NSW National Parks & Wildlife Service
Office of Environment & Heritage

Plan of Management

Nymboi-Binderay National Park and State Conservation Area

This plan of management was adopted by the Minister for the Environment on 24 August 2016.

Acknowledgments

NPWS acknowledges that these parks lie in the traditional Country of the Gumbaynggirr People.

This plan of management was prepared by the NSW National Parks and Wildlife Service (NPWS) North Coast Region staff, with the assistance of staff from NPWS Coastal Branch and other OEH divisions. The input from members of the community, who participated in consultation workshops, made submissions on the draft plan or contributed to the planning process in other ways, is gratefully acknowledged.

For any inquiries about The Junction or elsewhere in the north-east section of Nymboi-Binderay National Park, contact the NPWS Clarence South Area Office at 49 Victoria Street (PO Box 361), Grafton NSW 2460 or by telephone on (02) 6641 1500.

For additional information or inquiries about the rest of these parks (including Moonpar Forest Drive) or this plan of management, contact NPWS Dorrigo Plateau Area Office, Rainforest Centre, Dome Road (PO Box 170), Dorrigo NSW 2453 or by telephone on (02) 6657 2309.

Front cover images: Whitewater rafting on the Nymboida. Photo: T Scanlon/ NPWS
Moonpar Forest Drive. Photo: B Webster/ NPWS.

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Foreword

Nymboi-Binderay National Park was established in 1997 and covers 17,585 hectares. The adjoining Nymboi-Binderay State Conservation Area, created in 2003, covers 585 hectares. These parks are located north of Dorrigo in the hinterland of the NSW north coast.

The Nymboi-Binderay parks occupy an important position in an extensive belt of forest covering the eastern fall of Dorrigo Plateau. These parks support a range of natural values, including old-growth forests listed on the State Heritage Register. Seven threatened plants (including the endangered Dorrigo daisy bush) and 36 threatened animals (including the Hastings River mouse and pouched frog) occur in these parks.

These parks lie within Gumbaynggirr Country and host a number of significant heritage features, including traditional pathways, scarred trees, artefacts and camp sites. European heritage relates to the past timber industry and includes physical remains such as timber tramlines and logging arches.

The wild and scenic, nationally significant Nymboida River runs through these parks. The river is a major water supply for the Clarence–Coffs region, supports a wild-breeding population of the endangered eastern freshwater cod, and is used for commercial and recreational whitewater rafting.

The NSW *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park and state conservation area. A draft plan of management for the Nymboi-Binderay parks was placed on public exhibition from 5 June to 7 September 2009. The 46 submissions received on the draft plan were carefully considered before adopting this plan.

This plan contains a number of actions to protect our natural environment, including protection of threatened species and communities, control of pest plants and animals, and fire management to protect life, property and biodiversity. It also promotes partnerships with Aboriginal people through consultation, especially in relation to Aboriginal cultural values and maintenance of the grassy plains. Under the plan, these parks will continue provide for a range of outdoor recreation activities such as camping, picnicking, sightseeing, bushwalking, cycling, vehicle touring, kayaking and rafting.

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

Mark Speakman

Minister for the Environment

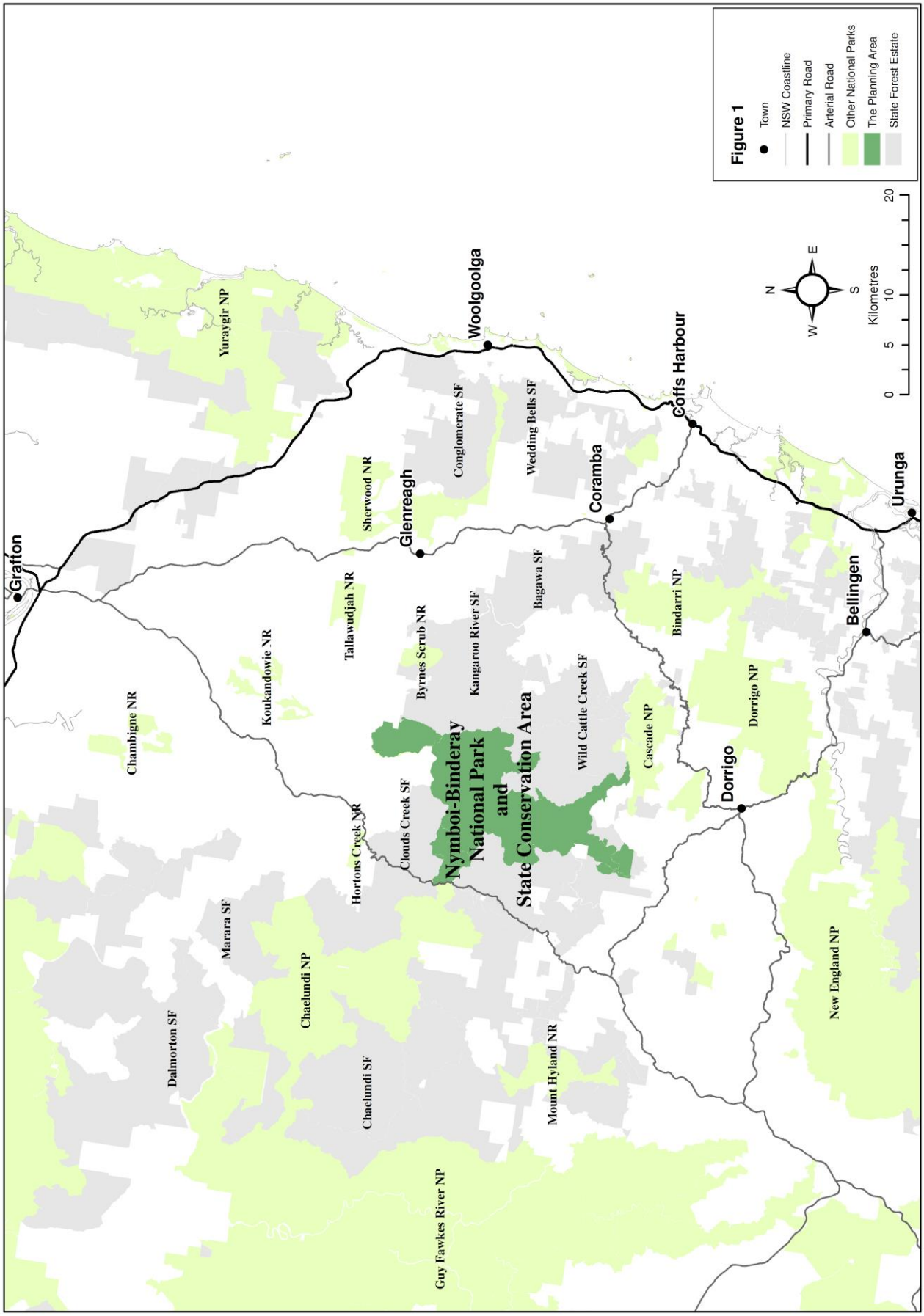
Contents

List of maps

List of tables

List of appendices

Map 1: The locality of the parks



1. Overview of the parks

1.1 Location, reservation and regional setting

Nymboi-Binderay National Park (referred to as 'the park') and the adjoining Nymboi-Binderay State Conservation Area are located on the eastern slopes of the Great Dividing Range on the NSW north coast (see Map 1). Situated approximately 25 kilometres north of Dorrigo and 40 kilometres south-south-west of Grafton, the park and state conservation area (collectively referred to as 'these parks') have a general north–south orientation running along the Nymboida River. These parks encompass approximately 26 kilometres of the Nymboida River (see Map 2) including the bed of the river. Neighbouring lands include state forests and private property.

The park was created in the process leading up to the Regional Forest Agreement for North East New South Wales (NSW). Regional forest agreements are one of the principal means of implementing the National Forest Policy Statement of 1992. Under this Statement, the state and Commonwealth governments committed to establish a comprehensive, adequate and representative reserve system for forested lands. The first sections of the park were initially reserved on 1 January 1997 as an outcome of the Interim Forest Agreement over land which were parts of Kangaroo River, Clouds Creek and Wild Cattle Creek state forests. Two years later, further areas of Clouds Creek, Wild Cattle Creek and Moonpar state forests were reserved as additions to the park. In 2003, 585 hectares of Wild Cattle Creek State Forest were reserved as Nymboi-Binderay State Conservation Area. This area was reserved as a state conservation area to protect future potential mining and mineral exploration interests in the area.

The most recently reserved area within the parks lies between Sheep Station Creek and Marsupial trails. This land, although managed by the NSW National Parks and Wildlife Service (NPWS) since 1997, was excluded from the area originally reserved as park as it was being considered as a potential site for a water supply reservoir at the time. It was added to the reserved area of park in 2010, bringing the total area of the park to its present 17,585 hectares.

The area of park covered by this plan includes unreserved lands which are vested in the Minister administering the *National Parks and Wildlife Act 1974* for the purposes of Part 11 of that Act. These 'Part 11 lands' coincide with several 'Ministerial roads'. The corridors of these roads were excluded from reservation to ensure that access for timber hauling from neighbouring state forest and access to private property could continue. The corridors of these roads are currently Crown land vested in the Minister administering the National Parks and Wildlife Act. All Ministerial roads are open for public use and are described further in Section 3.7.

The name of these parks is derived from the local Gumbaynggirr language. *Nymboi* is their name for the river itself, while *Binderay* means river, literally 'the Nymboi River'. There are several recorded Aboriginal cultural sites within and surrounding the boundaries of these parks, ranging from ceremonial and mythological sites to open campsites and scarred trees. The north of the park lies in the area of the Grafton-Ngerrie Local Aboriginal Land Council and the south of the area is within the Dorrigo Plateau Local Aboriginal Land Council.

These parks are located within the local government areas of Clarence Valley and Bellingen Shire, and within the boundaries of the North Coast Local Land Services.

1.2 Significance of these parks

Riverine values

Running through these parks is the Nymboida River, a tributary of the Clarence River and the water supply for the Clarence Valley and Coffs Harbour Regional Water Supply Scheme. The Nymboida River in these parks contains part of the only remaining wild-breeding population of the endangered eastern freshwater cod (*Maccullochella ikei*). The whitewater section of the

Nymboida River upstream of The Junction is used for commercial and recreational whitewater rafting and kayaking, which attract many tourists to the area. The wild and scenic values of the Nymboida River have long been recognised (DWR 1987; Helman 1981). It is ranked of national significance, in the same category as Tasmania's Franklin River (DWR 1987).

Biological values

The significance of these parks' natural and cultural landscape has driven the development of the plan. The parks occupy an important position in an extensive belt of high quality, mostly eucalypt-dominated forest covering the north-east fall of the Dorrigo Plateau (Austeco 1999).

These parks are characterised by a number of vegetation types including dry and wet sclerophyll forests, rainforests, woodlands, grasslands and rocky shrublands. Nymboi-Binderay National Park is listed on the State Heritage Register due to its high conservation value old-growth forest, and the diversity of rainforests has prompted consideration of these parks as an addition to the Gondwana Rainforests of Australia World Heritage property (Kitching & Braithwaite 2005). The eucalypt forests are also potentially of World Heritage value (Expert Workshop 1999; Cerese 2012).

The diversity of these habitats and the old-growth vegetation present have allowed a significant number of threatened species to survive within these parks. There is habitat for 36 threatened species of animal, including the Hastings River mouse (*Pseudomys oralis*), koala (*Phascolarctos cinereus*) and pouched frog (*Assa darlingtoni*). The endangered Dorrigo daisy bush (*Olearia flocktoniae*) is found along road verges within and surrounding these parks. A number of other plant and animal species found in the parks are considered significant to the area.

Aboriginal connections to Country and European heritage

These parks host a number of significant Aboriginal and European heritage sites. Past Aboriginal use of the area is evidenced in scarred trees, open camp sites and isolated artefact finds. It is also believed that Aboriginal use of fire helped to maintain a cluster of small grassy plains in these parks (Floyd 1990).

European heritage sites are largely focussed on the past timber industry and these include physical sites such as the remains of timber tramlines, logging arches, and associated logging bridges and trails, as well as several small plantations and an arboretum.

Recreation values

These parks provide opportunities for a range of outdoor recreation activities such as vehicle-based camping, remote camping, picnicking, sightseeing, bushwalking, cycling, vehicle touring, kayaking and canoeing. Camping and day use facilities are provided along the banks of the Nymboida River at Platypus Flat, the Cod Hole and The Junction. A small day use area is also located just off Moonpar Forest Drive at the Norman Jolly Memorial Grove.

Guided tours and commercial recreational activities provide a growing proportion of the public use of these parks.

2. Management context

2.1 Legislative and policy framework

The management of national parks and state conservation areas in New South Wales is in the context of the legislative and policy framework of NPWS — primarily the National Parks and Wildlife Act and Regulation, the *Threatened Species Conservation Act 1995* and NPWS policies.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* may require the assessment of environmental impacts of works proposed in this plan. The NSW *Heritage Act 1977* may apply to the excavation of known archaeological sites or sites with potential to contain historical archaeological relics. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* also applies in relation to actions that may impact on matters of national environmental significance, such as World Heritage values or threatened species listed under that Act.

A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted the plan, the plan must be carried out and no operations may be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to these parks. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

2.2 Management purposes and principles

National parks

National parks are reserved under the National Parks and Wildlife 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, inspiration and sustainable visitor or tourist use and enjoyment.

Under the National Parks and Wildlife Act (section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes
- conserve places, objects, features and landscapes of cultural value
- protect the ecological integrity of one or more ecosystems for present and future generations
- promote public appreciation and understanding of the parks' 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
- provide for appropriate research and monitoring.

State conservation areas

State conservation areas are reserved under the National Parks and Wildlife Act to protect and conserve areas that:

- contain significant or representative ecosystems, landforms or natural phenomena or places of cultural significance

- are capable of providing opportunities for sustainable visitor or tourist use and enjoyment, the sustainable use of buildings and structures, or research
- are capable of providing opportunities for uses permitted under other provisions of the Act.

