



NSW NATIONAL PARKS & WILDLIFE SERVICE

# Bongil Bongil National Park

Plan of Management



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Figure 1

Bongil Bongil National Park

# 1. Introduction

## 1.1 Location, reservation and regional setting

Features	Description
Location	Bongil Bongil National Park (also referred to as 'the park' in this plan) is located on the Mid North Coast of New South Wales. The northernmost part of the park is 10 kilometres south of the city of Coffs Harbour, stretching between the villages of Sawtell in the north, Mylestom in the south and Valery to the west.
Area and reservation dates	<p>The park was originally reserved in 1995 and the first plan of management for the park was adopted in 1999 (NPWS 2009) after extensive public consultation (see Section 2.3). There have been a number of subsequent additions to the park and the area of the park is now 4316 hectares. Park additions to date:</p> <ul style="list-style-type: none"> <li>• 978 hectares in December 1995</li> <li>• 3156 hectares in July 2003</li> <li>• 1 hectare in April 2004</li> <li>• 97 hectares in July 2006</li> <li>• 1 hectare in October 2007</li> <li>• 83 hectares in February 2011.</li> </ul> <p>The area covered by this plan includes a number of roads, land blocks and essential service corridors that are vested in the Minister under Part 11 of the <i>National Parks and Wildlife Act 1974</i>. This is to ensure continued access to neighbouring land and to accommodate uses not closely aligned with nature conservation e.g. powerline easements. These areas do not form part of the reserved area of the park but their management is subject to this plan, the National Parks and Wildlife Regulation and the requirements of the <i>Environmental Planning and Assessment Act 1979</i> (see Section 5.1).</p> <p>The park is reserved to the mean low water mark along its eastern boundary and therefore includes the intertidal zone along approximately 10 kilometres of beachfront. This allows the NSW National Parks and Wildlife Service (NPWS) to manage and regulate activities in the intertidal zone. The park also protects over 100 hectares of creek bed on Pine and Bonville creeks (see Figure 1 – area shown as 'National park waters') that has been reserved as part of the park. This plan of management applies to these lands but does not prohibit any action authorised under the <i>Fisheries Management Act 1994</i>.</p>
Previous tenure	<p>The first stage of the establishment of the park in 1995 followed the acquisition of freehold lands at Bonville Beach (including large areas of eucalypt plantation), coastal Crown land and part of Pine Creek State Forest including Bundagen Flora Reserve.</p> <p>Major additions were made in 2003, as a result of the North East Regional Forest Agreement that included 2786 hectares of Pine Creek State Forest being added to the park under the <i>National Park Estate (Reservations) Act 2003</i>. Also in 2003, 361 hectares were added to the park from freehold and Crown land. These areas included freehold land north of Bonville Creek (including the Bongil Day Use Area) and a small area of freehold land south of the creek around the Pine Creek Trail area.</p> <p>Also included in these additions was approximately 9 hectares of Crown land previously managed by Coffs Harbour City Council. This addition was for land at the mouth of Bonville Creek and included part of the bed of Bonville Creek. In 2006, there was a delayed transfer of land of 97 hectares from the</p>

Features	Description
	National Park Estate (Reservations) Act. As part of the additions in 2011, 71 hectares (land north of Reedys Forest Road) was added to the park as compensatory habitat purchased by the NSW Government to offset biodiversity impacts associated with the Pacific Highway upgrade.
Regional context	
Biogeographic region	The park lies within the NSW North Coast Bioregion and the Coffs Coast and Escarpment Subregion (Thackway & Cresswell 1995). The park is at the eastern end of an almost complete corridor of conserved and forested public lands linking New England National Park to the coast through Bellinger River, Dorrigo and Bindarri national parks.
Surrounding land use	Neighbouring land uses include: Pine Creek State Forest; grazing lands; a large multiple-occupancy residential community, Bundagen Cooperative; rural residential land; and high, medium and low density urban residential land.
Other authorities	The park is located within the areas of the Coffs Harbour and District Local Aboriginal Land Council, North Coast Local Land Services, and Coffs Harbour City and Bellingen Shire council areas.

## 1.2 Statement of significance

Bongil Bongil National Park is significant because of the following values:

### Landscape and catchment values

The park protects important coastal wetlands, creeks and estuaries that are crucial habitat for many native plant and animal species.

In the 2019-20 bushfires, substantial areas of parks in this region were burnt. The fires did not impact Bongil Bongil National Park, increasing the significance of the park for protection of plant and animal species and habitat.

### Biological values

The park has a diverse range of vegetation, including threatened ecological communities such as Littoral Rainforest and Swamp Sclerophyll Forest on Coastal Floodplains. It protects some highly significant and restricted species such as the koala (*Phascolarctos cinereus*), little tern (*Sternula albifrons*), Floyd's grass (*Alexfloydia repens*), rainforest cassia (*Senna acclinis*) and provides breeding habitat for an endangered butterfly, the black grass-dart (*Ocybadistes knightorum*).

### Aboriginal connections to Country

The park is part of Country for the Gumbaynggirr People. While a few discrete sites are formally recorded, numerous additional sites are predicted to occur in the park including midden sites along undisturbed sections of the coastline.

### Historic heritage

The majority of the park has an extensive history of timber-getting, with various forms of physical evidence of this prior land use, including an old forestry workshop, depot at Grandis Camp, remains of the Pine Creek Public School and an old forestry dormitory that is now holiday rental accommodation known as Tuckers Rocks Cottage.

### Recreation and tourism opportunities

The park provides low-impact recreational opportunities such as bushwalking, cycling, fishing, beach walking, birdwatching, canoeing and limited opportunities for horse riding. It also provides coastal holiday rental accommodation at Tuckers Rocks Cottage.

### Research opportunities

There are opportunities in the park for research on rehabilitation and regeneration, particularly in the former plantations and areas disturbed by sandmining.



## 2. Management context

### 2.1 Legislative and policy framework

The management of national parks in New South Wales is in the context of a legislative and policy framework, primarily the National Parks and Wildlife Act and Regulation, the NSW *Biodiversity Conservation Act 2016* and the policies of NPWS.

Other legislation, strategies and international agreements may also apply to management of the area. In particular, the Environmental Planning and Assessment Act may require assessment of the potential environmental impact 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* may apply in relation to actions that impact matters of national environmental significance, such as migratory and 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 a 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 the park. 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 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 section 30E of the National Parks and Wildlife Act, national parks are managed to:

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

The primary purpose of national parks is to conserve nature and cultural heritage. Opportunities are provided for appropriate visitor use in a manner that does not damage conservation values.

## 2.3 Specific management directions

The first plan of management for the park was adopted in 1999, following extensive community consultation. The management direction of that plan of management is reflected in this plan, particularly in relation to the original sections of the park. This replacement plan has been prepared to address matters specific to the additions to the park which have occurred since 1999.

In addition to the general principles for the management of national parks (see Section 2.2), specific management directions that apply to the park are:

- protect the habitat values of the park, particularly for threatened species such as the koala, little tern, pied oystercatcher (*Haematopus longirostris*), Floyd's Grass, black grass-dart butterfly and six threatened ecological communities
- protect water quality, including the wetlands, creeks and estuarine environments
- rehabilitate degraded areas within the park to enhance their natural condition and the habitat values they provide for a wide diversity of native plants and animals, including continuing to implement the operations plan for rehabilitating former eucalypt plantations in the park
- allow for continued access to neighbouring private property and state forest
- provide appropriate opportunities that enhance visitor experiences and opportunities available on adjoining land tenures, such as cycling and horse riding
- protect the significant ecological values of the park from the damaging impacts of weed invasion, pest animal predation, wildfire and inappropriate human use.

## 3. Values

This plan aims to conserve both the natural and cultural values of the park. The location, landforms and native plant and animal communities influenced how the area 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 are dealt with individually, although their interrelationships are recognised.

### 3.1 Geology, landscape and hydrology

The major geological types within the park are Quaternary sands and alluvium, and Devonian and Permian metasediments. The dominant features of the coast are Holocene sandy beaches and dunes. Undifferentiated Pleistocene sands and low-lying freshwater swamps adjoin the dunes. Quaternary alluvium occurs in areas along the floodplains, terraces, back-swamps and colluvial and alluvial fans of Pine and Bonville creeks (Pogson & Hitchins 1973, cited in Cameron et al. 2011). The largely ephemeral creeks that transect the hind dunes are well-developed and their morphology suggests they probably evolved during the same period as the beach deposits.

There are two types of metasedimentary rocks in the park. In the south, Permian sedimentary rocks or Nambucca Beds (Bellingen Slates) form low, rolling coastal hills. In the North Bonville area, the underlying geology comprises younger Devonian sediments of the Brooklana Beds and Moombil Siltstones (Pogson & Hitchins 1973, cited in Cameron et al. 2011). The Brooklana Beds are comprised of mudstone, siltstone, minor wacke, chert, jasper and metabasalt. The Moombil Siltstone is comprised of massive siltstone, minor wacke and granular conglomerate.

The soil landscape can be divided into a number of groups: transferral, colluvial, erosional, alluvial, deltic/estuarine, aeolian and barrier sand and beach/barrier. Soil types consist of quartzose dune sands on the stable foredunes and quartzose beach sands, which is unconsolidated sand either side of the dunes, and yellow earths (podosols) that occur along the estuary flats and terraces of the creeks and other areas subject to inundation (Cameron et al. 2011). On the undulating coastal hills, colluvial soils occur with Bellingen slate of the Nambucca Beds. West of the Pacific Highway on steep slopes near Seaview Hill, there is a colluvial landscape with metasediments of the Nambucca Beds. The majority of the park has an elevation of less than 60 metres above sea level. Elevations rarely exceed 70 metres, with the exception of Seaview Hill (170 metres) in the south-west. Some areas of the park are regularly subject to flooding during and after high rainfall events.

The steep foothills west of the park are drained by numerous streams that flow onto the coastal plain. These streams merge into watercourses such as Bonville Creek and Pine Creek, or drain into swamp or wetland areas. Scrub Creek transects the parallel dune–swale system behind the frontal dunes, but unlike other creeks within the park, has no apparent permanent ocean outlet and is essentially a closed system.

Prior to 1999, an artificial causeway existed across Scrub Creek between Palm Crossing Trail and Overhead Bridge Road, impeding the creek's natural flow and drainage. Environmental assessment and restoration of the creek was undertaken, including excavation and removal of the causeway. Rectification work was also undertaken in 1988 at a nearby location through the replacement of a damaged culvert on Souris Road in the upper reaches of Scrub Creek. These works have re-established the natural function and drainage pattern of Scrub Creek.

Bonville Creek and Pine Creek, whose upper catchments sit outside the park, are regularly impacted by storm events and flash flooding, which result in rapid changes to the creeks' flow and siltation levels, particularly on the downstream stretches of Bonville Creek. In 2012, heavy rainfall and surging seas led to a complete closure of Bonville Creek at the mouth. This impounding of the creek's discharge into the ocean led to water levels rising and partial inundation of low-lying areas of the park and neighbouring properties. Coffs Harbour City Council initiated, with NPWS support, some excavation and removal of sand build-up at the mouth of Bonville Creek in an effort to alleviate the impacts of further flooding on some of these lower-lying properties and to alleviate impacts on the threatened ecological communities upstream (see Section 3.2). Such changes to flow patterns in Bonville Creek have the potential to harm the breeding colony of little terns on the Bongil Spit and to affect sensitive vegetation communities such as those providing habitat to Floyd's grass in the park through inundation and changes to habitat condition (see Sections 3.2 and 3.3).

From around the early 1950s to the mid-1970s a number of areas on the eastern coastal fringe of the park were used for sand and associated mineral sands extraction. A number of small sandmine pits remain at the eastern end of both Palm Crossing and Bongil Beach trails within the park. While these areas are slowly and naturally rehabilitating, weed invasion remains an issue. A second, longer mineral sands strip mine extended from the start of Bongil Beach Trail to between Eastern and Western Peninsula trails, northward to the junction of Bonville and Pine creeks. The impacts of these mining operations upon the park's hydrology are unknown.

## Issues

- Storm events, siltation and flooding are likely to continue as ongoing issues for the park and will affect hydrology of the creek systems (see also Section 4.4).
- Negative impacts on low-lying areas of high conservation value within the park can be expected if the mouth of Bonville Creek closes again or if coastal storms push a new mouth for Bonville Creek through the dunal barrier system, south of its existing location.
- Erosion and sedimentation of the park's drainage networks and waterways may occur sporadically due to the combined impacts of high rainfall events and land uses outside the park.

## Desired outcomes

- Existing water quality and the health of the park's creeks and waterbodies is maintained.
- Historical sandmines and extraction areas within the park are restored.
- Park management activities cause minimal erosion.

## Management response

- 3.1.1 Carry out trail and track maintenance in a manner that minimises erosion and siltation of watercourses.
- 3.1.2 Monitor trails and other known erosion sites and take action if needed to minimise impacts on water quality.
- 3.1.3 Liaise with neighbours and adjoining land management authorities to minimise the impact of trail and road maintenance and adjacent land uses on water quality and erosion in the park.
- 3.1.4 Work with Coffs Harbour City Council to maintain stormwater drains and related infrastructure to minimise siltation in the park and associated waterways.

- 3.1.5 Assist Coffs Harbour City Council with the re-opening of Bonville Creek mouth if required.
- 3.1.6 Permit research opportunities to investigate the restoration and natural regeneration of the historical sandmines and extraction areas within the eastern area of the park.

## 3.2 Native plants

The park protects a diverse range of plants, with over 670 plants recorded for the park (Cameron et al. 2011). There are 33 different and distinct vegetation communities within the park. Many of these have restricted distributions or are threatened. The distribution of vegetation communities in the park is strongly influenced by climate, geology, aspect and topographical position in metasedimentary areas; and by the influence and level of inundation by floodwaters and tidal impacts in the creek and estuarine areas (Cameron et al. 2011). The disturbance history of the park has had a significant role in determining the characteristics of vegetation communities, especially where intensive silvicultural treatments and fire have been repeatedly applied.

