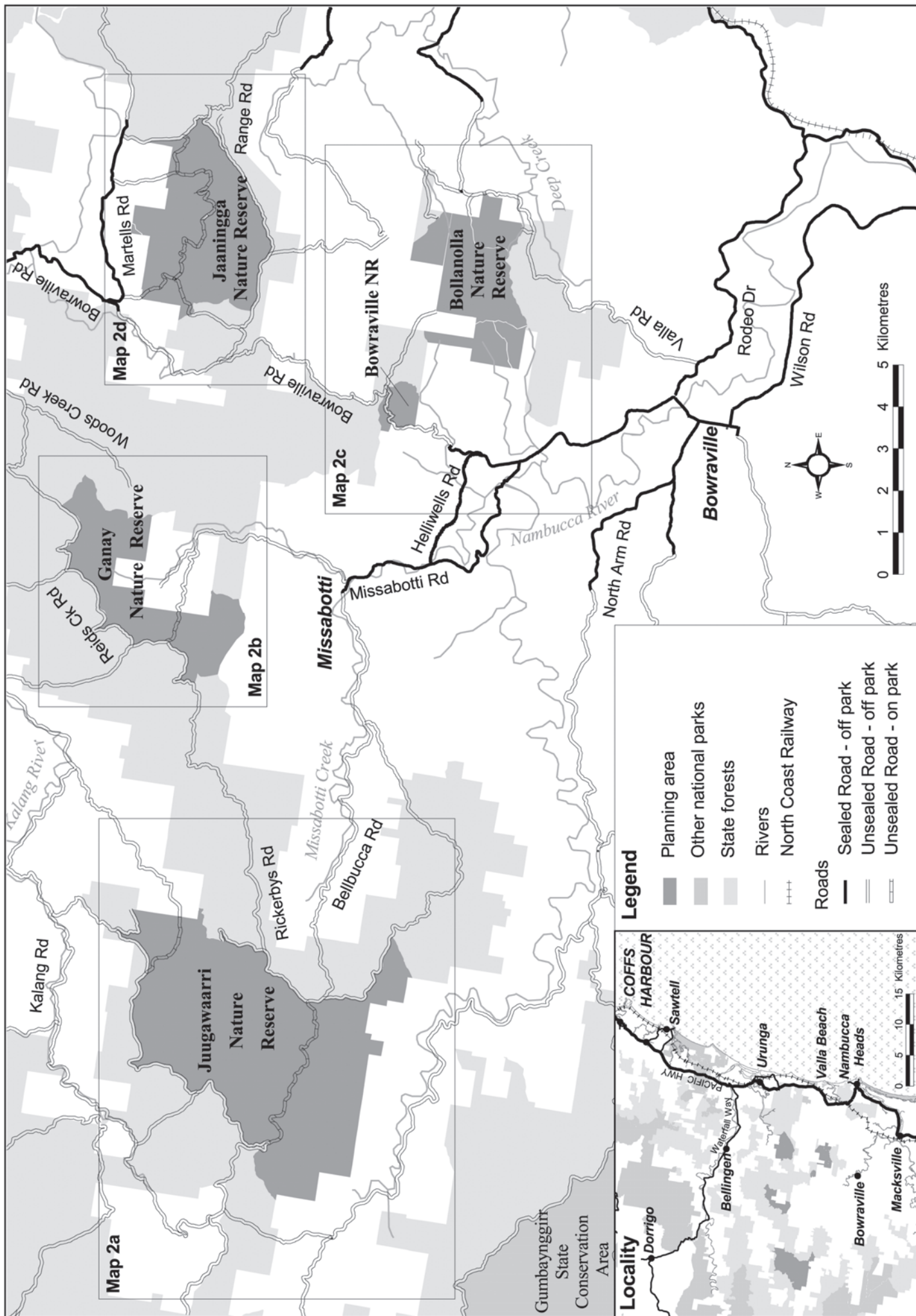
The plan contains a number of actions to achieve the NSW 2021 goal to protect our natural environment, including targeted surveys for threatened species, actions to assist the recovery of threatened species, development of fire management strategies for the four reserves without such plans, and control of introduced plants and animals. The plan also provides for continued self-reliant recreation, such as bushwalking, cycling on management trails, and vehicle-based touring on roads through the reserves.

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



Robyn Parker MP
Minister for the Environment

MAP 1. MAP OF THE BABDAGA GROUP OF RESERVES



- Legend**
- Planning area
 - Other national parks
 - State forests
 - Rivers
 - +++ North Coast Railway
- Roads**
- Sealed Road - off park
 - Unsealed Road - off park
 - Unsealed Road - on park

1. THE BABADAGA GROUP OF RESERVES

The Babadaga Group of Reserves (herein referred to as 'the Babadaga reserves') comprises five closely aligned nature reserves: Bollanolla, Bowraville, Ganay, Juugawaarri and Jaaningga nature reserves (see map 1). These reserves are located on the lower north coast of New South Wales, inland from Nambucca Heads (30°39'S, 153°0.6'E) and collectively cover an area of 4800 hectares. All but one of these reserves (Bowraville Nature Reserve) are recent additions to the conservation estate in NSW, having been reserved in January 1999 as a result of negotiations leading to the North East Regional Forest Agreement (RFA). These new reserves were all formerly state forest in tenure. Bowraville Nature Reserve pre-dates the creation of the National Parks and Wildlife Service. In 1962, it was formally gazetted as 'the Bowraville Faunal Reserve' under the *Fauna Protection Act 1948* and was managed by the Fauna Protection Panel until 1967 when the NPWS was created. There were small additions made to Bowraville and Ganay nature reserves in 2003 as a result of the RFA.

Details of each of the five reserves are given in Table 1. Four of the reserves have Aboriginal names, derived from the local Gumbaynggirr language, which reflect an element of the local environment and / or culture important to the original inhabitants of the area. The reserves have been grouped for planning and management purposes due to their close geographical proximity. They have been given the collective name of 'Babadaga' (which is a Gumbaynggirr word meaning 'in single file') because they occur, 'one after the other', along the long forested ridge-line which separates the Bellinger/Kalang and Nambucca catchments.

Table 1. The Babadaga Group of Reserves: area, gazettal and meaning of name

Name of Reserve	Area (ha)	Gazettal Date	Meaning of name*
Bollanolla	650	1999	'A male cultural hero'
Bowraville	81	1962	Name of the nearest town
Ganay	693	1999	'Digging Stick'
Juugawaarri	2396	1999	'A good place to rest a while'
Jaaningga	975	1999	'Wattle Tree'

* Reserve names for Bollanolla, Ganay, Juugawaarri and Jaaningga were identified by the Muurrbay Language Centre, a Gumbaynggirr language school located in Nambucca Heads. Meanings are taken from Morelli (1999).

As well as the five nature reserves, the planning area includes land that is vested in the Minister for the Environment for the purposes of Part 11 of the NPW Act. This land incorporates Bellbucca Road (in Juugawaarri Nature Reserve), Blairs Road (in Ganay Nature Reserve), and Western Boundary Trail and part of Basin Road (in Jaaningga Nature Reserve). Although these roads do not form part of the gazetted reserve area, they are still managed by the NPWS, a status which ensures a continuation of access arrangements to neighbouring state forest (see map 2, centre pages).

The predominant land use adjoining the Babadaga reserves is forest management, with some small rural holdings abutting minor parts of the boundary of each reserve. Larger conservation reserves in the wider district include New England and Bellinger River national parks to the west and Bongil Bongil National Park to the north east. The Babadaga reserves lie within the local government areas of Bellingen and Nambucca shires, and the area of the Northern Rivers Catchment Management Authority.

2. MANAGEMENT CONTEXT

2.1. Legislative and Policy Framework

The management of nature reserves in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act) and regulations, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). The policies are based on 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. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) requires the assessment and mitigation of the environmental impacts of any works proposed in this plan. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) also applies in relation to actions that may impact on migratory and threatened species listed under that Act.

A plan of management is a statutory document under the NPW Act and Section 72AA lists the matters to be considered in its preparation. Once the Minister has adopted a plan, no operations may be undertaken within the area subject to the plan except in accordance with the plan. The plan will also apply to any future additions to the planning area. Should management strategies or works that are not consistent with the plan be proposed for the planning area or any additions, an amendment to the plan will be required.