Under the National Parks and Wildlife Act (section 30G), state conservation areas are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes
- conserve places, objects and features of cultural value
- provide for the undertaking of uses permitted under other provisions of the National Parks and Wildlife Act (including uses permitted under section 47J such as mineral exploration and mining), having regard to the conservation of the natural and cultural values of the state conservation area
- provide for sustainable visitor use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area
- provide for appropriate research and monitoring.

Land is reserved as a state conservation area primarily where mineral values do not allow for reservation as another category. The National Parks and Wildlife Act requires a review of the classification of state conservation areas every five years in consultation with the Minister administering the *Mining Act 1992*. The review considers whether each state conservation area should or should not be reserved as either a national park or nature reserve. Reviews were undertaken in 2008 and 2013 in which the status of Nymboi-Binderay State Conservation Area remained unchanged.

Subject to the outcomes of future reviews, Nymboi-Binderay State Conservation Area may be added to Nymboi-Binderay National Park. Meanwhile, the management of the state conservation area will be guided by the management principles for national parks as far as possible.

State heritage

In 2000, the park was included on the State Heritage Register as part of the listing of High Conservation Value Old Growth Forest (Heritage Office 2008). Under the *Heritage Act 1977* all items listed on the State Heritage Register must be maintained in accordance with best practice management principles, including maintenance to at least the minimum standards required under that Act. The strategies in this plan of management are consistent with these requirements (see Section 3.2).

Wild rivers

The wild and scenic values of the Nymboida River within the park have long been recognised (DWR 1987, Helman 1981). There is the potential for the Nymboida and Little Nymboida rivers to be identified and declared as wild rivers under section 61 of the National Parks and Wildlife Act. Wild rivers are defined as a watercourse or watercourse network that exhibits substantially natural flow and contains substantially undisturbed biological, hydrological and geomorphological processes associated with river flow and in the catchment with which the river is intrinsically linked.

Wild rivers are managed in accordance with the following principles:

- the restoration (wherever possible) and maintenance of the natural biological, hydrological and geomorphological processes associated with wild rivers and their catchments, including natural flow variability
- the identification, conservation and appropriate management of Aboriginal objects and Aboriginal places.

World heritage

These parks have been identified as a possible addition to the Gondwana Rainforests World Heritage property (Kitching & Braithwaite 2005) and as part of a possible future serial site based on the value of the eucalypt forests of northern New South Wales (Expert Workshop 1999).

The Gondwana Rainforests of Australia (previously known as the Central Eastern Rainforest Reserves of Australia, or CERRA) includes representative areas of the major stands of rainforest located between Newcastle and Brisbane including Barrington Tops, Werrikimbe, Willi Willi, Dorrigo, Border Ranges and Lamington national parks. The strategic overview for management of the Gondwana Rainforests (CERRA 2000) has been considered in the preparation of this plan.

2.3 Specific management directions

Within the operational timeframe of this plan of management, the emphasis for management of these parks is for the protection of their natural and biophysical characteristics, as part of the broader system of parks in the region. In particular, management will aim to protect areas of high conservation value, and provide appropriate and environmentally sustainable recreational activities.

The parks' water quality, wild river settings, aquatic habitats and population of the eastern freshwater cod are priorities for management. Recreational facilities will be provided at strategic locations along the Nymboida River however, due to known impacts on the river, other opportunities for vehicle access to the river will be limited. Other areas of the park will be accessible for activities such as vehicle touring, bushwalking and cycling. One route through the park will be available for horse riding.

3. Values

This plan aims to conserve both natural and cultural values of Nymboi-Binderay National Park and State Conservation Area. The location, landforms and plant and animal communities of an area have determined how it has been used and valued by both Aboriginal and non-Aboriginal people. 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. To make the document clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use in these parks are dealt with individually but their interrelationships are recognised.

3.1 Geology, topography, soils and hydrology

These parks lie within the Coffs Harbour geological block that consists mainly of late Palaeozoic sediments. Apart from a few exceptions, the soil landscapes of these parks are typically of low fertility, and prone to moderate to high water erodibility and localised mass movement.

The Carboniferous Moombil Beds are the oldest unit and consist of black massive argillite with minor sandstone and siltstone. These beds are overlain by the Brooklana Beds, which are thin-bedded siliceous mudstone and siltstone with lithic sandstone. While still rare, they are more common than in the Moombil Beds. The Lower Permian Coramba Beds overlie this unit. These are lithic and feldspathic greywacke with minor siltstone, siliceous siltstone and mudstone (FCNSW 1992).

During the Carboniferous period, granites and granodiorites intruded the sedimentary rocks giving rise to rocky granite outcrops. These granite rocks produce moderately fertile red and yellow earths. Later volcanic activity in the Tertiary period (now recognised as being part of the Cenozoic era) produced basaltic flows, the remnants of which are observed in only a few small areas of these parks. The basalt produces a deep, well-structured and fertile red krasnozem which appears to have enriched the soils of adjacent areas (Floyd 1990).

The majority of the soils within these parks are derived from the underlying sedimentary rock. The undulating elevated areas, where soils form from weathering which takes place in situ and where the rate of formation exceeds the rate of erosion, are characterised by deeper soils of yellow earths with yellow podzols also present. Where the slopes are less steep, moderately deep structured brown earths are formed. On the steep valley slopes, eroded material collects on the valley foot-slopes while shallow lithosols form where the slopes are the steepest (Austeco 1999).

There is a general northerly aspect to these parks, along the north–south drainage line of the Nymboida River. The northern section of the park ranges from 110 metres above sea level to approximately 450 metres and is much lower than the southern section, which reaches a maximum altitude of 810 metres. Rainfall and temperature vary significantly over this altitudinal range. The majority of the area of these parks support a warm temperate climate characterised by wet summers and warm winters.

Natural soil erosion occurs from wind and water, and localised landslips occur on the steep-sided gorges of the Nymboida River. The removal of native vegetation and construction of roads and trails on steep slopes are human-induced catalysts for erosion.

A number of informal trails formerly led down very steep slopes to the Nymboida and Little Nymboida rivers. An unacceptable level of erosion was associated with their use. They also posed a threat to public safety, cause potential damage to the natural features of the terrestrial and aquatic environments, provide opportunities for illegal fishing for the eastern freshwater cod, and intruded upon the wild and remote setting valued by river users. NPWS has closed these former trails to vehicles to curb the problems associated with their use, and is monitoring their revegetation.

Soil disturbance is also present in areas that have been grazed by cattle, such as along sections of Moonpar Forest Drive, Black Mountain Road and Charlies Camp Road. In some areas, disturbance by stock continues (see Sections 4.1 and 5.1).

Dorrigo experiences some of the highest annual rainfalls in New South Wales. The rivers and creeks that feed these parks' rivers — including the Blicks River, Bobo River, Bielsdown River, Little Murray River and Wild Cattle Creek — have their upper catchment areas located on private land and state forest on the Dorrigo Plateau. Land management practices within these parks and on surrounding areas affect the water quality of the creek systems both within these parks and further downstream.

The importance of these parks for frog species and eastern freshwater cod is directly linked to the high water quality. The natural vegetation of these parks contributes to the maintenance of high water quality and protection of catchment values.

The high water quality in the area is evidenced by the previous consideration of part of these parks as a potential site for the storage for the Clarence Valley and Coffs Harbour Regional Water Supply Scheme. The Nymboida River downstream of these parks is still the source for the scheme. Rural communities downstream of these parks also rely on this clean water for domestic and stock use.

Desired outcomes

- To protect water quality by minimising soil erosion, managing visitor use of the waterways and identifying and controlling other contaminants in the parks' streams.
- To protect the natural landscape values, including the wild river setting valued by river users.

Management response

3.1.1 Ensure park roads, management trails and walking tracks are designed and maintained to minimise soil erosion.

3.1.2 As far as practicable, manage fire so as to minimise soil erosion and sedimentation of waterways.

3.1.3 Encourage research into the health of streams within these parks and, if considered necessary, monitor the water quality where there are water quality issues.

3.1.4 Liaise with the North Coast Local Land Services, Clarence Valley Council, the Forestry Corporation of NSW and landowners with properties in the parks' catchment so as to maintain and, where possible, improve water quality, soil stability and natural flow regimes.

3.2 Native plants

These parks contain 18 plant communities in five broad forest types that are strongly related to natural features such as elevation, slope, aspect and soil. Dry forests represent 55 per cent of the vegetation, moist eucalypt forests 22 per cent, and the rest of the area is woodlands, rocky shrublands, grasslands and rainforest communities.

Dry sclerophyll communities are located at exposed sites on poor soils where there is a higher fire frequency. These locations are typically the upper slopes and ridgetops (Austeco 1999). There are 10 dry sclerophyll forest ecosystems identified in these parks:

- large-fruited blackbutt (*Eucalyptus pyrocarpa*) with a shrubby understorey
- spotted gum (*Corymbia variegata*), grey gum (*E. propinqua*), grey ironbark (*E. siderophloia*) and thick-leaved mahogany (*E. carnea*)

- Sydney blue gum (*E. saligna*) and diehard stringybark (*E. cameronii*)
- grey ironbark, grey gum and thick-leaved mahogany
- spotted gum and white mahogany (*E. acmenoides*)
- spotted gum, thick-leaved mahogany and grey ironbark
- forest red gum (*E. tereticornis*)
- coastal blackbutt (*E. pilularis*)
- Sydney blue gum, New England blackbutt (*E. campanulata*) and tallowwood (*E. microcorys*)
- depauperate areas of brush box (*Lophostemon confertus*) as a fringing community around dry rainforest.

The large-fruited blackbutt forest with a heath understorey occurs at the northern end of Moses Rock Trail on soils derived from granite. This is a particularly noteworthy vegetation type in these parks as other occurrences in conservation reserves occur much closer to the coast on sandstone.

Wet sclerophyll forest communities occur in the central and southern areas of the park. Restricted to the mid-slopes and foot-slopes, wet sclerophyll forest types are generally found adjacent to subtropical and warm temperate rainforests on soils derived from older sedimentary rock that has been enriched by nearby basalts. These communities are characterised by:

- white mahogany (*E. acmenoides*) and Sydney blue gum (*E. saligna*)
- tallowwood (*E. microcorys*) and Sydney blue gum (*E. saligna*)
- coastal blackbutt (*E. pilularis*) and tallowwood (*E. microcorys*).

Rainforest occurs in these parks in dry, warm temperate and subtropical formations. Those occurrences below 600 metres above sea level are considered to be part of an endangered ecological community (Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions Endangered Ecological Community). One dry rainforest community, an association with hoop pine (*Araucaria cunninghamii*) and yellow tulipwood (*Drypetes australasica*), is restricted to the far north of Nymboi-Binderay National Park in the Sheep Station Creek catchment. Warm temperate rainforest of the coachwood (*Ceratopetalum apetalum*) – crabapple (*Schizomeria ovata*) alliance is found in the extreme south of these parks. Two types of subtropical rainforest occur, mostly in the central and southern parts of these parks (Austeco 1999). These forest types typically occur on fertile krasnozems derived from remnant basalt cappings in the wettest regions of these parks. The black booyong (*Heritiera actinophylla*) and rosewood (*Dysoxylum fraserianum*) association occurs on moist, high fertile sites which are buffered from fire by the local topography and surrounding vegetation (Austeco 1999). The second subtropical rainforest association is dominated by black booyong but also includes hoop pine, brush box and eucalypt emergents, indicating a fire event in the past.

Old-growth forests of all vegetation types described above occur throughout these parks. These old-growth forests are largely confined to areas inaccessible to past logging operations such as steep slopes, gully lines and along the rivers within these parks (NEFA 1994). The significance of old-growth forest in the park has led to its inclusion on the State Heritage Register as part of the listing of High Conservation Old Growth Forest (see Section 2.2). The values of the old-growth forest will be protected through management programs which limit threats such as pest species and dieback (see Section 4.1), and inappropriate fire (see Section 4.2).

A number of small, open areas of tussock grassland occur in these parks. It is believed that these have ancient origins and were maintained by a combination of the Aboriginal and, more recently, European use of fire as well as frost (Floyd 1990). Edwards Plain occurs to the east of the Nymboida River. To the west of the river, Chapmans Plain, Perkins Plain, Tommys Plain

and Charlies Plain are a series of connected plains on a wide ridgeline of red krasnozem soils at an altitude of 600–620 metres above sea level. These plains are dominated by snow grasses (*Poa labillardierei* and *P. sieberiana*) and fringed by Sydney blue gum and cool subtropical rainforest of the black booyong alliance, with occasional hoop pine emergents. It is thought that the western plains represent fragments of an already contracted, larger plain (Ingarfield 2008). Part of Chapmans Plain has been planted out with an arboretum of exotic pine trees (see Section 4.1).

In the 1970s, two representative grassy plains were protected in flora reserves. At the former Chapmans Plain Flora Reserve (which incorporated the area known as Tommys Plain), the grassy area was allowed to contract through the natural regeneration of Sydney blue gum and then rainforest. In contrast, regular burning was applied at the former Edwards Plain Flora Reserve to maintain the open area (FCNSW 1989). It is believed that these plains have ecological significance in maintaining biodiversity which requires an open, native grassland habitat in an otherwise forested landscape (Ingarfield 2008).

There are 7 threatened plant species known to occur in these parks and 13 others considered to be significant. These are listed in Appendix 1. Strategies for the recovery of threatened species, populations and ecological communities have been set out in a statewide *Threatened Species Priorities Action Statement* (DECC 2007). These actions are currently prioritised and implemented through the Saving our Species program which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years (OEH 2013a). For many of the species, actions include targeted surveys and mapping known populations. A priority action for the cryptic forest twiner (*Tylophora woollsii*) is the marking of roadside populations. Individual recovery plans may also be prepared for threatened species to consider management needs in more detail.