From 2008 to 2011 a detailed vegetation survey and mapping project was undertaken for the park by staff of the former Office of Environment and Heritage (OEH) (Cameron et al. 2011). The project provides one of the most comprehensive vegetation studies for a park of this size within the NSW parks network to date. The project produced a fine-scale vegetation map incorporating full floristic surveys at 111 sites. The study has improved the knowledge of the distribution and abundance of plant species and will aid biodiversity management.

The most common vegetation types in the park are Blackbutt – Flooded Gum – Turpentine – Tallowwood Wet Sclerophyll Forest (22%) and Blackbutt – Turpentine – Tallowwood Grassy Ferny Dry Open Forest (20%). Of the 33 vegetation communities mapped, 26 cover less than 2% each. Some of the most restricted vegetation communities in the park include Headland Brushbox Littoral Rainforest, Tanton Tea-tree Shrubland, Scribbly Gum Sand Forest, Dune Soak Shrublands and Saltwater Couch Saltmarsh (Cameron et al. 2011).

Blackbutt – Flooded Gum – Turpentine – Tallowwood Wet Sclerophyll Forest is widespread throughout the forested areas of the park. Flooded gum (*Eucalyptus grandis*) dominates the lower eastern section of the park and Sydney blue gum (*E. saligna*) naturally replaces this species west of the Pacific Highway (except where it has been introduced in plantation locations). The Blackbutt – Turpentine – Tallowwood Grassy Ferny Dry Open Forest is widely distributed in drier forest areas, especially on more fire-susceptible ridge top locations. In some parts of the park, this community is likely to be a result of frequent logging and fire disturbance where the understorey layer of moist shrubs has been reduced (Cameron et al. 2011).

Table 1 lists the six threatened ecological communities that cover 546 hectares of the park (Cameron et al. 2011). Four main patches of Littoral Rainforest have been identified in the park. They include a large area south of Bundagen Headland, one on the south-east side of Bundageree Creek just north of Tuckers Rocks, another behind the dunes of Bongil Beach adjacent to Bundagen Cooperative lands and one east of Scrub Creek. The Littoral Rainforest between Tuckers Rocks and Bundagen Headland in the south of the park forms the second largest area of this rare rainforest community remaining in the state and is also one of the most floristically diverse.

**Table 1 Threatened ecological communities mapped in the park**

Ecological community (short titles)	Area (ha)	Dominant species
Swamp Sclerophyll Forest on Coastal Floodplains	300	Broad-leaved paperbark ( <i>Melaleuca quinquenervia</i> ), willow bottlebrush ( <i>Callistemon salignus</i> ) and swamp oak ( <i>Casuarina glauca</i> )
Lowland Rainforest	129	Bangalow palm ( <i>Archontophoenix cunninghamiana</i> ), maiden's blush ( <i>Sloanea australis</i> ), coachwood ( <i>Ceratopetalum apetalum</i> ) and hairy-leaved bolly gum ( <i>Neolitsea dealbata</i> )
Littoral Rainforest <sup>1</sup>	82	Small-leaved lilly pilly ( <i>Syzygium luehmannii</i> ), pear-fruited tamarind ( <i>Mischocarpus pyriformis</i> subsp. <i>pyriformis</i> ), and myrtle ebony ( <i>Diospyros pentamera</i> )
Coastal Saltmarsh	20	Species present in certain areas include sea rush ( <i>Juncus kraussii</i> subsp. <i>australiensis</i> ), saltwater couch ( <i>Sporobolus virginicus</i> var. <i>minor</i> ), <i>Sarcocornia quinqueflora</i> and <i>Schoenoplectus subulatus</i>
Swamp Oak Floodplain Forest	17	Swamp oak with understorey saltmarsh species <i>Baumea juncea</i> ( <i>Sporobolus virginicus</i> ), matgrass ( <i>Hemarthria uncinata</i> ) and wig rush ( <i>Baumea juncea</i> )
Lowland Rainforest on Floodplain*	9	Maiden's blush – white booyong ( <i>Argyrodendron trifoliolatum</i> ) floodplain subtropical rainforest

<sup>1</sup> Also listed as critically endangered under the Environment Protection and Biodiversity Conservation Act.

Also of particular significance is a population of hoop pine (*Araucaria cunninghamii*) on Pine Creek that is considered to be naturally occurring and thought to be the reason for the naming of Pine Creek (A Floyd [botanist] pers. comm.).

The park has had a long history of timber harvesting and production, and a number of hardwood eucalypt plantations were established before the park's reservation. Some of these areas are now being progressively managed in accordance with an operations plan for their rehabilitation (NPWS 2007) (see Section 4.3).

There is a need to provide suitable habitat trees for koalas, particularly in previously disturbed areas. It is thought that flooded gum is over-represented in the area and the key tree species for regeneration should focus on tallowwood and swamp mahogany (*E. robusta*), which are thought to be the main habitat species for the koala (Millard 2012).

There are a number of former plantation sites within the park that consisted of introduced species such as slash pine (*Pinus elliottii*), and native species not endemic to the area, including hoop pine and Gympie messmate (*E. cloeziana*). Most of these plantations have been subject to treatment, including removal of mature trees and, where possible, sale of the harvested timber. These sites remain the focus of weed control activity as soil-stored seed germinates.

Two critically endangered, seven endangered and four vulnerable species listed under the Biodiversity Conservation Act have been recorded in the park (see Table 2). One species, scented acronychia (*Acronychia littoralis*) is also listed as threatened under the Environment Protection and Biodiversity Conservation Act.

**Table 2 Threatened and significant plant species recorded in the park**

Common name	Scientific name	BC Act status	Significance <sup>1</sup>
Aniseed tree	<i>Anetholea anisata</i>		Rare and restricted
Arrow-head vine	<i>Tinospora tinosporoides</i>	Vulnerable	
Brown fairy-chain orchid	<i>Peristeranthus hillii</i>	Vulnerable	
Floyd's grass	<i>Alexfloydia repens</i>	Endangered	
Green elf orchid	<i>Acianthella amplexicaulis</i>		Rare
Nambucca ironbark	<i>Eucalyptus fusiformis/ancophila</i>		Rare and restricted
Narrow-leaved milk vine	<i>Marsdenia fraseri</i>		Rare
Native guava	<i>Rhodomyrtus psidioides</i>	Critically endangered	
Rainforest cassia	<i>Senna acclinis</i>	Endangered	
Red-flowered king of the fairies	<i>Oberonia titania</i>	Vulnerable	
Rusty plum	<i>Niemeyera whitei</i>	Vulnerable	
Sand spurge	<i>Chamaesyce psammogeton</i>	Endangered	
Scented acronychia <sup>2</sup>	<i>Acronychia littoralis</i>	Endangered	
Scrub turpentine	<i>Rhodamnia rubescens</i>	Critically endangered	
Slender marsdenia	<i>Marsdenia longiloba</i>	Endangered	
Slender screw fern	<i>Lindsaea incisa</i>	Endangered	
Spider orchid	<i>Dendrobium melaleucaphilum</i>	Endangered	

<sup>1</sup> Significance based on classification by Briggs & Leigh 1996.

<sup>2</sup> Also listed as endangered under the Environment Protection and Biodiversity Conservation Act.

Floyd's grass is a restricted species known from the forested floodplain wetlands bordering Pine and Bonville creeks in the park. It has a range restricted to the Coffs Harbour to Macksville regions of New South Wales. Floyd's grass is the sole known food plant and provides critical breeding habitat for the endangered black grass-dart butterfly (NSW SC 2002). The park is known to contain 73 individual patches of Floyd's grass with a total combined area of 16 hectares (Cameron et al. 2011).

Slender screw fern has been recorded at three localities in the north of the park, with all records occurring at the base of foot slopes where clay-based soils meet damp sandy soils. This species is endemic to the North Coast and records in the park represent the known southern limit of the species (Cameron et al. 2011).

Scented acronychia is a medium-sized tree found in scattered locations on sand close to the beach south of Sawtell. A significant population of the rare rainforest cassia was found in 2002 on and around Bundagen Headland. This population is found on both the thin strip of the park in this locality and on the adjacent Bundagen Cooperative lands.

The four orchids listed in Table 2 (brown fairy-chain orchid, red-flowered king of the fairies, spider orchid and green elf orchid) are all found either in or around Floyd's grass habitat or in the park's Littoral Rainforest communities. Strategies for the recovery of some threatened species, populations and ecological communities have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017). 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). Individual recovery plans for species listed under the Commonwealth Environment Protection and Conservation Act may also be prepared for threatened species to consider management needs and address species decline. Numerous recovery plans for NSW threatened species have been prepared and provide information on species' requirements, life cycle needs and habitat requirements.

A number of species in Table 2, including the threatened scented acronychia, rainforest cassia, sand spurge and slender marsdenia, are coastal fringe-dwelling species that may all be significantly affected by bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata*) invasion and are highlighted as key species to protect under the bitou bush threat abatement plan (DEC 2006).

## Issues

- The potential for future impoundment of the Bonville Creek/Pine Creek estuary may lead to prolonged inundation of numerous threatened ecological communities and species, including Floyd's grass and black grass-dart habitat.
- Weed invasion is an ongoing threat to the native plants in the park (see Section 4.1), and priority species for control include broadleaf paspalum (*Paspalum mandiocanum*), lantana (*Lantana camara*), bitou bush, glory lily (*Gloriosa superba*) and blue billygoat weed (*Ageratum houstonianum*).
- Floyd's grass is located in some locations close to walking tracks and is threatened by trampling and unauthorised mountain biking, particularly adjacent to the North Bank Walk.
- Floyd's grass is also found at the northern end of Burma Road. It is impacted by cars driving over it. NPWS proposes restricting vehicle access at the end of the road and encouraging people to walk the last section (see also section 3.6).
- The large areas (660 hectares) of hardwood plantations within the park are generally in poor ecological condition, with poor forest structure and low species diversity. These areas present significant restoration and rehabilitation issues for park managers.
- Flooded gum is over-represented in the area due to previous plantation activities. There is a need to ensure tallowwood and swamp mahogany are re-established to improve species diversity and to assist with providing key habitat trees for the koala.

## Desired outcomes

- Populations of significant plant and ecological communities are conserved.
- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened plant species are identified, protected and maintained.
- Structural diversity and habitat values are restored in degraded areas, including priority areas for koalas and plantation sites.

## Management response

- 3.2.1 Implement relevant recovery actions in the *Biodiversity Conservation Program* for threatened species, populations and communities occurring in the park. Strategies include: survey and map populations, control weeds and manage visitor impacts in known habitat, and prevent fire wherever possible from entering Floyd's grass habitat.



- 3.2.2 Continue to undertake weed control in priority areas including Littoral Rainforest and Lowland Rainforest areas, and in Floyd's grass habitat.
- 3.2.3 Investigate options to rehabilitate existing hardwood plantations to improve ecological function where possible. Ensure key species used for rehabilitation include tallowwood and swamp mahogany, which are important habitat trees for koalas.
- 3.2.4 Encourage natural regeneration of previously cleared areas. Monitor vegetation recovery and assist natural regeneration if required.

### 3.3 Native animals

The park has a high diversity of animal species, with over 259 species recorded. Forty-eight of these are considered threatened or otherwise significant (see Appendix A). Of these, 31 are birds (shorebirds, migratory, owls), 11 are mammals (arboreal, seals, bats), three are amphibians (frogs), two are invertebrates (a butterfly and a giant dragonfly) and one is a reptile (sea turtle). This animal diversity relates to the variety of vegetation types that provide a wide range of habitats for these species.

In spite of this diversity, it is notable that there are only a few individual recordings of many of the rare forest birds (e.g. forest owls). It is considered probable that populations of these species, arboreal mammals such as greater gliders (*Petauroides volans*), yellow-bellied gliders (*Petaurus australis*) and brush-tailed phascogales (*Phascogale tapoatafa*), and other hollow-dependent species are reduced.

This reduction is likely due to the park's history of intensive logging and silvicultural practices. In forests managed for timber and firewood production, silvicultural practices have greatly reduced the density of hollow-bearing trees, especially where repeated harvesting events have occurred (Lindenmayer et al. 1991a, Smith et al. 1994, Ross 1999, all cited in NSW SC 2011b). Culling of mature trees to reduce competition with younger, production trees has specifically targeted large hollow-bearing trees (OEH 2007). Populations of hollow-dependent animals are predicted to recover as the forest ages. The density of hollow-bearing trees will gradually increase until reaching an equilibrium of recruitment and loss, albeit possibly with a long time lag in some areas (NSW SC 2011b).

The **koala** is one of the most important animal species found in the park and its presence was one of the main arguments used in the campaign to secure the Pine Creek State Forest additions as part of the state's protected area network. The koala population between Bellinger River, Red Rock and Guy Fawkes River National Park has statewide significance as one of the three major concentrations of koala records in north-east NSW (Smith 1997). There have been more than 250 individual records for koalas for the park. In 1995–96 the koala population in the original Pine Creek State Forest area was estimated to be between 340 and 450 animals (State Forests 2000).

In the mid-1990s there was increasing awareness of the importance of the koala population in the Pine Creek area and local community concerns were growing about the impacts of ongoing timber harvesting on the species (State Forests 2000). Before the additions to the park in 2003, a koala management plan for Pine Creek State Forest was prepared to allow for continuation of harvesting operations while proposing interim protection for areas of core koala habitat, specifically those forest associations with a high proportion of tallowwood, the koala's preferred food species on the NSW North Coast.

Local volunteers have been dedicated to the protection of koalas in the park and surrounding land for many years. They have monitored koalas in the park and assisted with advice and protection measures for this species. They have collaborated with Australian Museum Business Services to investigate impacts of the Pacific Highway realignment on koalas and on ongoing monitoring of impacts associated with this development.