2.2. Management Purposes and Principles

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

Under the Act (section 30J), nature reserves are managed to:

- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena;
- conserve places, objects, features and landscapes of cultural value;
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values; and
- provide for appropriate research and monitoring.

Nature reserves differ from national parks in that they do not have as a management principle the provision of visitor facilities.

2.3. Management Directions

In addition to the above general management principles, the Bagadaga reserves will be managed to:

- Significantly reduce fire frequency in those parts of the reserves subjected to post-logging burning since 1980, or which were burnt during major recent wild fires.

- Protect the Newry golden wattle (*Acacia chrysotricha*) in Jaaningga Nature Reserve and work towards an improved understanding of this species' ecology, especially its response to fire.
- Control weed infestations within the reserves, in accordance with priorities identified by a pest management strategy.
- Close and rehabilitate eroded, steep sections of trails not needed for management purposes, and effectively enforce restrictions on the use of off-road and unregistered vehicles.

3. VALUES OF THE RESERVE

The location, landforms and plant and animal communities of an area have determined how it has been used and valued. Both Aboriginal and non-Aboriginal people place values on natural areas, including aesthetic, social, spiritual and recreational values. These values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness, natural heritage, cultural heritage, threats and on-going use are dealt with individually, but their inter-relationships are recognised.

3.1. Landform, Geology and Soils

The Babadaga reserves lie on steep to mountainous terrain, with a range of aspects. The bedrock of the area is part of the Nambucca Beds and formed by metasediments of Carboniferous age. In the northern sections of Juugawaarri Nature Reserve and Ganay Nature Reserve, this bedrock has been mapped as part of the Bellingen Slate Unit, which comprises dark micaceous slate, lithofeldspathic sandstone and minor conglomerate. The rest of the reserves are underlain by regions mapped as predominantly phyllite and schist.

Bollanolla Nature Reserve encompasses the summit and most of the southerly facing slopes of Viewmont Mountain (466 metres above sea level (masl)). It forms a large part of the upper catchment of Deep Creek, although most of the drainage lines within the main body of the reserve are ephemeral.

Jaaningga Nature Reserve comprises a long northerly-facing slope with ephemeral watercourses that drain into the Kalang River. The southern boundary of the reserve is a ridgeline containing the peaks of Edwards Knob (340 masl) and most of the northern face of Dyers Knob (310 masl).

Bowraville Nature Reserve is composed of a southerly-facing slope that drains into Missabotti Creek, a major tributary of the Nambucca River.

The soils of Bollanolla, Jaaningga and Bowraville Nature Reserves are mainly stony lithosols, red podsols or brown earths. They display high erodibility and mass movement risk, and present an engineering hazard.

Most of Ganay Nature Reserve is situated on a very steep east- and south-facing slope, draining into Kennaicle Creek, a tributary of the Nambucca River. A small part east of Mount Gladstone drains into the Kalang River via Woods Creek. The soils of Ganay Nature Reserve are mainly lithosols and brown earths, displaying extreme mass movement potential. They present a rock fall hazard, high water erosion risk and an engineering hazard. The steepness of the terrain is evidenced by the extremes in elevation despite the reserve's small size: this ranges from 628 masl on Mount Gladstone to less than 100 masl along tributaries of Kennaicle Creek.

Juugawaarri Nature Reserve forms the upper catchment of Cooks Creek, a tributary of the Kalang River which, in turn, is a major part of the Bellinger River catchment. The soils in this reserve are a complex of brown earths, red dermosols, krasnozems and

lithosols. These soil types display high run-on, high sheet erosion potential, high water erosion risk and present a rock fall hazard.

3.2. Native Plants

There have been no detailed flora investigations or surveys carried out by the NPWS within the Babadaga reserves. The information that follows is heavily reliant on data collected by Forests NSW (previously State Forests of NSW) when these areas were under the control of that agency. As a result, the information currently available on native plants in the Babadaga reserves is mainly focused on tree types and forest associations, particularly trees that are utilised for their commercial timber potential.

Seven forest ecosystems are protected within **Bollanolla Nature Reserve**, the most extensive being stands of tallowwood (*Eucalyptus microcorys*)/ grey gum (*Eucalyptus propinqua*), blackbutt (*Eucalyptus pilularis*)/ turpentine (*Syncarpia glomulifera*) and flooded gum (*Eucalyptus grandis*)/ tallowwood. The gully lines and lower reaches of the reserve in the south are dominated by rainforest species. Small plantations of flooded gum and blackbutt were established on the flatter areas of the reserve. These are now regenerating into native forest. A feature of the reserve is the rare and endemic ironbark (*Eucalyptus ancophila*). This species has also been recorded in Jaaningga Nature Reserve. Another notable species found in the reserve is Nambucca ironbark (*Eucalyptus fusiformis*).

Jaaningga Nature Reserve contains both wet and dry sclerophyll forest, and small areas of rainforest along gully lines. Seven open forest ecosystems are protected within the reserve, the most extensive being stands of tallowwood/ brush box (*Lophostemon confertus*), open coastal brush box, tallowwood/ grey gum, blackbutt/ turpentine, flooded gum/ tallowwood and coastal range spotted gum (*Corymbia variegata*)/ blackbutt.

Bowraville Nature Reserve is the only one of the Babadaga reserves that has not been harvested for timber in the past 40 years. Blackbutt, turpentine and tallowwood dominate the forest, with flooded gum occurring in the gully lines and lower slopes. The reserve also contains high quality subtropical rainforest in the deeper gullies.

Ganay Nature Reserve contains a diverse mix of eight forest ecosystems. A blackbutt/ turpentine association covers almost half the reserve. The remainder of the reserve contains tallowwood/ grey gum, open coastal brush box, flooded gum/ tallowwood and high elevation ferny blackbutt. Small areas of rainforest occur in the lower gully lines with richer soils, especially on the lower, shaded southern slopes of Mount Gladstone.

Seven forest ecosystems are known to occur within **Juugawaarri Nature Reserve**. The most extensive of these forest types are blackbutt/ turpentine, open coastal brush box and subtropical rainforest. Other types of forest found in the reserve are wet blackbutt, wet shrubby brush box/ tallowwood, tallowwood/ blue gum, and tallowwood/ grey gum. There is an area of unlogged blackbutt forest within the reserve, containing a high number of senescent trees with hollows. Juugawaarri Nature Reserve encompasses the former Ringwood Flora Reserve, named after the rare ringwood or aniseed tree, *Anetholea anisata* (syn. *Backhousia anisata*), which is endemic to the area.

As part of the comprehensive regional assessments leading up to the RFA, extensive remote sensing and aerial photo interpretation was conducted to map forest

ecosystems within the Babadaga reserves. Based on this work, predictions have been made regarding the potential for these reserves to contain various species of threatened flora, some of which have been confirmed. Threatened plant species recorded from or predicted to occur in the reserves are listed in Table 2. Of particular note is that Jaaningga Nature Reserve conserves the majority of the known occurrences of the endangered Newry golden wattle (*Acacia chrysotricha*).

Under the TSC Act, a Threatened Species Priorities Action Statement (PAS) has been prepared. The PAS outlines the broad strategies and detailed priority actions in NSW to promote the recovery of threatened species, populations and ecological communities and to manage key threatening processes. The PAS and recovery plans will be used to guide management of threatened flora in the area.