The record of the slender milk vine (*Marsdenia coronata*) in the park was the first record for New South Wales and a significant range extension for the species (S Clemesha 2006, pers. comm.). It is listed as vulnerable under the Queensland *Nature Conservation Act 1992* but is not listed under the Threatened Species Conservation Act. The Dorrigo daisy bush (*Olearia flocktoniae*) is an endangered plant found throughout these parks. It is primarily found on road verges in association with recent disturbance from road maintenance activities and as such will require a specific, targeted management regime. A draft recovery plan has been released for this species (DEC 2004).

Desired outcomes

- To conserve the range of native vegetation communities, the floristic and structural diversity, and natural ecological processes of the park.
- To protect significant vegetation, such as old-growth forest, subtropical and dry rainforest communities, and grassy plains.
- To reduce or eliminate threats to significant species or communities occurring within these parks.

Management response

3.2.1 Undertake targeted flora surveys with priority given to threatened and significant plant species and communities.

3.2.2 Encourage research into the habitat requirements and most appropriate fire regimes for the conservation of significant plant species and communities in these parks.

3.2.3 Actively manage the Dorrigo daisy bush populations within these parks through a periodic disturbance regime, in accordance with the draft recovery plan.

3.2.4 Identify all roadside populations of the cryptic forest twiner and ensure road works avoid plants where possible.

3.2.5 Implement other relevant recovery actions in the *Priorities Action Statement* and recovery plans for threatened plant species and communities occurring in the park.

3.2.6 Develop and implement a burning program to maintain the ecological character and cultural landscape of the grassy plains.

3.3 Native animals

These parks fall within a zone of overlap between two major zoogeographic subregions: the Torresian (northern tropical) and Bassian (southern temperate). Both regions are particularly rich in native animals including endemic species confined to the overlap region (SFNSW 1994).

The landforms, vegetation and microclimates across these parks have produced a native animal distribution which is characterised by species with restricted distributions and disjunct populations. These parks are known to support a high diversity of animal species: over 120 bird species, 68 mammals, 33 reptiles and 25 amphibians have been recorded in these parks. The invertebrate fauna distribution is poorly known, but it is believed that the diversity of habitats available in these parks are likely to support a high diversity of invertebrates.

These parks support 36 threatened animal species (see Appendix 2) and are also a refuge for many species of regional and national significance. Habitats such as heaths, riparian communities, dry and moist open forests, rainforests and rocky escarpments are of particular importance. Equally as important are the old-growth characteristics within each of these habitat types.

The eastern freshwater cod is listed as endangered under both the Environment Protection and Biodiversity Conservation Act and the NSW *Fisheries Management Act 1994*. A number of factors, including overfishing, have led to its decline (NSW Fisheries 2004). Cod are restricted to clear flowing streams with a gravel or rocky substrate, and prefer deeper parts of the river with large amounts of in-stream cover, such as snags, rocky islands and large boulders (Rowland 1993, 1996). Measures undertaken in these parks in accordance with the approved recovery plan (NSW Fisheries 2004) — including the closure of former steep trails that provided access to the rivers — have enhanced water quality and improved the security of the population of eastern freshwater cod.

Many locations within these parks provide suitable habitat for a number of amphibian and reptilian species. The threatened giant barred frog (*Mixophyes iteratus*) and stuttering frog (*M. balbus*) occupy riparian habitats that flow through moist open forests in the park, and are two of the six threatened amphibian species recorded. The vulnerable Stephens' banded snake (*Hoplocephalus stephensii*) has been recorded in these parks and the pale-headed snake (*H. bitorquatus*) is likely to occur.

Eight threatened bird species have been recorded in these parks. The glossy black-cockatoo (*Calyptorhynchus lathami*) is found in areas of dry sclerophyll forest on flat ground where its principal food tree, forest oak (*Allocasuarina torulosa*), is most abundant. The rufous scrub-bird (*Atrichornis rufescens*), recorded only once in a survey in subtropical rainforest in these parks, inhabits pockets of dense, moist tangles of ferns and other undergrowth up to 1 metre high, forming a moist microclimate at ground level with abundant leaf litter (Pizzey & Knight 1997). The critically endangered regent honeyeater (*Anthochaera phrygia*) and vulnerable square-tailed kite (*Lophoictinia isura*) have also been recorded in these parks.

Other threatened bird species known to occur in these parks are the powerful owl (*Ninox strenua*), sooty owl (*Tyto tenebricosa*) and masked owl (*T. novaehollandiae*). Each of these owl

species requires large hollow-bearing trees for nesting, and healthy populations of arboreal mammals which comprise a significant portion of their diet.

Many of the mammal species recorded in these parks are at their distributional limit and 17 are threatened. The parma wallaby (*Macropus parma*), long-nosed potoroo (*Potorous tridactylus*) and rufous bettong (*Aepyprymnus rufescens*) are small- to medium-sized marsupials whose populations have declined significantly throughout Australia (Short & Smith 1994). High quality habitat for each of these three species is conserved in these parks and each has been recorded during fauna surveys in the area. There have been unconfirmed reports of the brush-tailed rock-wallaby (*Petrogale penicillata*) in these parks (ERM Mitchell McCotter 1998). This wallaby is likely to occur among the rocky outcrops in the dry or moist forest types along the slopes and gorges of the park.

The koala and yellow-bellied glider (*Petaurus australis*) are also known to occur in these parks. The koala inhabits eucalypt woodlands and forests, feeding on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species (OEH 2014b). Yellow-bellied gliders occur in tall, mature eucalypt forest generally in areas with high rainfall and nutrient-rich soils. They feed primarily on plant and insect exudates (e.g. nectar, sap, honeydew and manna), and pollen and insects provide them protein (OEH 2014c).

The primary roosting and foraging habitat for the little bentwing-bat (*Miniopterus australis*), eastern bentwing-bat (*Miniopterus schreibersii*), eastern freetail-bat (*Mormopterus norfolkensis*) and great pipistrelle (*Falsistrellus tasmaniensis*) is generally within the moist open forest habitats in these parks, where they forage either above or below the tree canopy for insects.

The Hastings River mouse has been recorded in these parks in a number of surveys. The Hastings River mouse is listed as endangered under both the Threatened Species Conservation Act and the Environment Protection and Biodiversity Conservation Act, and a national recovery plan has been prepared (DEC 2005). State recovery plans have also been prepared for the koala and large forest owls (including the powerful, sooty and masked owls). National recovery plans are in place for the regent honeyeater (Menkhorst *et al.* 1999) and the eastern freshwater cod (NSW Fisheries 2004). Recovery actions are included in the *Threatened Species Priorities Action Statement* (OEH 2013a).

Desired outcomes

- To conserve, maintain and where necessary enhance the diversity of native animals and/or their habitats and natural ecological processes.
- To reduce or eliminate threats to threatened and endangered species in these parks.

Management response

3.3.1 Encourage research into the native animal communities and significant animal species of these parks.

3.3.2 Seek the cooperation of neighbouring land managers and land-use planning and management agencies to protect important wildlife habitats adjacent to these parks.

3.3.3 Liaise and cooperate with Fisheries NSW to ensure successful implementation of regulations, such as seasonal fishing closures and other restrictions, aimed at protecting the eastern freshwater cod in these parks.

3.3.4 Permit Fisheries NSW to install signage at riverside recreation areas to promote the significance of and legislative protection afforded to eastern freshwater cod and any fishing closures.

3.3.5 Implement relevant strategies in the *Priorities Action Statement* and recovery plans for threatened animal species and populations present in the park.

3.4 Aboriginal heritage

Cultural heritage includes both indigenous (Aboriginal) and non-indigenous history. It comprises important components of the environment that may have aesthetic, historic, scientific and social significance to present and future generations.

Aboriginal communities have an association and connection to the land. The land and water biodiversity values 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 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.

These parks are within Gumbaynggirr Country (also spelt Gumbay Nggir, Gumbangara and Kumbainggiri), which extends from the Clarence River in the north to the Nambucca River in the south and from the coast to the headwaters of the Nymboida River. The diversity of the resources available in the Gumbaynggirr area permitted a much higher population level than was possible further west on the New England Tableland and western slopes (FCNSW 1992). There were close cultural and physical connections between the Gambalamam Clan, who inhabited the area of the upper Nymboida River and the Dorrigo Plateau, and the clan of the lower Nymboida River and Kangaroo River area (Gumbaynggir Language & Culture Group 1992). The clans probably used pathways through these parks to maintain these connections.

Sites recorded in these parks include canoe trees, isolated artefact finds and open campsites. Outside these parks, but in relatively close vicinity, are burial and mythological sites and rock engravings. Other sites are highly likely to occur in these parks and may be revealed in future surveys or through consultation with the relevant communities. Disturbance by previous land-use practices and natural erosion may have impacted some sites.

The NSW Government has a legal responsibility for management and protection of Aboriginal sites under the National Parks and Wildlife Act. Aboriginal sites are areas with evidence of Aboriginal occupation or significance to Aboriginal culture. They are important as evidence of Aboriginal history and as part of the heritage of Aboriginal people and Australia. NPWS is committed to consultation with the Aboriginal community regarding management of Aboriginal sites and Aboriginal cultural heritage issues.

Aboriginal sites are subject to deterioration from both natural and human-induced processes. For example, canoe trees and campsites are vulnerable to accidental or deliberate disturbance. Aboriginal sites located within these parks may therefore require active management to ensure their continued protection. This will be done in consultation with local Aboriginal communities and may include fencing sites or restricting access where necessary. Grafton-Ngerrie and Dorrigo Plateau local Aboriginal land councils cover these parks.

Desired outcomes

- To conserve and protect Aboriginal cultural heritage sites with the involvement of the Aboriginal community.
- Understanding of the Aboriginal cultural values of these parks is improved.

Management response

3.4.1 Consult the Gumbaynggirr Aboriginal community and relevant local Aboriginal land councils regarding the management of Aboriginal heritage within these parks.

3.4.2 Monitor Aboriginal sites in these parks and protect any under threat from visitor or management activities.

3.4.3 Undertake a broad assessment of Aboriginal cultural heritage values in these parks and encourage research into the significance of Aboriginal heritage in conjunction with the appropriate local Aboriginal land council and other Aboriginal representative groups for these parks.

3.4.4 Prior to any earthworks that have the potential to threaten Aboriginal cultural heritage values, consult with relevant local Aboriginal land council and other Aboriginal representative groups and undertake archaeological assessment by a suitably qualified person.

3.5 Historic heritage

Heritage places and landscapes are made up of living stories as well as connections to the past which can include natural resources, objects, customs and traditions that individuals and communities have inherited and wish to conserve for current and future generations. Cultural heritage comprises places and items that may have historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. NPWS conserves the significant heritage features of the parks and reserves that it manages.

In the early 1830s, Richard Craig, an escaped convict from the Moreton Bay penal settlement, is believed to have lived with the Gumbaynggirr of the Clarence River and to have made seasonal hunting trips with the group to the Dorrigo Plateau, on routes through lands now within these parks. After his recapture, Craig returned to the Clarence to guide cedar-getters to the district in return for a pardon. Later, in about 1839, he brought stock overland on a route from the New England Tableland to the settlement on the Clarence River floodplain (present-day Grafton) along a route now known as Craigs Line. This route, which in sections coincides with the current alignment of the Armidale–Grafton Road, skirts the western edge of these parks. Timber-getters followed soon after, initially to exploit the red cedar (*Toona ciliata*) found in the area, and then to focus on hoop pine and other rainforest timbers.

Regular logging and operation of sawmills on the Dorrigo Plateau commenced about 1916. This early logging relied heavily on the forms of transport available to cart the timber from the forest to the mills. The construction of the Glenreagh–Dorrigo railway line opened up the forests to the north and north-east of Dorrigo, and by 1928 there were 13 mills down the line from Dorrigo, several of which were drawing timber from areas now within these parks and elsewhere in Wild Cattle Creek State Forest. Timber tramways were also built by sawmillers to bring the timber from the forests to the mills (McNeil 1988).

Well-preserved remnants of the tramway system are located at the south-east end of the park and in neighbouring Cascade National Park. During the 1930s this tramway network was used by EWB & Co. to cart timber from Wild Cattle Creek State Forest (some of which is now within these parks). The tramway in the park is thought to have been built around 1926 when the company was first granted an occupation permit. The licence for the tramway continued to be renewed until 1944, by which time it had been superseded by roads. A section of this tramway is a feature of Tramline Walk, and the history of timber-getting in the early 20th century is interpreted there (see Section 3.9).

The sections of tramway in Nymboi-Binderay and Cascade national parks are considered to be locally significant and representative examples of the timber tramways that operated in Dorrigo Plateau in the period before World War II (Banksia Heritage + Archaeology 2005). It is also considered that the collection of the four historic logging tramways present in Nymboi-Binderay, Cascade and Dorrigo national parks is of state heritage significance as they form an early record of industrial endeavour within regional New South Wales (OHM Consultants 2006).

Other relics of the logging period are located throughout these parks, including logging arches and large stumps, and some are of importance to the local community. Some of these relics and sites are deteriorating as a result of both human and natural processes. A couple of logging arches are featured in the picnic area at the Norman Jolly Memorial Grove. Also located at the entry of the Norman Jolly Memorial Grove is a stone cairn and plaque commemorating Norman William Jolly (1882–1954). An eminent scholar and forester, he contributed much to the teaching and practice of forestry in Australia, becoming one of the NSW forestry commissioners in 1918, and being appointed the sole Commissioner for Forests in New South Wales in 1926. He held this position until 1933 (Lewis 1983).

Also in the 1920s, there was some mining for antimony in lands now within Nymboi-Binderay State Conservation Area. Smiths mine, which operated in about 1934 and produced 5 tonnes of quartz vein ore, is located in the park near Orange Trees Road.

