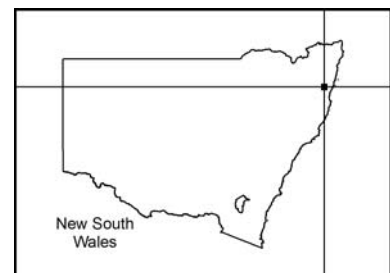




Plan of Management



Bungawalbin and Yarringully Parks and Reserves



**BUNGAWALBIN AND YARRINGULLY
PARKS AND RESERVES**

**(comprising Bungawalbin National Park, Bungawalbin
Nature Reserve, Bungawalbin State Conservation Area,
Yarringully Nature Reserve and Yarringully State
Conservation Area)**

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

January 2012

This plan of management was adopted by the Minister for the Environment on 19 January 2012.

Acknowledgments

The NSW National Parks and Wildlife Service (NPWS) acknowledges that these parks and reserves are in the traditional country of the Bundjalung nation.

This plan of management is based on a draft plan prepared by the staff of the Northern Rivers Region of the NPWS, part of the Office of Environment and Heritage, Department of Premier and Cabinet, with assistance of Sarah Wain, Southern Cross University Intern.

FRONT COVER: Bungawalbin swamp forest and Eastern Dwarf Tree Frog (*Litoria fallax*) by Georgia Beyer, Nature Conservation Trust; Endangered Coastal Emu (*Dromaius novaehollandiae*) by Hugh Nicholson, Terania Rainforest Publishing.

For additional information or any inquiries about this park or this plan of management, contact the NPWS Richmond River Area Office, at Colonial Arcade, 75 Main St, Alstonville, NSW, 2477 or by telephone on (02) 6627 0200.

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FOREWORD

The Bungawalbin and Yarringully Parks and Reserves, comprising Bungawalbin National Park, Bungawalbin Nature Reserve, Bungawalbin State Conservation Area, Yarringully Nature Reserve and Yarringully State Conservation Area, are located approximately 30 kilometres west of Evans Head in north-eastern New South Wales, and collectively cover an area of 6,701 hectares.

The Bungawalbin and Yarringully Parks and Reserves are part of a large contiguous wetland system which contains important floodplain subtropical rainforest, coastal swamp forests and coastal floodplain wetlands, as well as dry sclerophyll forest, which provide highly significant old growth habitat. The reserves are considered one of the most significant areas of fauna biodiversity in north-east NSW, with a high marsupial population, high arboreal mammal distribution and large numbers of threatened species.

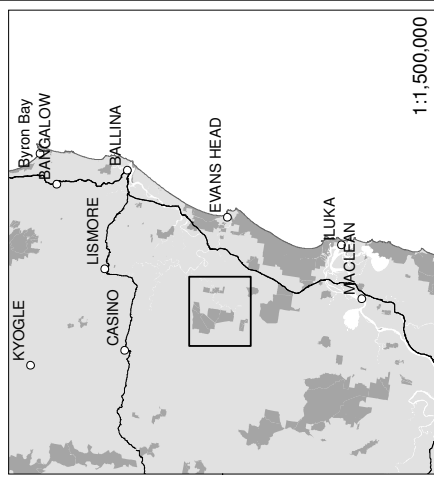
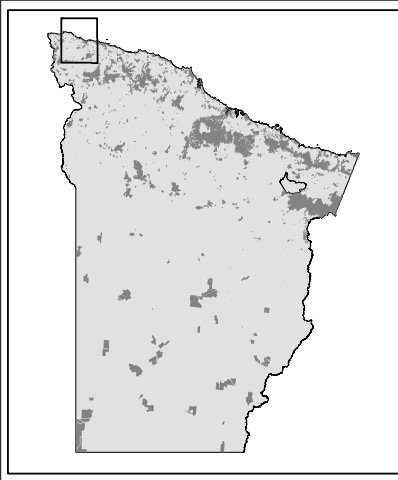
The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park, nature reserve and state conservation area. A draft plan of management for the Bungawalbin and Yarringully Parks and Reserves was placed on public exhibition from 12 February to 24 May 2010. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the NSW 2021 goal to protect our natural environment, including cooperative management programs to improve water quality, actions to assist the recovery of threatened species, a survey for koalas, and preparation of a pest management strategy for the parks and reserves. The plan also provides for a range of recreation, including scenic driving, cycling, horse riding on designated trails in Bungawalbin National Park and State Conservation Area, and self-reliant camping in Bungawalbin National Park.

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

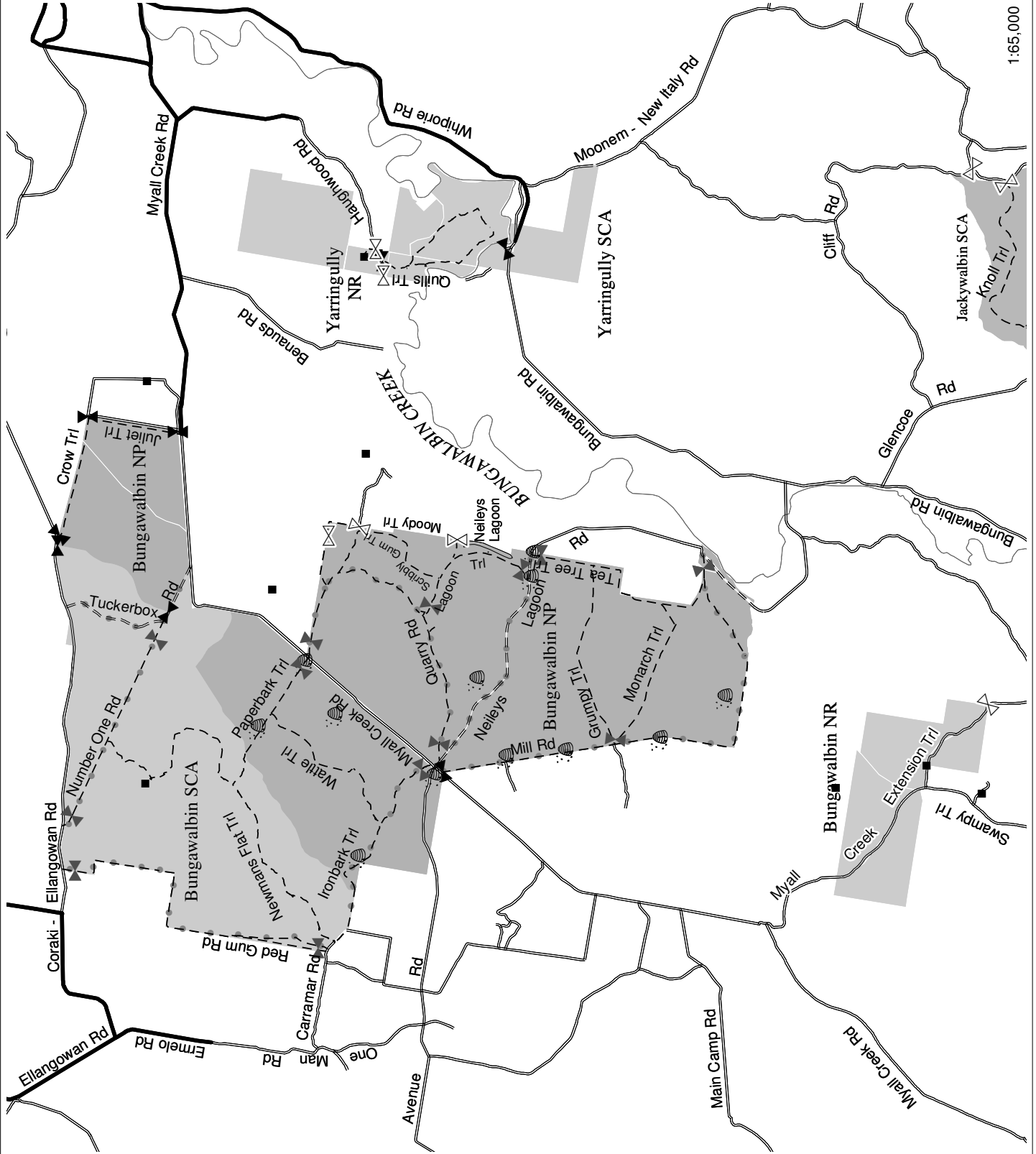
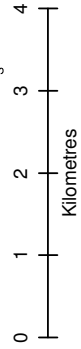
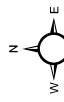