In 2013 a community koala survey program was designed and implemented within core koala habitat in the park (NPWS 2014). The purpose of the program is to replicate the methodology over many years, thereby determining a measure of relative abundance for this species in the park.

The park also contains the site of the most important **little tern** breeding colony on the NSW North Coast, the third most productive in the state.

The Bongil little tern nesting site recovered from the brink of localised extinction in 1996, with successful little tern breeding occurring from 2000. Since 1998, local volunteers have taken on the role of wardens, checking the site daily during the breeding season and educating people about the threats to these birds.

The little terns nest annually over spring and summer at the northern sand spit at the mouth of Bonville Creek (see Figure 1). The colony is threatened by disturbance from humans, predation from foxes (*Vulpes vulpes*) and feral cats (*Felis catus*), wild and domestic dogs (*Canis lupus* subsp.) and by native animals such as goannas (*Varanus* spp.) and forest ravens (*Corvus tasmanicus*).

The Bongil Spit is now being used by breeding pairs of pied oystercatchers, another endangered species of shorebird found within the park. Numerous pairs of this species have successfully raised young within the protective little tern breeding compound over recent years. Occasional sightings of the critically endangered beach stone-curlew (*Esacus magnirostris*) have also been recorded on the Bongil Spit over recent years.

The park is also important for birds listed under the Environment Protection and Biodiversity Conservation Act including waders and birds listed under the China–Australia Migratory Bird Agreement (CAMBA), Japan–Australia Migratory Bird Agreement (JAMBA) and Republic of Korea – Australia Migratory Bird Agreement (ROKAMBA), with 14 migratory bird species recorded in the park (see Appendix A). All species listed under CAMBA, JAMBA and ROKAMBA recorded within the park are listed under the Environment Protection and Biodiversity Conservation Act.

Other significant species recorded in the park include two endangered invertebrate species: the black grass-dart (a butterfly), and the coastal petaltail (*Petalura litorea*) which is a giant dragonfly.

The park is key habitat for the black grass-dart, which is only found on the Mid North Coast between Diggers Headland at Coffs Harbour and Warrell Creek (just south of Macksville), in places where its sole known food plant, Floyd's grass, occurs (see Section 3.2) (NSW SC 2002).

The coastal petaltail dragonfly is a highly restricted species known from coastal locations between Coffs Harbour and Ballina. This record for the park is the southern limit for this species (M Andren pers. comm.). The main threats to these species' habitats are sea level rise, weed invasion and human disturbance (Andren & Cameron 2012).

It is also highly likely the park contains the giant barred frog (*Mixophyes iteratus*), which is listed as endangered under the Biodiversity Conservation Act and the Environment Protection and Biodiversity Conservation Act. This species is yet to be recorded in the park, but suitable habitat is found around Pine Creek west of the highway and in permanent or near-permanent pools on the larger tributaries.

As for native plants, strategies for the recovery of threatened animal species, populations and ecological communities are set out in the statewide *Biodiversity Conservation Program* (OEH 2017) and are prioritised and implemented through the *Saving our Species* program (OEH 2013a). Individual recovery plans that consider management needs in more detail may be prepared for species listed under the Commonwealth Environment Protection and Biodiversity Conservation Act. Numerous recovery plans for NSW threatened species (e.g.

koala, little tern, large forest owls and yellow-bellied glider) have been prepared and provide information on species' requirements, life cycle needs and habitat requirements.

## Issues

- Breeding shorebirds, including the little tern and pied oystercatcher, are threatened by disturbance from foxes, humans, domestic and wild dogs, and predation of eggs by some feral and native animals.
- The koala is a key species for the park. Old plantations and degraded areas of the park need to be rehabilitated to improve habitat for this species.
- There is a need to protect the black grass-dart, which is restricted to the Coffs Harbour area, and its sole food plant, Floyd's grass.

## Desired outcomes

- Significant animal species and populations are conserved.
- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened animal species are protected and maintained.

## Management response

- 3.3.1 Implement relevant recovery actions in the *Biodiversity Conservation Program* and relevant recovery plans for threatened animal species and populations occurring in the park. Strategies include: conduct surveys, control weeds and feral animals, ensure appropriate fire regimes, rehabilitate wetlands, protect breeding sites and undertake targeted fox and wild dog control.
- 3.3.2 Continue to protect little terns and their breeding sites through measures such as pest species control, habitat protection, public education and the interpretation and monitoring of the site by volunteers and NPWS staff.
- 3.3.3 Continue to restore koala habitat and food trees through controlling threats such as weeds and too-frequent fires.
- 3.3.4 Continue to support volunteers who are engaged in monitoring species in the park, such as little terns and koalas.
- 3.3.5 Continue to support the annual community koala surveys.
- 3.3.6 Promote education programs on native animals, particularly the needs of shorebirds and waders and species sensitive to human disturbance.
- 3.3.7 Maintain habitat of the black grass-dart in Floyd's grass areas through weed control and exclusion of fire.
- 3.3.8 Encourage research in the park on koalas, little terns, Floyd's grass, coastal petaltail dragonflies and pied oystercatchers.

## 3.4 Aboriginal connections to Country

The park lies within the traditional Country of the Gumbaynggirr People and the area of the Coffs Harbour and District Local Aboriginal Land Council. The land, water, plants and animals within a landscape are central to Aboriginal spirituality and 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 Country are inseparable and need to be managed in an integrated manner across the landscape.

*Bongil bongil* was the term used by the local Gumbaynggirr People to describe this 'place where one stays a long time' because of the abundance of food.

Around 1880 the area that is now the park supported a group of about 180 people camping together in groups of about 30 individuals for the greater part of the year. At certain times of the year large groups would congregate to exploit the seasonal resources of the area and participate in ceremonies.

Aboriginal sites are places with evidence of Aboriginal occupation or that are related to other aspects of Aboriginal culture. They are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people.

Several Aboriginal sites have been identified within the park that contain artefacts including middens, a modified tree and stone tools. There is a high probability that more sites occur on the sand dunes and estuary shores.

While the NSW Government has legal responsibility for the protection of Aboriginal sites and places, NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. Aboriginal communities will be consulted and involved in the management of Aboriginal sites, places and related issues; and in the promotion and presentation of Aboriginal culture and history.

## Desired outcomes

- Aboriginal sites, including non-tangible sites, are identified and protected.
- Aboriginal people are involved in management of the Aboriginal cultural values of the park.
- Impacts on Aboriginal heritage values are minimised.
- Understanding of the cultural values of the park is improved.

## Management response

- 3.4.1 Continue to consult and engage Coffs Harbour and District Local Aboriginal Land Council, Elders groups, other relevant Aboriginal community organisations and custodial families in the management of their Country, including through further survey, research and management of Aboriginal sites, places and cultural and natural values.
- 3.4.2 Undertake an archaeological survey and cultural assessment prior to all works that have the potential to impact Aboriginal sites or values.
- 3.4.3 Provide opportunities for Aboriginal people to access Country to maintain, renew or develop cultural practices and associations.

## 3.5 Shared heritage

Heritage places and landscapes are made up of living stories as well as connections to the past that 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 historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. NPWS conserves the significant heritage features of NSW parks and reserves.

Timber harvesting was undertaken throughout the area from the 1860s. The forest has contributed significantly to the development and financial strength of the Bellingen and Coffs Harbour areas and its timber industry (State Forests 2000). There are numerous historic relics in the park that reflect this forestry era.

There are a number of log loading ramps and large stumps with stand-board slots, which generally indicate that trees had been felled manually by broad axes. Most of the park roads were old log haulage routes, built by the early loggers.

The park contains some remains of the local Pine Creek Forestry Depot and workshop at Grandis Camp. A former forestry cottage at Tuckers Rocks (now known as Tuckers Rocks Cottage) originally provided dormitory accommodation for forestry workers (see Figure 1). It was thought to have been built in the 1940s and has since been renovated, expanded, and converted to holiday accommodation (see Section 3.6).

On the headland at Tuckers Rocks is a memorial cairn dedicated to Edward Lindsay (Len) Hudson, a former Forestry Commissioner from 1948 to 1952 (Australian National University 2015).

The remains of the old Pine Creek School, including a hearth and a concrete slab, are still visible at the intersection of School and Souris roads in the park. Pine Creek School was operational from around 1920 to 1945 (J Formann [resident] pers. comm.). This school provided education for children from local timber and farming families, such as the Formann and Souris families. The park area also supported a number of local timber mills, including one on Spring Tank Trail and a sleeper cutting operation on Tuckeroo Trail (both trails now dormant) near Tuckers Rocks.

An important part of the park's history lies in the story of its reservation. The area's reservation as national park is largely the result of efforts from local conservationists, who campaigned extensively against logging operations and the likely impacts on the local koala population. A number of members of the Bundagen Cooperative and other locals were also instrumental in assisting in the expansion of the park.

Bundagen Flora Reserve, which was previously part of Pine Creek State Forest, was dedicated as a flora reserve in 1985 following the recommendations of a committee representing the interests of the parks, forestry and conservation authorities, scientific bodies and mining companies (FCNSW 1989). There was an advisory committee established to oversee the management of this reserve while it was under State Forests NSW (now Forestry Corporation of NSW) management.

Intensive mining of mineral sands over the past 50 years has modified extensive areas of the beach ridge system by levelling the hind dune areas (in some places inverting the soil profile), and subsequent planting of native species not endemic to the Coffs Coast such as coastal tea tree (*Leptospermum laevigatum*).

Some areas of the park were previously parts of rural properties used for grazing and other industries. There are some heritage items remaining in certain areas, including Williams Farm along Williams Road, north-west of Bongil Day Use Area. Here the old dairy bales, some concrete footings, a well, water tank and fruit trees remain. A second family farm, owned and operated by the Formann family, existed on the corner of Souris and Overhead Bridge roads within the park, north-west of Palm Crossing Day Use Area. This area was ploughed up and the old family farm house destroyed during the establishment of an Australian Paper Mills eucalypt plantation on the site in 1971. Fence posts marking the western edge of one of the Formann family's prior grazing paddocks remain on the eastern side of Souris Road near Scrub Creek. The Formann family were reportedly one of the first settlers in the area to try commercial banana growing in the 1920s. This plantation was established east of the farmhouse on a slope dropping from clay ridge substrate down onto the sand plain (J Formann [resident] pers. comm.).

Holiday cabins and a ramshackle collection of caravans and humpies previously existed on the western edge of the peninsula along the lower east bank of Pine Creek. These were removed when the area was sandmined.

These cabins were reportedly managed by the State Rail Authority and were periodically occupied by recuperating railway workers injured while at work. The remains of a timber jetty connected to this prior use can be seen at low tide on the eastern bank of Pine Creek (J Burke [relative of Sid Burke] pers. comm; and Floyd 1990, cited in Cameron et al. 2011).

The Sid Burke Day Use Area is located off the Pacific Highway. The site was originally created by the then Roads and Traffic Authority as a highway rest stop. The area was reserved as part of the 2003 additions to the park. The area is named after Sid Burke, a forestry foreman who spent much of his working life in Pine Creek State Forest.

The Sid Burke Day Use Area includes a memorial made of an old bullock-drawn steel log cradle. It commemorates the work of three generations of the local Burke family in the logging industry.

Before any works are undertaken, the likely impacts of any operational activities on known or suspected historic sites or places within the park require cultural assessment and possible further archaeological investigation.

## Issues

- Wildfire has the potential to burn away old tree stumps displaying stand-board slots.
- The area's rich oral history is unrecorded.

## Desired outcomes

- Negative impacts on shared heritage values are minimised.
- Understanding of the cultural values of the park is improved.
- Significant historic features are appropriately conserved and managed.

## Management response

- 3.5.1 Record and assess historic sites in the park and manage them in accordance with their assessed level of significance.
- 3.5.2 Support the recording of oral histories relating to the park, in particular those relevant to the identification and protection of heritage sites.

## 3.6 Visitor use

NPWS parks and reserves provide a range of visitor opportunities. NPWS aims to ensure that visitors enjoy, experience and appreciate the parks while park values are conserved and protected. Day use facilities are provided in the park, primarily at the Bongil Day Use Area and Sid Burke Day Use Area. Additional smaller day use areas are located at The Bluff on Bluff Loop Trail (near Tuckers Rocks), at Big Bend on the North Bank Walk (east of the Bongil Day Use Area), and Palm Crossing on Palm Crossing Trail (in the central coastal section of the park). See Figure 1. Current visitor experiences include bushwalking, fishing, canoeing, cycling, four-wheel driving, horse riding, surfing, birdwatching, boating, running and picnicking.

The park provides opportunities for visitation in a natural coastal setting which includes remote beaches, meandering creeks and flat bush trails.

Most visitor activity in the park is concentrated at the river mouth on Bonville Creek, beach areas at Tuckers Rocks, and the Bongil Day Use Area. Peak visitation occurs on the weekends and in summer.

The close proximity of the park to expanding coastal towns such as Bellingen, Urunga, Mylestom, Repton, Sawtell and the city of Coffs Harbour indicates that visitation to the park is likely to continue to grow.

The park is mainly used by local residents with knowledge of the area and road networks. However, because of its proximity to Coffs Harbour there is potential for it to be accessible for a wider range of low-impact recreational activities by tourists and visitors to the region. Cycling and canoeing are becoming more popular recreational pursuits in the park.

Holiday rental accommodation is available in the park at Tuckers Rocks Cottage (see Accommodation section below) near North Beach. Although no camping is permitted in the park, a wide variety of camping options are provided in neighbouring areas such as Mylestom, Repton, Urunga, Sawtell and Coffs Harbour by private and commercial operators and other agencies.