A number of state forest flora reserves — including Black Bull, Teak Tree and Red Cedar — were declared over areas now within these parks to protect some small stands of rare vegetation types. In the 1990s, the forests in these parks became a focus of conservation efforts. The North East Forest Alliance, with the support of the North Coast Environment Council and the Clarence Environment Centre, refined a methodology for systematically mapping old-growth forest, and conducted an assessment in the Wild Cattle Creek area for demonstration purposes (NEFA 1994) which informed old-growth mapping throughout the region.

Some historic sites may be threatened by deterioration from both human and natural disturbances, although it is recognised that it will not be feasible, or necessarily desirable, to protect all these sites from natural deterioration. The most significant sites will be identified, recorded and where required, protected from further deterioration. This may involve fencing sites and/or restricting access to specific areas.

Desired outcome

- Historic heritage in these parks will be assessed and conserved in accordance with the Burra Charter (Australia ICOMOS 2013).

Management response

3.5.1 Assess the historic sites within these parks for their local, regional and national significance and enter them into the NPWS historic sites register.

3.5.2 If appropriate, pursue the listing of the collection of the historic logging tramways in the Dorrigo area on the State Heritage Register.

3.5.3 Conserve the cairn and logging arches at the Norman Jolly Memorial Grove.

3.5.4 Prepare and implement a conservation management plan for the timber tramways.

3.6 Recreation opportunities

Recreation activities undertaken in these parks include canoeing, kayaking and rafting (by both private individuals and commercial organisations), private and commercial vehicle touring (see Section 3.7), camping and picnicking, cycling, fishing, bushwalking, orienteering, limited horse riding, and rock climbing and abseiling. Visitor numbers to these parks vary at different times of the year, with peaks during school holidays and long weekends. It is not considered appropriate to promote fishing as a recreational use of these parks due to the significance of the rivers as habitat for the endangered eastern freshwater cod (see section 3.3).

Day use and camping

Use by the public and commercial operators is largely for day visits and is concentrated in Nymboi-Binderay National Park at sites on the banks of the Nymboida River at Platypus Flat,

the Cod Hole and The Junction. These sites are also used for camping. However, as these sites are prone to flooding, the location and type of visitor facilities needs to be appropriate for a flood-prone environment. The Norman Jolly Memorial Grove is the only other site with visitor facilities. The facilities maintained at each site are described in Table 1.

The day use and camping area at Platypus Flat is the most highly visited recreation site in these parks. It is a popular launch site for commercial rafting operators and recreational kayaking. To accommodate this activity and still provide for use by the general public and reduce impacts on the river bank, locations for watercraft launching within the camping and day use areas may need to be identified and hardened.

The Cod Hole is used primarily as a day use area, and as an entry/exit point for river-based activities. The site also lends itself to limited camping with two small, discrete areas available. Commercial rafting operators have used this site for a number of years as a camping area. Due to the limited space and social and environmental carrying capacities in this area, areas may need to be delineated to minimise the potential conflict between commercial rafting operators and other visitors.

Table 1: Visitor facilities in Nymboi-Binderay National Park

Recreation facility area	Picnic area	Camping area	Type of facilities^
Platypus Flat	Yes	Yes	V, T, P, GB, WB, galley
The Junction	Yes	Yes	V (4WD), T, P, WB
Cod Hole	Yes	Yes	V, T, WB
Norman Jolly Memorial Grove	Yes	No	T, P, A

^ Facilities are as follows:
V = Vehicle access at or close to camping sites
T = Toilet
P = Picnic tables
GB = Gas barbecue
WB = Wood barbecue
A = Accessible for wheelchairs

Sections of the Cod Hole and Platypus Flat camping and day use areas are suitable for short-term uses such as community events, private functions (such as weddings, group picnics and cultural events), and military or emergency services training exercises or other activities. Under the National Parks and Wildlife Act, licences may be granted for the exclusive use of land for these purposes. It should be noted that exclusive use licences would only be issued following a sustainability assessment and no licences would be granted where there are potentially unacceptable impacts on the natural and cultural heritage values of these parks, or significant impacts on other visitors.

Downstream from the Cod Hole and Platypus Flat is The Junction picnic and camping area, situated at the confluence of the Nymboida and Little Nymboida rivers. Commercial rafting operators also use this area as an exit point. A hardened track to the river bank is provided for walk-in access but this is too narrow for hauling rafts up the bank to the car park.

As well as in these designated camping areas, camping may occur in these parks at sites that are more than 500 metres from roads open to public vehicles. This allows management trails to be used for long-distance bushwalking and cycling, and off-track areas to be explored on foot. Those camping in remote areas should implement minimum impact practices.

Camping in the park is principally only suitable for tents although some limited space is available for camper trailers at Platypus Flat. None of the roads through the park are considered suitable for caravans.

Expansive views of these parks are available from a naturally open vantage point on Pilots Knob Road located to the south of The Junction. There is no intention to formalise or maintain this lookout area.

Norman Jolly Memorial Grove is a small, wheelchair accessible, day use area located just off the Moonpar Forest Drive. Toilets and picnic tables have been provided at this site but there will be no rubbish bins or barbecues provided due to the sensitivity of the surrounding environment.

Walking tracks and bushwalking

Various classes of graded walking track occur within the park (see Table 2). Track-side interpretation is provided along each track to enhance the experience for visitors.

The walking track grades identify a track's suitability for different user groups as follows:

- Grade 1 — assisted disabled walkers (sealed path)
- Grade 2 — walkers with young children (generally formed tracks)
- Grade 3 — beginner walkers (generally formed tracks with some steep or uneven sections).

In addition to these graded walking tracks, the network of management trails in these parks provides opportunities for longer bushwalks. In addition, walkers experienced in navigation can undertake walks off-track.

Table 2: Graded walking tracks maintained in these parks

Name of track	Location	Grade *	Description
Coachwood Walk	Norman Jolly Memorial Grove	1 (first 300 m) 2	Loop walk through tallowwood and coachwood forest. The first section of this walk is a sealed bitumen track providing access for wheelchairs to two areas which provide views of magnificent large tallowwood trees.
Tramline Walk	Cedar Rd	2	This 600 m loop track features part of an old wooden tramway, a relic from the early logging operations in the area.
Red Cedar Walk	Off Cedar Rd	3	A 600 m loop track featuring subtropical rainforest and red cedar trees.

* The Australian Walking Track Grading System has been used as the basis for this track classification system. For further information on these grades and their relationship to the Australian Standard on walking tracks please refer to the *Users Guide to the Australian Walking Track Grading System* (DSE no date).

Kayaking and rafting

The sections of the Nymboida River and the Little Nymboida River in the park are renowned for the quality of their recreational whitewater experiences for kayaking and rafting. An increasing number of whitewater paddlers have been exploring the Nymboida River and its various tributaries for more than 30 years, and it is a well-established and significant recreational opportunity provided in the park.

The challenge posed by some sections of rapids in the main Nymboida River makes them unsuitable for inexperienced users. In contrast, the Little Nymboida River downstream of Coachwood Trail is suitable to be promoted for less experienced users. The Nymboida River at

The Junction is the start of a canoe trail (being developed and promoted by Clarence Valley Council) that terminates on the Clarence River at Copmanhurst. There is the opportunity to expand this trail to include sections of the Little Nymboida River.

Given the difficulty of some sections of rapids within the park, particularly on the Nymboida River, it is important that kayakers and rafters adopt appropriate safety procedures, such as those described in the Australian Canoeing *Safety Guidelines* (Australian Canoeing 2012).

Cycling

In accordance with NPWS policy and the *Sustainable Mountain Biking Strategy* (OEH 2011), cycling (using non-motorised bicycles) will be permitted on all management trails and roads in these parks (see Map 2). Cycling is not permitted on walking tracks.

Horse riding

Horse riding is a popular recreational activity that has cultural associations for many Australians. The NPWS *Strategic Directions for Horse Riding in NSW National Parks* (OEH 2012a) provides a framework to improve riding opportunities in eight priority regions in New South Wales. The North Coast Region is not one of the priority regions.

According to the NPWS policy on recreational horse riding, a decision on whether or not to allow horse riding in a park is made following consideration of each of the following matters: the existing environment; threatened species, endangered populations or endangered ecological communities; soil erosion and weed invasion; water quality; and areas or objects of cultural heritage significance. There should also be consideration of the history of horse riding in the park and the opportunities for horse riding in the region surrounding the park.

There is negligible existing recreational horse riding in these parks. Horse riding is not considered appropriate in these parks as it has the potential to accelerate erosion of the highly unstable soils and exacerbate the introduction of weeds into and across the park, particularly on road edges (which provide valuable habitat for the endangered Dorrigo daisy) and along watercourses.

There are extensive riding opportunities outside the park in adjoining state forests. To link with these and to enable access to horse riding opportunities further afield, horse riding may be permitted on those sections of Moonpar Forest Drive through the park, subject to NPWS consent. Conditions may include a requirement for signage to reduce the considerable risk to riders and their horses from vehicles on this narrow, steep road. Camping with horses is not appropriate in these parks.

Other adventure activities

The NPW Regulation identifies that some ‘adventure activities’, such as abseiling, canyoning and rock climbing, can have a significant impact on park values and other park users. It is considered there is also a high level of risk in these parks, given the nature of its terrain and its isolation. For these reasons, while not excluded, these activities (other than whitewater activities) will require consent in these parks.

Desired outcomes

- Recreation activities are nature-based and ecologically sustainable.
- A range of recreational uses is accommodated in these parks and managed so as not to be in conflict with each other or with park values.
- Recreational activities are undertaken in a safe manner.

Management response

3.6.1 Maintain the day use and camping sites listed in Table 1 within their current footprint of disturbance and to the current level of facilities.

3.6.2 Identify and harden areas for watercraft launching at Platypus Flat if necessary should impacts become unacceptable.

3.6.3 Define the available camping areas at the Cod Hole to ensure sustainable use within environmental and social carrying capacities, and to reduce conflict between groups.

3.6.4 Widen the hardened walk-in access to the river at The Junction to facilitate safe haulage of rafts.

3.6.5 Allow bush camping in these parks at sites more than 500 metres from roads open to public vehicles.

3.6.6 Maintain the graded walking tracks in the south of these parks as listed in Table 2.

3.6.7 Install signage at Platypus Flat and the Cod Hole to inform visitors of the foreseen dangers and safety issues associated with water-based activities in the park.

3.6.8 Cooperate with Clarence Valley Council in promoting a canoe trail through the lower sections of these parks, including potentially sections of the Little Nymboida River.

3.6.9 Allow cycling on all park roads and management trails shown in Map 2.

3.6.10 Permit recreational horse riding along Moonpar Forest Drive subject to consent, which may include conditions such as signage to reduce risk. No horse-based camping will be permitted. Recreational horse riding is prohibited in other sections of these parks.

3.6.11 Permit adventure activities (other than whitewater activities) to occur in these parks only with written consent from NPWS.

3.7 Public vehicular access

There were approximately 160 kilometres of various roads and vehicular trails in these parks at the time of reservation. Established for purposes such as silviculture, timber harvesting and fire management, most were never constructed to cope with continued public use, particularly in wet weather. The extent of the road and trail network also limited the effectiveness of enforcement against illegal activities, such as marijuana growing, cod fishing and firewood collection.

This plan aims to continue to provide sustainable and safe public access to the main attractions of these parks and to neighbouring forests and private property, while ensuring conservation of natural and cultural values. To achieve this within NPWS's resources, it is necessary to rationalise the former extensive network of roads and trails. In particular, it is not desirable to continue to maintain roads in the highly erodible gorge and riverine environments where there are unacceptable risks to the safety of users, water quality and eastern freshwater cod populations.

The decision to limit some of the opportunities for vehicular access that were previously available in these parks has been made following consideration of other opportunities that are provided for touring by two-wheel drive and four-wheel drive vehicles in neighbouring state forests and nearby national parks, as well as safety and management considerations. East of these parks, Bindarri National Park provides four-wheel drive touring routes and a day use area only accessible by four-wheel drive vehicles. West of these parks, a riverside camping area in Chaelundi National Park is also only accessible by four-wheel drive vehicles under a controlled access scheme.

Public access roads in these parks are shown in Map 2 and described in Table 3. Roads in these parks may be closed following extended periods of wet weather to ensure public safety and protection of park values. Management trails, which are not open to the public but are

available for use by management and emergency vehicles, are also shown in Map 2 and described further in Section 5.1.

Table 3: Public roads within and on the boundary of these parks

Road or trail name	Road standard ^	
	2WD	4WD
Black Bull Road *		●
Black Mountain Road	●	
Cedar Road	●	
Chapmans Plains Road		●
Charlies Camp Road		●
Coachwood Trail		●
Cod Hole Road	●	
Deadmans Range Trail *		●
Dingo Range Road *		●
Kellys Creek Road *		●
Kellys Creek Trail		●
Little River Trail/ Orange Trees Road		● (access by permit only)
Mills Road	●	
Moonmerri Road – north of Blicks River		●
Moonmerri Road – south of Blicks River		●
Moonpar Road	●	
Moses Rock Road – from Cascade to junction of Cod Hole Road	●	
Moses Road Road – north from Cod Hole Road		●
Muck Creek Road		●
Norm Jolly Road	●	
Pidcocks Road *		●
Pilots Knob Road		●
Platypus Flat Road	●	
Red Cedar Trail	●	
Sandy Creek Trail		●
Sheep Station Creek Trail (only between Black Mountain Road and Sandy Creek Trail)		●
The Junction Road	●	● (last 1.5km)
Tramline Road*		●
Tulipwood Trail		●
Wells Spur Road *		●

* Boundary trail to these parks on state forest

^ Road standard is defined in dry weather conditions. Following prolonged periods of wet weather, some roads may be impassable. Fallen trees and vegetation may temporarily block roads after storm events.