Robyn Parker MP
Minister for the Environment



1:1,500,000

- Sealed Road - Off Park
- Unsealed Road - Off Park
- - - Unsealed Road - On Park
- - - Management Trail
- Road or trail designated for horse riding
- ▲ Gate PWG
- ◊ Gate non PWG
- ◊ Gate - PWG proposed
- Dam
- Bee site



1:65,000

1. LOCATION, GAZETTAL AND REGIONAL CONTEXT

Bungawalbin National Park, Bungawalbin Nature Reserve, Bungawalbin State Conservation Area, Yarringly Nature Reserve and Yarringly State Conservation Area (referred to herein as 'the planning area') are located approximately 30 kilometres west of Evans Head in north-eastern NSW. The total size of the planning area is 6,701 hectares (Table 1).

Bungawalbin Nature Reserve was gazetted in 1977. Previously part of Bungawalbin State Forest, Bungawalbin National Park was gazetted as a result of the Regional Forest Agreement for Upper North East NSW in 1999. Bungawalbin State Conservation Area was also previously part of Bungawalbin State Forest and was gazetted in 2003.

Yarringly Nature Reserve was formerly freehold land that had been made a Wildlife Refuge under the *National Parks and Wildlife Act 1974* at the owner's request in 1993. It was subsequently purchased by NPWS and gazetted in 2003 over former Crown land. Yarringly State Conservation Area was also gazetted in 2003. Bungawalbin Creek forms the boundary between Yarringly Nature Reserve and Yarringly State Conservation Area but is not included within either reserve. In 2010 an additional 240 hectares was gazetted as part of Yarringly Nature Reserve.

Yarringly was named following consultation with the Bundjalung Aboriginal community and means 'eel-tailed catfish'. According to the Geographic Names Board NSW, Bungawalbin is the Aboriginal word for 'a swamp with bulbous-rooted reeds growing on it'. The planning area is part of the Bundjalung Native Title Claim No.2 and is within the Bogal Local Aboriginal Land Council area.

Table 1. Parks and reserves in the Planning Area

Park/Reserve/State Conservation Area	Area (hectares)
Bungawalbin State Conservation Area	1836
Bungawalbin National Park	3712
Bungawalbin Nature Reserve	464
Yarringly Nature Reserve	354
Yarringly State Conservation Area	162
Total	6701

As well as the parks and reserves identified in Table 1, the planning area also includes Neileys Lagoon Road which was vested in the Minister under Part 11 of the NPW Act to ensure a continuation of access arrangements to neighbouring private land and State Forest (see Map 1). All roads within Bungawalbin State Conservation Area are also currently retained as Part 11 land except for the short section of Coraki-Ellangowan Road, which deviates from the public road reserve into the state conservation area, these are intended to be added to the state conservation area in the near future. Myall Creek Road, Avenue Road, Coraki-Ellangowan Road and

Bungawalbin-Whiporie Road are public roads which are maintained by Richmond Valley Council. They do not form part of the planning area.

The five reserves that comprise the planning area have been grouped under the one plan due to their close biogeographical association. The planning area is part of a large area of contiguous wetland and lowland forest vegetation which contains highly significant old growth habitat for many threatened fauna species (DECC 2008a).

The planning area is part of a corridor of native vegetation linking state forest and private land to other nearby national parks and nature reserves including Bundjalung National Park, Bundjalung State Conservation Area and Tabbimoble Swamp Nature Reserve to the south-east, and the parks and reserves of the Southern Richmond Range to the west and south-west.

Surrounding land uses include tea tree plantations (*Melaleuca alternifolia*), bush tea tree harvesting, beef cattle grazing, private native forestry, small rural holdings and beekeeping operations. Bungawalbin State Forest also adjoins the planning area. A Crown reserve for refuge in times of flood adjoins Yarringly Nature Reserve.

The planning area is within the geographical area of the Richmond Valley Council and Northern Rivers Catchment Management Authority.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of national parks, nature reserves and state conservation areas in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation, *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS).

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) may require the assessment and mitigation of the environmental impacts of works proposed in this plan. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) also applies in relation to actions that may impact on matters of national environmental significance, such as migratory species and threatened species listed under that Act.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with this plan. This plan will also apply to any future additions to the planning area. Should management strategies or works be proposed for the planning area or any additions that are not consistent with this plan, an amendment to this plan or a new plan will be prepared and exhibited for public comment.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

2.2.1 National Parks

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

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

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes;
- conserve places, objects, features and landscapes of cultural value;
- protect the ecological integrity of one or more ecosystems for present and future generations;
- promote public appreciation and understanding of the park's natural and cultural values;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of natural and cultural values;

- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values; and
- provide for appropriate research and monitoring.

2.2.2 Nature Reserves

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

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

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

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

2.2.3 State Conservation Areas

State conservation areas are reserved under the NPW Act to protect and conserve areas that contain significant or representative ecosystems, landforms or natural phenomena or places of cultural significance; that are capable of providing opportunities for sustainable visitor use and enjoyment, the sustainable use of buildings and structures, or research; and that are capable of providing opportunities for uses permitted under other provisions of the Act.

Under the 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 NPW 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; and
- provide for appropriate research and monitoring.

The NPW Act requires a review of the classification of state conservation areas every 5 years in consultation with the Minister administering the *Mining Act 1992*.

The first review occurred in 2008 with no change in classification for Bungawalbin or Yarringly State Conservation Areas. In the long term it is intended for Bungawalbin State Conservation Area to be added to Bungawalbin National Park, and so management will also be guided by the management principles for national parks where possible. It is intended for Yarringly State Conservation Area to be added to Yarringly Nature Reserve, and so management will also be guided by the management principles for nature reserves where possible.

2.3 STATEMENT OF SIGNIFICANCE

The planning area is considered to be significance due to the following:

Landscape/Catchment Values:

- Part of a large contiguous wetland system which drains Bungawalbin into the Richmond River. The Bungawalbin wetland cluster has been identified as the 'largest tidal waterpool in Australia' (DECC 2008a). Lower Bungawalbin Creek is listed as a wetland of national importance (Environment Australia 2001).