Table 2. Threatened and significant plant species recorded or predicted to occur in the Babadaga reserves

Common name	Scientific name	Status*	Nature Reserve				
			Bollanolla	Bowraville	Ganay	Jaaningga	Juugawaarri
Newry golden wattle	<i>Acacia chrysotricha</i>	E				Y	
Rusty plum	<i>Niemeyera whitei</i>	V	P	P	P	Y	
Red boppel nut	<i>Hicksbeachia pinnatifolia</i>	V#	P	P	P		
Milky silkpod	<i>Parsonsia dorrigoensis</i>	V#	P			Y	
Arrow-head vine	<i>Tinospora tinosporoides</i>	V#	Y			P	
Ironbark	<i>Eucalyptus ancophila</i>	-	Y			Y	
Grey ironbark	<i>Eucalyptus fusiformis</i>	-	Y				
Ringwood	<i>Anetholea anisata</i>	-					Y

* Legal status under TSC Act: E = Endangered, V = Vulnerable

- = not listed under the TSC Act but considered significant

= species listed as nationally threatened under the EPBC Act

Y = species recorded from the reserve; P = species predicted from reserve but not yet recorded

3.3. Native Animals

Most of the accessible parts of the Babadaga reserves have had a long history of timber harvesting. The exception to this is Bowraville Nature Reserve, which was reserved for nature conservation purposes in 1962. The majority of the forest within this reserve is relatively undisturbed and provides high quality habitat for a wide range of hollow-dependent fauna, such as the threatened yellow-bellied glider (*Petaurus australis*). Elsewhere in the reserves, mature and over-mature hollow-bearing trees are found only in a limited number of locations, such as the former Ringwood Flora Reserve and other areas on steep slopes that were inaccessible for timber harvesting. Across wide expanses of the flatter slopes of these reserves, the forest is dominated by young trees above an understorey of the introduced species lantana (*Lantana camara*), a legacy of past disturbance.

Table 3. Threatened animal species recorded or predicted to occur in the reserves

Common name	Scientific name	Legal status*	Nature Reserve				
			Bollanolla	Bowraville	Ganay	Jaanningga	Juugawaarri
Frogs							
Green-thighed frog	<i>Litoria brevipalmata</i>	V				P	
Giant barred frog	<i>Mixophyes iteratus</i>	E#	Y	P	P	P	Y
Sphagnum frog	<i>Philoria sphagnicolus</i>	V					P
Reptiles							
Stephens' banded snake	<i>Hoplocephalus stephensii</i>	V	P	P		P	P
Birds							
Glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	V	P		Y	Y	Y
Square-tailed kite	<i>Lophoictinia isura</i>	V				P	
Powerful owl	<i>Ninox strenua</i>	V	P	P			
Wompoo fruit-dove	<i>Ptilinopus magnificus</i>	V	Y	P		Y	Y
Rose-crowned fruit-dove	<i>Ptilinopus regina</i>	V	P				
Masked owl	<i>Tyto novaehollandiae</i>	V	P			Y	P
Sooty owl	<i>Tyto tenebricosa</i>	V	P		P		Y
Regent honeyeater	<i>Xanthomyza phrygia</i>	E#				P	
Mammals							
Spotted-tailed quoll	<i>Dasyurus maculatus</i>	V#					P
Golden-tipped bat	<i>Kerivoula papuensis</i>	V	P				Y
Parma wallaby	<i>Macropus parma</i>	V					Y
Little bent-wing bat	<i>Miniopterus australis</i>	V	P		P	P	Y
Eastern bent-wing bat	<i>Miniopterus schreibersii</i>	V	P				Y
Large-footed mouse-eared fishing bat	<i>Myotis macropus</i>	V					P
Eastern long-eared bat	<i>Nyctophilus bifax</i>	V	Y				
Yellow-bellied glider	<i>Petaurus australis</i>	V		Y			Y
Squirrel glider	<i>Petaurus norfolcensis</i>	V				P	P
Brush-tailed phascogale	<i>Phascogale tapoatafa</i>	V				P	P
Koala	<i>Phascolarctos cinereus</i>	V	P	Y	Y	Y	Y
Long-nosed potoroo	<i>Potorous tridactylus</i>	V#					P
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>	V#	P	P	P	P	P
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	V				P	

* Status under TSC Act: E = Endangered, V = Vulnerable

Denotes species also listed as nationally threatened under the EPBC Act.

Y = species recorded from the reserve; P = species predicted to occur in the reserve

During the comprehensive regional assessments, some systematic fauna surveys were conducted in the Babadaga reserves. However the fauna of the Babadaga reserves remain poorly known. The reserves' connectivity with other forested land and their location in an important regional corridor for faunal movement, which extends from the coast to the New England Tablelands (Scotts 2003), adds to their value for conservation for animals. Predictive assessments of species occurrences, based on habitat type and quality, have been used to predict occurrences of fauna in each

reserve. Table 3 lists the threatened animal species known to inhabit these reserves, and those predicted to occur.

A national recovery plan is in place for the regent honeyeater (Menkhorst *et al.* 1999) and recovery plans have been approved for NSW under the TSC Act for the yellow-bellied glider (NPWS 2003), large forest owls (DEC 2006) and the koala (DECC 2008a). The Threatened Species Priorities Action Statement identifies actions and priorities for many of the other threatened species recorded in the reserves.

3.4. Aboriginal Heritage

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

The Babadaga reserves are situated within the traditional lands of the Gumbaynggirr people, the Aboriginal inhabitants of this section of the NSW coast. While no formally identified Aboriginal sites exist within the Babadaga reserves, artefacts have been discovered near the reserves and it is believed that these reserves remain important to the Gumbaynggirr people of today, as they protect natural heritage assets from which they derived food, cultural value, shelter and materials. Sites of particular significance to Gumbaynggirr people may be revealed following consultation and discussion with the Gumbaynggirr Elders group and other interested parties.

Administratively, the reserves lie in lands covered by several Local Aboriginal Land Councils, listed in Table 4.

Table 4. Land Councils covering the Babadaga reserves

Reserve	Local Aboriginal Land Council
Bollanolla	Nambucca
Bowraville	Nambucca
Ganay	Nambucca
Jaaningga	Coffs Harbour
Juugawaarri	Nambucca (north of Bellbucca Rd) Bowraville (south of Bellbucca Rd)

3.5. Historic Heritage

Land use in the Babadaga reserves prior to their reservation was largely limited to timber extraction and silvicultural improvement, with limited areas of forest conservation (most notably in Bowraville Nature Reserve, the former Ringwood Flora Reserve and a forest preserve set aside in what is now Jaaningga Nature Reserve for the protection of the Newry golden wattle). Private timber extraction and plantation development occurred in parts of what is now Bollanolla Nature Reserve prior to the land's purchase by the then Forestry Commission in 1984 from Australian Paper Manufacturers and its dedication as Viewmont State Forest. Apart from the modified vegetation structure, stumps and former log dumps, there is little material evidence of this history in the

reserves. In contrast, no such logging disturbance occurred in the majority of Bowraville Nature Reserve. Prior to its protection as a faunal reserve in 1962, the original part of Bowraville Nature Reserve (approximately 54 hectares) had been protected since 1907 as a Crown reserve for the protection of native flora.

The only known item of historical significance is a large timber bridge that spans the northern branch of Cooks Creek within Juugawaarri Nature Reserve, on North Ridge Road. This structure probably dates from the 1950s and was constructed by the then Forestry Commission of NSW to provide large-vehicle access to timber resources within Irishman State Forest. In November 2005, two of the fourteen large timber spans comprising the bed of the bridge snapped and collapsed into the creek below. The bridge is now closed to all forms of traffic pending a detailed engineering inspection and assessment, as to whether the bridge can be repaired.

A second bridge of somewhat lesser magnitude and historical value crosses an unnamed creek in the south-eastern corner of Bollandolla Nature Reserve. This bridge is in sound condition and forms part of Englands Trail. A dam is also located in Bollandolla Nature Reserve which was probably constructed for fire management.

4. THREATS TO RESERVE VALUES

4.1. Introduced Plants

Preliminary surveys have been conducted within the Babadaga reserves for introduced plants. A number of noxious weeds have been located within the reserves, including crofton weed (*Ageratina adenophora*), mistflower (*Ageratina riparia*), giant Parramatta grass (*Sporobolus fertilis*), camphor laurel (*Cinnamomum camphora*) and lantana (*Lantana camara*). Environmental weeds of concern include Easter cassia (*Senna pendula*) and broad-leaved paspalum (*Paspalum mandiocanum*). Generally these weed occurrences are associated with prior disturbance of the area, either as a result of vehicular traffic, road maintenance works or logging activity.