The main southern access roads to these parks are Mills Road (via Bostobrick) and Cedar Road (via Cascade). These two roads meet near the Nymboida River and form a 30-kilometre scenic drive through the southern section of these parks, collectively known as the Moonpar Forest Drive (see Map 2). The Moonpar Forest Drive traverses scenic subtropical rainforests and stands of wet and dry sclerophyll forest, and accesses Platypus Flat and Tramline Walk. A short detour from Mills Road leads to the Norman Jolly Memorial Grove and a short detour from Cedar Road leads to Red Cedar Walk. The Moonpar Forest Drive is the major public access road in these parks and is maintained to two-wheel drive, all weather standard.

Black Mountain Road is the main two-wheel drive thoroughfare through the north-east of the park. It provides access to private properties between the park and the Nymboida River, and provides a thoroughfare to Lowanna and other settlements of Eastern Dorrigo via Kangaroo River State Forest.

The northernmost 9 kilometres of this road lie within these parks itself, however, none of this section of road has been reserved as part of the park. Instead, this road is a 'Ministerial road', with the road's corridor being retained as Crown land vested in the Minister administering the National Parks and Wildlife Act. This was to ensure continued private property access, and will allow for the future transfer of the corridor of that section of road, which provides access for ratepayers to Clarence Valley Council without requiring any revocation of park. Until that formal transfer takes place, use of Black Mountain Road north of its junction with Sandy Creek Trail is subject to the NPW Regulation and the provisions of this plan. NPWS, the Forestry Corporation of NSW and Clarence Valley Council share the responsibility for maintaining Black Mountain Road, with Council maintaining the first (northern) 7.3 kilometres of road, NPWS maintaining the section of road to its junction with Pilots Knob Road, and the Forestry Corporation responsible for the road's maintenance east of this point.

Other Ministerial roads in these parks were created to ensure the continuation of access arrangements that existed before reservation for timber hauling from the adjoining state forest. These roads include Charlies Camp, Muck Creek, Chapmans Plain, Moses Rock, Moonpar and Mills roads. The management of these roads is subject to the provisions of this plan, the NPW Regulation and the requirements of the Environmental Planning and Assessment Act. Their maintenance is the subject of a memorandum of understanding between NPWS and the Forestry Corporation of NSW.

Under the memorandum of understanding, several roads in the western section of these parks are maintained only to four-wheel drive standard. These roads are used by four-wheel drive enthusiasts as well as for park management and forestry operations. These roads include Moonmerri Road, Wells Spur Trail, Muck Creek Road, Chapmans Plain Road, Dingo Range Road, Kellys Creek Road and Deadmans Range Road. Kellys Creek Trail is not a Ministerial road and is maintained by NPWS. It will be kept open to a point from which kayaks can be carried down to the Nymboida River. Past this point, the trail will not be maintained for vehicular access, even for park management purposes or emergency access.

A network of four-wheel drive roads also lies in the south-east of these parks and neighbouring Wild Cattle Creek State Forest. This includes Orange Trees Road, Moses Rock Road and Little River Trail. Orange Trees Road and Little River Trail provide a link between Moses Rock Road and Pine Road. This route is steep and narrow, sections traverse soils that retain moisture after rainfall events and the crossing at Flaggy Creek can be difficult. Due to these factors, some restrictions on public access are required to address risks to users and the park. Accordingly, public access to this route will be by permit, with use permitted only when track conditions are considered suitable. As discussed in Section 5.1, the section of Orange Trees Road between the park boundary and Little River Trail traverses a perennially sodden, spring-fed area. This section of trail cannot sustain any level of public use and so will not be available under the permit system.

All other trails shown on Map 2 within these parks (other than those listed in Table 2) are also designated as management trails and provide access for park management and emergencies. Use of these trails is restricted to authorised vehicles only, as well as cyclists and bushwalkers.

Desired outcomes

- To provide vehicle access for recreational use, private property or state forest access and park management purposes, while ensuring the use of roads and trails has minimal impact on the values of these parks.
- To close and revegetate roads and trails not required for sustainable recreational use or management purposes.
- To undertake cooperative maintenance of roads vested in the Minister administering the National Parks and Wildlife Act or which are managed under a memorandum of understanding.

Management response

3.7.1 Retain and maintain those roads and trails shown on Map 2. Roads and trails not shown on the map will be closed and allowed to revegetate.

3.7.2 Allow public vehicles on the road network shown in Map 2 but not on designated management trails.

3.7.3 Seek the classification of the northern section of Black Mountain Road as a public council road.

3.7.4 Introduce and implement a permit system for public access to Orange Trees Road and Little River Trail.

3.7.5 Allow animals to be transported on Black Mountain Road, Moonpar Road and Mills Road to private properties accessed through these parks, as long as the animals remain in a vehicle.

3.8 Commercial recreation

Guided tours and commercial recreation form a small but significant and growing component of public use of the park, and are an important sector of the tourism industry in the region. Activities include whitewater rafting and other water-based activities, guided walks, mini-bus tours, and four-wheel drive and motorbike tag-along tours.

These tours and guided activities increase the opportunity for public participation in nature-based activities and provide opportunities for professional instruction in the safety and minimal impact aspects of various recreational pursuits. Guided activities can enhance the interpretation of the natural and cultural values of the park for many visitors. Commercial recreational use should be undertaken in a sustainable manner with all impacts managed within acceptable limits.

Tourism in the region is growing at approximately six per cent per annum and this growth will result in increased use of the park. There may be adverse environmental and social impacts (including diminished visitor satisfaction) if this growth results in unplanned expansion of commercial use of the park, particularly water-based activities. There is the potential for a significant decline in the water quality of the Nymboida River to result. There are also important safety considerations surrounding increased watercraft activity.

All commercial recreation and education providers in the park must be licensed. Licensing provides the mechanism for ensuring that activities, level of use and behaviour are appropriate for the park and are ecologically sustainable. The levels of some commercial activities will be monitored and, where necessary, the number or scale of commercial licences may be restricted

to protect the resource and preserve the visitor experience, to maintain the positive role of guided tours.

The Nymboida River provides the only opportunity in north-east NSW for whitewater rafting in a relatively undisturbed and remote natural setting. The Forestry Corporation of NSW is indirectly involved in the management of water-based activities due to their role in managing significant sections of the road system accessing sites along the river. The activities associated with the Nymboida River represent a potential public safety hazard due to the uncertain nature of the changing river environment and the difficulty of some rapids. The 'White-water Code' developed by the NSW Waterways Authority (now part of the Roads and Maritime Services) sets out certain management and safety objectives aimed at minimising injuries to those engaging in water activities on the Nymboida River.

Prior to the development of this plan, options and management strategies for water-based activities on the Nymboida River were considered and documented, with particular emphasis on the whitewater rafting industry (Buultjens 1999). Informed by this document, NPWS has limited the number of commercial operators undertaking whitewater rafting on the Nymboida River to four. Under the terms of their licences, these four operators could account for up to 10,000 visitors per annum to these parks. A key licence requirement is the removal from the park of all waste, including human waste, by the operators.

Desired outcomes

- Commercial recreation provides safe, enjoyable and informative experiences for visitors to these parks.
- The impacts from commercial recreation are minimised.
- Conflicts between commercial recreation and other park users are minimised.

Management response

3.8.1 License commercial recreational and environmental education activities but only if all of the following criteria are met:

- the operator demonstrates skills, knowledge and experience that are appropriate to the activities (e.g. has appropriate industry accreditation)
- the activity is ecologically sustainable, with only minimal impact on park natural and cultural values
- the operator has a good record and, if previously licensed, has complied with licence conditions
- the activity promotes natural and/or cultural heritage conservation and minimal impact use
- the activity is in accordance with the provisions in this plan of management.

3.8.2 Monitor all licensed commercial operators and activities with respect to impacts on park values and other visitors, safety requirements and compliance with licence conditions.

3.8.3 Provide safety advice to commercial operators and park users via park brochures, signs at park access points and in other appropriate locations in accordance with the NSW Waterways Authority 'White-water Code'.

3.8.4 Monitor all recreational use areas, including the Nymboida River and visitor facility areas, for potential hazards. Any unacceptable hazards identified in the risk assessment will be remedied or the site closed until made safe.

3.8.5 Develop a 'River Users Code', highlighting environmental and safety issues, for water-based activities in these parks.

3.8.6 Prepare an emergency action plan for these parks and surrounding areas in conjunction with other emergency services.

3.9 Education and research

Management of these parks will provide for appropriate use by the general public, commercial operators and special interests groups, while ensuring consistency with the objectives and management strategies outlined in this plan of management.

Promotion and interpretation

These parks are set in a landscape that is ideal for promoting the geographical, scientific and recreational attractions in the region. Set in close proximity to the large regional centres of Coffs Harbour and Grafton, these parks are a focus for school groups, commercial and private tour groups, and other nature-based enthusiasts.

The provision of park information highlights the outstanding natural and cultural features of these parks (including the rapids and gorge landscapes of the Nymboida River, the diversity of threatened plant and animal species, and the range of recreational activities) as well as public safety considerations and care for the environment.

Information for park visitors is currently available from park brochures (available at most of the regional information centres on the north coast), information panels and signs already located in these parks, and the NPWS website.

The Moonpar Forest Drive is a popular touring route between Bostobrick and Cascade in the southern section of these parks (see Section 3.7). Interpretive signage has been installed at both ends of the drive to orientate visitors to the park, as well as at visitor sites accessed from the Moonpar Forest Drive (e.g. Platypus Flat, Tramline Walk and Norman Jolly Memorial Grove).

Interpretive signage is also installed at The Junction. Additional signage, designed to orientate visitors with park facilities and the region generally, is required near the intersection of The Junction and Black Mountain roads.

Further options to enhance the information available to park visitors include:

- improving directional signage from main roads
- providing commercial tour operators with training and/or information on the natural and cultural values of these parks
- providing park visitors with information about significant flora and fauna species
- providing public safety information at strategic locations
- encouraging school groups and other education groups through Discovery tours and guided walks.

Research

The primary function of research in these parks is to assist in the understanding of its natural and cultural heritage and its use, and to provide information that will contribute to effective management. The University of New England and independent researchers have previously undertaken surveys and research work within these parks and adjacent forest. The Forestry Corporation of NSW has also undertaken a number of scientific studies within these parks, including an ongoing analysis of coachwood growth plots in the Norman Jolly Memorial Grove over the past 40 years.

More research, however, is required to provide an adequate basis for improving park management, especially where the research relates to biodiversity conservation. Research also needs to be managed to avoid potential adverse impacts on park values.

Desired outcomes

- To provide quality information on the diversity of the natural and cultural features of these parks through promotion and interpretation.
- To provide park visitors with information on public safety in these parks.
- To encourage, facilitate and/or undertake relevant research that will add to the knowledge base, especially where the results of the research will assist in managing these parks.

Management response

3.9.1 Promote the natural and cultural values of these parks to visitors and local communities, emphasising:
- the regional setting of these parks
- the plants and animals of significance, with particular emphasis on threatened species such as the Dorrigo daisy bush, eastern freshwater cod, Hastings River mouse and forest-dependent mammals
- the diversity of eucalypt species and importance of old-growth forest
- the importance of good water quality in the Nymboida River and the need to minimise impacts on the river
- these parks' cultural heritage values, including evidence of timber-getting in the early 20th century
- the recreational activities available throughout these parks
- the appropriate public safety procedures for people participating in activities in these parks.

3.9.2 Provide interpretation material at strategically important locations throughout these parks, targeted to the range of park visitors.

3.9.3 Liaise with and seek the cooperation of Clarence Valley and Bellingen councils and the Roads and Maritime Services as required to install directional signage to the park.

3.9.4 Develop and promote materials to educate water-based visitors to the park about minimal impact practices (including appropriate disposal of human waste) to minimise impacts on water quality.

3.9.5 Liaise with educational institutions and other organisations to encourage research activities within these parks that will assist and improve park management.

3.9.6 Approve research that aims to provide information on:
- the parks' natural and cultural heritage and trends over time
- the fire ecology of threatened species and significant plant communities (including the large-fruited blackbutt shrubby forest and grasslands)
- human use and impacts within these parks, including the potential for, value of and impact of ecotourism opportunities.

4. Threats

4.1 Pests

Pest species are plants, animals and pathogens that have negative environmental, economic and social impacts and are most commonly introduced species. Pests can have impacts across the range of park values, including impacts on biodiversity, cultural heritage, catchment and scenic values. Land disturbance provides opportunities for the introduction and invasion of pest plants and animals, and they can spread to and from neighbouring land.

NPWS prepares regional pest management strategies which identify pest species across a region's parks and priorities for control. Priorities for pest control include actions listed in the *Priorities Action Statement* (see Sections 3.2 and 3.3), threat abatement plans, and other strategies such as the NSW *Biodiversity Priorities for Widespread Weeds* (NSW DPI & OEH 2011) and the *NSW Biosecurity Strategy 2013–2021* (DPI 2013).

The NPWS *Regional Pest Management Strategy 2012–17, North Coast Region: A new approach for reducing impacts on native species and park neighbours* (OEH 2012b) identifies pest species and priority programs for these parks and is updated regularly. The overriding objective of the pest management strategy is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. The strategy also identifies where other site- or pest-specific plans or strategies need to be developed to provide a more detailed approach.

Feral and domestic animals

Competition for food and habitat and predation by feral animals may reduce the diversity and abundance of native animal species. Introduced animal species known to occur within these parks are listed in Table 4.

Table 4: Introduced animal species recorded in these parks

Common name	Scientific name
Black rat	*Rattus rattus*
Cattle	*Bos taurus*
European honeybee	*Apis mellifera*
European rabbit	*Oryctolagus cuniculus*
European red fox	*Vulpes vulpes*
Feral cat	*Felis catus*
Feral dog	*Canis lupus familiaris*
House mouse	*Mus domesticus*

Wild dogs are known to prey on native animals, particularly the medium to large weight ranged mammals. Wild dogs are also known to prey on livestock. Wild dogs — including dingos (*Canis lupus dingo*), feral domestic dogs (*Canis lupus familiaris*) and their hybrids — are declared pest animals throughout New South Wales under the *Local Land Services Act 2013*. Hence, NPWS has a statutory obligation to control wild dogs on its estate. However, some public lands are identified as significant habitat for dingos in Schedule 2 of the Wild Dog Control Order made under the Local Land Services Act. These lands are to be managed with the dual objectives of managing wild dogs and conserving dingos. Nymboi-Binderay National Park is a Schedule 2 area, and is covered by the Regional Wild Dog Management Plan for the former North Coast Livestock Health and Pest Authority Area (Ballard 2011).