Biological Values:

- These reserves contain wetland and lowland vegetation which provides highly significant old growth habitat for many threatened fauna species (DECC 2008a).
- These reserves contain core habitat areas which form part of a regionally significant forest habitat corridor for priority fauna species (Scotts 2003).
- Bungawalbin Nature Reserve is listed on the Register of the National Estate due to its natural heritage values (Australian Heritage Council 2008).
- The Bungawalbin catchment is one of the most significant areas of fauna biodiversity in north-east NSW, with a high marsupial population, high arboreal mammal distribution and large numbers of threatened species (NPWS 1995).
- The planning area contains 59 threatened flora and fauna species listed under the TSC Act, 9 of which are listed as threatened under the EPBC Act. These reserves also contain one Endangered Population and five Endangered Ecological Communities listed under the TSC Act. There are 6 plant species listed as Rare or Threatened Australian Plants (Briggs and Leigh 1996).

Aboriginal Heritage:

- These reserves are of spiritual significance and contemporary importance to the Aboriginal community.

Research/Education Values:

- The significant biological values and low visitor use of these reserves provide opportunities for educational programs and tertiary research projects.

2.4 SPECIFIC MANAGEMENT DIRECTIONS

Management of the planning area will focus on the protection of the significant wetlands, creeks and permanent lagoons, vegetation communities and Aboriginal heritage. This plan also seeks to maintain the current recreation setting which is low impact and low visitor numbers for bush walking, canoeing, camping, horse riding and bird watching.

Major strategies to achieve these objectives will be:

- Implementation of the Priority Action Statement, recovery actions for threatened species, endangered populations and endangered ecological communities;
- Fire and pest management to increase the ability of these reserves to cope with future disturbances including climate change;
- Encouragement of research into the natural values of the planning area that will contribute to management and understanding of the areas values;
- Liaison with Northern Rivers Catchment Management Authority, Richmond River County Council and Richmond Valley Council regarding catchment management planning;
- Consultation with Bandjalang Native Title Claimants and Bogal Aboriginal Land Council about protection of cultural heritage values;
- Allowing the continuation of current visitor activities in the planning area and monitoring visitor impacts along Bungawalbin Creek and at Neileys Lagoon to determine appropriate ongoing management, including the need for controls in the future; and
- Continuation of efforts to inform visitors of permissible access, encourage appropriate visitor behaviour and undertake enforcement as required.

3. VALUES

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

3.1 GEOLOGY, SOILS, LANDSCAPE AND HYDROLOGY

The parks and reserves of the planning area occur on the alluvial plain associated with the Bungawalbin Creek, the southern major lowland tributary of the Richmond River. The maximum elevation in the planning area is 50 metres above sea level, with half of the planning area less than 20 metres above sea level.

The soils of the planning area range from yellow podzols to black and grey clays, generally of moderate to poor nutritional status. Highly leached podzolic soils found on the slopes are very susceptible to erosion. Bedrock is sedimentary Jurassic to early Cretaceous Grafton Formation sandstone, with overlying Quaternary Alluvium in low-lying areas (Kempff 2000).

Potential acid sulfate soils associated with ancient backswamp deposits occur in Bungawalbin National Park, Yarringully Nature Reserve and Yarringully State Conservation Area (refer 4.5 Acid Sulfate Soils and Soil Erosion) (Atkinson *et al.* 1995).

The low elevation of the planning area and approximately 1400 millimetres annual rainfall have resulted in an important lowland sedimentary environment encompassing permanent lagoons, dams, creeks and riverine floodplain. The planning area drains into Bungawalbin Creek. Bungawalbin Creek is tidal to approximately 4 kilometres upstream of the planning area (DECC 2009).

The planning area is located within a section of the Bungawalbin floodplain which is dissected by low ridges. Small floodplains between each ridge have formed through depositional processes associated with the adjacent Bungawalbin Creek. Runoff is channelled through drainage depressions to the creek floodplain. This has resulted in a landscape with a unique combination of small billabongs, swamps, flood channels and stands of swamp vegetation.

The wetlands, creeks and permanent lagoons in the planning area provide important habitat for a wide variety of fauna, including aquatic and terrestrial invertebrates, fish, amphibians, reptiles, birds and mammals. A primary role of flooding in forested wetlands is the cycling of nutrients, the soils and vegetation being able to absorb large quantities of mineral nutrients, thereby improving downstream water quality. The Bungawalbin and Yarringly parks and reserves provide excellent nutrient retention due to the low flow and drying rates, low turbulence, high levels of highly organic sediments and low biological decomposition rates. These cyclic processes of renewal maintain the diversity of flora and fauna in the forested wetlands, and are important refugia within landscapes where water and nutrients are scarce (Keith 2004).

3.2 NATIVE PLANTS

The planning area lies within the Macleay-MacPherson overlap zone, which refers to the overlapping of the broad categories of temperate and tropical biota. This overlap means that the reserves have a significantly high level of biodiversity.

The planning area also supports a range of vegetation types due to variations in hydrology, elevation, soil fertility, and disturbance from fire and past land clearance. Vegetation classes within the planning area include Subtropical Rainforest, Clarence Dry Sclerophyll Forest, Coastal Swamp Forest and Coastal Floodplain Wetlands (Keith 2004).

Bungawalbin and Yarringly parks and reserves are significant for their protection of important floodplain subtropical rainforest, coastal swamp forests and coastal floodplain wetlands (Sheringham *et al.* 2008) as well as dry sclerophyll forest (Keith 2004). These reserves protect the eastern red gum vegetation association, including populations of slaty red gum (*Eucalyptus glaucina*) which is listed as vulnerable under the TSC Act.

Yarringly State Conservation Area, Yarringly Nature Reserve and Bungawalbin National Park feature six kilometres of well preserved riparian vegetation not well represented in the conservation estate on the north coast of NSW. The riparian vegetation contains a mixture of sclerophyll and rainforest species. Much of the Yarringly section of the planning area is coastal floodplain wetland incorporating interconnected permanent and intermittent lagoons.

The planning area supports a diverse range of flora including threatened and significant plant species. There are 13 threatened species listed under the TSC Act and, of these, 5 are also listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It also contains five Endangered Ecological Communities listed under the TSC Act (Table 2).

Table 2. Threatened and significant plant species recorded in the planning area

Common name	Scientific name	Legal Status *
Rusty plum	<i>Amorphospermum whitei</i>	Vulnerable ^
White lace flower	<i>Archidendron hendersonii</i>	Vulnerable
Hairy jointgrass	<i>Arthraxon hispidus</i>	Vulnerable # ^
Needle-leaf fern	<i>Belvisia mucronata</i>	Endangered
Slaty red gum	<i>Eucalyptus glaucina</i>	Vulnerable # ^
Tree guinea flower	<i>Hibbertia hexandra</i>	Endangered ^
Bordered guinea flower	<i>Hibbertia marginata</i>	Vulnerable #
Slender screw fern	<i>Lindsaea incisa</i>	Endangered
Noah's false chickweed	<i>Lindernia alsinoides</i>	Endangered
	<i>Maundia triglochinooides</i>	Vulnerable
Weeping paperbark	<i>Melaleuca irbyana</i>	Endangered
Southern swamp orchid	<i>Phaius australis</i>	Endangered # ^
Small-leaved hazelwood	<i>Symplocos baeuerlenii</i>	Vulnerable # ^
Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered Ecological Community
Lowland rainforest on floodplain in the NSW North Coast Bioregion		Endangered Ecological Community
Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered Ecological Community
Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered Ecological Community
Subtropical coastal floodplain forest of the NSW North Coast Bioregion		Endangered Ecological Community

* Status under TSC Act

Denotes species listed as nationally threatened under the EPBC Act.