Lantana remains the most widespread and problematic introduced plant within the Babadaga reserves. Due to the large area affected by this weed, control activity to date has been limited to track-side spraying and mechanical removal. Some hand removal of lantana and bush regeneration work has also occurred in and around Newry golden wattle sites within Jaaningga Nature Reserve.

The weed species that pose the most significant threat to the ecology of the Babadaga reserves, due to their invasive nature, ability to infest undisturbed land and their tolerance of low light conditions, include lantana, broad-leaved paspalum and mistflower. Two small discrete infestations of these two latter weeds have been located adjacent to old logging trails in the Cooks Creek area of Juugawaarri Nature Reserve and have recently been subjected to control activity.

4.2. Introduced Animals

The two main species of pest animals known to frequent the Babadaga reserves are the European red fox (*Vulpes vulpes*) and the wild dog (*Canis familiaris*). Both these species are believed to regularly move through and hunt within the nature reserves. Wild dogs have been seen on a number of occasions on Range Road adjacent to Jaaningga Nature Reserve, and some baiting for dogs was carried out in the western and southern parts of Jaaningga Nature Reserve in 2006. Foxes and signs of foxes have been recorded at a number of locations throughout the Babadaga reserves.

Sightings of feral red deer (*Cervus elaphus*) are becoming more frequent in the Nambucca Valley. This species has recently been reported in the southern parts of Juugawaarri Nature Reserve and is also expected to occur within the other reserves. Feral cats (*Felis catus*) are also expected to be found within these reserves at low densities, particularly where the reserve boundaries abut open grassland or farming country.

4.3. Fire Management

Fire is a natural feature of the native Australian landscape and is essential for the survival of numerous plant species and communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities, and too frequent fires have been listed as a key threatening process under the TSC Act.

Fire has been a frequent agent of ecological change within the Babadaga reserves under prior management regimes. Applied fire for silvicultural purposes has regularly

occurred over extensive parts of these reserves for decades, especially along the drier ridge-lines and slopes. These fires, while providing the required stimulus for germination of desired commercial eucalypt species (mainly blackbutt) and the removal of post-logging slash, have been at some cost to habitat value and the continued existence of rainforest species within these reserves.

Since their creation in 1999, a number of large fire events have been recorded within the reserves. Most notable was one of the largest fires in Bellingen Shire in 30 years, which burnt in excess of 10 000 hectares of forest over a four-week period in September-October 2002, including almost all of Juugawaarri Nature Reserve and the southern half of Ganay Nature Reserve. The former Ringwood Flora Reserve largely withstood the fire, as did much of the moist eucalypt and rainforest vegetation in the upper Cooks Creek catchment in Juugawaarri Nature Reserve.

Another major fire event occurred in September 2003, burning 75% of Bollanolla Nature Reserve. Despite the predominantly southerly aspect of this reserve, prevailing drought conditions meant that the fire comprehensively burnt much of the southern slopes of Viewmont Mountain, in places damaging rainforest vegetation margins within the reserve.

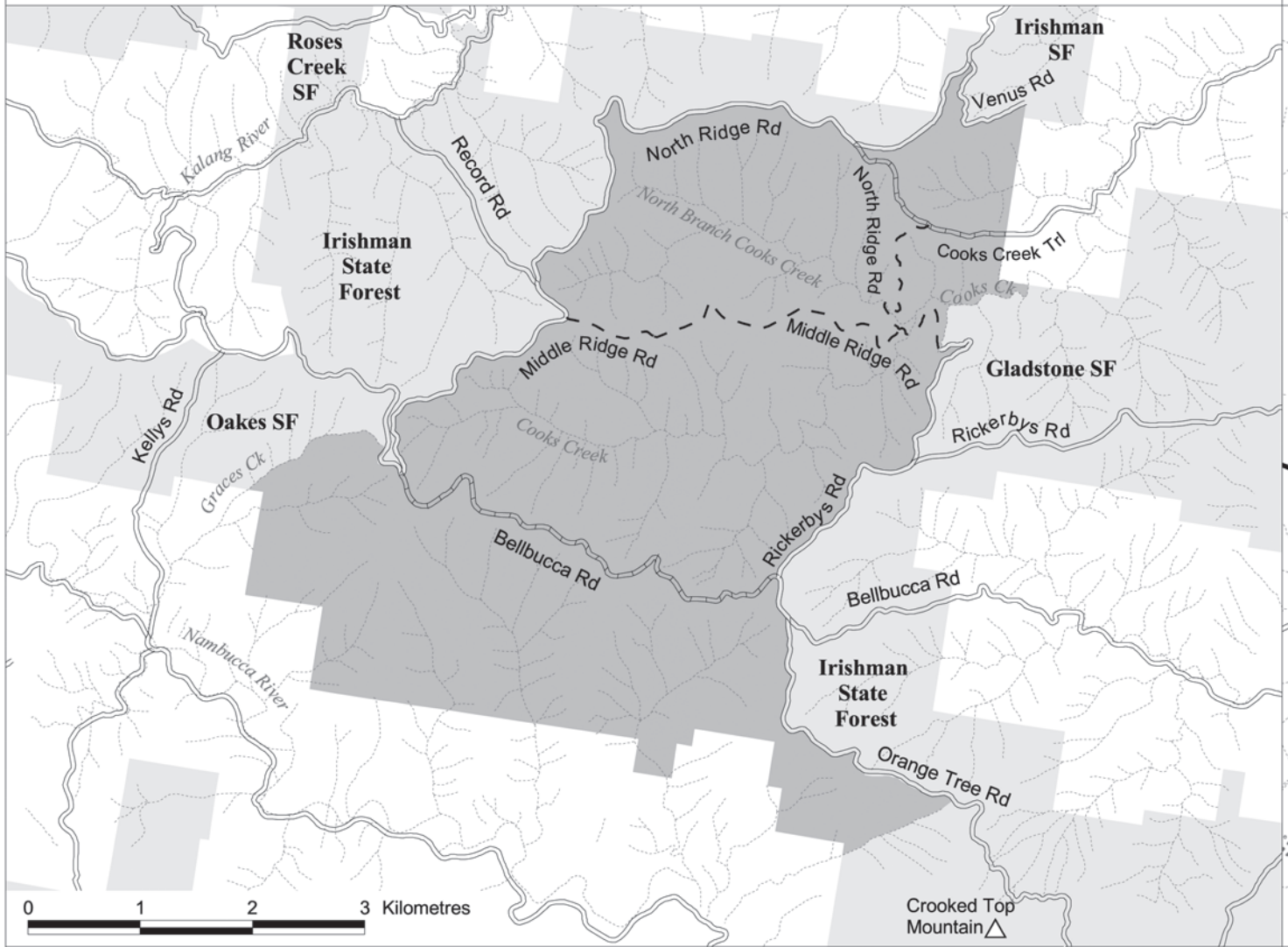
The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (NPWS 2005).

Fire management strategies for Bollanolla, Bowraville, Ganay and Juugawaarri nature reserves are currently included in this plan of management. As Jaaningga Nature Reserve has many more private property neighbours, a longer fire-free interval and more complex fire management requirements, a separate map-based fire management strategy has been prepared for this reserve (DEC 2005).