If required (e.g. due to ongoing wild dog management problems) an operational plan may be developed to identify methods for the control of wild dogs and the conservation of dingos. In the meantime, NPWS will implement a reactive program of monitoring, baiting and trapping as required.

Other predatory vertebrates such as foxes and feral cats are believed to have a greater impact on native animals than wild dogs through direct predation and competition with native predators. Predation of native fauna by foxes and cats have been listed as key threatening processes under the Threatened Species Conservation Act (NSW SC 1998, 2000c) and Environment Protection and Biodiversity Conservation Act (DoE 2009).

Introduced grazing animals impair the growth and regeneration of native vegetation, accelerate soil erosion, create environments favourable for colonisation by introduced plants and assist the spread of weeds. Cattle stray into these parks where boundary fencing is inadequate or non-existent. A priority for NPWS is to gain the cooperation of neighbours with regards to the construction and maintenance of effective boundary fencing (See Section 5.1).

Introduced plants

Weeds can have a serious impact on the natural environment through competition with native vegetation; and changes to natural processes, hydrological cycles, nutrient content of the soil, fire regimes and fauna communities (Csurhes & Edwards 1998). They can also have adverse impacts on cultural heritage sites, and the wild and remote experience of river users.

The *Noxious Weeds Act 1993* places an obligation on public authorities to control noxious weeds on land they control to the extent necessary to prevent such weeds spreading to adjoining lands. NPWS also has a priority to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

The noxious weeds most widespread in these parks include lantana (*Lantana camara*) and giant Parramatta grass (*Sporobolus fertilis*). These occur principally in areas where natural vegetation has been disturbed, such as along roads and in previously logged areas. Privets (*Ligustrum* spp.) are other weed species of high concern. Privets have invaded the riparian vegetation along many streams in these parks and are now expanding from this source onto surrounding ridgelines. Although privets are not declared noxious in Bellingen Shire, control programs by Landcare groups and landholders are occurring both upstream and downstream of these parks and would be assisted by programs within the parks, focussed primarily along the main corridor of the Nymboida River.

Camphor laurel (*Cinnamomum camphora*) and honey locust (*Gleditsia triacanthos*) are two other noxious weeds recorded in these parks. A number of other environmental weed species occur, including two species of passionfruit (*Passiflora edulis* and *P. subpeltata*), pines (*Pinus* spp.), Madeira vine (*Anredera cordifolia*), moth vine (*Araujia sericiflora*), tobacco bush (*Solanum mauritianum*), smooth cassia (*Senna septemtrionalis* [syn. *Senna X floribunda*]) and Indian weed (*Sigesbeckia orientalis* subsp. *orientalis*). These species are generally located along waterways and roadside verges.

Before its reservation under the National Parks and Wildlife Act, a number of small plantations were created in the western part of Nymboi-Binderay National Park. These include a 4-hectare softwood arboretum at Chapmans Plain (which is a mixture of exotic pine species) and a 0.5-hectare plantation of Monterey pine (*Pinus radiata*). These plantations are seed sources for pine wildlings in the park. Hardwood plantations present in the park are also limited in extent, and comprise a 3.2-hectare plot of blackbutts (which is a species native to the park) and a mix of shining gum (*Eucalyptus nitens*) and messmate stringybark (*E. obliqua*) planted over 22 hectares near Orange Trees Road. Shining gum and messmate stringybark do not occur naturally in the park. These plantations failed, the trees are not seeding and the plantations are being colonised by native understorey species. It is considered that their removal would cause more impact than leaving them in place.

Dieback

Over-abundant populations of native bell miners (*Manorina melanophrys*) appear to be associated with a form of eucalypt dieback which has been listed as a key threatening process under the Threatened Species Conservation Act (NSW SC 2008). Bell miner associated dieback is currently spreading rapidly through sclerophyll forests in New South Wales and has been observed in these parks.

This type of dieback is generally characterised by trees that are stressed and dying in response to high populations of psyllids and other sap-sucking insects, the presence of bell miners and the alteration of the forest structure (with depleted canopy and mid-storeys and replacement of understoreys with dense shrubby vegetation, often dominated by lantana or vine thickets). The presence of bell miners drives away insectivorous birds that would otherwise help to control insect numbers.

Weed invasion, drought, logging, soil nutrient changes, and poor fire and grazing regimes have also been implicated in the spread of bell miner associated dieback (BMAD Working Group 2004).

Desired outcomes

- To prevent or minimise the adverse impacts of pest species on native flora and fauna, Aboriginal and historic sites and landscapes.
- To meet legislative obligations for weed and pest animal control.

Management response

4.1.1 Consistent with the regional pest management strategy, contain and control priority pest species. Priorities for control are species that:

- have been declared noxious
- threaten the integrity of significant native vegetation communities (e.g. communities of limited extent, that are not well represented or which contain threatened species)
- may affect neighbouring lands
- have a high capacity for dispersal
- are within the riparian zone
- are new or isolated occurrences
- may detrimentally impact on native fauna species
- may detrimentally affect cultural heritage areas.

4.1.2 In accordance with NPWS policy, undertake wild dog control along the boundaries of these parks as required, in cooperation with neighbours and the North Coast Local Land Services, to reduce the impact to livestock on adjoining land.

4.1.3 Remove the softwood plantations in the park where feasible, and ensure follow-up regeneration and weed control occurs. In plantation areas where access is a problem, identify and destroy species with high wildling potential.

4.1.4 Monitor the regeneration of the hardwood plantations. If the introduced eucalypts start to produce seedlings, implement a low-impact eradication program (e.g. by direct-drilling with herbicides on target species).

4.1.5 Do not allow domestic pets, horses, stock and other introduced animal species in these parks, with the exception of assistance animals (e.g. guide dogs), animals being transported in vehicles to private properties directly accessed via Mills Road or Black Mountain Road, and horses used with consent.

4.1.6 Monitor the park for the presence of dieback and implement strategies as appropriate.

4.2 Fire management

Fire is a major factor in the Australian environment, with fires originating from both natural and human sources. The frequency, intensity, season of occurrence and variability of fires have been influenced by humans since long before European settlement. Fire was used by Aboriginal people to clear the undergrowth and make travelling easier, for hunting and to increase the abundance of certain types of plant food. Mosaic patterns of vegetation were created over some areas as a consequence of the regular systematic burning by Aboriginal people (Kohen 1996).

In these parks, it is thought that Aboriginal burning was used to maintain several grassy plains in areas that would otherwise support rainforest (Floyd 1990), improving the amenity of the area for habitation and hunting (Byrne 1987). The importance of these grassy plains was recognised by early European settlers to the Dorrigo Plateau (Ingarfield 2008) and so there was some continuation of deliberate burning patterns.

The predominant natural cause of wildfire in these parks is lightning on exposed ridges that support dry sclerophyll forests with grassy understoreys. Historically, the majority of fires entering these parks however were of human origin, often related to the practice of burning to ensure a good supply of 'green pick' for stock (SFNSW 1995).

Fire regimes are a major determinant of the distribution and abundance of plants and animals in these parks. Many species of Australian plants and animals have developed mechanisms or behaviour to survive fire, and some require fire for reproduction or stimulation of new growth. Rainforest communities and wet sclerophyll forest communities, however, are particularly sensitive to fire. Inappropriate fire regimes, related to fire frequency, season and intensity, can lead to loss of particular plant and animal species and communities. The ecological consequences of high frequency fire have been listed as a key threatening process under the Threatened Species Conservation Act (NSW SC 2000b).

The fire responses of many rare and threatened plants in these parks are not known. However, many rare plants tend to be fire sensitive. Management should aim as far as possible to minimise the negative effects of fire in areas of rare species.

Average monthly rainfall in these parks is highest from mid-spring through to mid-autumn. The warmest months are from November to March. Winds from the north-west (which are more prevalent during winter) are generally warmer and lower in humidity, and tend to dry out the new vegetation growth from the past season, thereby raising the bush fire danger. The implication for fire management of these weather patterns is a late winter to early summer fire season (Rose 1998). Extreme bushfire weather conditions are most likely on days in dry seasons with low humidity, high temperature and strong wind.

The primary fire management objectives of NPWS fire management are to protect life, property, community assets and cultural heritage from the adverse impacts of fire, while also managing fire regimes in parks to maintain and enhance biodiversity. NPWS also assists in developing fire management practices that contribute to conserving biodiversity and cultural heritage across the landscape, and implements cooperative and coordinated fire management arrangements with other fire authorities, neighbours and the community (OEH 2013b).

Management of fire in these parks is an important and complex issue. Management must aim to achieve both long-term conservation of natural communities and ongoing protection of life and property within and adjacent to these parks.

A map-based fire management strategy, detailing the fire risks, asset protection measures and control options for these parks, was first prepared for these parks in 2005 (NPWS 2005). It is updated as required. The main threat to life and property in these parks exists along the roads and trails traversing sites of higher bushfire threat, generally to and from the recreation areas at Platypus Flat, the Cod Hole and The Junction.

The fire management strategy also identifies the appropriate fire regimes and thresholds suitable for each vegetation community, and advantages for fire suppression. Bushfire suppression operations may also require the construction of temporary trails, helipads and fire lines. These should be closed and revegetated as part of post fire operations. Annual hazard reduction programs, which may include mechanical fuel reduction techniques, prescribed burning and fire trail works, are submitted to the relevant bush fire management committees.

NPWS regards cooperative fire management as essential for both the protection of life and property and the conservation of native plants and animals and communities in these parks. An important part of NPWS's fire management is active participation as a member of the Clarence Valley and the Bellingen bush fire management committees. Cooperative arrangements include fire planning, fuel management and information sharing.

Desired outcomes

- To protect life and property.
- To maintain and where necessary enhance floristic biodiversity and habitat required for threatened fauna.
- To protect indigenous and non-indigenous cultural heritage sites.
- To protect the water catchment values of the Nymboida River and its tributaries.

Management response

4.2.1 Implement the fire management strategy for these parks in consultation with neighbours, and update as required at the start of each fire season.

4.2.2 Consistent with the fire management strategy, carry out ecological burns to maintain biodiversity. Prior to any such burning, assess vegetation characteristics and the status of key species in the area to determine the need for fire and its likely ecological effect.

4.2.3 Carry out fuel management in cooperation with park neighbours in order to achieve mutual fire protection, in accordance with NPWS policy.

4.2.4 Avoid the use of heavy machinery for fire suppression in areas known to contain rare plants, Aboriginal sites, historic places or heathland.

4.2.5 Revegetate areas disturbed by fire suppression operations as soon as practical after the fire.

4.2.6 Maintain close contact and cooperation with volunteer bush fire brigades, the Rural Fire Service, the Forestry Corporation of NSW and other neighbours of these parks.

4.2.7 Continue to be an active participant in the Clarence Valley and Bellingen bush fire management committees.

4.3 Climate change

Human-induced climate change is listed as a key threatening process under the Threatened Species Conservation Act (NSW SC 2000a) and the associated loss of habitat is listed under the Environment Protection and Biodiversity Conservation Act (TSSC 2001).

The latest information on projected changes to climate are from the NSW and ACT Regional Climate Modelling (NARClim) project (OEH 2014a). The climate projections for 2020–2039 are described as 'near future'; and projections for 2060–2079 are described as 'far future'. The snapshot shown in Table 4 is for the North Coast Region which includes these parks.

Table 5: North Coast climate change snapshot

Projected temperature changes	
Maximum temperatures are projected to **increase** in the near future by 0.4–1.0°C	Maximum temperatures are projected to **increase** in the far future by 1.5–2.4°C
Minimum temperatures are projected to **increase** in the near future by 0.5–1.0°C	Minimum temperatures are projected to **increase** in the far future by 1.6–2.5°C
The number of hot days will **increase**	The number of cold nights will decrease
Projected rainfall changes	
Rainfall is projected to **decrease** in winter	Rainfall is projected to **increase** in spring and autumn
Projected Forest Fire Danger Index changes	
Average fire weather is projected to **increase** during summer and spring	Severe fire weather days are projected to **increase** in summer and spring

Source: OEH 2014a

Projections of future changes in climate for the hinterland of the NSW North Coast include higher temperatures particularly in winter, higher rainfall in summer and autumn but reduced winter rainfall, and an increase in the number of hot days and severe fire weather days (DECCW 2010; OEH 2014a). These changes are likely to lead to greater intensity, duration and frequency of fires, and more severe short-term droughts. Higher summer rainfall and rainfall intensity in the region are likely to increase sheet and rill erosion on the steeper slopes of the hinterland, such as those in the parks, and increased riverine flooding (DECCW 2010).

Climate change may also significantly affect biodiversity, by changing the size of populations and the distribution of species, and by altering the geographical extent and species composition of habitats and ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

The potential impact of climate change on these parks is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from weeds and feral animals. Programs to reduce pressures arising from such threats will help reduce the severity of the effects of climate change.

Desired outcome

- To minimise the impacts of climate change on natural systems.

Management response

4.3.1 Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.

5. Management operations and other uses

5.1 Management facilities

Management trails

In addition to the public and park roads (see Section 3.7), there is a network of management trails in these parks (see Map 2). The purpose of management trails is to provide access for fire management, pest control, law enforcement, emergency management activities and other authorised activities. Vehicular access to the trails is restricted to essential park and emergency management purposes, although walkers and cyclists may use these trails (see Section 3.6).