^ Denotes species listed as a Rare or Threatened Australian Plant (ROTAP) by to Briggs and Leigh (1996)

Under the TSC Act recovery plans may be prepared to identify actions and priorities for threatened species, populations or ecological communities. Additionally, a threatened species Priorities Action Statement (PAS) must be prepared which outlines broad strategies and detailed priority actions in NSW to promote the recovery of threatened species, populations and endangered ecological communities and to manage key threatening processes. The PAS includes detailed actions for all species listed in Table 3 except weeping paperbark and Southern swamp orchid and will be used to guide management of threatened species in the planning area.

3.3 NATIVE ANIMALS

The planning area provides habitat for a variety of faunal assemblages predominantly subtropical with some temperate species, and those commonly associated with habitats from both coastal and tableland regions of northeast NSW.

Significant habitat resources for fauna in the planning area are present in the stands of dry sclerophyll forest with older specimens of eucalypts which contain hollows. It is estimated that 303 native fauna species utilise tree hollows in Australia with the dominant group being birds (Gibbons and Lindenmayer 2002). Of these, 303 species, 66 species (22%) have been recorded within the boundaries of Bungawalbin National Park, Bungawalbin Nature Reserve and Bungawalbin State Conservation Area.

In 1999 the Australian Heritage Council listed Bungawalbin Nature Reserve on the Register of the National Estate, citing significant areas of available habitat for the rare rufous bettong, koalas, waterfowl and many kangaroo and wallaby species (Australian Heritage Council 2008).

The vegetation of the planning area has been identified as a habitat corridor of regional significance for priority threatened fauna (Scotts 2003). There are 46 species and one population listed as threatened under the TSC Act and of these 4 are listed as threatened under the EPBC Act (Table 3). The Bungawalbin catchment represents an area of local, state and national significance for the endangered giant barred frog (Lewis and Rohweder 2005).

Table 3. Threatened and significant animal species recorded in the planning area

Common name	Scientific name	Legal Status *
Regent honeyeater	<i>Anthochaera phrygia</i>	Endangered #^
Australasian bittern	<i>Botaurus poiciloptilus</i>	Vulnerable
Bush stone-curlew	<i>Burhinus grallarius</i>	Endangered
Red-tailed black-cockatoo	<i>Calyptorhynchus banksii</i>	Vulnerable
Glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable
Speckled warbler	<i>Chthonicola saggitata</i>	Vulnerable
Brown treecreeper	<i>Climacteris picumnus</i>	Vulnerable
Barred cuckoo-shrike	<i>Coracina lineata</i>	Vulnerable
Emu population in the NSW north coast bioregion	<i>Dromaius novaehollandiae</i>	Endangered Population
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	Endangered
Eastern false pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable
Little lorikeet	<i>Glossopsitta pusilla</i>	Vulnerable
Brolga	<i>Grus rubicunda</i>	Vulnerable
Comb-crested jacana	<i>Irediparra gallinacea</i>	Vulnerable

Common name	Scientific name	Legal Status *
Black bittern	<i>Ixobrychus flavicollis</i>	Vulnerable
Hooded robin	<i>Melanodryas cucullata</i> <i>cucullata</i>	Vulnerable
Black-chinned honeyeater	<i>Melithreptus gularis gularis</i>	Vulnerable
Barking owl	<i>Ninox connivens</i>	Vulnerable
Powerful owl	<i>Ninox strenua</i>	Vulnerable
Grey crowned babbler	<i>Pomatostomus temporalis</i> <i>temporalis</i>	Vulnerable
Wompoo fruit dove	<i>Ptilinopus magnificus</i>	Vulnerable
Eastern grass owl	<i>Tyto longimemberis</i>	Vulnerable
Square-tailed kite	<i>Lophoictinia isura</i>	Vulnerable
Masked owl	<i>Tyto novaehollandiae</i>	Vulnerable
Rufous bettong	<i>Aepyprymnus rufescens</i>	Vulnerable
Hoary wattled bat	<i>Chalinolobus nigrogriseus</i>	Vulnerable
Spotted-tailed quoll	<i>Dasyurus maculata</i>	Vulnerable
Little bentwing-bat	<i>Miniopterus australis</i>	Vulnerable
Eastern freetail-bat	<i>Mormopterus norfolkensis</i>	Vulnerable
Southern myotis	<i>Myotis macropus</i>	Vulnerable
Eastern long-eared bat	<i>Nyctophilus bifax</i>	Vulnerable
Eastern bentwing- bat	<i>Miniopterus schreibersii</i>	Vulnerable
Yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable
Squirrel glider	<i>Petaurus norfolcensis</i>	Vulnerable
Brush-tailed phascogale	<i>Phascogale tapoatafa</i>	Vulnerable
Koala	<i>Phascolarctos cinereus</i>	Vulnerable
Common planigale	<i>Planigale maculata</i>	Vulnerable
Eastern chestnut mouse	<i>Pseudomys gracilicaudatus</i>	Vulnerable
Grey-headed flying fox	<i>Pteropus poliocephalus</i>	Vulnerable #
Yellow-bellied sheathtailed bat	<i>Saccolaimus flaviventris</i>	Vulnerable
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	Vulnerable
Queensland blossom-bat	<i>Syconycteris australis</i>	Vulnerable
Wallum froglet	<i>Crinia tinnula</i>	Vulnerable
Pale headed snake	<i>Hoplocephalus bitorquatus</i>	Vulnerable
Green thighed frog	<i>Litoria brevipalmata</i>	Vulnerable
Olongburra frog	<i>Litoria olongburensis</i>	Vulnerable #
Giant barred frog	<i>Mixophyes iteratus</i>	Endangered #

* Status under TSC Act

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

^ Denotes migratory species listed under EPBC Act.

The PAS and recovery plans will be used to guide management of threatened species in the planning area. Recovery Plans have been finalised for the koala, yellow-bellied glider, bush stone-curlew, masked owl, barking owl and powerful owl. The Department of Environment and Climate Change is currently preparing the *Northern Rivers Regional Biodiversity Management Plan*, which includes the planning area. This multi-species recovery plan aims to deliver a prioritised set of actions required to conserve threatened biodiversity across the landscape (DECC 2008e).

3.4 CULTURAL HERITAGE

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

Aboriginal people and their culture are not tied directly to individual sites but to the land they are a part of. The planning area is part of a landscape of cultural importance to the Aboriginal people of the Bundjalung Nation and Bandjalang people. The area lies within Bandjalang Country and Bogal Aboriginal Land Council, with Yarringly Nature Reserve only a short distance from the Aboriginal settlement at Bora Ridge. Numerous ceremonial areas and other locations of cultural significance indicate the presence of Aboriginal inhabitancy. Past property owners of Yarringly Nature Reserve reported an ongoing cultural association of local Aboriginal people with the land, and the recovery of artefacts from a nearby property.

Creeks and streams are sites for fishing and hunting, and as sources of traditional foods and medicines. Bandjalang Elders have previously indicated strong concerns for maintaining catchment health, and for maintaining the link between water quality and ongoing spiritual connections to Country (Kempff 2000).

The planning area and surrounding areas traditionally provided and can continue to provide the Bandjalang and Bundjalung people with a variety of foods, medicines, shelter and utensils to sustain their cultural practices and way of life. Cultural use of wild resources, such as medicinal plants and bush tucker will be subject to NPWS policies and licensing.

European settlers arrived in the Bungawalbin area during the 1840s seeking cedar and better pastures for grazing. Wild tea tree harvesting and dairy farming also occurred from early in 20th century. Due to the flood prone low-lying terrain most of the catchment was not extensively settled until more recent times.