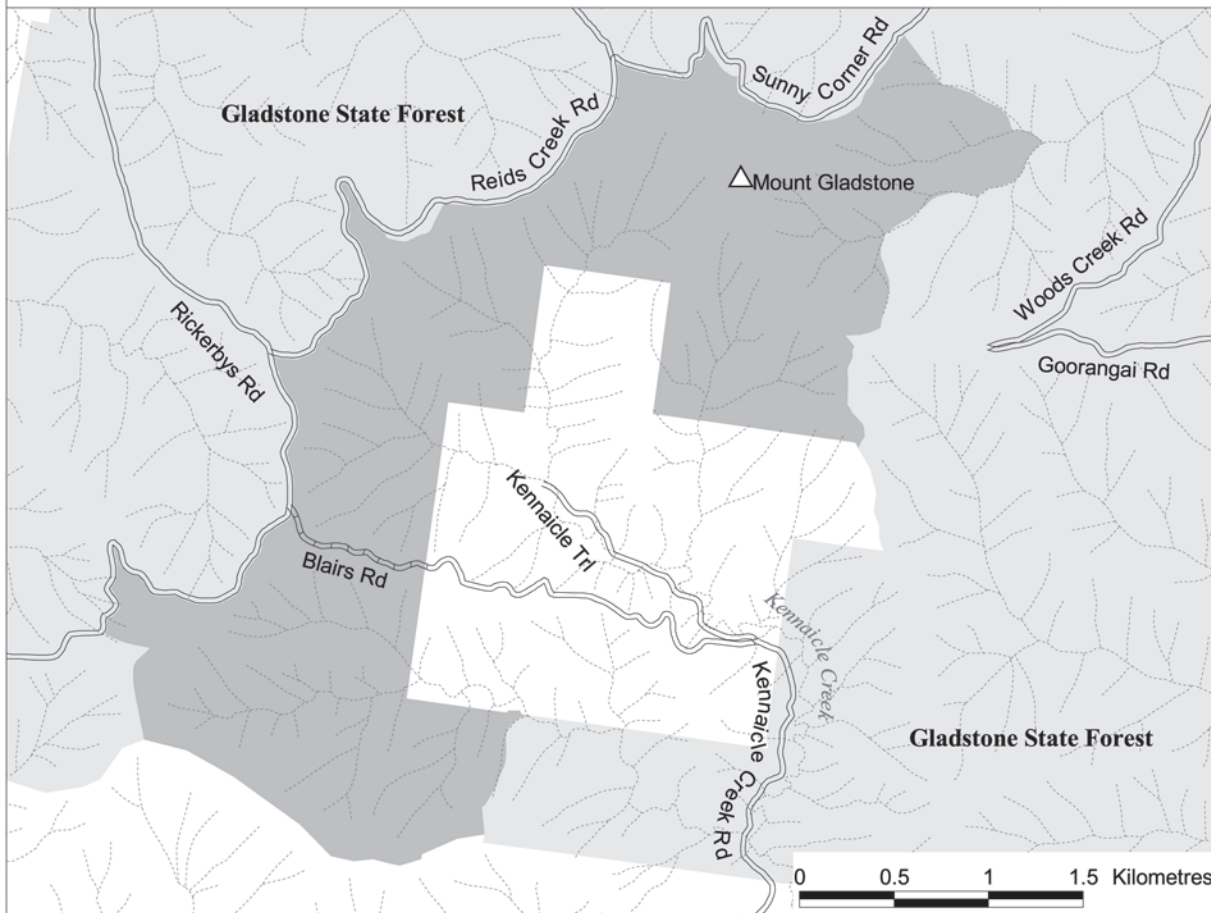
The NPWS uses a zoning system for bushfire management, which is compatible with the zoning used by the Bellingen and Nambucca District Bush Fire Management Committees (BFMCs) in their bushfire risk management plans. These zones are given in Table 5. The Babadaga reserves, other than Jaaningga Nature Reserve, have been designated as Land Management Zones (LMZ) because they are not adjacent to built assets which would be exposed to a high level of bushfire risk. Apart from the overriding legislative objective of protecting life and property, the primary fire management objectives within a LMZ are to conserve biodiversity and protect cultural heritage.

Different vegetation communities require different fire regimes in order to maintain structural integrity and optimum levels of biodiversity (see Table 6). As far as possible, the vegetation communities within the reserves will be managed within these prescribed maximum and minimum fire intervals.









Map 2a. Juugawaarri Nature Reserve









Map 2b. Ganay Nature Reserve



Legend

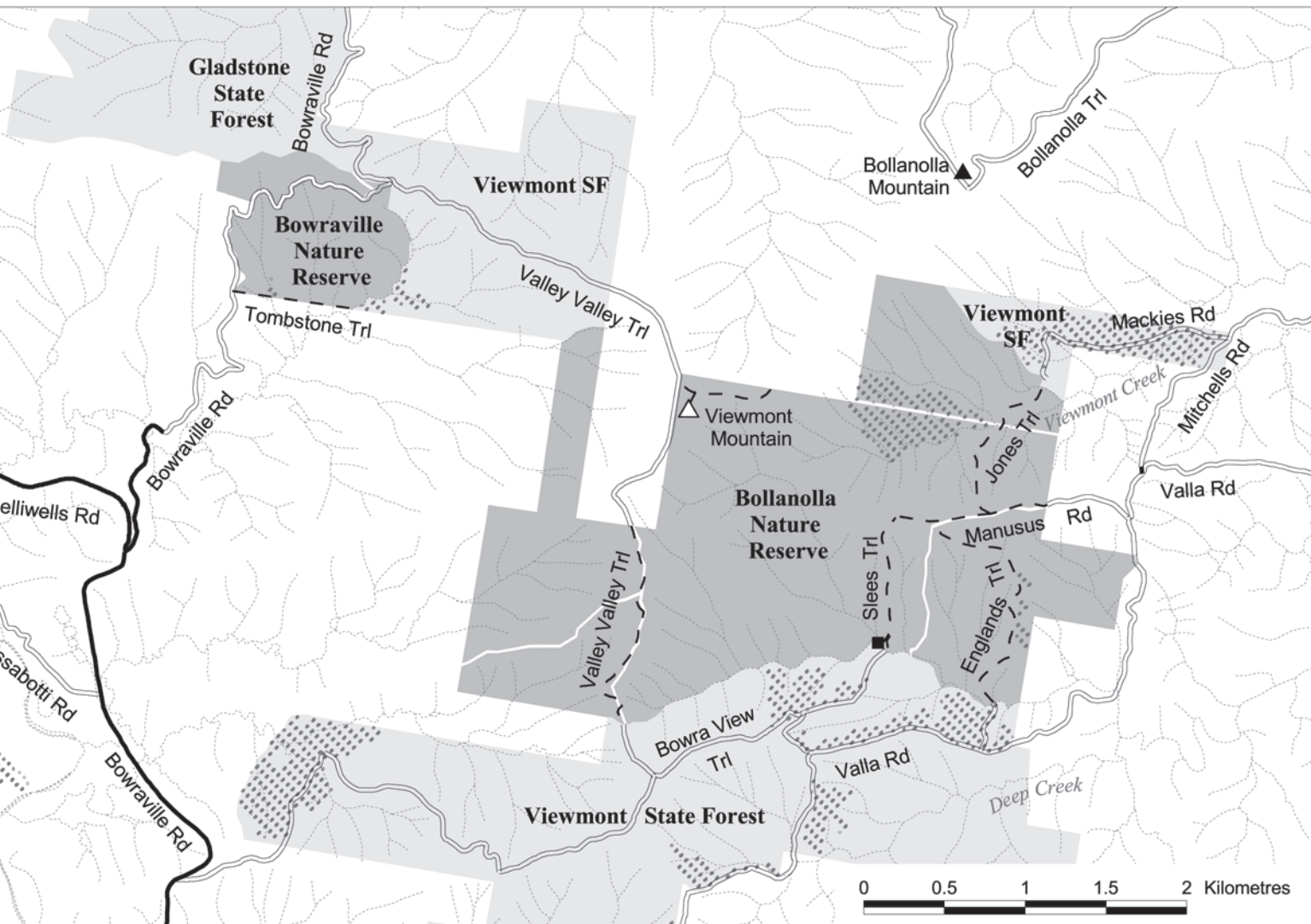
-  Nature reserve
-  State forest
-  Plantation
-  Mountain peak
-  Trigonometric point
-  Apiary site
-  Watercourses
-  Dam

Roads and trails

-  Sealed Road
-  Unsealed Road
-  Unsealed Road
-  Management Trail
-  Private Property
-  Neighbourhood Access