One of these trails, the section of Orange Trees Road between Little River Trail and the park boundary, crosses a perennially sodden, spring-fed area. Based on the need to protect the environment from erosion, vehicular traffic even for management purposes will be limited on this section of road. As there are viable alternative fire control options along Little River Trail (accessed via Pine Road) and the rest of Orange Trees Road (accessed via Moses Rock Road), this restriction will not compromise fire suppression strategies.

Fencing

The exclusion of cattle from these parks has been facilitated by the revocation of occupation permits for grazing purposes and the de-stocking of some neighbouring lands. However, it is recognised that cattle may continue to encroach into these parks until effective boundary fences are erected at strategic locations. The legal responsibility for preventing cattle from entering the park rests with the stock owner and NPWS will require stock owners to remove straying stock from the park.

Although not legally bound by the *Dividing Fences Act 1991*, NPWS may contribute to the cost of boundary fencing with neighbours where resources are available. Fencing assistance, however, is only provided where necessary for the exclusion of livestock from NPWS parks.

A set of stockyards is located on the park at the eastern end of Sheep Station Creek Trail and are used to assist in the removal of straying stock. A number of internal fences also exist in these parks, some of which currently serve no management purpose.

Clouds Creek Fire Tower

Located in the north-west of the park (see Map 2), the Clouds Creek Fire Tower is used as a vantage point during the fire season to observe fire occurrence and activity across these parks and in neighbouring state forest.

NPWS recognises the usefulness of retaining the fire tower as part of joint fire preparedness arrangements. The Forestry Corporation of NSW currently manages the contract for the observers at this tower during the fire season. The tower is locked at all other times.

Desired outcomes

- To maintain management trails for essential management purposes while minimising impacts on park values.
- To prevent the straying of stock into the park.
- Essential firefighting infrastructure is retained in these parks.

Management response

5.1.1 Maintain management trails shown in Map 2 in a sustainable manner so as to prevent environmental degradation. These trails will be available to park management, emergency and other authorised vehicles; and cyclists and bushwalkers.

5.1.2 Install locked gates and/or signs as required to ensure that public vehicles do not use management trails.

5.1.3 Do not construct new trails in these parks unless required for incidents or emergencies; close and revegetate as soon as possible after the incident.

5.1.4 Identify cooperative management required with neighbours to exclude cattle and enter into boundary fencing agreements with neighbours as required.

5.1.5 Examine fencing within these parks and remove internal fences or fence wires, unless required for a specific management purpose.

5.1.6 Assess the ongoing need for retaining and maintaining the stockyards on Sheep Station Creek Trail. Remove the yards if no longer necessary.

5.1.7 Maintain Clouds Creek Fire Tower as part of the region's firefighting infrastructure and investigate the possibility of other firefighting agencies contributing to the management and maintenance of the tower.

5.1.8 Maintain joint preparedness arrangements for staffing the tower during the fire season.

5.1.9 Remove regrowth as required to maintain views from the tower.

5.2 Other uses

Beekeeping

There are 16 authorised apiary sites within Nymboi-Binderay National Park. These sites existed before the reservation of the park and will continue to be permitted as existing interests. Some of these apiary sites are located on management trails that are gated and so formal access arrangements are required. Some apiary sites are located on dormant trails that are progressively being revegetated and require relocation.

Scientific investigations have shown that European honeybees may compete with native animals, particularly native bees, honeyeaters and small mammals. They have an impact on native vegetation including increased hybridisation between species (Paton 1996). NPWS policy states that new consents for apiary activities will not be issued within parks and reserves.

To minimise the impacts of weeds and fire, fuel management at apiary sites should be undertaken utilising mechanical means such as mowing or slashing. The responsibilities of apiarists for the maintenance of sites and associated access trails will be addressed under the conditions of formal consent agreements.

Powerline easements

A powerline easement that also existed before the reservation of the park is located within in the north-west section of Nymboi-Binderay National Park (see Map 2). The transmission lines within this easement are maintained by TransGrid and roughly follow the general alignment of the Armidale–Grafton Road, entering the park along its western boundary.

These transmission lines need to be periodically inspected and the easements maintained. Maintenance of the easements is generally undertaken using herbicides and mechanical pruning or slashing apparatus to reduce the amount of vegetative cover underneath the powerlines. These impacts are minimised through a statewide agreement between TransGrid and NPWS for inspection and maintenance of existing transmission lines and infrastructure.

Mining and mineral exploration

As discussed in Section 3.5, there is some history of mining in these parks. There is currently one mineral exploration licence which covers most of Nymboi-Binderay SCA as well as neighbouring lands.

NSW Trade and Investment (Resources and Energy) is the lead authority for mining, mineral exploration and mine site rehabilitation. NPWS works with NSW Trade and Investment to ensure that exploration and production proposals in state conservation areas comply with all statutory requirements, including any necessary environmental impact assessments and approvals. A memorandum of understanding between NPWS and NSW Trade and Investment describes the management and consultative arrangements associated with exploration and mining in state conservation areas.

Exploration licences and assessment leases under the Mining Act may be granted within state conservation areas without the concurrence of the Minister administering the National Parks and Wildlife Act but approval must be obtained before any rights under licences or leases can be exercised.

Desired outcomes

- To minimise the impact of apiary activities and powerlines in these parks.
- Mining and mineral exploration activities have minimal impact on natural and cultural values.

Management response

5.2.1 Manage apiary sites in accordance with NPWS policy and consent conditions. No new beekeeping sites will be permitted in these parks.

5.2.2 Negotiate with apiarists to relocate sites if adverse impacts on the natural or social environments are identified, or if access roads or trails are no longer scheduled for maintenance.

5.2.3 Ensure that TransGrid complies with the operational procedures detailed in the agreement with NPWS.

5.2.4 Ensure that applications for mining or mineral exploration in the SCA are subject to environmental assessment in accordance with the memorandum of understanding between NPWS and NSW Trade and Investment.

6. Plan implementation

The priorities assigned to each of the strategies given in the plan are given in Table 5. Relative priorities are allocated against each activity as follows:

- **High** priority activities are those imperative to achieve the plan's objectives and desired outcomes, and 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.
- **Ongoing** is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.

Table 6: Implementation of actions detailed in the plan

	Management response	Priority
3.1	**Geology, topography, soils and hydrology**	
3.1.1	Ensure park roads, management trails and walking tracks are designed and maintained to minimise soil erosion.	Ongoing
3.1.2	As far as practicable, manage fire so as to minimise soil erosion and sedimentation of waterways.	Ongoing
3.1.3	Encourage research into the health of streams within these parks and, if considered necessary, monitor the water quality where there are water quality issues in these parks.	Low
3.1.4	Liaise with the North Coast Local Land Services, Clarence Valley Council, the Forestry Corporation of NSW and landowners with properties in the parks' catchment so as to maintain and, where possible, improve water quality, soil stability and natural flow regimes.	Ongoing
3.2	**Native plants**	
3.2.1	Undertake targeted flora surveys with priority given to threatened and significant plant species and communities.	Low
3.2.2	Encourage research into the habitat requirements and most appropriate fire regimes for the conservation of significant plant species and communities in these parks.	Low
3.2.3	Actively manage the Dorrigo daisy bush populations within these parks through a periodic disturbance regime, in accordance with the draft recovery plan.	Ongoing
3.2.4	Identify all roadside populations of the cryptic forest twiner and ensure road works avoid plants where possible.	Medium
3.2.5	Implement other relevant actions in the *Priorities Action Statement* and recovery plans for threatened plant species and communities occurring in the park.	Low
3.2.6	Develop and implement a burning program to maintain the ecological character and cultural landscape of the grassy plains.	High
3.3	**Native fauna**	
3.3.1	Encourage research into the native animal communities and significant animal species of these parks.	Medium

	Management response	Priority
3.3.2	Seek the cooperation of neighbouring land managers and land-use planning and management agencies to protect important wildlife habitats adjacent to these parks.	Ongoing
3.3.3	Liaise and cooperate with Fisheries NSW to ensure successful implementation of regulations, such as seasonal fishing closures and other restrictions, aimed at protecting the eastern freshwater cod in these parks.	Medium
3.3.4	Permit Fisheries NSW to install signage at riverside recreation areas to promote the significance of and legislative protection afforded to eastern freshwater cod and any fishing closures.	Ongoing
3.3.5	Implement other relevant actions in the *Priorities Action Statement* and recovery plans for threatened animal species and populations present in the park.	Low
3.4	**Aboriginal heritage**	
3.4.1	Consult the Gumbaynggirr Aboriginal community and relevant local Aboriginal land councils regarding the management of Aboriginal heritage within these parks.	Ongoing
3.4.2	Monitor Aboriginal sites in these parks and protect any under threat from visitor or management activities.	Medium
3.4.3	Undertake a broad assessment of Aboriginal cultural heritage values in these parks and encourage research into the significance of Aboriginal heritage in conjunction with the appropriate local Aboriginal land council and other Aboriginal representative groups for these parks.	Low
3.4.4	Prior to any earthworks that have the potential to threaten Aboriginal cultural heritage values, consult with relevant local Aboriginal land council and other Aboriginal representative groups and undertake archaeological assessment by a suitably qualified person.	Ongoing
3.5	**Historic heritage**	
3.5.1	Assess the historic sites within these parks for their local, regional and national significance and enter them into the NPWS historic sites register.	Low
3.5.2	If appropriate, pursue the listing of the collection of the historic logging tramways in the Dorrigo area on the State Heritage Register.	Medium
3.5.3	Conserve the cairn and logging arches at the Norman Jolly Memorial Grove.	Medium
3.5.4	Prepare and implement a conservation management plan for the timber tramways.	High
3.6	**Recreation opportunities**	
3.6.1	Maintain the day use and camping sites listed in Table 1 within their current footprint of disturbance and to the current level of facilities.	Ongoing
3.6.2	Identify and harden areas for watercraft launching at Platypus Flat if necessary should impacts become unacceptable.	Low
3.6.3	Define the available camping areas at the Cod Hole to ensure sustainable use within environmental and social carrying capacities, and to reduce conflict between groups.	High
3.6.4	Widen the hardened walk-in access to the river at The Junction to facilitate safe haulage of rafts.	Low
3.6.5	Allow bush camping in these parks at sites more than 500 metres from roads open to public vehicles.	Ongoing

	Management response	Priority
3.6.6	Maintain the graded walking tracks in the south of these parks as listed in Table 2.	Medium
3.6.7	Install signage at Platypus Flat and the Cod Hole to inform visitors of the foreseen dangers and safety issues associated with water-based activities in the park.	High
3.6.8	Cooperate with Clarence Valley Council in promoting a canoe trail through the lower sections of these parks, including potentially sections of the Little Nymboida River.	Ongoing
3.6.9	Allow cycling on all park roads and management trails shown in Map 2.	Ongoing
3.6.10	Permit recreational horse riding along Moonpar Forest Drive subject to consent which may include conditions such as signage to reduce risk. No horse-based camping will be permitted. Recreational horse riding is prohibited from other sections of these parks.	Ongoing
3.6.11	Permit adventure activities (other than whitewater activities) to occur in these parks only with written consent from NPWS.	Ongoing
3.7	**Public vehicular access**	
3.7.1	Retain and maintain those roads and trails shown on Map 2. Roads and trails not shown on the map will be closed and allowed to revegetate.	Ongoing
3.7.2	Allow public vehicles on the road network shown in Map 2 but not on designated management trails.	Ongoing
3.7.3	Seek the classification of the northern section of Black Mountain Road as a public council road.	Medium
3.7.4	Introduce and implement a permit system for public access to Orange Trees Road and Little River Trail.	High
3.7.5	Allow animals to be transported on Black Mountain Road, Moonpar Road and Mills Road to private properties accessed through these parks, as long as the animals remain in a vehicle.	Ongoing
3.8	**Commercial recreation**	
3.8.1	License commercial recreational and environmental education activities but only if all of the following criteria are met: - the operator demonstrates skills, knowledge and experience that are appropriate to the activities (e.g. has appropriate industry accreditation) - the activity is ecologically sustainable, with only minimal impact on park natural and cultural values - the operator has a good record and, if previously licensed, has complied with licence conditions - the activity promotes natural and/or cultural heritage conservation and minimal impact use - the activity is in accordance with the provisions in this plan of management.	Ongoing
3.8.2	Monitor all licensed commercial operators and activities with respect to impacts on park values and other visitors, safety requirements and compliance with licence conditions.	Ongoing
3.8.3	Provide safety advice to commercial operators and park users via park brochures, signs at park access points and in other appropriate locations in accordance with the NSW Waterways Authority ‘White-water Code’.	Ongoing

	Management response	Priority
3.8.4	Monitor all recreational use areas, including the Nymboida River and visitor facility areas, for potential hazards. Any unacceptable hazards identified in the risk assessment will be remedied or the site closed until made safe.	Ongoing
3.8.5	Develop a 'River Users Code', highlighting environmental and safety issues, for water-based activities in these parks.	Low
3.8.6	Prepare an emergency action plan for these parks and surrounding areas in conjunction with other emergency services.	Medium
3.9	**Education and research**	
3.9.1	Promote the natural and cultural values of these parks to visitors and local communities, with themes emphasising: - the regional setting of these parks - the plants and animals of significance, with particular emphasis on threatened species such as the Dorrigo daisy bush, eastern freshwater cod, Hastings River mouse and forest-dependent mammals - the diversity of eucalypt species and importance of old-growth forest - the importance of good water quality in the Nymboida River and the need to minimise impacts on the river - these parks cultural heritage values, including evidence of timber-getting in the early 20th century - the recreational activities available throughout these parks - the appropriate public safety procedures for people participating in activities in these parks.	Ongoing
3.9.2	Provide interpretation material at strategically important locations throughout these parks, targeted to the range of park visitors.	Low
3.9.3	Liaise with and seek the cooperation of Clarence Valley and Bellingen councils and the Roads and Maritime Services as required to install directional signage to the park.	Medium
3.9.4	Develop and promote materials to educate water-based visitors to the park about minimal impact practices (including appropriate disposal of human waste) to minimise impacts on water quality.	Low
3.9.5	Liaise with educational institutions and other organisations to encourage research activities within these parks that will assist and improve park management.	Medium
3.9.6	Approve research that aims to provide information on: - the parks' natural and cultural heritage and trends over time - the fire ecology of threatened species and significant plant communities (including the large-fruited blackbutt shrubby forest and grasslands) - human use and impacts within these parks, including the potential for, value of and impact of ecotourism opportunities.	Ongoing