European settlers lightly logged both Bungawalbin National Park and Bungawalbin Nature Reserve at differing times. Bungawalbin Nature Reserve is relatively undisturbed and has a history of only very limited selective logging and low levels of public use.

Past land use within Yarringly Nature Reserve has included grazing and limited timber harvesting. An old house and other infrastructure were removed by NPWS in 2005. Removal of infrastructure was based on an assessment of the safety risk of the structures, and they were assessed as having no historic value or value for management of the reserve or heritage significance.

3.5 RECREATION, EDUCATION AND RESEARCH

Visitor use of the planning area is low. Vehicle access to Bungawalbin National Park and Bungawalbin State Conservation Area is via Neileys Lagoon Road, Myall Creek Road, Coraki-Ellangowan Road and Bungawalbin-Whiporie Road (Map 1). No public vehicle access is permitted within Yarringly Nature Reserve or Yarringly State Conservation Area. Vehicle access to Bungawalbin Nature Reserve is restricted to Myall Creek Extension Road.

Horse riding occasionally occurs in Bungawalbin National Park and Bungawalbin State Conservation Area. Horse riding is characterised by small groups who use these reserves for rides of around 2 hours to a full day. Roads and management trails have been designated for horse riding that are safe, sustainable and as far as possible strategically linked to provide opportunities for circular rides (Map 1). Horse riding is not permitted off-track or on former logging tracks that are to be closed and rehabilitated.

The planning area's diversity of native plant and animal species provide opportunities for nature-based activities including bushwalking, photography and bird watching, particularly around the distinctive lagoon systems in Yarringly Nature Reserve and Bungawalbin National Park. Although there are no designated walking tracks within the planning area, the network of management trails and park roads provides good access for bushwalkers.

There are currently no formal picnic areas, camping areas or other visitor facilities within the planning area. Visitor use occurs mainly in Bungawalbin National Park, along Bungawalbin Creek and occasionally at Neileys Lagoon. This includes both day use and camping, and frequent high rainfall means vehicle access to the park is often restricted. Access by small boats and canoes and fishing occur at Bungawalbin Creek. Neileys Lagoon is also used for canoeing.

Current levels of use in the planning area do not warrant visitor facilities and there is a concern that provision of facilities would result in a change in the recreation setting and displace current users. Visitor facilities are provided in other nearby parks such as camping areas at Black Rocks and Woody Head in Bundjalung National Park and day use areas in Broadwater National Park. Facilities in Bundjalung National Park include toilets, walking tracks, barbecues, canoe launching facilities, camping and caravan facilities.

Ongoing monitoring is required to determine any change in the level of use and associated environmental impacts at Bungawalbin Creek and Neileys Lagoon in Bungawalbin National Park. Potential impacts may include an increase in occurrences of bare ground and fire rings, rubbish and clearing of vegetation for camp fires.

Increased impacts may necessitate more formal arrangements in the future such as bollarding to restrict vehicle access and allow walk in camping only. No visitor facilities are envisaged.

There are currently no licensed commercial tour operators in the planning area. Future applications will be assessed on a case by case basis.

Local schools and universities access the park for educational programs. A number of studies have been undertaken on native animal and plant communities in the park by both undergraduate and post-graduate students. Research projects to date have focused on the extremely high diversity of arboreal mammals in the planning area (Sharpe and Goldingay 1998; Hackett and Goldingay 2001; Goldingay and Sharpe 2004; Beyer and Goldingay 2006). There are also opportunities to undertake monitoring and research into the impacts of Climate Change (refer 4.5 Climate Change).

4. ISSUES

4.1 WEEDS AND PEST ANIMALS

Significant parts of the planning area were previously logged, leading to the alteration of the forest structure by reducing canopy cover and encouraging the establishment of weeds in the understorey. These changes have suppressed the processes of natural regeneration and succession. Introduced plants can impact on forest structure, species diversity, habitat values, prevent natural regeneration and have the potential to spread to and from neighbouring land.

Pest animals within the planning area and on adjoining land negatively impact on native animal communities through competition for resources, predation, disturbance and transmission of diseases. Pest animals also impact on native vegetation and have the potential to have an adverse economic impact on neighbouring properties. Table 4 lists weeds and pest animals known to occur in the planning area.

Table 4. Weeds and Pest Animals recorded in the planning area

Weeds		Pest Animals	
Common Name	Scientific Name	Common Name	Scientific Name
Salvinia	<i>Salvinia molesta</i> # *	Wild dog	<i>Canis familiaris</i> ⁺
Alligator weed	<i>Alternanthera philoxeroides</i> # *	European red fox	<i>Vulpes vulpes</i>
Water hyacinth	<i>Eichhornia crassipes</i> #	House mouse	<i>Mus musculus</i>
Groundsel bush	<i>Baccharis halimifolia</i> #	Black rat	<i>Rattus rattus</i>
Winter senna	<i>Senna pendula</i> var. <i>glabrata</i>	Indian myna	<i>Acridotheres tristis</i>
Lantana	<i>Lantana camara</i> # *	Cane toad	<i>Bufo marinus</i>
Camphor laurel	<i>Cinnamomum camphora</i> #	Pig	<i>Sus scrofa</i> ⁺
Blackberry	<i>Rubus fruticosus</i>	Rabbit	<i>Oryctolagus cuniculus</i> ⁺
Castor oil plant	<i>Ricinus communis</i>	Cat	<i>Felis catus</i>
Tobacco bush	<i>Solanum mauritianum</i>	Feral honeybee	<i>Apis mellifera</i>
Morning glory	<i>Ipomoea</i> sp. ~	Straying stock	<i>Bos taurus</i>
Cocos palm	<i>Syagrus romanzoffiana</i>		
Climbing nightshade	<i>Solanum seaforthianum</i>		
Wild cotton bush	<i>Gomphocarpus fruticosus</i>		
Crofton weed	<i>Ageratina adenophora</i> #		
Mistflower	<i>Ageratina riparia</i>		
Blue billygoat weed	<i>Ageratum houstonianum</i>		
Ragweed	<i>Ambrosia artemisiifolia</i> #		
Cockscomb coral tree	<i>Erythrina crista-galli</i>		
Balloon vine	<i>Cardiospermum grandiflorum</i> ~		
Tall fleabane	<i>Conyza alba</i>		
Whiskey grass	<i>Andropogon virginicus</i> ~		
Giant Parramatta grass	<i>Sporobolus fertilis</i> # ~		

Declared noxious under *Noxious Weed Act 1993*

⁺ Declared pest under *Rural Lands Protection Act 1989*

* Declared weed of National Significance

The *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands.

The NPWS *Northern Rivers Region Pest Management Strategy* (DECC 2007) provides management direction at a regional level for weed control, bush regeneration programs and the control of introduced animals. Restoration and rehabilitation plans for specific parks and reserves provide more detailed strategies and work programs.

Key Threatening Processes listed under the TSC Act relevant to the planning area are summarised in Table 5. Lantana is ranked as one of the 20 worst weeds in Australia, and as such is listed as a Weed of National Significance (WoNS). A plan is in development which identifies the research, management and other actions needed to ensure the long-term survival of native species and ecological communities affected by the invasion of lantana (DECC 2008c; Turner *et al.* in press).