2c. Bowraville and Bollanolla Nature Reserves



Map 2d. Jaaningga Nature Reserve

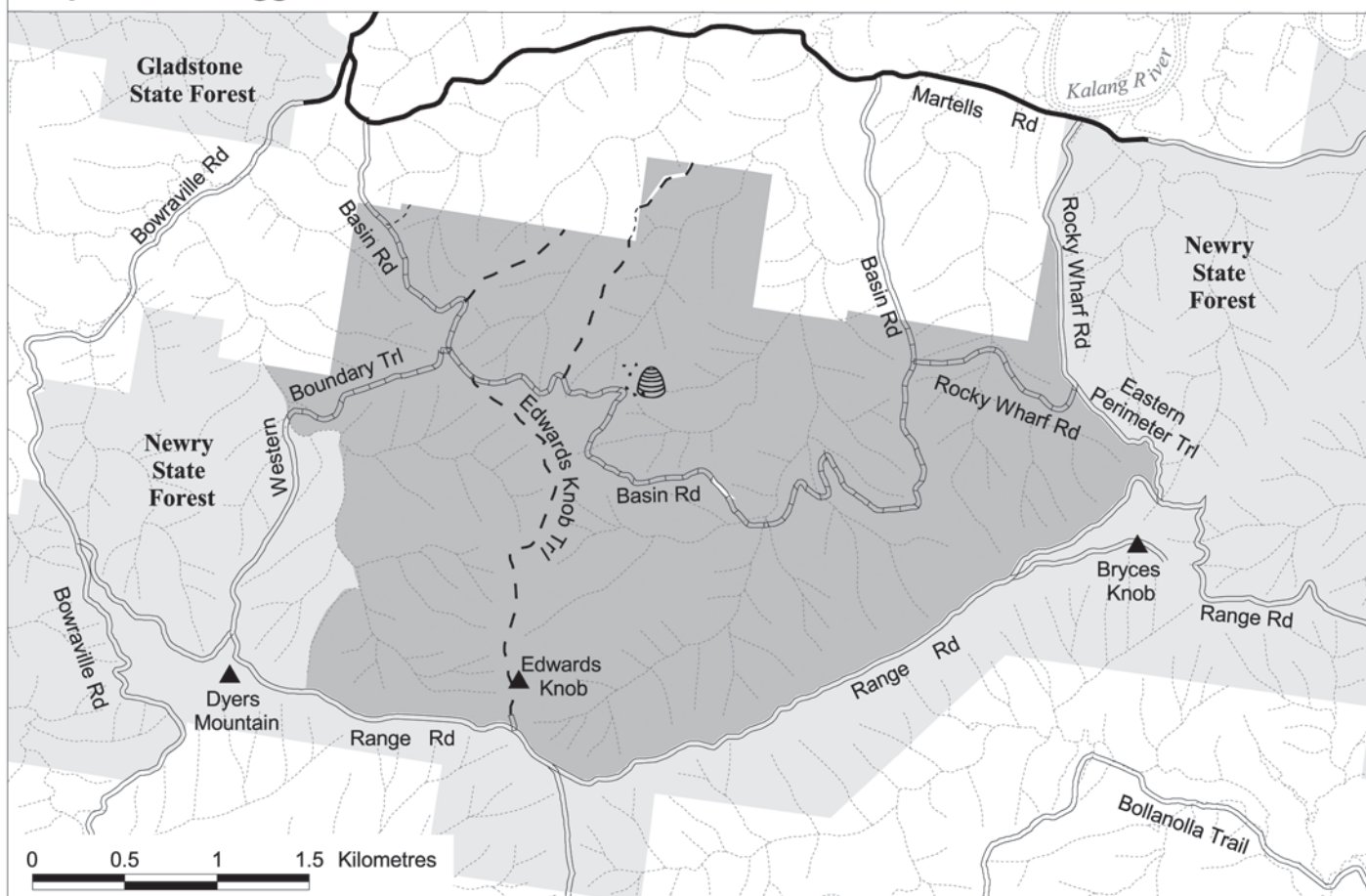


Table 5. Fire zones in the Babadaga reserves

Reserve	Bush Fire Management District	Fire management zones
Bowraville	Nambucca	LMZ
Bollanolla	Nambucca	LMZ
Ganay	Bellingen (majority of reserve) Nambucca (extreme south)	LMZ
Jaanningga	Bellingen	see separate Fire Management Strategy
Juugawaarri	Nambucca (majority of reserve) Bellingen (extreme north)	LMZ

Table 6. Fire interval guidelines for protection of vegetation communities

Vegetation community	Minimum interval (years)	Maximum interval (years)	Notes
Rainforest	n/a	n/a	Fire should be avoided
Wet sclerophyll forest	25	60	Crown fires should be avoided at the lower end of the interval range
Semi-mesic grassy forest	10	50	Crown fires should be avoided at the lower end of the interval range
Grassy dry sclerophyll forest	5	50	
Scrubby dry sclerophyll forest	7	30	

Source: Kenny *et al.* (2004)

4.4. Bell Miner Activity

Bell miners (*Manorina melanophrys*) occur in the Babadaga reserves. Over-abundant populations of bell miners appear to be associated with a form of eucalypt dieback which has been listed as a key threatening process under the TSC Act. Bell miner associated dieback is a serious problem in other NPWS reserves, particularly those west of Kyogle. There is evidence of dieback occurring in small areas of Juugawaarri Nature Reserve on Bellbucca Road and in larger areas within Bollanolla Nature Reserve, west of Jones Trail and along Sles Trail.

Bell miners favour disturbed forest habitats, particularly those with forest structures altered by logging and the establishment of lantana in the understorey. They aggressively protect their territories from other birds, including insectivorous birds, which results in sap-sucking insect populations rising to levels that damage the canopy, leading to leaf fall and can eventually cause tree death. The presence of a thick lantana understorey also negatively impacts upon the ability of the forest to regenerate.

In a number of areas on the north and south coast, NPWS and other land managers are investigating appropriate methods, such as intensive lantana removal and the strategic application of fire, to control the damaging environmental impacts of bell miner associated dieback.

5. USE OF THE RESERVES AND MANAGEMENT OPERATIONS

5.1. Visitor Use and Education

The Babadaga reserves are dedicated as nature reserves. As such, they have a formal role within the conservation network of NSW to provide scientific and education reference points. The NPWS encourages scientific and educational use of the Babadaga reserves and will assist groups or individuals wishing to utilise the reserves for these purposes.

Existing visitor use of the reserves is currently of low volume, reflecting their relative remoteness from large urban populations, their generally steep terrain and difficulty of access. These physical limitations ensure that visitation to the Babadaga reserves is unlikely to ever attain high levels.

In the main, public use of the Babadaga reserves is dominated by four-wheel driving and trail-bike riding. Trail-bike use and exploration, often involving unregistered bikes, is higher within Jaaningga Nature Reserve and Bollanolla Nature Reserve due to their closer proximity to the population centres of Bowraville, Bellingen and Urunga. In Jaaningga Nature Reserve, motorcyclists have used several steep hill climbs for some time, at some cost to soil stability and native vegetation. In Bollanolla Nature Reserve, a trail favoured by riders is the Valley Valley Trail, which accesses the summits of Viewmont Mountain and Bollanolla Mountain, east of the reserve.

The Cooks Creek area of Juugawaarri Nature Reserve is a popular destination for a small number of local residents from the upper Kalang Valley. Visitors are attracted by the natural beauty of the rainforest adjacent to this stream and its clear rock pools, and use the area for day walks and nature appreciation.

5.2. Access

A number of road corridors within the Babadaga reserves do not form part of the nature reserves but instead remain crown land which is vested in the Minister for the Environment. These so-called 'ministerial' roads (Bellbucca Road in Juugawaarri Nature Reserve, Blairs Road in Ganay Nature Reserve, and Western Boundary Trail and part of Basin Road in Jaaningga Nature Reserve) were excluded from the formal gazettals of the nature reserves under the *Forestry and National Park Estate Act 1998* (FNPE Act) to ensure that access arrangements to neighbouring state forest could continue. Maintenance on these roads is a shared responsibility, with Forests NSW generally maintaining the roads when the roads are required for log haulage and NPWS undertaking maintenance on a needs basis at other times. These roads form part of the public access system in the Babadaga reserves and their use is subject to NPW Regulation.

A property neighbouring Jaaningga Nature Reserve can currently only be accessed via a short (200m) trail off Basin Road through the reserve. While gazetted as part of the reserve, the FNPE Act prevents the closure of this trail as long as it forms the only practical means of access to private property.