Cycling is very popular in the park and the neighbouring Pine Creek State Forest, particularly in the area shown on Figure 1 as Pine Creek Mountain Bike Park (see Cycling section below). NPWS is actively encouraging greater use of the national park by cyclists and a number of management and public vehicle trails are identified in the park as suitable for a variety of riders, including children.

Other areas managed by NPWS, other authorities and private operators in the region also provide opportunities for a range of recreation activities. Neighbouring areas include Coffs Coast Regional Park and Pine Creek State Forest.

## **Access**

There is an extensive network of roads in the park that is currently used for a variety of purposes including public access, recreation, park management, and facilitating access to state forests, private property and apiary sites. Access to the main visitor areas, such as Bongil and Sid Burke day use areas, and Tuckers Rocks area, are via sealed and unsealed two-wheel drive all-weather roads (see Figure 1). There are also a number of roads that traverse the park that are principally used to access private property or for forestry operations in neighbouring state forest compartments (see Section 5.1).

The beach between Tuckers Rocks and Bundagen Headland is accessible to four-wheel drive vehicles. Bellingen Shire Council maintains access to this area from Rutile Trail, which runs off Christian Parade at Mylestom. Vehicles on the beach are restricted to the intertidal zone and are not permitted north of Bundagen Headland or on the dunes. The northern limit for access by four-wheel drives is the southern side of Bundagaree Creek. Driving in or across the creek is not permitted. Driving on the rocky shelf of the headland is also not permitted.

Due to reports of compliance breaches, four-wheel drive access to the beach within the park will be routinely monitored and reviewed. The reviews will assess the impact of four-wheel driving on the beach and foredunes, particularly on vegetation communities, animal species, and known and potential Aboriginal sites and values, and the level of conflict with other beach users. The review will also assess compliance with the requirements to keep within the intertidal zone of the beach, and to limit vehicles on the beach to the area south of Bundagaree Creek. If four-wheel driving on the beach within the park is assessed by NPWS to be having unacceptable impacts on the environment or beach users, or if four-wheel drivers are found to be consistently using areas not open to four-wheel drive vehicles, access to the beaches within the park may be limited or closed by regulation. This will not impact on or change commercial fishers' access.

Beach access permits are required for all vehicles driving on the beach in this area, and these will be issued by NPWS. If a council-administered beach access permit system is implemented in the future, then NPWS will seek to integrate NPWS and council permits.

Tuckers Rock Road, where it is surrounded by park, is Part 11 land (see Section 5.1). Under NPWS policy, people with dogs and horses are able to use this road to access North Beach and private property along this road. Dogs can be walked on a leash or driven in a vehicle along the section of Tuckers Rock Road within the park. Dogs are not permitted in any other area of the park. Horses can be led, ridden or floated along the section of Tuckers Rock Road within the park. Horse riding is also permitted in the west of the park on designated horse riding routes (see Figure 1).

## Day use areas

Day use areas (often incorporating picnic areas) are often the main destination for the majority of visitors to parks. The park provides two main day use areas as outlined in Table 3.

There are also three walk-in day use areas in the park: Big Bend on the North Bank Walk (near Bongil Day Use Area), Palm Crossing and The Bluff (see Figure 1). These areas are in more secluded parts of the park and only a picnic table is provided at these locations.

**Table 3 Main day use areas in the park**

Area	Setting	Vehicle spaces	Access	Site features	General facilities
Bongil Day Use Area	Bushland on banks of Bonville Creek	30	2WD (sealed)	Sclerophyll forest with grassed areas. Options for large group picnics, bushwalks and access to Bonville Creek.	Tables, toilets (disabled access), large shelter, information display, gas barbecues, pontoon for canoe launching and fishing, bus parking, viewing platform over Bonville Creek, wheelchair-accessible paved paths and picnic shelters. The area has an electronic gate that is closed from sunset to sunrise.
Sid Burke Day Use Area	Bushland, just off Pacific Highway	10	2WD (sealed)	Easily accessible area just off the highway. Facilities frequently used by travellers and cyclists. Gateway to western section of the park.	Toilet, tables, shelter, information display.

## Walking

Bushwalking is a popular activity that allows visitors to be in close contact with the natural environment and can increase understanding and enjoyment of parks and conservation values. The park provides four walking tracks and one proposed track as outlined in Table 4.

These walking tracks are suitable for beginner walkers and are formed tracks. Management trails throughout the park are also available for walking.



Popular walking destinations in the park include Lyons Trail south of the Toormina urban area, North Beach and the more remote Bongil Beach. These can be accessed along trails and the beaches including at Lyons Road at Bayldon, Sawtell (Mick's Retreat or the Sawtell Caravan Park), Palm Crossing or Bongil Beach trails in the central section of the park, or via Tuckers Rocks in the southern end of the park.

While the North Beach walking route is also popular with beach vehicle users, the beach to the north, Bongil Beach, is closed to all vehicles and provides opportunities for walking in a more isolated setting.

The original plan of management for the park included developing a wetlands walk north of Bonville Creek. Construction of this track in the original proposed location did not occur due to environmental and cost constraints (e.g. swampy ground). An alternative, more suitable walking destination, the North Bank Walk (as mentioned above) has been developed nearby instead.

**Table 4 Walking tracks in the park**

Walking tracks	Location	Setting	Distance	Walking track grade <sup>1</sup>
North Bank Walk	East of Bongil Day Use Area	Wetland and forest, follows creek. Sections of the track have raised boardwalks and low pedestrian bridges over creeks.	4.6 km return	Grade 3
Bundageree Rainforest Walk	Tuckers Rocks	Coastal banksia woodland and littoral rainforest behind dunes.	6 km return	Grade 3
Bluff Trail (proposed)	Bluff Trail, Tuckers Rocks	Views over Bundageree Creek. Walk follows Bluff Trail and the southern part of the Bundageree Rainforest Walk.	1.8 km circuit	Grade 3
Palm Crossing Trail	Palm Crossing Day Use Area, Scrub Creek	Swamp sclerophyll forest and littoral rainforest and creek. Provides access to the beach.	1.7 km return	Grade 3

<sup>1</sup> 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, please refer to the *Users Guide to the Australian Walking Track Grading System* (DSE no date).

## Cycling

Cycling is permitted on all park roads and management trails in the park. Cycling is becoming an increasingly popular activity in the park and in parts of the adjoining Pine Creek State Forest. Most bike riders are from the local area, though there is growing evidence of use from people travelling from outside the region. The most popular area for cycling is in the western side of the park, near the mountain bike track network in the Pine Creek State Forest (see below). The park provides opportunities for cycling along management trails and roads, through forested areas of varying topography and trail length. Figure 1 identifies a number of cycling routes in the park that are best-suited to cycling due to terrain, scenic quality, trail surface and the ability to link up with other adjacent cycling routes.

Cycling is very popular in the neighbouring Pine Creek State Forest, particularly in the area known as Pine Creek Mountain Bike Park (Figure 1). The mountain bike park is within a plantation area and is managed and maintained under an occupational permit issued by Forestry Corporation of NSW to the Coffs Harbour Cycle Club. The extensive network of single and double lane tracks in the mountain bike park have been designed specifically for mountain bikes and include challenging tracks with a variety of technical structures. The tracks are regularly maintained and used for recreational rides as well as for competitive race events.

Many cyclists who use the mountain bike park in the state forest also use parts of the park's track and trail network, especially Hunters Trail. Cyclists also often use the Sid Burke Day Use Area as a meeting point for group rides and club activities.

There is a proposal to develop a dormant park management trail (Sid Burke Trail) into a cycling route to provide access to the mountain bike park from Sid Burke Day Use Area (see Figure 1). The Coffs Harbour Cycle Club has suggested that many cyclists would access the bike park from this trail. Coffs Harbour Cycle Club has offered to work with NPWS to design and maintain this trail. Some sections of this dormant trail cross areas of wet vegetation so there is a need to design the trail appropriately to avoid impacts.

There are no plans to develop any single tracks for cycling within the park due to the abundant and challenging single-use tracks available in the adjacent Pine Creek Mountain Bike Park.

## Horse riding

Horse riding is a popular recreational activity that has cultural associations for many Australians. Horse riding levels in the park are low and consist mainly of a small number of local riders who live close to the park boundary or horse riders from a commercial horse riding centre at Valery. Horse riding is allowed in the park on the identified horse riding routes shown on Figure 1 and outlined in Table 5. All horse riding in the park must be conducted safely and sustainably in accordance with the *NPWS Code of Practice for Horse riding in Parks* (OEH 2014b).

**Table 5 Roads and trails allowed for horse riding**

Road/trail name	Tenure
<b>North-west routes:</b>	
Gordons Road	NPWS
Tobys Road	NPWS and Forestry NSW
Marriotts Road	NPWS
Red Hill Road (off park)	Forestry NSW
Gleniffer Road (off park)	Coffs Harbour City Council and Forestry NSW
<b>South-west routes:</b>	
Cabans Road (from park entrance to Burkes road only)	NPWS and Bellingen Council
Burkes Road	NPWS
Baileys Road	NPWS and Forestry NSW
Mailmans Track	NPWS and Forestry NSW
Tower Road (north eastern section)	NPWS, Bellingen Council and Forestry NSW

Road/trail name	Tenure
Powerline Trail	NPWS
Hunters Trail (eastern section between park boundary and Powerline trail only)	NPWS
Valery Repton Road (off park)	Bellingen Council
<b>South-east route:</b>	
Tuckers Rock Road	NPWS

Note: Some roads mentioned are off park but have been included to show connections with neighbouring areas. Access on these trails may need to be reviewed with relevant land managers over time.

These trails have been identified for horse riding as they provide links to neighbouring properties, state forest trails and North Beach and are not causing impacts on park values at current use levels. The horse riding routes are in areas with a history of horse riding use and on trails not regularly used by cyclists. The trails have been identified to avoid areas of high vehicle traffic. Tuckers Rock Road has been identified as a horse riding route to provide continued access to North Beach (south of the park). Horse riding is not permitted off designated horse riding routes or on walking tracks.

Numerous horse riding opportunities are also available in the neighbouring Pine Creek State Forest including Red Hill Road, which provides access from Gleniffer and Valery Repton roads.

## Canoeing, kayaking and boating

Parts of Pine Creek and Bonville Creek are within the park. The beds of the creek lie within the park boundary, as do the adjoining creek banks in places, and NPWS has some control over the use of these waterways. There are a number of key areas where watercraft are launched to access the park's waterways, including the Coffs Harbour City Council boat ramp in Sawtell off Lyons Road and from the pontoon at the Bongil Day Use Area. Bonville Creek and Pine Creek are also regularly used for recreational boating and fishing activities (see Section 5.2).

Kayaking and canoeing are popular activities on the waterways. A local kayak club undertakes regular competitions on Bonville and Pine creeks, and most competitors access the creek from a council reserve off Moller Drive in Sawtell. Larger annual canoe marathon races organised by the Bonville Creek Kayak Club are based at the Bongil Day Use Area and require NPWS consent.

Pine Creek is a popular destination for canoeing and kayaking. Most canoeists enter from Bonville Creek, and then return via the same route. Canoeists can also access the upper reaches of Pine Creek from Burma Road. Due to the regenerating Floyd's grass in this area, vehicle access will no longer be provided to the creek bank. Instead, the last 80 metres will become a walking track.

To encourage a safe environment for canoeists and kayakers on these waterways, NPWS, in conjunction with the relevant regulatory authority (Roads and Maritime Services), has established a 4 knot speed limit on Bonville and Pine creeks. Jet skis are not permitted on these creeks.

## Group activities

Group activities can provide opportunities for people who would otherwise not be able to experience the park and can promote environmental understanding and support for conservation. Large groups can, however, have an environmental impact and can restrict opportunities or impinge on the enjoyment of other independent visitors.

Non-commercial, large-scale organised group activities may require consent under the National Parks and Wildlife Regulation.

Organised group activities of a commercial nature require licensing under the National Parks and Wildlife Act. All activities must be consistent with the management principles of the park and be compatible with its natural and cultural heritage values. Applications will be assessed in accordance with relevant NPWS policies and procedures.

## **Accommodation**

Tuckers Rocks Cottage is situated at the eastern end of Tuckers Rock Road in the south of the park (see Section 3.5). NPWS purchased this land in 2003, and the cottage was upgraded and converted into holiday rental accommodation. It is located close to North Beach and the Tuckers Rocks area and is popular with families in the summer and holiday periods.

Tuckers Rocks Cottage is fairly small and not suitable for all visitors. It is recommended that, if funding becomes available, some renovations may be done to the cabin and the on-site sewerage system upgraded to better meet visitor experiences. This will cater to a larger variety of users and visitor experiences.

## **Fishing**

Members of the local community use Bonville Creek and Pine Creek for recreational fishing and bait collection. Line and beach fishing is popular in the estuary at Sawtell, along all parts of both Bongil Beach and North Beach and around the reefs of Bundagen Headland north of Tuckers Rocks. Vehicle access for fishing on North Beach requires a beach vehicle access permit and is restricted to the intertidal zone between Tuckers Rocks and Bundagen Headland (see Access section above). The licensing and management of commercial fishing is discussed in Section 5.2.

## **Issues**

- Visitation to the park needs to be carefully managed as inappropriate use can negatively impact the park's natural and cultural values.
- Bellingen Shire Council and Coffs Harbour City Council have approached NPWS about possible management of beach vehicle permits for all the beaches in the local government areas. NPWS would support this proposal.
- Cyclists occasionally use walking tracks in the park, particularly on the North Bank Walk. This is known to compromise the safety of bushwalkers and has resulted in damage to vegetation, including Floyd's grass.
- There are opportunities to provide a new cycling track in the west of the park (i.e. Sid Burke Trail).
- A number of illegal tracks have been established by horse riders, cyclists and trail bike riders in the park. These tracks are in areas where there may be sensitive vegetation communities such as rainforests, creek lines and moist gullies, or in areas that traverse steep slopes or gullies prone to erosion.
- The Sid Burke and Bongil day use areas are occasionally subject to vandalism and inappropriate uses such as overnight camping.
- Vehicles are impacting Floyd's grass at the end of Burma Road. Access by vehicles must cease to improve ecological condition.
- Tuckers Rocks Cottage is small and does not cater for groups larger than eight people. There is an opportunity to expand the capacity of the cottage.