Table 5. Key Threatening Processes relevant to the planning area

Key Threatening Process - TSC Act	Key Threatening Process – EPBC Act	Type of threat	Threat Abatement Plan
Invasion, establishment and spread of <i>Lantana camara</i>		Weed	National plan in prep by DECC and Biosecurity QLD; PAS
Invasion and establishment of exotic vines and scramblers		Weed	PAS
Invasion of native plant communities by exotic perennial grasses		Weed	PAS
Predation, habitat degradation, competition and disease transmission by Feral Pigs	Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	Pest Animal	PAS/National Threat Abatement Plan
Predation by the European Red Fox	Predation by European red fox	Pest Animal	Approved NSW Threat Abatement Plan / PAS
Invasion and establishment of the Cane Toad	The biological effects, including lethal toxic ingestion, caused by Cane Toads	Pest Animal	PAS
Predation by feral cats	Predation by feral cats	Pest Animal	PAS
Competition and grazing by the feral European rabbit	Competition and land degradation by rabbits	Pest Animal	PAS
Competition from feral honeybees		Pest Animal	PAS

Wild dogs have been recorded in the planning area. Wild dogs have been declared as pest animals under the *Rural Lands Protection Act 1998* (RLP Act) throughout NSW as they are known to inflict losses and disruption to livestock on rural lands. The NPWS has a statutory obligation to control wild dogs on its estate.

Foxes are widespread throughout the planning area. There is currently a Red Fox Threat Abatement Plan that identifies key processes where pest control is required to protect threatened species populations. Priority threatened species occurring in the

planning area at risk from fox predation include bush stone-curlew, rufous bettong and the endangered north coast emu population.

Populations of feral pigs occur in the planning area, although their distribution is seasonal and is dependent upon climatic conditions and food supply. Abundance of feral pigs is unknown, however during drought times numbers increase due to water and food availability associated with permanent wetlands. "Predation, habitat degradation, competition and disease transmission by feral pigs" is listed under the TSC Act as a Key Threatening Process. The endangered emu population in the planning area is especially susceptible to the predation by feral pigs of chicks and eggs. Opportunistic control of pigs is undertaken within the planning area, generally in drought times when pigs tend to congregate near permanent water sources. The programs occur co-operatively on NPWS estate and adjacent private property.

Cane toads have been recorded in the planning area but in low numbers. The planning area is regarded as beyond the current distribution of this pest but is close to its front of expansion. A Cane Toad Management Strategy has been prepared to identify presence/absence and priority areas for control based on achievability and distribution of cane toads (DECC 2008d). The high conservation value wetlands in the Bungawalbin catchment are a high priority for monitoring and control.

Indian mynas (*Acridotheres tristis*) have been observed on roadsides and in surrounding farmland around the Bungawalbin and Yarringully parks and reserves. NPWS is encouraging community groups and local government to undertake control programs to reduce the spread and numbers in areas off park.

Parts of the planning area have been used for cattle grazing under occupational permits issued under previous state forest tenure. NPWS and neighbours have commenced a program of boundary fencing, however straying stock occasionally enter the planning area where fencing is incomplete or requires repair.

The potential effects of stock grazing include soil compaction, destruction of native vegetation, nutrient enrichment, introduction of weeds and impacts on sensitive wetland habitats. The maintenance of boundary fences is essential to exclude stock and to protect the values of the planning area and is negotiated with neighbours in accordance with the NPWS fencing policy.

4.2 FIRE

Fire is a natural feature of many environments but inappropriate fire regimes can lead to loss of particular plant and animal communities. High frequency fires have been listed as a key threatening process under the TSC Act. The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (DECC 2008b).

Ecological communities sensitive to fire in the planning area include old growth forest habitats for arboreal mammals, and lowland swamp, rainforest and freshwater wetland ecosystems (Sheringham *et al.* 2008). The reserves also contain dry

sclerophyll forests in which bushfires play a vital role in regeneration. Ecological burns within appropriate fire regimes for different vegetation types are important to maintain biodiversity.

The *Bungawalbin National Park, Nature Reserve and State Conservation Area and Yarrungully Nature Reserve and State Conservation Area Fire Management Strategy* outlines the recent fire history of these reserves, key assets within and adjoining the reserves including sites of natural and cultural heritage value, fire management zones which include asset protection zones, and fire control advantages such as management trails and water supply points (DEC 2006). Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the Northern Rivers Bush Fire Management Committee.

4.3 ISOLATION AND FRAGMENTATION

The area surrounding the planning area has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Long term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. Nearby vegetated areas contribute to the habitat values of the planning area and provide ecological corridors to other vegetated areas. Maintaining the integrity of the remaining habitat within the planning area and, where possible, linking this to adjacent areas of vegetated to facilitate wildlife corridors is important in ensuring long term viability of the planning area's biological values.

4.4 CLIMATE CHANGE

Anthropogenic Climate Change has been listed as a key threatening process under the TSC Act. Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases is listed as a key threatening process under the EPBC Act.

Projections of future changes for NSW include higher temperatures, increasing sea levels and water temperatures, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporative demand. These changes are likely to lead to greater intensity and frequency of fires, more severe droughts, reduced river runoff and water availability, increased severity in regional flooding, increased erosion and ocean acidification (CSIRO 2007; Hennessy *et al.* 2005).

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. The potential impact of climate change 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. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates (Hennessy *et al.* 2005).

The low-lying freshwater wetlands and swamp forests of the planning area have the potential to be affected by climate change through increasing tidal influence,

inundation by brackish water and soil shrinkage (DECC 2008a). Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires, pollution and urban expansion, will help reduce the severity of the effects of climate change (Dunlop and Brown 2008). Increasing habitat connectivity and appropriate fire management may also improve the ecological resilience of species (CSIRO 2007).

4.5 ACID SULFATE SOILS AND SOIL EROSION

Potential acid sulfate soils occur in Bungawalbin National Park, Yarringly Nature Reserve and Yarringly State Conservation Area (Atkinson *et al.* 1995; Naylor *et al.* 1998). These are unlikely to be a risk unless disturbed. While there are no actions proposed as part of this plan which will disturb soils, any such activity would be subject to appropriate environmental assessment and mitigation.

Soil erosion is not a major issue in the planning area. However, the more erosive podzolic soils are exposed along some park roads and trails, in particular Mill Road. Mill Road was used as a major forestry timber hauling road and requires remediation and drainage works to reduce the impacts of water erosion. Minor erosion is also evident along sections of Tuckerbox, Number One and Quarry Roads. The NPWS has re-aligned sections of these roads to reduce the impacts of erosion and may undertake further realignments in the future.

4.6 UNAUTHORISED ACTIVITIES

Illegal dance parties have occurred within Bungawalbin National Park. Other parts of the planning area may also be subject to these activities. Dance parties generally involve a gathering of groups of more than 20 people, are typically held at night and may involve consumption of alcohol.

Dumping of rubbish frequently occurs within Bungawalbin National Park and Bungawalbin State Conservation Area and may threaten natural values and attract feral animals.

Unauthorised motor bike riding (including unregistered trail bikes and quad bikes) and four wheel driving occurs along the network of old logging tracks and trails. The continued unauthorised use of trails which are closed to public vehicles may have significant environmental impacts, including increased soil erosion and run-off as well as impacts on water quality particularly by increasing sediment loads and turbidity down stream. Unauthorised vehicle access on these trails aids the spread of weeds as well as increasing the possibility of introducing soil pathogens and diseases.

Since gazettal of the parks and reserves in the planning area, the NPWS has undertaken an educational approach to inform visitors of permissible vehicle access and to encourage appropriate visitor behaviour.