Several other roads in the planning area lie on crown road reserves. These include the main Bellingen to Bowraville Road (through Bowraville Nature Reserve). A large section of this road abutting Bowraville Nature Reserve was partially destroyed during the major

flood event of March 2009 and is closed to all vehicular traffic until further notice. A very short section of Basin Road (in Jaaningga Nature Reserve) is administered by Bellingen Shire Council. Manus Road within Bollandolla Nature Reserve is also on a crown road reserve but it is maintained by NPWS as a management trail.

A number of unconstructed 'paper' public road reserves also exist in Bollandolla Nature Reserve, which is dissected into five portions by these road reserves. These road reserves do not serve any purpose and are not required for access. Despite never having been constructed, most are administered by Nambucca Shire Council.

5.3. Trigonometric Stations

Two trigonometric reference points are located in the Babadaga reserves: Gladstone, located on the summit of Mount Gladstone within Ganay Nature Reserve, and Valley Valley, located on Viewmont Mountain in Bollandolla Nature Reserve. These are marked by small concrete cairns. Access to Mount Gladstone was formerly via Double Top Trail, however this section washed away in early 2009 and so access is now by foot. Access to Valley Valley Trig is by off-park roads to the reserve boundary and then by management trail. An agreement between the Crown Lands Office, Central Mapping Authority and NPWS governs the management of trig stations within lands administered by NPWS.

5.4. Beekeeping

Prior to their dedication as nature reserves, the areas were subdivided into a number of sites for apiary purposes, and occupation permits for beekeeping could be issued over these sites under the *Forestry Act 1916*. At the time of reservation of the reserves, there was only one current occupation permit. This is located on Basin Road in what became Jaaningga Nature Reserve, and this has been recognised as an existing interest under the NPW Act.

While it is acknowledged that the European honey bee (*Apis mellifera*) can have adverse impacts on some native plants and animals (Paton 1996; NSW Scientific Committee 2002), NPWS policy on beekeeping allows existing sites to continue but does not allow for any new or additional sites. Under the policy, any existing sites that compromise environmental values or conflict with visitors or park management programs of an area may be relocated within the reserve.

6. MANAGEMENT STRATEGIES AND ACTIONS

Priorities

High priority activities are those which are 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