	Management response	Priority
4.1	**Pest plants and animals**	
4.1.1	Consistent with the regional pest management strategy, contain and control priority pest species. Priorities for control are species that: - have been declared noxious - threaten the integrity of significant native vegetation communities (e.g. communities of limited extent, that are not well represented or which contain threatened species) - may affect neighbouring lands - have a high capacity for dispersal - are within the riparian zone - are new or isolated occurrences - may detrimentally impact on native fauna species - may detrimentally affect cultural heritage areas.	Ongoing
4.1.2	In accordance with NPWS policy, undertake wild dog control along the boundaries of these parks as required, in cooperation with neighbours and the North Coast Local Land Services, to reduce the impact to livestock on adjoining land.	Ongoing
4.1.3	Remove the softwood plantations in the park where feasible, and ensure follow-up regeneration and weed control occurs. In plantation areas where access is a problem, identify and destroy species with high wildling potential.	High
4.1.4	Monitor the regeneration of the hardwood plantations. If the introduced eucalypts start to produce seedlings, implement a low-impact eradication program (e.g. by direct-drilling with herbicides on target species).	Medium
4.1.5	Do not allow domestic pets, horses, stock and other introduced animal species in these parks, with the exception of assistance animals (e.g. guide dogs), animals being transported in vehicles to private properties directly accessed via Mills Road or Black Mountain Road, and horses used with consent.	Ongoing
4.1.6	Monitor the park for the presence of dieback and implement strategies as appropriate.	Medium
4.2	**Fire management**	
4.2.1	Implement the fire management strategy for these parks in consultation with neighbours, and update as required at the start of each fire season.	Ongoing
4.2.2	Consistent with the fire management strategy, carry out ecological burns to maintain biodiversity. Prior to any such burning, assess vegetation characteristics and the status of key species in the area to determine the need for fire and its likely ecological effect.	Ongoing
4.2.3	Carry out fuel management in cooperation with park neighbours in order to achieve mutual fire protection, in accordance with NPWS policy.	Medium
4.2.4	Avoid the use of heavy machinery for fire suppression in areas known to contain rare plants, Aboriginal sites, historic places or heathland.	Ongoing
4.2.5	Revegetate areas disturbed by fire suppression operations as soon as practical after the fire.	Ongoing
4.2.6	Maintain close contact and cooperation with volunteer bush fire brigades, the Rural Fire Service, the Forestry Corporation of NSW and other neighbours of these parks.	Ongoing

	Management response	Priority
4.2.7	Continue to be an active participant in the Clarence Valley and Bellingen bush fire management committees.	Ongoing
4.3	**Climate change**	
4.3.1	Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.	Ongoing
5.1	**Management facilities**	
5.1.1	Maintain management trails shown in Map 2 in a sustainable manner so as to prevent environmental degradation. These trails will be available to park management, emergency and other authorised vehicles; and cyclists and bushwalkers.	Ongoing
5.1.2	Install locked gates and/or signs as required to ensure that public vehicles do not use management trails.	Medium
5.1.3	Do not construct new trails in these parks unless required for incidents or emergencies; close and revegetate as soon as possible after the incident.	Ongoing
5.1.4	Identify cooperative management required with neighbours to exclude cattle and enter into boundary fencing agreements with neighbours as required.	Low
5.1.5	Examine fencing within these parks and remove internal fences or fence wires, unless required for a specific management purpose.	Low
5.1.6	Assess the ongoing need for retaining and maintaining the stockyards on Sheep Station Creek Trail. Remove the yards if no longer necessary.	Low
5.1.7	Maintain Clouds Creek Fire Tower as part of the region's firefighting infrastructure and investigate the possibility of other firefighting agencies contributing to the management and maintenance of the tower.	Ongoing/ Medium
5.1.8	Maintain joint preparedness arrangements for staffing the tower during the fire season.	Ongoing
5.1.9	Remove regrowth as required to maintain views from the tower.	Ongoing
5.2	**Other uses**	
5.2.1	Manage apiary sites in accordance with NPWS policy and consent conditions. No new beekeeping sites will be permitted in these parks.	Ongoing
5.2.2	Negotiate with apiarists to relocate sites if adverse impacts on the natural or social environments are identified, or if access roads or trails are no longer scheduled for maintenance.	Ongoing
5.2.3	Ensure that TransGrid complies with the operational procedures detailed in the agreement with NPWS.	Ongoing
5.2.4	Ensure that applications for mining or mineral exploration in the SCA are subject to environmental assessment in accordance with the memorandum of understanding between NPWS and NSW Trade and Investment.	Ongoing

Appendix 1: Significant plants recorded in these parks

Scientific name	Common name	Status * and significance
Alloxylon pinnatum	Dorrigo waratah	3RCa Disjunct distribution
Austrobuxus swainii	Pink cherry	3RCa
Bertya sp. Clouds Creek +		Endangered
Boronia chartacea	Thin-leaved boronia	3R
Harnieria hygrophiloides	Native justicia	Endangered ^
Cryptocarya dorrigoensis	Dorrigo laurel	2RCa
Endiandra introrsa	Dorrigo plum	3RCa Disjunct distribution
Eucalyptus dorrigoensis	Dorrigo white gum	3KC-
Eucalyptus dunnii	Dunn's white gum	3RCa Disjunct distribution
Eucalyptus rummeryi	Steel box	3RC-
Gonocarpus longifolius		3RC-
Grevillea linsmithii		3RCa
Kardomia prominens (syn. *Babingtonia prominens*)	Nymboida babingtonia	Endangered
Marsdenia coronata #	Slender milk vine	3VC- > Disjunct distribution, southern limit
Marsdenia liisae	Large-flowered milk vine	3RC-
Melaleuca groveana	Grove's paperbark	Vulnerable
Olearia flocktoniae	Dorrigo daisy bush	Endangered ^ Locally endemic
Phebalium squamulosum subsp. *verrucosum*	Scaly phebalium	2RC-
Plectranthus suaveolens	Scented plectranthus	3KC-
Triplarina imbricata (syn. *Baeckea camphorata*)	Creek triplarina	Endangered ^
Tylophora woollsii	Cryptic forest twiner	Endangered ^

Source: Austeco (1999), except for # S. Clemesha (pers. comm.) and + J. Bruhl (pers. comm.)

* Status is either that given under the TSC Act or based on the following codes (Briggs & Leigh 1996):
  3 = Range more than 100km but in small populations.
  R = Rare but with no current identifiable threat.
  V = Vulnerable to extinction.
  K = Poorly known species suspected of being at risk.
  C = Species is known to occur within a conservation reserve.
  a = Species is considered to be adequately reserved.
  - = Species is recorded from a reserve but the population size is unknown.

^ Also listed under the Commonwealth EPBC Act.

> Listed as vulnerable under the Queensland Nature Conservation Act.

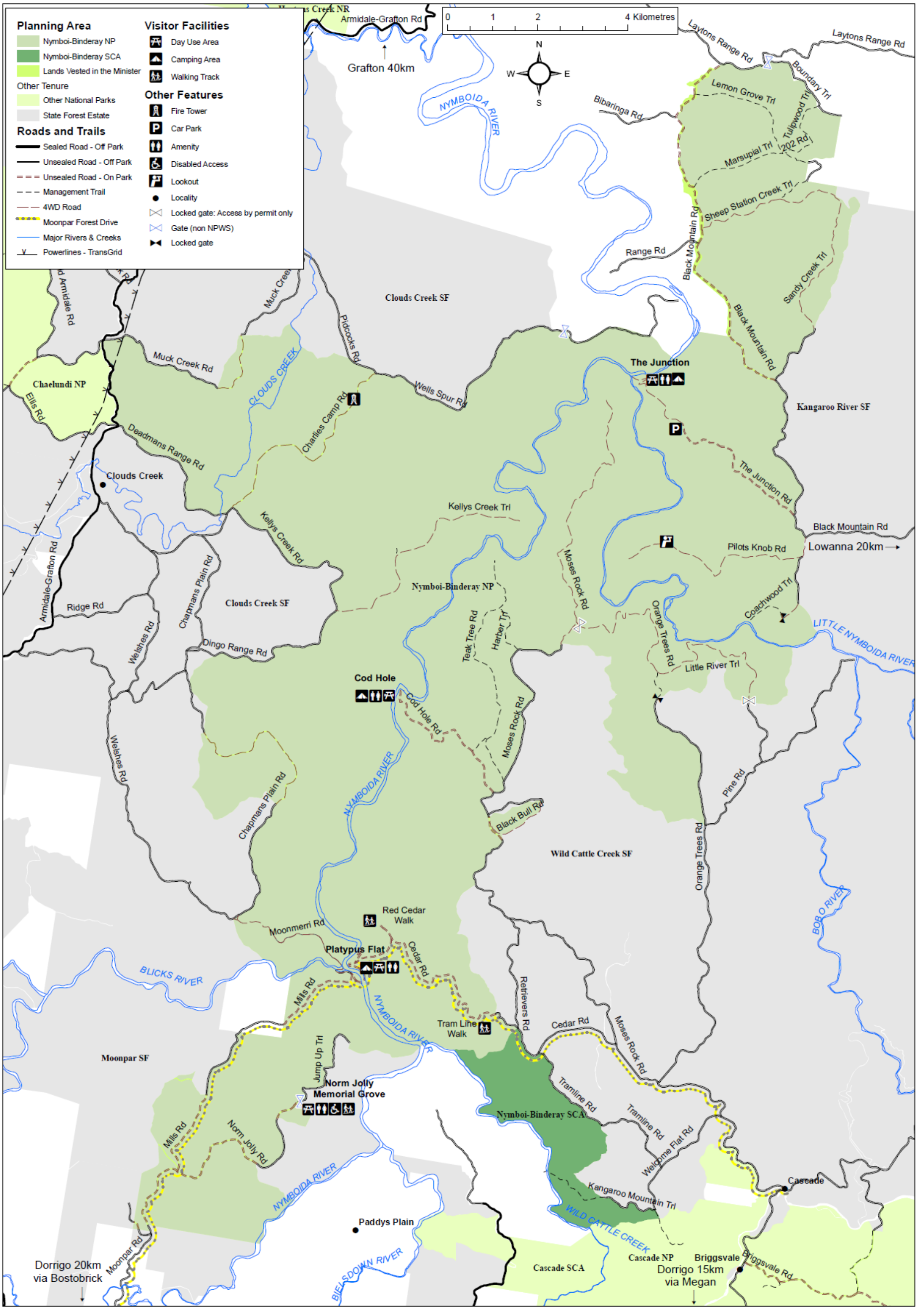
Appendix 2: Threatened animals recorded in or predicted to occur in these parks

Scientific name	Common name	Status under TSC Act
Fish		
Maccullochella ikei	Eastern freshwater cod	Endangered ^*
Amphibians		
Assa darlingtoni	Pouched frog	Vulnerable
Litoria brevipalmata	Green-thighed frog	Vulnerable
Litoria subglandulosa	Glandular frog	Vulnerable
Mixophyes balbus	Stuttering frog	Endangered ^
Mixophyes iteratus	Giant barred frog	Endangered ^
Philoria sphagnicolus	Sphagnum frog	Vulnerable
Birds		
Anthochaera phrygia	Regent honeyeater	Critically endangered ^
Atrichornis rufescens	Rufous scrub-bird	Vulnerable
Calyptorhynchus lathami	Glossy black-cockatoo	Vulnerable
Daphoenositta chrysoptera	Varied sittella	Vulnerable
Glossopsitta pusilla	Little lorikeet	Vulnerable
Lophoictinia isura	Square-tailed kite	Vulnerable
Melithreptus gularis gularis	Black-chinned honeyeater	Vulnerable
Ninox strenua	Powerful owl	Vulnerable
Ptilinopus magnificus	Wompoo fruit-dove	Vulnerable
Tyto novaehollandiae	Masked owl	Vulnerable
Tyto tenebricosa	Sooty owl	Vulnerable
Mammals		
Aepyprymnus rufescens	Rufous bettong	Vulnerable
Cercartetus nanus	Eastern pygmy possum	Vulnerable
Dasyurus maculatus	Spotted-tailed quoll	Vulnerable ^
Falsistrellus tasmaniensis	Great pipistrelle	Vulnerable
Kerivoula papuensis	Golden-tipped bat	Vulnerable
Macropus parma	Parma wallaby	Vulnerable
Miniopterus australis	Little bentwing-bat	Vulnerable
Miniopterus schreibersii oceanensis	Eastern bentwing-bat	Vulnerable
Mormopterus norfolkensis	Eastern free-tail bat	Vulnerable
Myotis macropus	Large-footed myotis	Vulnerable
Petaurus australis	Yellow-bellied glider	Vulnerable
Petaurus norfolcensis	Squirrel glider	Vulnerable
Petrogale penicillata	Brush-tailed rock-wallaby	Endangered ^

Scientific name	Common name	Status under TSC Act
Phascolarctos cinereus	Koala	Vulnerable ^
Potorous tridactylus	Long-nosed potoroo	Vulnerable ^
Pseudomys oralis	Hastings River mouse	Endangered ^
Scoteanax rueppellii	Greater broad-nosed bat	Vulnerable
Thylogale stigmatica	Red-legged pademelon	Vulnerable

Sources: ERM Mitchell McCotter (1998), NPWS Wildlife Atlas (2006).
^ Also listed under the Commonwealth EPBC Act
* Legal status in NSW provided by the NSW *Fisheries Management Act 1994*, not the TSC Act.

Map 2: Nymboi-Binderay National Park and State Conservation Area



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