5. MANAGEMENT OPERATIONS AND OTHER USES

In order to achieve protection of the values of the park and to facilitate management operations it is important to build and maintain appropriate infrastructure. Infrastructure and other uses may also be provided on the park by other authorities or for other purposes authorised under the NPW Act.

5.1 ROADS AND MANAGEMENT TRAILS

Vehicle access to the planning area is via the park roads and public roads (refer map) which are generally maintained to a 2WD standard.

A network of management trails is maintained in the planning area for operations such as pest and fire control, and other management purposes (refer to map). These trails are for use by NPWS and other authorised vehicles only, including the NSW Rural Fire Service, other emergency services as required, and contractors. Management trails are closed to public vehicle use. Licensed beekeepers may also be permitted to use relevant management trails to access their hives (refer 5.2 Beekeeping).

There are a number of trails associated with past land use, which are not required for management purposes. It is proposed they be closed/remain closed and be allowed to regenerate.

5.2 BEEKEEPING

There are 13 bee sites located within Bungawalbin National Park and Bungawalbin State Conservation Area that predate gazettal and so are considered existing interests under the NPW Act (Map 1). The European honeybee *Apis mellifera* can have adverse impacts on some native plants and animals (Paton 1996). The NPWS policy on bee keeping allows existing sites to continue but does not allow any new or additional sites. It may be necessary to relocate existing bee sites where apiary activities result in unacceptable environmental impacts, user conflicts or are inconsistent with park management.

5.3 MINING AND MINERAL EXPLORATION

There are two Petroleum Exploration Licence PEL 445 and PEL 13 which occur in Bungawalbin SCA. The Department of Industry and Investment (Formerly DPI Mineral Resources) is the lead authority for mining, mineral exploration and mine site rehabilitation. Department of Industry and Investment is required under the EPA Act to undertake environmental assessments for mining and exploration activities in all SCAs. The existing Memorandum of Understanding (MOU) between NPWS and the former DPI (Mineral Resources) describes the management and consultative arrangements associated with exploration and mining in SCAs.

Exploration licences and assessment leases may be granted within SCAs without the concurrence of the Minister administering the NPW Act but approval must be obtained before any rights under that lease or licence can be exercised. Likewise, the concurrence of the Minister administering the NPW Act must be obtained before any mining lease is issued. In the case of exploration licences and other prospecting titles, an access agreement under the Mining Act 1992 will also be required between the titleholder and the NPWS in order for the titleholder to conduct prospecting operations within a state conservation area.

6. IMPLEMENTATION

Current Situation	Desired Outcomes	Management Response	Priority*
<p>6.1 Wetlands, water quality and catchment management</p> <p>The planning area is part of a large contiguous wetland system which drains into the Bungawalbin Creek. It encompasses several wetlands including permanent lagoons, creeks and riverine floodplain. The lower Bungawalbin Creek is listed as a wetland of national importance.</p> <p>Stream bank erosion occurs along Bungawalbin Creek and minor sheet erosion is evident in areas subject to past disturbance.</p> <p>Acid sulfate soils are known to occur in parts of the planning area but are unlikely to be a risk unless disturbed.</p> <p>Minor soil erosion occurs along some roads and it is proposed to undertake rehabilitation works where necessary (refer 6.7).</p>	<p>Natural hydrological processes continue with minimal disturbance.</p> <p>Catchment values, water quality and health of waterways are maintained or improved.</p>	<p>6.1.1 Liaise with the Northern Rivers Catchment Management Authority, Richmond Valley Council and other relevant stakeholders about opportunities to undertake cooperative management programs to improve water quality.</p>	High
<p>6.2 On-Park Ecological Conservation</p> <p>The wetlands, creeks and permanent lagoons provide important habitat for a variety of native animal species.</p> <p>There are 59 threatened species, one Endangered Population and five Endangered Ecological Communities listed under the TSC Act (Tables 2 and 3). Recovery plans and/or PAS direct recovery actions for threatened species, endangered North Coast Emu population and endangered ecological</p>	<p>Native plant and animal species and communities are conserved.</p> <p>Negative impacts on threatened taxa are stable or diminishing.</p> <p>Structural diversity</p>	<p>6.2.1 Implement relevant strategies in the PAS and recovery plans for threatened species present in the planning area.</p> <p>6.2.2 As a priority, implement PAS actions for the endangered North Coast Emu population, including reducing predation by foxes, dogs and pigs.</p> <p>6.2.3 Encourage surveys to determine the occurrence of koala in the planning area.</p>	High High High

Current Situation	Desired Outcomes	Management Response	Priority*
<p>communities in the planning area.</p> <p>Climate change is recognised as a Key Threatening Process under the TSC Act. Appropriate fire and pest management may improve the ecological resilience of species to climate change and other threats (refer 6.5 Weeds and Pest Animals and 6.6 Fire Management).</p> <p>Neighbours, catchment management authorities and other agencies will be encouraged to retain, and where possible expand areas of native vegetation close to the reserves.</p> <p>The planning area is used by local schools and universities for study and research about ecological processes and natural values.</p> <p>Further research would improve understanding of the planning areas natural and cultural heritage, the processes that affect them (including climate change) and the requirements for management of particular species, in particular threatened species consistent with strategies identified in PAS and recovery plan.</p>	<p>and habitat values are restored in areas subject to past disturbance.</p> <p>Landscape and catchment values are protected.</p> <p>The impacts of climate change on natural systems are reduced.</p>		
<p>6.3 Cultural Heritage</p> <p>The planning area is located within the Country of the Bundjalung Nation and within the Bogal Local Aboriginal Land Council area. The park is subject to a registered native title claim (Bandjalung People 2 - NC98/19).</p> <p>Aboriginal cultural sites have been identified along Bungawalbin Creek and elsewhere within the planning area. An archaeological</p>	<p>Aboriginal places and values are identified and protected.</p> <p>Aboriginal people are involved in management of the</p>	<p>6.3.1 Consult with the Bandjalung Native Title Claimants and Bogal Aboriginal Land Council in the management of Aboriginal sites, places and values, including interpretation of places or values and research.</p>	High