## Desired outcomes

- Visitor use is appropriate and ecologically sustainable.
- Visitor opportunities encourage appreciation and awareness of the park's values and their conservation.
- Negative impacts of visitors on park values are minimised.
- Facilities and activities are planned and managed to provide a diverse and satisfying visitor experience.

## Management response

### Access

- 3.6.1 Provide public vehicle access on park roads as shown on Figure 1.
- 3.6.2 Permit four-wheel drive vehicles on the intertidal zone of North Beach only from Tuckers Rocks to the southern side of Bundagaree Creek. Vehicles must display a valid beach access permit.
- 3.6.3 Monitor and review four-wheel drive use on North Beach, remove or limit access if impacts are detrimental to park values and other users.
- 3.6.4 Allow Tuckers Rock Road to be used by visitors with dogs and horses to access private property and North Beach. Dogs can be either within a vehicle or on a leash or lead, and horses can be led, ridden or floated. Animals must be under effective control at all times and dogs are not permitted in any other area of the park.

### Day use

- 3.6.5 Manage the day use areas in the park.

### Walking

- 3.6.6 Maintain and develop walking opportunities in accordance with Table 4.

### Cycling

- 3.6.7 Permit cycling on park roads and management trails shown on Figure 1. Cycling is not permitted on walking tracks.
- 3.6.8 Work with Coffs Harbour Cycle Club to develop and maintain Sid Burke Trail for access to Pine Creek Mountain Bike Park. Ensure the track is designed to avoid wet areas and damage to sensitive vegetation.
- 3.6.9 Continue to work with Coffs Harbour Cycle Club to ensure cycling routes identified on Figure 1 are promoted to cyclists. Prevent cycling on illegal tracks and rehabilitate these areas where required.
- 3.6.10 If necessary, close park roads, management trails and tracks to cycling where there is unacceptable environmental impact or there are risks to cyclists or other users.

### Horse riding

- 3.6.11 Permit horse riding on the roads and trails in Table 5 and as identified as horse riding routes on Figure 1.
- 3.6.12 Prevent riding on illegal tracks and rehabilitate these areas as required.

- 3.6.13 If necessary, close park roads to horse riding where there is unacceptable environmental impact or there are risks to riders or other users.

### **Canoeing, kayaking and boating**

- 3.6.14 Continue to allow canoeing from a site at the end of Burma Road. The last 80-metre section of this road will be walk-in access only to protect Floyd's grass in this area.
- 3.6.15 Encourage canoeing and kayaking on the park's waterways. Liaise with the relevant regulatory authorities to appropriately regulate the use of the waterways. Boating on the navigable waterways within the park will be restricted to 4 knots. Jet skis are not permitted on the park's waterways.
- 3.6.16 Work with the relevant regulatory authorities to install regulatory signs as required.

### **Group activities**

- 3.6.17 Allow a maximum group size of 30 at any one time without formal consent, to maintain conservation values and visitor experience.
- 3.6.18 Require commercial operators in the park to be licensed in accordance with NPWS policy.
- 3.6.19 Monitor commercial and non-commercial group activities with respect to impacts, safety requirements and compliance with licence or consent conditions. Licences or consents may be cancelled if there is a breach of conditions.
- 3.6.20 Allow group educational activities that are consistent with the management principles and values of the park, subject to conditions on group size and location.

### **Accommodation**

- 3.6.21 Continue to manage and promote Tuckers Rocks Cottage for holiday rental accommodation in the park.
- 3.6.22 If funding becomes available, renovate Tuckers Rocks Cottage to improve visitor experiences, including upgrading the on-site sewerage system.

## 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.

The *Biosecurity Act 2015* and its regulations provide specific legal requirements for the response, management and control of biosecurity risks, including weeds and pest animals. These requirements apply equally to public and privately owned land. Under this framework, Local Land Services has prepared regional strategic weed management plans and regional strategic pest animal management plans for each of its 11 regions, including the North Coast Region (NC LLS 2017, 2018).

The LLS plans identify priority weeds and pest animals in each of the regions, plus the appropriate management response for the region (i.e. prevention/alert, eradication, containment or asset protection).

NPWS prepares regional pest management strategies which identify the operations and control actions undertaken by NPWS to meet the priorities from regional strategic pest and weed management plans. This also includes other important programs such as the *Biodiversity Conservation Program* (see Sections 3.2 and 3.3).

The overriding objective of the NPWS regional pest management strategies is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. These strategies are regularly updated. Reactive programs may also be undertaken in cooperation with neighbouring land managers, in response to emerging issues. Significant pest species recorded in the park are discussed below.

Activities such as road construction, logging, silvicultural practices, illegal rubbish dumping, wastewater disposal, sandmining and inappropriate fire regimes in the park have provided opportunities for the introduction and establishment of pest species.

Pest species that are also key threatening processes may be managed under the *Biodiversity Conservation Program* where it includes key threatening processes strategies. The *Saving our Species* program has developed targeted strategies for managing key threatening processes using the best available information to minimise current and future impacts of key threatening processes on priority biodiversity values, including threatened species and ecological integrity.

### Weeds

Major weed species known to occur in the park are listed in Appendix B.

**Lantana** is a large flowering shrub native to Central and South America. Lantana is a vigorous invader of disturbed areas, often forming dense thickets. It is spread mainly by birds and thrives in warm environments with high rainfall, where the weed grows along forest edges, penetrates disturbed rainforest and invades open eucalypt woodlands and pastures. Lantana has been declared a priority weed in New South Wales and is also listed as a Weed of National Significance (Department of Environment 2016).

A national *Plan to Protect Environmental Assets from Lantana* (Biosecurity Queensland 2010) has been developed which establishes national conservation priorities for the control of this pest plant. It 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.

Lantana is widespread and is the most common and problematic weed in the park. Lantana poses a major threat to the restoration of many plantation areas, around log dumps in high-value koala habitat and in sections of the park with Floyd's grass. Many of these areas have been subjected to active rehabilitation, primarily through weed control works, and the threat posed by this weed species is now significantly reduced in some areas.

Current control programs for lantana in the park have to date been restricted to key visitor precincts, roadsides, gullies with regenerating rainforest elements, threatened native plant localities and in key koala habitat areas where lantana thickets reduce koala access to primary food trees.

**Bitou bush** is a native of South Africa. It is listed as one of the Australian Government's Weeds of National Significance. Invasion by bitou bush leads to a decline in the species diversity of affected plant communities, and the fauna that depend on them, and is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 1999). It readily invades a wide variety of disturbed and undisturbed coastal plant communities, outcompeting native vegetation. A revised threat abatement plan has been prepared (OEH 2013c) that lists actions to abate, ameliorate or reduce the threat posed by bitou bush to threatened species, populations and ecological communities. In the park, bitou bush occurs on most of the dune areas north of Bundagen Headland in moderate to high density and the park is identified as a high priority site in the threat abatement plan. The invasion by bitou bush threatens the habitat of a number of significant plant and animal species including adjoining areas of high conservation value Littoral Rainforest such as that found in the Scrub Creek area. It has been a deliberate strategy of the park managers to simultaneously control both bitou bush and glory lily, moving northwards in the park from Tuckers Rocks (see glory lily below). Bitou bush has been largely eradicated from the park south of Bundagen Headland.

**Glory lily** is extremely difficult to control as it is somewhat resistant to herbicide, is a seasonal plant that grows from a tuber and is only visible during the warmer months. NPWS has decided to actively attack bitou bush in the park only where resources are available to also suppress the bloom of glory lily that follows. To ensure effective use of available resources, the simultaneous control of bitou bush and glory lily is proceeding slowly northward from Bundagen Headland.

Major infestations of glory lily occur in the dune areas of the park. The highest densities are often found in disturbed areas that were previously sandmined or have been subjected to major storm disturbances. Glory lily is more often found where bitou bush control has been previously undertaken. Glory lily contains harmful alkaloids that can cause fatal poisoning of mammals, including humans. The plant is suspected of causing negative health impacts on a number of species of native mammals in the park, including swamp wallabies (*Wallabia bicolor*), which are known to browse on its succulent foliage. The fleshy, bright red seeds of glory lily are bird-dispersed and the seeds are widespread and stored in the soil throughout the coastal parts of the park.

Glory lily needs to establish a deep-rooted tuber, so glory lily colonisation of the heavier clay substrates within the park has not occurred to any great degree and the plant remains largely restricted to the sandy substrates of the park's coastal fringe.

The control of glory lily within the high conservation value Littoral Rainforest areas of the park has been a high priority for over 14 years. There has been significant success in reducing its presence by 95% on the coastal strip from Tuckers Rocks north to Bundagen Headland. Control work has also been undertaken in a buffer zone around the Scrub Creek Littoral Rainforest precinct. The work will continue slowly northward along Bongil Beach, concurrent with the bitou bush control program.



Invasion of native plant communities by **exotic perennial grasses** is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2003). Exotic grasses are vigorous, persistent and invasive in disturbed areas.

**Broad-leaved paspalum** remains the most widespread and persistent of these perennial exotic grasses and frequently infests road shoulders, plantation areas and places on clay substrate previously exposed to ground disturbance within the park. Current control programs in the park for broad-leaved paspalum have to date been restricted to key visitor precincts, roadsides and within threatened native plant habitat such as Floyd's grass.

**Groundsel bush** (*Baccharis halimifolia*) occurs sporadically in the park on poorly drained soils or adjacent to estuarine areas, watercourses and wetlands. Groundsel bush has been a priority for pest control since the park's inception in 1995.

A pest control program has successfully eradicated groundsel bush in some areas and has significantly reduced populations in others. Groundsel bush within the park is now restricted to juvenile plants established from wind-blown seed carried in from outside the park.

A number of introduced plant species have recently begun invading the park including Cocos palm (*Syagrus romanzoffiana*), camphor laurel (*Cinnamomum camphora*), red coral berry (*Ardisia crenata*), morning glory (*Ipomoea indica*) and silver-leaved desmodium (*Desmodium uncinatum*). These weeds may threaten native plant communities in the near future. Currently, their impacts are localised but they could spread significantly if not managed.

Stormwater and flood events are a major contributor to the spread of environmental weeds into the park. There are a number of areas bordering the park that do not have adequate storm water control mechanisms, and nutrient-rich waters regularly impact certain areas. Weed growth in these locations can be prolific and may need ongoing control. As the park is low lying, flood events are a regular occurrence in areas along Bonville and Pine creeks and can lead to reinfestation of previously treated areas through the establishment of flood-borne weed propagules. For example, this has occurred within the Floyd's grass areas on Pine Creek with trad (*Tradescantia fluminensis*) and broad-leaved paspalum repeatedly reinfesting previously treated areas after flood events.

There were once two slash pine plantations within the park: one on the northern end of the Bongil Peninsula behind the fore dunes and the other at the end of Bonville Station Road. Both areas have been rehabilitated through weed control (including removal of slash pines), planting local species and encouraging natural regeneration.

There are two former Gympie messmate plantation blocks that have been harvested and are now managed to stop the spread of juveniles (see Section 4.3).

There are five old sandmining sites within the park, located behind the hind dunes of Bongil Beach and a larger mineral sands excavation site east of Pine Creek on the Bongil Peninsula.

Most of these sites are significantly affected by weed species, in particular bitou bush, lantana and glory lily. Some parts of these former mining sites are naturally regenerating, but due to topsoil stripping during mining the remaining soil is low in organic material and natural regeneration of endemic species has been impeded.

In the west of the park north of Cabans Road there are two small former banana plantation blocks that are heavily infested with weeds. These are in the process of being rehabilitated.

## Pest animals

Table 6 identifies the main pest animals of concern in the park.

**Table 6 Pest animals recorded in the park and their impacts**

Common name	Scientific name	Distribution/impacts
Cat <sup>1</sup>	<i>Felis catus</i>	Widespread Cats are a threat to native fauna, especially small mammals and ground-nesting birds
Red fox <sup>1 2</sup>	<i>Vulpes vulpes</i>	Widespread Foxes can have a major impact on threatened nesting shorebirds, small mammals, reptiles and amphibians
Wild dog <sup>2</sup> (dingos, feral dogs and their hybrids)	<i>Canis lupus familiaris</i> and <i>Canis lupus dingo x Canis lupus familiaris</i>	Scattered Wild dogs are likely to have negligible impact on nesting shorebirds and are more likely to impact swamp wallaby populations. There has been a moderate level of dingo purity recorded in wild dogs in the park

<sup>1</sup> Key threatening process under the Biodiversity Conservation Act and the Environment Protection and Biodiversity Conservation Act.

<sup>2</sup> Declared pest under the *Biosecurity Act 2015*.

**Red foxes** suppress native animal populations, particularly medium-sized, ground-dwelling and semi-arboreal mammals, small reptiles, ground-nesting birds and freshwater turtles. Foxes are omnivorous and have also been known to spread some weed species such as bitou bush. They are identified as a pest animal in the North Coast Regional Strategic Pest Animal Management Plan (NC LLS 2018), to be managed at a regional scale. Actions for fox management are guided by the *Saving our Species* program.

Predation by the European red fox is a key threatening process under the Biodiversity Conservation Act (NSW SC 1998). The NSW fox threat abatement plan (Fox TAP) (OEH 2010) was initiated in 2001 (and revised in 2010) with the primary objective of establishing long-term control programs to protect priority threatened animals, species and populations. The priorities recommended in the Fox TAP have been incorporated into the *Saving our Species* program. Foxes are being controlled at priority sites across New South Wales to protect biodiversity.