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.1. Soil and Water Conservation</p> <p>The majority of the land within the Babadaga reserves is steep, mountainous terrain with highly erodible soils. Appropriate trail maintenance and management techniques are therefore crucial to minimising soil erosion.</p> <p>Trail bike riders have established a number of trails on steep slopes, mainly within Jaaningga Nature Reserve.</p> <p>There is an eroded creek crossing on Rocky Wharf Road within Jaaningga Nature Reserve. Vehicles crossing in this location may impact on water quality. The condition of this causeway may also negatively impact on some specimens of the Newry golden wattle.</p>	<p>Soil erosion is minimised.</p> <p>Water quality and health of reserve streams is improved.</p>	<p>6.1.1 Undertake all works in the reserves in a manner that minimises erosion and water pollution.</p> <p>6.1.2 Close all trails not shown on Map 2, and actively rehabilitate those trails on steep hills where there is significant soil erosion.</p> <p>6.1.3 Reconstruct the existing creek crossing on Rocky Wharf Road within Jaaningga Nature Reserve to limit erosion, sedimentation and potential weed infestation at this site.</p> <p>6.1.4 Continue to support the Northern Rivers Catchment Management Authority and other relevant local authorities to maintain and improve water quality in the catchments.</p>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.2. Native Plants and Animals</p> <p>The reserves are situated within a major regional vegetated corridor, linking the coast to the tablelands. They also contain areas of old growth forest, though most of this is located on steep slopes. The combination of these factors means the reserves have high value for conservation of native plants and animals.</p> <p>Limited systematic surveys have been carried out in and near the reserves. Based on these and predictive modelling, it is expected that five threatened plant species and 26 threatened animal species occur in the reserves (listed in tables 2 and 3). Targeted surveys are required to identify threatened species populations in the reserves.</p> <p>Jaanninga Nature Reserve conserves most of the known populations of the endangered Newry golden wattle. These populations need to be monitored and protected from the impacts of frequent fire and weed encroachment (see sections 6.4 and 6.5). The reserves also protect ringwood and Nambucca ironbark, two rare and locally endemic species.</p> <p>Further research is required to provide more extensive knowledge on the management of threatened and other restricted species.</p> <p>Plantations of blackbutt and flooded gum were established in what is now part of Bollandolla Nature Reserve.</p>	<p>Native plant species and communities are conserved.</p> <p>Structural diversity and habitat values are restored in areas subject to past disturbance.</p> <p>The values of the reserves as part of a regional corridor for faunal movement are protected and enhanced.</p> <p>Understanding of plant and animal populations is improved, particularly those at risk or known to have a restricted range.</p>	<p>6.2.1 Undertake and/ or encourage targeted surveys for predicted threatened species.</p> <p>6.2.2 Monitor the populations of Newry golden wattle, including habitat condition and trends in population demographics.</p> <p>6.2.3 Implement relevant strategies in the Priorities Action Statement and recovery plans for threatened species.</p> <p>6.2.4 Monitor the condition and regeneration of plantation areas.</p>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.3. Cultural Heritage</p> <p>While no Aboriginal sites have yet been recorded within the reserves, the reserves retain their value to the Gumbaynggirr people.</p> <p>An old timber bridge on North Ridge Rd within Juugawaarri Nature Reserve is a tangible reminder of the past use of the reserve for logging and constitutes a significant engineering feat.</p>	<p>Cultural features are conserved and managed in accordance with their significance.</p> <p>The history of the reserve is documented and recorded.</p> <p>Aboriginal heritage values are protected in partnership with the local Aboriginal community.</p>	<p>6.3.1 Consult and involve the relevant Local Aboriginal Land Council (see Table 4), Elders groups and other relevant Aboriginal community organisations in understanding former use and significance of the reserves and management of any Aboriginal sites, places and values in the reserves, including interpretation of places or values. Encourage further research into the Aboriginal heritage values of the park.</p> <p>6.3.2 Precede all ground disturbance work by a survey for cultural features.</p> <p>6.3.3 Assess and document the heritage significance of the old timber bridge in Juugawaarri Nature Reserve, and stem further decay if feasible.</p> <p>6.3.4 Encourage research into the history of the reserves.</p>	<p>High</p> <p>High</p> <p>Low</p> <p>Low</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.4. Introduced Plants and Animals</p> <p>The North Coast Regional Pest Management Strategy sets region-wide priorities for pest species control programs (DECC 2008b). Implementation of this strategy in the reserves is informed by regular surveys to identify current pest control priorities and the effectiveness of previous control programs.</p> <p>Lantana is a major weed in the reserves and may impact on regeneration in disturbed areas and threaten recruitment of the Newry golden wattle and other rare or regionally significant native flora. Lantana, mistflower, crofton weed, camphor laurel, giant Parramatta grass and broad-leaved paspalum are current priority targets for weed control activity within the reserves.</p> <p>Wild dogs and foxes are known to inhabit the Babadaga reserves. They are likely to pose a threat to the reserves' biodiversity and may also impact negatively upon reserve neighbours. There have been limited control efforts to date. Wild deer are expected to become an increasingly significant management issue for the reserves in coming years.</p> <p>All state forests neighbouring the planning area are declared public lands for hunting game.</p>	<p>The impact of introduced species on native species and neighbouring lands is minimised.</p> <p>Introduced plants and animals are controlled and where possible eliminated.</p> <p>Pest control programs are undertaken in consultation with neighbours.</p> <p>Control programs on neighbouring lands do not impact on reserve values.</p>	<p>6.4.1 Undertake priority pest species control in the reserves, in accordance with the NPWS North Coast Regional Pest Management Strategy.</p> <p>6.4.2 Continue on-going control programs for lantana, mistflower, crofton weed, camphor laurel, giant Parramatta grass and broad-leaved paspalum.</p> <p>6.4.3 Seek the cooperation of other authorities and neighbours in implementing weed and pest animal control programs across the broader landscape.</p> <p>6.4.4 Survey for and monitor noxious and significant environmental weeds. Where possible, treat any new outbreaks promptly and effectively.</p> <p>6.4.5 Undertake pest animal control programs in consultation with neighbours.</p> <p>6.4.6 Install and maintain reserve identification and regulatory signs at strategic locations along reserve boundaries.</p>	<p>Medium</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.5. Fire Management</p> <p>Fire is a natural feature of the environment of the reserves and is essential to the survival of some plant communities. Frequent or regular fire, however, can cause loss of particular plant and animal species and communities. In particular, fire presents a significant threat to rainforest communities and the mesic understorey in wet sclerophyll forest.</p> <p>The fire history of the reserves has been poorly documented. Parts of the reserves have been subject to damaging, unscheduled fire in recent years, and fire was extensively used as part of silvicultural treatment when the reserves were managed for timber production. A reduction in the number of fire events within the reserves in coming decades is desirable for conservation objectives to assist the return of a more mesic-dominated understorey in the reserves and regeneration of rainforest.</p> <p>There are no built assets within the reserves vulnerable to fire. Private property assets and plantations neighbouring the reserves occur at much lower elevations and, in the case of private built assets, are generally surrounded by cleared country. Park roads and management trails, combined with trails on neighbouring properties, provide opportunities for strategic access for fire management purposes. A dam in Bollandolla Nature Reserve is a source of water for fire fighting.</p> <p>A separate fire management strategy for Jaaningga Nature Reserve has been prepared. This has incorporated objectives to protect the Newry golden wattle from frequent fire. Separate map-based fire management strategies will assist in the broader communication of fire objectives and tactics for the other reserves.</p>	<p>Life and property are protected from fire.</p> <p>Fire frequencies are appropriate for conservation of native plant and animal communities.</p> <p>Fire is excluded from rainforest.</p>	<p>6.5.1 Implement the Reserve Fire Management Strategy for Jaaningga Nature Reserve.</p> <p>6.5.2 Develop and implement separate map-based strategies for the other reserves. Until these strategies are prepared, manage the other reserves as Land Management Zones to protect biodiversity in accordance with the identified fire frequency thresholds for vegetation communities and any fire sensitive communities (see Table 6).</p> <p>6.5.3 Undertake prescribed burns in sections of the reserves as required to maintain ecological values.</p> <p>6.5.4 Participate in Bellingen and Nambucca District Bush Fire Management Committees. Maintain cooperative arrangements with the Rural Fire Service Brigades, Forests NSW and surrounding landholders with regard to fuel management and fire suppression.</p> <p>6.5.5 Continue to maintain the road and trail network in the reserves (refer map 2). Undertake maintenance in collaboration with Forests NSW in accordance with maintenance programs.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.6. Recreational Opportunities</p> <p>There are no formal visitor facilities provided within the Babadaga reserves. Current visitor use includes self-reliant bushwalking, cycling (using mountain bikes), four-wheel drive touring and trail bike riding. Group visits occasionally occur in the reserves, focussing on bird watching and appreciation of the natural values of the reserves, such as rainforest-lined creeks or seeking-out Newry golden wattle specimens.</p> <p>The roads within the reserves that are open to the public are shown on Map 2. This network of roads provides access to points of interest (e.g. natural vantage points and creek lines) and allows for continuing vehicle-based touring in conjunction with neighbouring state forest. The proposed closure of Middle Ridge Road to the public will necessitate a short walk to access the swimming holes on the north branch of Cooks Creek.</p> <p>There is some use of management trails and closed trails by motor bike riders, causing erosion problems on steep terrain, particularly in Jaaningga Nature Reserve. Some of these riders are unlicensed and riding unregistered vehicles.</p> <p>An operator conducting commercial tours involving registered motor bikes is licensed to use Bellbuca Road in Juugawaarri Nature Reserve. Commercial tours are licensed with appropriate conditions imposed to minimise impacts on the values of the reserves.</p>	<p>Visitor use is appropriate and ecologically sustainable.</p> <p>The local community is aware of the significance of the area and of management programs.</p> <p>Educational use of these reserves is encouraged.</p>	<p>6.6.1 Public vehicle access will be restricted to park and public roads only as displayed on Map 2.</p> <p>6.6.2 Allow cycling on management trails.</p> <p>6.6.3 Install regulatory and trail identification signage where appropriate. Gate management trails as required to restrict unauthorised use.</p> <p>6.6.4 Organised group visits involving more than 10 people will require consent and may be subject to limits on numbers and other conditions if necessary to minimise impacts.</p> <p>6.6.5 Prohibit camping and horse riding within the reserves.</p> <p>6.6.6 Levels and impacts of visitor use will be monitored and measures undertaken to reduce impacts where they are found to be unacceptable.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.7. Research and Monitoring</p> <p>Scientific study can improve understanding of the reserves' natural and cultural heritage, ecological processes and the requirements for management of significant species.</p> <p>Some data on native plants and animals has previously been compiled by Forests NSW and through the comprehensive regional assessments conducted in the 1990s. No formal long-term studies have been undertaken in the Babadaga reserves</p>	<p>Research enhances the knowledge and management of the reserves.</p> <p>Research has minimal environmental impact.</p>	<p>6.7.1 Encourage research into the following topics:</p> <ul style="list-style-type: none"> - the ecology of Newry golden wattle, especially its fire ecology and population dynamics; - cost effective and environmentally sensitive methods of controlling mistflower; - targeted surveys for predicted threatened species, feral fauna and native mammals; - Aboriginal cultural heritage values and former use of the reserves in consultation with the Aboriginal community; - the history of the reserves. <p>6.7.2 Undertake and encourage monitoring of the following:</p> <ul style="list-style-type: none"> - populations of Newry golden wattle, including habitat condition and trends in population demographics; - the regeneration of former plantation areas in Bollandra Nature Reserve; - bell-miner associated dieback; - new outbreaks of noxious or environmental weeds. 	<p>High</p> <p>Medium</p> <p>High</p> <p>Medium</p> <p>Low</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.8. Management Operations and Other Uses</p> <p>Trigonometric stations are located on the summits of Mount Gladstone within Ganay Nature Reserve and Viewmont Mountain within Bollanolla Nature Reserve. These can be accessed from off-park roads, management trails or on foot.</p> <p>A network of management trails in the reserves provides access for management purposes. There are no other management facilities in the reserves. A short trail off Basin Road in Jaaningga Nature Reserve provides the only practical means of access to private property.</p> <p>Manusus Road in Bollanolla Nature Reserve lies on a public road reserve but management and maintenance of the road is undertaken by NPWS as part of the management trail network. A number of other public road reserves occur in this reserve that do not coincide with existing trails, are not required for access and should be incorporated into the formally gazetted area of the reserve. A very small section of Basin Trail in the middle of Jaaningga Nature Reserve lies on a council road reserve. Bowraville Road through Bowraville Nature Reserve also lies on a council road reserve.</p> <p>In some places, the boundaries between the reserves and the adjoining state forests are not clearly marked on ground.</p> <p>One licensed apiary site occurs in the reserves. This is located in Jaaningga Nature Reserve on Basin Trail.</p>	<p>Management facilities and operations adequately serve management needs and have minimal impact.</p> <p>Existing non-park infrastructure is managed to minimise impacts on natural and cultural values.</p>	<p>6.8.1 Maintain all roads and management trails as shown on Map 2.</p> <p>6.8.2 Continue to allow the short access trail from Basin Road to be used for private property access. Animals may be transported to the property by vehicle using this trail and Basin Road as long as they are kept within the vehicle at all times and remain in transit. Should at some future time alternative access to the land be established, the trail will be closed to public use and maintained as a management trail.</p> <p>6.8.3 In consultation with the Land and Property Management Authority and Nambucca and Bellingen shire councils, seek to have all public road reserves located within the Babadaga reserves, except for Bowraville Road, closed if necessary and added to the nature reserves.</p> <p>6.8.4 Install regulatory signage and/or gates as necessary on management trails to restrict unauthorised use.</p> <p>6.8.5 Continue to license and manage the apiary site within Jaaningga Nature Reserve in accordance with NPWS policy. While no further sites will be licensed, this site may be relocated in consultation with licensee if it significantly compromises the environmental values of the area.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>High</p>

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