Current Situation	Desired Outcomes	Management Response	Priority*
<p>survey and cultural assessment will be undertaken prior to all works with the potential to impact on Aboriginal or historic sites and places.</p> <p>Any requests for cultural use of wild resources are subject to NPWS policies and any licensing/consent requirements.</p>	<p>Aboriginal cultural values of the park.</p> <p>Understanding of the cultural values of the park is improved.</p>		
<p>6.4 Visitor Use and Services</p> <p>Public vehicle use is restricted to Neileys Lagoon Road and the network of council maintained public roads (namely Myall Creek Road, Myall Creek Extension Road, Coraki-Ellangowan Road, Bungawalbin-Whiporie Road and Moonem-New Italy Road (Map 1)).</p> <p>There is no public vehicle access within Yarringully Nature Reserve and Yarringully State Conservation Area.</p> <p>No visitor facilities are provided in the planning area and visitor use is low. Most visitor use occurs in Bungawalbin National Park, mainly along Bungawalbin Creek and at Neileys Lagoon. Motorised vessels will not be allowed on lagoons and other water bodies in the planning area with the exception of Bungawalbin Creek. Camping will be allowed in Bungawalbin National Park only but no camp fires will be permitted.</p> <p>The lagoon systems within Yarringully Nature Reserve and Bungawalbin National Park are particularly attractive for bird-watching.</p> <p>Management trails and park roads provide bushwalking and cycling opportunities. The road and trail network in Bungawalbin National</p>	<p>Visitor use is appropriate and ecologically sustainable.</p> <p>Negative impacts of visitors on park values are stable or diminishing.</p> <p>Visitor use encourages appreciation of the reserve's values.</p>	<p>6.3.1 Signpost the following roads and trails in Bungawalbin National Park and Bungawalbin State Conservation Area on which horse riding is allowed: Mill Road, Neileys Lagoon Road, Quarry Road, Ironbark Trail, Red Gum Road, Number One Road and Tuckerbox Road (Map 1).</p> <p>6.3.2 Monitor visitor use along Bungawalbin Creek and at Neileys Lagoon. If a significant increase in visitor impacts is determined (i.e. increased fire risk, increase in bare ground, soil erosion or loss of vegetation) consideration will be given to remedial actions such as bollarding to restrict vehicle access and allowing walk in camping only at Bungawalbin Creek and Neileys Lagoon. No visitor facilities will be provided.</p> <p>6.3.3 Continue efforts to inform visitors of permissible vehicle access and to encourage appropriate visitor behaviour. Undertake law enforcement as required.</p> <p>6.3.4 Horse riding groups will be limited to no more than 10 horses. Commercial horse riding and overnight camping with horses will not be permitted.</p> <p>6.3.5 Organised group visits involving more than 20 persons and organised horse events involving more than 10 horses will require consent from NPWS and be assessed on a case</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Ongoing</p> <p>Ongoing</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>Park and Bungawalbin State Conservation Area also offers opportunities for horse riding including circuit rides on designated roads and trails (see Map 1).</p> <p>Dumping of rubbish, dance parties and unauthorised vehicle and motorbike access on management trails and closed roads occur on occasions.</p>		<p>by case basis and in accordance with NPWS policy.</p>	
<p>6.5 Weeds and Pest Animals</p> <p>There are numerous noxious and environmental weeds in the planning area (Table 4). Pest animals recorded in the planning area include cane toads, feral pigs, wild dogs, foxes, rabbits and house mouse.</p> <p>Lantana, cane toads, feral pigs and red fox are species which are identified as Key Threatening Processes under the TSC Act which may impact on threatened flora, fauna, endangered populations and endangered ecological communities in the planning area (Table 5). Threat Abatement Plans have been prepared for some of these species.</p> <p>The Regional Pest Management Strategy identifies priorities for pest control programs across the region. Ongoing control programs are in place for groundsel bush and salvinia.</p> <p>Other plans such as the Northern Rivers Cane Toad Strategy, Threat Abatement Plans and the Casino and Tweed-Lismore Rural Land Protection Board Wild Dog Management Plans, provide a more detailed approach for specific pests and weeds. Currently the</p>	<p>Introduced plants and animals are controlled and where possible eliminated.</p> <p>Negative impacts of weeds and pest animals on park values are stable or diminishing.</p> <p>Pest control programs are undertaken where appropriate in consultation with neighbours.</p>	<p>6.5.1 Prepare and implement a pest management strategy for the planning area. Pending preparation of this plan, continue to manage pests and weeds in accordance with the Northern Rivers Region Pest Management Strategy and other relevant plans/strategies (refer 6.5).</p> <p>6.5.2 The cooperation of relevant authorities and neighbours will also be sought in implementing weed and pest control programs.</p>	<p>High</p> <p>Ongoing</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>planning area has a medium priority for control of cane toads. The planning area would also benefit from a specific pest strategy.</p> <p>A national feral pig Threat Abatement Plan and statewide fox Threat Abatement Plan are relevant to management of these species.</p> <p>Control programs will be undertaken in cooperation with the North Coast Livestock Health and Pest Authority, Bungawalbin Catchment Landcare group, and Forests NSW.</p>			
<p>6.6 Fire Management</p> <p>Vegetation communities sensitive to fire in the planning area include lowland swamp, rainforest and freshwater wetland ecosystems. Structural elements such as tree hollows used by birds and arboreal mammals can also be destroyed by fire. Ecological burns within appropriate fire regimes for different vegetation types are important to maintain biodiversity, however too frequent fire may have a detrimental affect on biodiversity.</p> <p>A Fire Management Strategy was approved for the planning area in 2006.</p> <p>Assets at risk from wildfire include Aboriginal sites in the planning area and plantations, dwellings and structures on neighbouring properties.</p> <p>The Fire Management Strategy identifies most of the planning area as Land Management</p>	<p>Life, property and natural and cultural values are protected from fire.</p> <p>Fire regimes are appropriate for conservation of native plant and animal communities.</p> <p>Negative impacts of fire on natural and cultural heritage values are stable or diminishing.</p>	<p>6.6.1 Implement the Fire Management Strategy for the planning area and update as necessary.</p>	<p>High</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>Zones, where conservation of biodiversity is the primary objective for management. There are two Strategic Fire Advantage Zones in the Bungawalbin National Park and one in the Bungawalbin State Conservation Area to limit fire spread. There is one Asset Protection Zone in Yarringly State Conservation Area to protect neighbouring assets. Dams in Bungawalbin State Conservation Area and Yarringly Nature Reserve, formerly constructed for stock, are to be retained as water points for fire fighting vehicles.</p>			
<p>6.7 Infrastructure and Maintenance A network of roads and management trails are maintained for fire and other management purposes (Map 1). Sections of Tuckerbox, Number One and Quarry Roads have been realigned to reduce erosion impacts. Works may be required to reduce erosion along some roads, such as Tea Tree Trail and Mill Road. If necessary, realignment of roads and other works may be undertaken to minimise erosion.</p>	<p>Management facilities and operations adequately serve management needs and have minimal impact.</p> <p>Infrastructure and assets are routinely maintained.</p> <p>Existing non-park infrastructure is managed to minimise impacts on natural and cultural values.</p> <p>Mining and exploration activities have minimal impact</p>	<p>6.7.1 Maintain the network of roads and management trails identified on Map 1.</p> <p>6.7.2 Gate and/or signpost management trails as necessary to restrict unauthorised access.</p> <p>6.7.3 Monitor the impacts of apiary sites in the park.</p> <p>6.7.4 Maintain existing fencing agreements and seek new agreements to keep straying stock out of the planning area. Fencing assistance may be provided in accordance with NPWS policy.</p>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>
<p>Thirteen bee sites are located in Bungawalbin National Park and Bungawalbin State Conservation Area. 'Competition from feral honeybees' is listed under the TSC Act as a Key Threatening Process. Feral honeybees occupying hollows in old growth trees could affect threatened species such as the brush-tailed phascogale, squirrel glider and yellow-bellied glider. Existing bee keeping sites will be permitted to continue in accordance with the NPWS policy on bee keeping. If in the future apiary activities result in unacceptable</p>			

Current Situation	Desired Outcomes	Management Response	Priority*
<p>environmental impacts, user conflicts or are inconsistent with other park management objectives then NPWS will negotiate with apiarists to relocate hive sites.</p> <p>There are two Petroleum Exploration Licences in Bungawalbin SCA. Applications for mining or exploration in the SCA are subject to environmental assessment in accordance with the Memorandum of Understanding between NPWS and Department of Industry and Investment.</p> <p>There are occasional incidences of cattle entering the planning area where boundary fencing is inadequate.</p>	<p>on natural and cultural values.</p> <p>Boundary fencing is adequate to exclude domestic stock from entering the planning area.</p>		

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

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

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

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 arises.

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