Foxes occur in the park and surrounding area and are a major threat to the little tern and pied oystercatcher nesting site at Bongil Spit. Regular fox baiting and soft-jawed trapping is undertaken in the park around the little tern nesting site during the breeding season (see Section 3.3). This program has been highly successful in ensuring no loss of little tern and pied oystercatcher eggs and chicks to fox predation over recent years. The control program, which is implemented from July to January, has also been successful in periodically removing foxes from the park. However, due to the highly attractive fox habitat available along the park's coastline, annual reinfestation of foxes into the park continues to occur following baiting.

Fox migration into the park from the Mylestom area to the south is particularly noticeable with early winter fox tracks frequently recorded coming up the beach from areas to the south of the park. Fox baiting is also undertaken in the park west of the highway and these successful annual programs have greatly assisted in reducing fox reinfestation from areas to the west of the park.

**Wild dogs** are known to occur within the park. Wild dogs include any wild-living dog in New South Wales, including dingos (*Canis lupus dingo*), feral dogs (*Canis lupus familiaris*) and

their hybrids. Wild dogs can have a major impact on domestic stock and may also have significant impacts on the distribution and abundance of native wildlife. NPWS manages wild dogs in parks in accordance the relevant LLS regional strategic pest animal management plan.

The *NSW Wild Dog Strategy* (Dol 2017) promotes a balance between managing wild dogs in areas where they have negative impacts and preserving the ecological role of dingos. The conservation of dingos is listed as one of the goals of the strategy. It is achieved via wild dog management plans which focus control on areas where the risk of negative impacts are greatest, and not undertaking control in other parts of the landscape with a low risk of negative impacts from wild dogs, to allow dingoes to fulfil their natural ecological role.

Sampling of the wild dog populations using DNA analysis has identified dingos of conservation value in the park.

## Dieback

**Myrtle rust** is a plant disease caused by the exotic fungus, *Austropuccinia psidii* (initially identified as *Uredo rangelii*). It was first detected on the NSW Central Coast in 2010 and has established through coastal NSW from the Shoalhaven River north into Queensland. Myrtle rust infects young actively growing shoots, leaves, flower buds and fruits of susceptible plants in the family Myrtaceae. The introduction and establishment of myrtle rust is a key threatening process under the Biodiversity Conservation Act NSW SC 2011a).

Myrtle rust is spread by the transport of spores by wind, animal dispersal and human activity and is present in the Coffs Harbour and Bellingen Shire local government areas. Myrtle rust has been recorded across the park and is common on two species: scrub turpentine (*Rhodamnia rubescens*) and native guava (*Rhodomyrtus psidioides*), both of which are listed as critically endangered under the Biodiversity Conservation Act. Some individual plants have been severely impacted, including the death of some trees. It is considered to pose a significant threat to the park's biological values given the extent and range of Myrtaceae present within the park, however, there has to date been no recorded presence of myrtle rust on other native species.

A plan outlining how myrtle rust will be managed on the national parks estate (OEH 2011) has been developed and incorporates strategies to limit the spread of myrtle rust and minimise impacts to threatened species and ecological communities.

## Desired outcomes

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of pest plants and animals on park values are minimised.
- Dieback caused by myrtle rust is minimised.

## Management response

- 4.1.1 Manage pest species in accordance with pest management strategies relevant to the park. Priority will be given to threatened ecological communities, threatened species, former plantations, new and emerging threats and sandmined areas.
- 4.1.2 Seek the cooperation of neighbours in implementing weed and pest control programs. Undertake control in cooperation with North Coast Local Land Services, local councils, Forestry Corporation of NSW and Bundagen Cooperative.
- 4.1.3 Work with Coffs Harbour City Council to manage stormwater runoff moving into the park.

- 4.1.4 Continue to control and where possible eradicate slash pine and Gympie messmate in the park. Assist native regeneration of these areas by undertaking weed control to protect establishing natives.
- 4.1.5 Implement fox control programs in accordance with the *Saving our Species* program and relevant strategies to limit fox predation on the little tern and pied oystercatcher nesting site at Bongil Spit.
- 4.1.6 Monitor the occurrence of myrtle rust in the park.

## 4.2 Fire

The primary 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).

Fire is a natural feature of many Australian environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities, and high frequency fires have been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000b).

The fire history of the park has been documented since approximately 1980. The two largest wildfires occurred in 1980 and in 1994–95. The fire in 1980 occurred in the east from Repton to the Bundagen Cooperative lands, and the fire in 1994–95 was in the Pine Creek area. In October 2001 a fire affected most of the park north of Bonville Creek.

Most wildfires recorded in the park occurred during spring. Fires generally travel from west to east under the influence of hot dry westerly to north-westerly winds. The major cause of wildfire is understood to be arson and escaped hazard reduction burns.

Fire management in the park is especially important in the vicinity of the residential areas of East Boambee, Toormina and Sawtell in the north, and Repton and Mylestom to the south. Also of particular importance is the land belonging to the Bundagen Cooperative, which is in the central eastern section of the park and has limited road access (see Figure 1). The park's annual hazard reduction program remains focused on strategic fuel reduction in areas abutting these densely settled areas of private property.

A fire management strategy that defines the NPWS fire management approach for the park has been prepared (OEH 2006) and is updated periodically. The fire management strategy outlines the recent fire history of the park, key assets within and adjoining the park including sites of natural and cultural heritage value, fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the park's vegetation communities.

In the fire management strategy, most of the park is classified as a land management zone. There are four asset protection zones in the park to protect built assets such as houses and infrastructure. Two are in the north near the residential areas of Toormina, one at the Sid Burke Day Use Area and one near the powerlines west of the Sid Burke Day Use Area.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service and is actively involved with the Mid North Coast Bush Fire Management Committee.

Cooperative arrangements include routine discussion of fire planning, fuel management and fire preparedness issues and general information sharing among the broad range of

agencies represented. Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the bush fire management committee.

Local NPWS officers consult frequently with the Bundagen residents and the Rural Fire Service in regard to fire management issues on the Bundagen Cooperative lands.

## Desired outcomes

- Negative impacts of fire on life, property and the environment are minimised.
- The potential for spread of bushfires on, from or into the park is minimised.
- Fire regimes are appropriate for conservation of native plant and animal communities.

## Management response

- 4.2.1 Implement the fire management strategy for the park and update it as required.
- 4.2.2 Continue to be involved in the Mid North Coast Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities such as the Forestry Corporation of NSW, and relevant regulatory authorities and surrounding landowners in regard to fuel management and fire suppression.
- 4.2.3 Suppress unplanned fires in the park in accordance with the fire management strategy.
- 4.2.4 Monitor the ability of native plants to recover between fires and review regimes where relevant.
- 4.2.5 Where required, rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.
- 4.2.6 Support the Rural Fire Service in improving fire preparedness and awareness in the community, including Bundagen Cooperative residents.

## 4.3 Plantations

The park has had a long history of timber harvesting and silviculture. Over 16% of the park contains hardwood plantations consisting of Sydney blue gum, coastal blackbutt (*E. pilularis*) or flooded gum. These species are native to the area but do not occur naturally at the densities within the plantations (NPWS 2007). The structure of these monoculture forests is generally simple with an even canopy height, and an absence of mid-storey vegetation, hollows and lateral branching. The plantation understorey is frequently infested by lantana. It is also likely that the plantations are derived from a narrow genetic mix.

There were two small plantation sites within the park (both less than 1 hectare) that contained Gympie messmate, which is a native of central Queensland but is a weed species in New South Wales. Gympie messmate was harvested from these blocks in 2005, but follow-up work is required to remove numerous juveniles of this species that have persisted at these sites. A Gympie messmate site is also located close to the park boundary in Pine Creek State Forest near Burma Road.

Many of these plantations have poor forest structure, are low in species richness and are dominated by weeds, including lantana and broad-leaved paspalum.

Between 2000 and 2006, two PhD studies were undertaken within the eucalypt plantations of the park. The studies looked at ways to reduce the weed threat posed within these areas and to accelerate natural forest successional processes through various applied disturbance treatments such as weed control, enhancement planting, soil disturbance, thinning and the

application of fire (NPWS 2007). Following the conclusion of these studies, and based on their recommendations, the plantations in the park were assessed to determine management options. One outcome was the preparation of a plantation operations plan (NPWS 2007) that outlined a staged process for the rehabilitation of former eucalypt plantation sites in the park. This included physical intervention, rehabilitation and monitoring. Priority sites for treatment were determined on the basis of an assessment of their relative health, biodiversity status, level of weed invasion and potential for natural restoration based on the presence of a native soil-stored seed or adjacent healthy forest plant communities.

To date most of the plantation blocks that were identified for mechanical intervention have been treated. Other plantation blocks assessed as requiring rehabilitation works such as weed control have received initial treatment but most of these areas require ongoing weed control and maintenance.

## Desired outcomes

- Gympie messmate is prevented from spreading further into the adjacent native forest and all remaining juveniles of this species are removed from the park.
- Slash pine plantation blocks in the park are fully restored and all remaining juveniles of this species are removed from the park.
- Weed species are managed in identified plantation areas.
- Plantations of Sydney blue gum, coastal blackbutt and flooded gum develop into healthy native forests.

## Management response

- 4.3.1 Monitor Sydney blue gum, coastal blackbutt and flooded gum plantations to ensure biodiversity values are being restored. Encourage regeneration of tallowwood and swamp mahogany in these areas where possible.
- 4.3.2 Manage plantations in accordance with the park's plantation operations plan. Review the operations plan periodically and incorporate any changes to the management of these areas if necessary.

## 4.4 Climate change

Human-induced climate change is listed as a key threatening process under the Biodiversity 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 (NARClm) project (OEH 2014a). Climate projections for 2020–39 are described as 'near future' and projections for 2060–79 are described as 'far future'. The snapshot shown in Table 7 is for the North Coast Region, which includes the park (OEH 2014a).

The projected increases in temperature, number of hot days and severe fire weather days (OEH 2014a) are likely to influence bushfire frequency and intensity across the North Coast Region and result in an earlier start to the bushfire season. Higher summer rainfall and rainfall intensity in the region are likely to increase erosion on the steeper slopes. Expected declines in runoff in spring and winter are likely to reduce seepage flows. It is highly likely that large areas in the lower reaches of the Bonville Creek and Pine Creek estuary system will become increasingly inundated as a result of sea level rise over the coming decades.

**Table 7 North Coast climate change snapshot**

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

Source: OEH 2014a.

Climate change may significantly affect biodiversity by changing the size of populations and distribution of species, modifying species composition, and altering the geographical and topographical extent of habitats and ecosystems. The potential impact of climate change is difficult to assess since it depends on the rate of its development and other compounding effects of other pressures, particularly barriers to migration, the regional soil type matrix and pressure from feral animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates such as Floyd's grass.

NPWS will continue to manage threats to park values from climate change in a collaborative way with other land managers and park neighbours. Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires and pollution, will help reduce the severity of the effects of climate change.

### Desired outcomes

- The effects of climate change on natural systems are minimised.
- Species can adapt to climate change by migrating to other natural areas such as Bindarri National Park.

### Management response

- 4.4.1 Continue existing fire, pest and weed management programs and adapt them where required to minimise climate change-induced threats.
- 4.4.2 Work with neighbouring land managers to secure corridor areas to allow species to migrate to manage the impacts of climate change. Key areas include linking the western section of the park to Bindarri National Park.

## 5. Management operations and other uses

### 5.1 Access

Park roads, management trails and tracks within the park provide access for visitors, adjacent land users, neighbours and for park management purposes. Maintaining roads requires a large commitment of resources. Some roads and trails developed for past timber harvesting are no longer required for management. Trails can contribute to erosion and the spread of weeds, provide movement corridors for pest animals and provide opportunities for inappropriate recreation such as unregistered trail bike use and illegal waste disposal.

#### Management trails

A network of management trails in the park is maintained and is regularly used for fire management, public recreation and other operational activities. In accordance with NPWS policy, vehicle use of management trails is only available for NPWS-authorized activities, such as essential park management, commercial fishers (including bait collectors) access, fire management and emergency response. The public's use of management trails is generally limited to bushwalking, running and cycling, and horse riding on designated trails (see Section 3.6). In some areas it may be necessary to gate management trails to prevent unauthorised vehicle access and to reduce maintenance costs for these roads.

#### Roads and trails are excess to management requirements

The park has an extensive network of roads and trails that were constructed to support forestry activities. Today, park management requires a reduced road network for visitor use and for management requirements. There are some trails in the park where maintenance costs are high. This is generally due to erosion from poor soils, steep terrain and from high rainfall. In these areas, NPWS is proposing to either close some of these management trails to allow the areas to return to native vegetation or to restrict access by way of gates to provide for low-impact activities such as walking or cycling in areas free from vehicles. Some of these trails may occasionally be used by management vehicles for essential purposes such as weed control and fire management, but overall there will be minimal vehicle use and maintenance costs will be substantially reduced.

#### Ministerial roads

In addition, the park also includes unreserved lands that are vested in the Minister administering the National Parks and Wildlife Act for the purposes of Part 11 of that Act. These 'Part 11 lands', also known as ministerial roads, are listed in Appendix C. These roads were retained as Crown land and were not included in the reserved area of the park in order to ensure the continuation of access arrangements that existed immediately prior to the reservation of the park. This primarily relates to use of these roads for timber hauling from the adjoining state forest and access to private property. While ministerial roads do not form part of the reserved area of the park, these roads are subject to the provisions of this plan and the National Parks and Wildlife Regulation.

#### Private property access through the park

Overhead Bridge, Scrubby Ridge, McCabes and O'Connors roads are the main access roads regularly used by people from the Bundagen Cooperative lands. There is a right-of-way agreement in place between the Bundagen Cooperative and NPWS in relation to



responsibility for the cost of maintenance of these roads, as well as Chavez Trail and a section of Tuckers Rock Road.

Tuckers Rock Road in the south of the park provides access to private properties along Tuckers Rock Road and to North Beach. Tuckers Rock Road is a gravel road with moderate traffic volumes. This ministerial road was granted to ensure continued access to the private properties situated along this road and to visitor areas near North Beach. The vast majority of use of this road is by visitors accessing neighbouring areas not in the park, though NPWS currently maintains Tuckers Rock Road.

Some private property (inholdings) and properties adjacent to the park have no other practical route to access their property unless through the park. Where this is the case, these residents are allowed to travel with pets in vehicles to access their property in accordance with NPWS policy.

## **Issues**

- The park has an extensive road network from its past use as a state forest. There is a need to rationalise this network, by closing those roads that are not required for visitor use, fire or park management requirements, or restricting access to some of the roads to enable adequate maintenance and minimise impacts from vehicles in certain areas.
- Tuckers Rock Road is largely used by visitors accessing neighbouring areas and it may be appropriate that this becomes a council-managed road.
- There is ongoing illegal use of trails in the park, particularly by unregistered trail bikes.

## **Desired outcomes**

- The trail network is appropriately rationalised to reduce ongoing maintenance costs.
- Management trails are appropriately maintained and gated where necessary.
- Access rights continue and have minimal impact on park values.

## **Management response**

- 5.1.1 Maintain the network of management trails, park roads and tracks shown on Figure 1.
- 5.1.2 Gate management trails where necessary to prevent unauthorised vehicle access.
- 5.1.3 Close trails no longer required, allow them to regenerate naturally and undertake weed control where required.
- 5.1.4 Continue to implement the right-of-way agreement with Bundagen Cooperative in regard to the maintenance of trails necessary to access the cooperative's land. Review this agreement periodically.
- 5.1.5 Work with Bellingen Shire Council to explore a shared management arrangement for the ongoing maintenance of Tuckers Rock Road.
- 5.1.6 Explore options with other authorities to have Tuckers Rock Road classified as a public road.
- 5.1.7 Allow residents to travel with pets in vehicles to access private property (inholdings) and properties adjacent to the park, where there is no other practical route to access their properties.

## 5.2 Non-NPWS uses and operations

### Apiary sites

Apiarists maintain honey beehives seasonally within the park at 11 sites. These sites are recognised as existing interests under the National Parks and Wildlife Act as they pre-date the park's reservation. NPWS policy on beekeeping allows existing sites to continue but does not allow any new or additional sites. The European honey bee (*Apis mellifera*) can have adverse impacts on some native plants and animals (Paton 1996), including poor flower pollination, the promotion of infertile hybridisation among eucalypts and competition with native nectar feeders.

Sites are limited in size and maintained by mowing or slashing. Access to apiary sites is via Frisbys, School, Overhead Bridge, Burma and Swamp roads. While no problems are currently known in the park in relation to apiary sites, hive sites may cause unacceptable environmental impacts or user conflicts in the future. Where needed, NPWS will negotiate relocation of hives to sites that allow the closure of unnecessary trails or to minimise the impact of the honey bees.

### Commercial fishing activities

Commercial (and recreational) fishing in NSW waters are managed and authorised under the Fisheries Management Act and Regulation. As discussed in Section 1, the intertidal zone along this stretch of coast is within the parks. Commercial and recreational fishing must be in accordance with licence conditions specified by the relevant regulatory authority.

Reservation of the park to the mean low water mark does not change this authority and fishing operations in the park will continue to be managed by the relevant fisheries department, including land-based activities (such as hauling of nets by hand), whether or not the fisher is situated below or above the mean high water mark.

Commercial bait collecting for pipis and worms is undertaken seasonally on the park's beaches. Existing commercial bait collectors will be permitted to continue this activity, consistent with the conditions of the relevant regulatory authority.

These commercial fishing activities are reliant on four-wheel drive access through the park and along the beach. Commercial fishing and bait collection will continue to be allowed in line with existing access arrangements. Commercial fishers must be licensed or obtain a permit under the National Parks and Wildlife Regulation for use of facilities, including access of management trails. A commercial fishing vehicle access permit is required to access Palm Crossing Trail and Bongil Beach Trail in accordance with NPWS policy. Vehicle access on the beach is only allowed on the intertidal zone of North Beach between Tuckers Rocks and the southern side of Bundagaree Creek, and a beach access permit is also required to access this area.

### Railway line

The North Coast Railway Line traverses the park and operates passenger and freight trains between Sydney and Casino. This railway line is managed by the Australian Rail Track Corporation. Access is occasionally required on park roads and management trails to areas of the railway line for maintenance purposes.

### Transmission lines

TransGrid has a high-voltage electricity transmission line traversing the park as shown on Figure 1. This transmission line is covered by a formal easement granted under section

153(1) of the National Parks and Wildlife Act. Transmission lines and associated management can cause impacts within the park from clearing or trimming of native vegetation, use of herbicides, vehicle access and the maintenance of access trails, as well as the visual impact of the lines and towers. These impacts are minimised through a statewide agreement between TransGrid and NPWS for inspection and maintenance of existing transmission lines and infrastructure.

Essential Energy operates and manages a second set of powerlines that crosses the park along Railway Trail and near Royal Palm Drive (off Lyons Road). A third set of Essential Energy powerlines marginally impacts the northern boundary of the park along the south side of Lyons Road. These powerlines are not covered by a formal easement. In accordance with the *Electricity Supply Act 1995*, a network operator can operate and use the existing powerlines whether or not there is a formal easement in place. Under the National Parks and Wildlife Act and Regulations, when carrying out any maintenance or replacement work, Essential Energy will require NPWS consent for certain works.

## Issues

- Access to apiary sites, the railway line and electricity transmission lines occasionally requires clearing of vegetation and maintenance of access tracks.

## Desired outcome

- Non-NPWS uses and activities are managed to minimise impacts on park values and infrastructure.

## Management response

### Apiary sites

- 5.2.1 Continue to license and manage the apiary sites within the park in accordance with NPWS policy and licence conditions. If these sites significantly impact park environmental values they may be relocated in consultation with the licensee.
- 5.2.2 Monitor use of apiary sites and if feasible remove any feral beehives that may establish in the park.

### Fishing activities

- 5.2.3 Work cooperatively with the relevant fisheries authority to ensure that activities licensed under the Fisheries Management Act have minimal impact on park values.
- 5.2.4 Continue to provide commercial fishing vehicle access permits to commercial bait collectors to access Palm Crossing Trail and Bongil Beach Trail. Vehicle access on the beach is only permitted on North Beach between Tuckers Rocks and the southern side of Bundagaree Creek, and a beach access permit is required for this area.

### Railway line

- 5.2.5 Continue to liaise with the Australian Rail Track Corporation in relation to the maintenance of the rail corridor and access to the railway line in the park. Encourage the removal of railway debris in certain locations where possible, and the appropriate use of herbicides for weed control within the corridor.

### **Transmission lines**

- 5.2.6 Continue to liaise with TransGrid regarding access and maintenance needs in accordance with the agreement.
- 5.2.7 Continue to permit Essential Energy to maintain and access existing powerlines that traverse the park.
- 5.2.8 Continue to monitor the maintenance of powerlines to ensure there is adequate vegetation cover and soil erosion is minimised.

## 6. Implementation

This plan of management establishes a scheme of operations for the park.

Identified activities for implementation are listed in Table 8. Relative priorities are allocated against each activity as follows:

- **High priority** activities are imperative to achieve the plan's 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 necessary to achieve the objectives and desired outcomes but are not urgent.
- **Low priority** activities are desirable to achieve the objectives and desired outcomes but can wait until resources become available.
- **Ongoing** activities are undertaken on an annual basis or in response to an issue that arises.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with the National Parks and Wildlife Act.

**Table 8 List of management responses**

Ref.	Management response	Priority
<b>3.1</b>	<b>Geology, landscape and hydrology</b>	
3.1.1	Carry out trail and track maintenance in a manner that minimises erosion and siltation of watercourses.	Ongoing
3.1.2	Monitor trails and other known erosion sites and take action if needed to minimise impacts on water quality.	Ongoing
3.1.3	Liaise with neighbours and adjoining land management authorities to minimise the impact of trail and road maintenance and adjacent land uses on water quality and erosion in the park.	Ongoing
3.1.4	Work with Coffs Harbour City Council to maintain stormwater drains and related infrastructure to minimise siltation in the park and associated waterways.	Ongoing
3.1.5	Assist Coffs Harbour City Council with the re-opening of Bonville Creek mouth if required.	Ongoing
3.1.6	Permit research opportunities to investigate the restoration and natural regeneration of the historical sandmines and extraction areas within the eastern area of the park.	Low
<b>3.2</b>	<b>Native plants</b>	
3.2.1	Implement relevant recovery actions in the <i>Biodiversity Conservation Program</i> for threatened species, populations and communities occurring in the park. Strategies include: survey and map populations, control weeds and manage visitor impacts in known habitat, and prevent fire wherever possible from entering Floyd's grass habitat.	High
3.2.2	Continue to undertake weed control in priority areas including Littoral Rainforest and Lowland Rainforest areas, and in Floyd's grass habitat.	High
3.2.3	Investigate options to rehabilitate existing hardwood plantations to improve ecological function where possible. Ensure key species for rehabilitation include tallowwood and swamp mahogany, which are important habitat trees for koalas.	Medium

Ref.	Management response	Priority
3.2.4	Encourage natural regeneration of previously cleared areas. Monitor vegetation recovery and assist natural regeneration if required.	Ongoing
<b>3.3</b>	<b>Native animals</b>	
3.3.1	Implement relevant recovery actions in the <i>Biodiversity Conservation Program</i> and relevant recovery plans for threatened animal species and populations occurring in the park. Strategies include: conduct surveys, control weeds and feral animals, ensure appropriate fire regimes, rehabilitate wetlands, protect breeding sites and undertake targeted fox and wild dog control.	High
3.3.2	Continue to protect little terns and their breeding sites through measures such as pest species control, habitat protection, public education and the interpretation and monitoring of the site by volunteers and NPWS staff.	High
3.3.3	Continue to restore koala habitat and food trees through controlling threats such as weeds and too-frequent fires.	Ongoing
3.3.4	Continue to support volunteers who are engaged in monitoring species in the park, such as little terns and koalas.	High
3.3.5	Continue to support the annual community koala surveys.	Medium
3.3.6	Promote education programs on native animals, particularly the needs of shorebirds and waders and species sensitive to human disturbance.	Medium
3.3.7	Maintain habitat of the black grass-dart in Floyd's grass areas through weed control and exclusion of fire.	Ongoing
3.3.8	Encourage research in the park on koalas, little terns, Floyd's grass, coastal petaltail dragonflies and pied oystercatchers.	Low
<b>3.4</b>	<b>Aboriginal connections to Country</b>	
3.4.1	Continue to consult and engage Coffs Harbour and District Local Aboriginal Land Council, Elders groups, other relevant Aboriginal community organisations and custodial families in the management of their Country, including through further survey, research and management of Aboriginal sites, places and cultural and natural values.	Ongoing
3.4.2	Undertake an archaeological survey and cultural assessment prior to all works that have the potential to impact Aboriginal sites or values.	Ongoing
3.4.3	Provide opportunities for Aboriginal people to access Country to maintain, renew or develop cultural practices and associations.	Medium
<b>3.5</b>	<b>Shared heritage</b>	
3.5.1	Record and assess historic sites in the park and manage them in accordance with their assessed level of significance.	Ongoing
3.5.2	Support the recording of oral histories relating to the park, in particular those relevant to the identification and protection of heritage sites.	Low
<b>3.6</b>	<b>Visitor use</b>	
<b>Access</b>		
3.6.1	Provide public vehicle access on park roads as shown on Figure 1.	Ongoing
3.6.2	Permit four-wheel drive vehicles on the intertidal zone of North Beach only from Tuckers Rocks to the southern side of Bundagaree Creek. Vehicles must display a valid beach access permit.	Ongoing
3.6.3	Monitor and review four-wheel drive use on North Beach, remove or limit access if impacts are detrimental to park values and other users.	Low

Ref.	Management response	Priority
3.6.4	Allow Tuckers Rock Road to be used by visitors with dogs and horses to access private property and North Beach. Dogs can be either within a vehicle or on a leash or lead, and horses can be led, ridden or floated. Animals must be under effective control at all times and dogs are not permitted in any other area of the park.	Ongoing
<b>Day use</b>		
3.6.5	Manage the day use areas in the park.	Ongoing
<b>Walking</b>		
3.6.6	Maintain and develop walking opportunities in accordance with Table 4.	Ongoing
<b>Cycling</b>		
3.6.7	Permit cycling on park roads and management trails shown on Figure 1. Cycling is not permitted on walking tracks.	Ongoing
3.6.8	Work with Coffs Harbour Cycle Club to develop and maintain Sid Burke Trail for access to Pine Creek Mountain Bike Park. Ensure the track is designed to avoid wet areas and damage to sensitive vegetation.	Medium
3.6.9	Continue to work with Coffs Harbour Cycle Club to ensure cycling routes identified on Figure 1 are promoted to cyclists. Prevent cycling on illegal tracks and rehabilitate these areas where required.	Medium
3.6.10	If necessary, close park roads, management trails and tracks to cycling where there is unacceptable environmental impact or there are risks to cyclists or other users.	Ongoing
<b>Horse riding</b>		
3.6.11	Permit horse riding on the roads and trails in Table 5 and as identified as horse riding routes on Figure 1.	Ongoing
3.6.12	Prevent riding on illegal tracks and rehabilitate these areas as required.	Low
3.6.13	If necessary, close park roads to horse riding where there is unacceptable environmental impact or there are risks to riders or other users.	Ongoing
<b>Canoeing, kayaking and boating</b>		
3.6.14	Continue to allow canoeing from a site at the end of Burma Road. The last 80-metre section of this road will be walk-in access only to protect Floyd's grass in this area.	Medium
3.6.15	Encourage canoeing and kayaking on the park's waterways. Liaise with the relevant regulatory authorities to appropriately regulate the use of the waterways. Boating on the navigable waterways within the park will be restricted to 4 knots. Jet skis are not permitted on the park's waterways.	Ongoing
3.6.16	Work with the relevant regulatory authorities to install regulatory signs as required.	Ongoing
<b>Group activities</b>		
3.6.17	Allow a maximum group size of 30 at any one time without formal consent, to maintain conservation values and visitor experience.	Ongoing
3.6.18	Require commercial operators in the park to be licensed in accordance with NPWS policy.	Ongoing
3.6.19	Monitor commercial and non-commercial group activities with respect to impacts, safety requirements and compliance with licence or consent conditions. Licences or consents may be cancelled if there is a breach of conditions.	Ongoing

Ref.	Management response	Priority
3.6.20	Allow group educational activities that are consistent with the management principles and values of the park, subject to conditions on group size and location.	Ongoing
<b>Accommodation</b>		
3.6.21	Continue to manage and promote Tuckers Rocks Cottage for holiday rental accommodation in the park.	Ongoing
3.6.22	If funding becomes available, renovate Tuckers Rocks Cottage to improve visitor experiences, including upgrading the on-site sewerage system.	Medium
<b>4.1 Pests</b>		
4.1.1	Manage pest species in accordance with pest management strategies relevant to the park. Priority will be given to threatened ecological communities, threatened species, former plantations, new and emerging threats and sandmined areas.	High
4.1.2	Seek the cooperation of neighbours in implementing weed and pest control programs. Undertake control in cooperation with North Coast Local Land Services, local councils, Forestry Corporation of NSW and Bundagen Cooperative.	Medium
4.1.3	Work with Coffs Harbour City Council to manage stormwater runoff moving into the park.	Ongoing
4.1.4	Continue to control and where possible eradicate slash pine and Gympie messmate in the park. Assist native regeneration of these areas by undertaking weed control to protect establishing natives.	Medium
4.1.5	Implement fox control programs in accordance with the <i>Saving our Species</i> program and relevant strategies to limit fox predation on the little tern and pied oystercatcher nesting site at Bongil Spit.	High
4.1.6	Monitor the occurrence of myrtle rust in the park.	Low
<b>4.2 Fire</b>		
4.2.1	Implement the fire management strategy for the park and update it as required.	Ongoing
4.2.2	Continue to be involved in the Mid North Coast Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities such as the Forestry Corporation of NSW, and relevant regulatory authorities and surrounding landowners in regard to fuel management and fire suppression.	Ongoing
4.2.3	Suppress unplanned fires in the park in accordance with the fire management strategy.	High
4.2.4	Monitor the ability of native plants to recover between fires and review regimes where relevant.	Low
4.2.5	Where required, rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.	Medium
4.2.6	Support the Rural Fire Service in improving fire preparedness and awareness in the community, including Bundagen Cooperative residents.	Ongoing
<b>4.3 Plantations</b>		
4.3.1	Monitor Sydney blue gum, coastal blackbutt and flooded gum plantations to ensure biodiversity values are being restored. Encourage regeneration of tallwood and swamp mahogany in these areas where possible.	Low



Ref.	Management response	Priority
4.3.2	Manage plantations in accordance with the park's plantation operations plan. Review the operations plan periodically and incorporate any changes to the management of these areas if necessary.	Ongoing
<b>4.4</b>	<b>Climate change</b>	
4.4.1	Continue existing fire, pest and weed management programs and adapt them where required to minimise climate change-induced threats.	Ongoing
4.4.2	Work with neighbouring land managers to secure corridor areas to allow species to migrate to manage the impacts of climate change. Key areas include linking the western section of the park to Bindarri National Park.	Ongoing
<b>5.1</b>	<b>Access</b>	
5.1.1	Maintain the network of management trails, park roads and tracks shown on Figure 1.	Ongoing
5.1.2	Gate management trails where necessary to prevent unauthorised vehicle access.	Medium
5.1.3	Close trails no longer required, allow them to regenerate naturally and undertake weed control where required.	Medium
5.1.4	Continue to implement the right-of-way agreement with Bundagen Cooperative in regard to the maintenance of trails necessary to access the cooperative's land. Review this agreement periodically.	Ongoing
5.1.5	Work with Bellingen Shire Council to explore a shared management arrangement for the ongoing maintenance of Tuckers Rock Road.	Medium
5.1.6	Explore options with other authorities to have Tuckers Rock Road classified as a public road.	Medium
5.1.7	Allow residents to travel with pets in vehicles to access private property (inholdings) and properties adjacent to the park, where there is no other practical route to access their properties.	Ongoing
5.2	Non-NPWS uses and operations	
	<b>Apiary sites</b>	
5.2.1	Continue to license and manage the apiary sites within the park area in accordance with NPWS policy and licence conditions. If these sites significantly impact park environmental values they may be relocated in consultation with the licensee.	Ongoing
5.2.2	Monitor use of apiary sites and if feasible remove any feral beehives that may establish in the park.	Low
	<b>Fishing activities</b>	
5.2.3	Work cooperatively with the relevant fisheries authority to ensure that activities licensed under the Fisheries Management Act have minimal impact on park values.	Ongoing
5.2.4	Continue to provide commercial fishing vehicle access permits to commercial bait collectors to access Palm Crossing Trail and Bongil Beach Trail. Vehicle access on the beach is only permitted on North Beach between Tuckers Rocks and the southern side of Bundagaree Creek and a beach access permit is required for this area.	Ongoing
	<b>Railway line</b>	
5.2.5	Continue to liaise with the Australian Rail Track Corporation in relation to the maintenance of the rail corridor and access to the railway line in the park.	Ongoing

Ref.	Management response	Priority
	Encourage the removal of railway debris in certain locations where possible, and the appropriate use of herbicides for weed control within the corridor.	
<b>Transmission lines</b>		
5.2.6	Continue to liaise with TransGrid regarding access and maintenance needs in accordance with the agreement.	Ongoing
5.2.7	Continue to permit Essential Energy to maintain and access existing powerlines that traverse the park.	Ongoing
5.2.8	Continue to monitor the maintenance of powerlines to ensure there is adequate vegetation cover and soil erosion is minimised.	Low

## Appendix A: Threatened and significant animal species recorded in the park

Common name	Scientific name	BC Act status	EPBC Act status
<b>Amphibians</b>			
Giant barred frog	<i>Mixophyes iteratus</i>	Endangered	Endangered
Green-thighed frog	<i>Litoria brevipalmata</i>	Vulnerable	
Wallum froglet	<i>Crinia tinnula</i>	Vulnerable	
<b>Birds</b>			
Barred cuckoo-shrike	<i>Coracina lineata</i>	Vulnerable	
Bar-tailed godwit	<i>Limosa lapponica</i>		Migratory
Beach stone-curlew	<i>Esacus magnirostris</i>	Critically endangered	
Black bittern	<i>Ixobrychus flavicollis</i>	Vulnerable	
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	Endangered	
Cattle egret	<i>Ardea ibis</i>		Migratory
Comb-crested jacana	<i>Irediparra gallinacea</i>	Vulnerable	
Curlew sandpiper	<i>Calidris ferruginea</i>	Endangered	Migratory
Eastern curlew	<i>Numenius madagascariensis</i>		Migratory Critically endangered
Eastern osprey	<i>Pandion cristatus</i>	Vulnerable	
Eastern reef egret	<i>Egretta sacra</i>		Migratory
Glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable	
Grey-tailed tattler	<i>Tringa brevipes</i>		Migratory
Latham's snipe	<i>Gallinago hardwickii</i>		Migratory
Little eagle	<i>Hieraaetus morphnoides</i>	Vulnerable	
Little lorikeet	<i>Glossopsitta pusilla</i>	Vulnerable	
Little tern	<i>Sternula albifrons</i>	Endangered	Migratory
Pacific golden plover	<i>Pluvialis fulva</i>		Migratory
Pied oystercatcher	<i>Haematopus longirostris</i>	Endangered	
Powerful owl	<i>Ninox strenua</i>	Vulnerable	
Rainbow bee-eater	<i>Merops ornatus</i>		Migratory
Rose-crowned fruit-dove	<i>Ptilinopus regina</i>	Vulnerable	
Ruddy turnstone	<i>Arenaria interpres</i>		Migratory
Sooty owl	<i>Tyto tenebricosa</i>	Vulnerable	
Sooty oystercatcher	<i>Haematopus fuliginosus</i>	Vulnerable	
Spotted harrier	<i>Circus assimilis</i>	Vulnerable	

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Common name	Scientific name	BC Act status	EPBC Act status
Superb fruit-dove	<i>Ptilinopus superbus</i>	Vulnerable	
Whimbrel	<i>Numenius phaeopus</i>		Migratory
White-bellied sea-eagle	<i>Haliaeetus leucogaster</i>		Migratory
White-throated needletail	<i>Hirundapus caudacutus</i>		Migratory
Wompoo fruit-dove	<i>Ptilinopus magnificus</i>	Vulnerable	
<b>Invertebrates</b>			
Black grass-dart butterfly	<i>Ocybadistes knightorum</i>	Endangered	
Coastal petaltail	<i>Petalura litorea</i>	Endangered	
<b>Mammals</b>			
Australian fur-seal	<i>Arctocephalus pusillus doriferus</i>	Vulnerable	
Common blossom-bat	<i>Syconycteris australis</i>	Vulnerable	
Common planigale	<i>Planigale maculata</i>	Vulnerable	
Eastern bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	Vulnerable	
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable
Koala	<i>Phascolarctos cinereus</i>	Vulnerable	Vulnerable
Little bentwing-bat	<i>Miniopterus australis</i>	Vulnerable	
Leopard seal	<i>Hydrurga leptonyx</i>		Marine
New Zealand fur-seal	<i>Arctocephalus forsteri</i>	Vulnerable	Marine
Squirrel glider	<i>Petaurus norfolcensis</i>	Vulnerable	
Yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable	
<b>Reptile</b>			
Green turtle	<i>Chelonia mydas</i>	Vulnerable	Vulnerable migratory

BC Act = Biodiversity Conservation Act.

EPBC Act: Commonwealth Environment Protection and Biodiversity Conservation Act.

Source: Atlas of NSW Wildlife (BioNet) 2013.

## Appendix B: Major weeds recorded in the park

Common name	Scientific name	Comment
Bitou bush <sup>1 2 3</sup>	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Widespread along the coastal areas, impacting TECs
Blue billygoat weed	<i>Ageratum houstonianum</i>	Localised, impacting TECs
Broad-leaved paspalum	<i>Paspalum mandiocanum</i>	Widespread, impacting TECs
Camphor laurel	<i>Cinnamomum camphora</i>	Localised
Cassia	<i>Senna floribunda</i>	Localised
Cocos palm	<i>Syagrus romanzoffiana</i>	Localised
Crofton weed <sup>2</sup>	<i>Ageratina adenophora</i>	Localised
Giant Parramatta grass <sup>2</sup>	<i>Sporobolus fertilis</i>	Scattered, along trails
Glory lily	<i>Gloriosa superba</i>	Widespread in dune areas and around past sandmining areas
Groundsel bush <sup>1 2</sup>	<i>Baccharis halimifolia</i>	Scattered on poorly drained soils or near watercourses
Gympie messmate	<i>Eucalyptus cloeziana</i>	Localised, near previous plantation blocks, impacting TECs
Lantana <sup>1 2 3</sup>	<i>Lantana camara</i>	Widespread, impacting TECs and habitat for koala population
Morning glory	<i>Ipomoea indica</i>	Localised
Mossman River grass	<i>Cenchrus echinatus</i>	Scattered on sandy soils along the dunes
Red coral berry	<i>Ardisia crenata</i>	Localised
Silver-leaved desmodium	<i>Desmodium uncinatum</i>	Localised
Slash pine	<i>Pinus elliotii</i>	Scattered
Trad	<i>Tradescantia fluminensis</i>	Scattered along creeks, wet areas

TEC: threatened ecological community.

<sup>1</sup> Declared Weed of National Significance.

<sup>2</sup> Declared statewide priority weed under the Biosecurity Act.

<sup>3</sup> Key threatening process under the Biodiversity Conservation Act.

## Appendix C: Ministerial roads in the park

Road/Trail name	Access	Primary access
Baileys Road	Management trail	Forestry
Burma Road	Management trail	Forestry and private
Cabans Road	Unsealed road	Private
Cabbage Tree Road	Unsealed road	Forestry
Clarks Road	Unsealed road	Private
Cpt 24/1 Trail	Unsealed road	Private (runs off northern end of Overhead Bridge Road)
Cpt 36/1 Trail	Unsealed road	Forestry (off Seaview Road)
Frisbys Road	Unsealed road	Private
Halls Road	Management trail	Forestry
Harrys Road	Management trail	Forestry
Hunters Trail	Unsealed road	Forestry
Luxfords Trail	Management trail	Forestry and private
Mailmans Track	Unsealed road	Forestry (only a small section to east is a ministerial Road)
McCabes Road	Unsealed road	Private
Chavez Trail	Unsealed road	Private (off Scrubby Ridge Road provides access to Bundagen Community lands)
O'Connors Road	Unsealed road	Private
Overhead Bridge Road	Unsealed road	Forestry and private
Reedys Forest Road	Unsealed road	Private
Ross Trail	Management trail	Forestry
Sandmine Trail	Unsealed road	Private
Scrubby Ridge Road	Unsealed road	Private
Seaview Road	Unsealed road	Forestry
Souris Road	Unsealed road	Private
Tower Road	Unsealed road	Forestry and private (a section is management trail)
Tuckers Rock Road	Unsealed road	Private
Wibberleys Trail	Unsealed road	Forestry

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