CHAELUNDI NATIONAL PARK AND
CHAELUNDI STATE CONSERVATION AREA

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change NSW

May 2009

This plan of management was adopted by the Minister for Climate Change and the Environment on 29th May 2009.

Acknowledgments

The plan of management is based on a draft plan prepared by staff of the North Coast Region of the NSW National Parks and Wildlife Service (NPWS) with the assistance of staff from other sections and divisions in the Department of Environment and Climate Change (DECC). Valuable information and comments provided by DECC specialists, the Regional Advisory Committee, and members of the public who participated in consultation workshops or contributed to the planning process in any way are gratefully acknowledged.

The NPWS acknowledges that these parks are within the traditional country of the Gumbaynggirr Aboriginal people.

Cover photographs by Aaron Harber, NPWS.

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FOREWORD

Chaelundi National Park and Chaelundi State Conservation Area are located approximately 45 kilometres south west of Grafton and 10 kilometres west of Nymboida in northern NSW. Together the parks cover an area of approximately 20,796 hectares.

Chaelundi National Park and State Conservation Area protect the old growth forest communities and other important habitat, and plants and animals of high conservation value, including endangered species and the regionally significant brush-tailed rock wallaby.

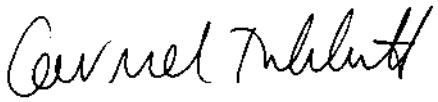
The parks also contain Aboriginal and post-colonisation heritage landscapes, sites and artefacts, as well as a large area of wilderness.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park and state conservation area. A plan of management is a legal document that outlines how an area will be managed in the years ahead.

A draft plan of management for Chaelundi National Park and State Conservation Area was on public exhibition from 2nd June until 4th September 2006. The submissions were carefully considered before adopting this plan.

This plan contains a number of actions to achieve "Better environmental outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways" (Priority E4 in the State Plan), including soil erosion control works, boundary fencing, control of pest animals and weeds, actions to protect threatened species and research into fire management. The plan also contributes to "More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity" (Priority E8) by providing additional opportunities for visitors to enjoy the park, including a picnic and camping area on Chandlers Creek with access via a permit booking system.

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



Carmel Tebbutt MP
Deputy Premier
Minister for Climate Change and the Environment

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1. INTRODUCTION

1.1 Location, Gazettal and Regional Setting

The planning area comprising of Chaelundi National Park (19,172 hectares) and Chaelundi State Conservation Area (1,624 hectares) is located approximately 45 kilometres south west of Grafton and 10 kilometres west of Nymboida (29°56.4'S, 152°43.8'E) on the eastern verge of the Great Dividing Range in northern NSW (see Figure 1). The planning area is approximately 20,796 hectares in size and encompasses parts of the former Boundary Creek, Marara, Ellis, Sheas Nob and Chaelundi State Forests. The planning area is surrounded by state forests, Crown lease and private property predominantly used for cattle grazing and timber production.

Other parks in the vicinity include Guy Fawkes River National Park to the west, Nymboida National Park to the north and Nymboi-Binderay National Park to the south east.

The park was initially declared on 1 January 1997 as part of the NSW Government's forest reform strategy, which aims to establish a comprehensive, adequate, and representative reserve system in NSW. Further areas were added to the planning area in 1999 and 2003 to bring it to its present size.

The name 'Chaelundi' is derived from 'Jilandi', which is the Gumbaynggirr name for Chaelundi Mountain, which is located to the west of the planning area in Guy Fawkes River National Park.

1.2 Landscape Context

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

The geology, landform, climate and plant and animal communities of the area, plus its location, have determined how it has been used by humans. Early European activity in the area was associated with timber getting, gold mining, and cattle grazing. Evidence of these past uses is still present in the planning area. The planning area is part of a landscape that is of significance to the Gumbayngirr Aboriginal people (Hall and Lomax 1993). This includes Aboriginal sites or places of significance that are recorded in the planning area (refer to section 3.5).

Both Aboriginal and non-Aboriginal people place cultural values on natural areas, including aesthetic, social, spiritual, recreational and other values. Cultural values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness natural and cultural heritage, non-human threats and on-going use are dealt with individually, but their inter-relationships are recognised.

2. MANAGEMENT CONTEXT

The *National Parks and Wildlife Act 1974*, requires that a plan of management be prepared for Chaelundi National Park (referred to as "the park") and Chaelundi State Conservation Area (referred to as "the SCA", while both the park and SCA are collectively referred to as "the planning area" in this document). A plan of management is a legal document that outlines how the areas will be managed in the years ahead.

2.1 Legislative and Policy Framework

The management of national parks and state conservation areas in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of management. The policies arise from the legislative background, the National Parks and Wildlife Regulation and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

The plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with the plan. The plan will also apply to any future additions to the planning area. Where management strategies or works are proposed for the planning area or any additions that are not consistent with the plan, an amendment to the plan will be required.

2.2 Management Purposes and Principles

National Parks

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

Under the NPW Act, national parks are managed to:

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

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

State Conservation Areas

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

Under the NPW Act, state conservation areas (SCAs) are managed to:

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

The Act also requires review of the classification of SCAs every 5 years to determine whether they should receive either a national park or nature reserve classification. The classification review for SCAs is described in section 47M of the Act and is undertaken in consultation with the Minister administering the *Mining Act 1992*.

Chaelundi Wilderness

The *Wilderness Act 1987* provides for the protection, management and use of wilderness areas. Wilderness areas are large natural areas of land that, together with their native plant and animal communities, are essentially unchanged by recent human activity. Wilderness areas provide opportunities for solitude and appropriate self-reliant recreation. However, protection of natural values has priority over providing for recreational use.

A large area of land, including the planning area and some adjoining land, has been identified as containing wilderness values (NPWS 2001). On 2 December 2005, an area of 10,883 hectares within Chaelundi National Park was declared as the Chaelundi Wilderness under the *Wilderness Act* (see "Declared Chaelundi Wilderness" in Figure 2).

The Chaelundi Wilderness will be managed according to the following wilderness management principles, given by the *Wilderness Act*:

- to restore (if applicable) and to protect the unmodified state of the area and its plant and animal communities;
- to preserve the capacity of the area to evolve in the absence of significant human interference; and
- to permit opportunities for solitude and appropriate self-reliant recreation.

2.3 Management Directions

In addition to the management principles outlined in section 2.2 the planning area will be managed to:

- protect the physical, biological, historical and scenic features of the planning area, as part of the system of reserves on the eastern escarpment of the Great Dividing Range in north-east NSW;
- protect the old growth forest communities and other important habitat for the conservation of threatened fauna;
- protect the plants and animals of high conservation value including endangered species such as *Acalypha eremorum,* marsdenia vine *(Marsdenia longiloba)* and Macrozamia (*Macrozamia johnsonii)*;
- protect the regionally significant population of brush-tailed rock wallabies (*Petrogale penicillata*);
- protect the cultural heritage landscape, sites and artefacts;
- protect wilderness values within the declared wilderness area; and
- provide a remote recreation setting for self-reliant nature-based recreation.

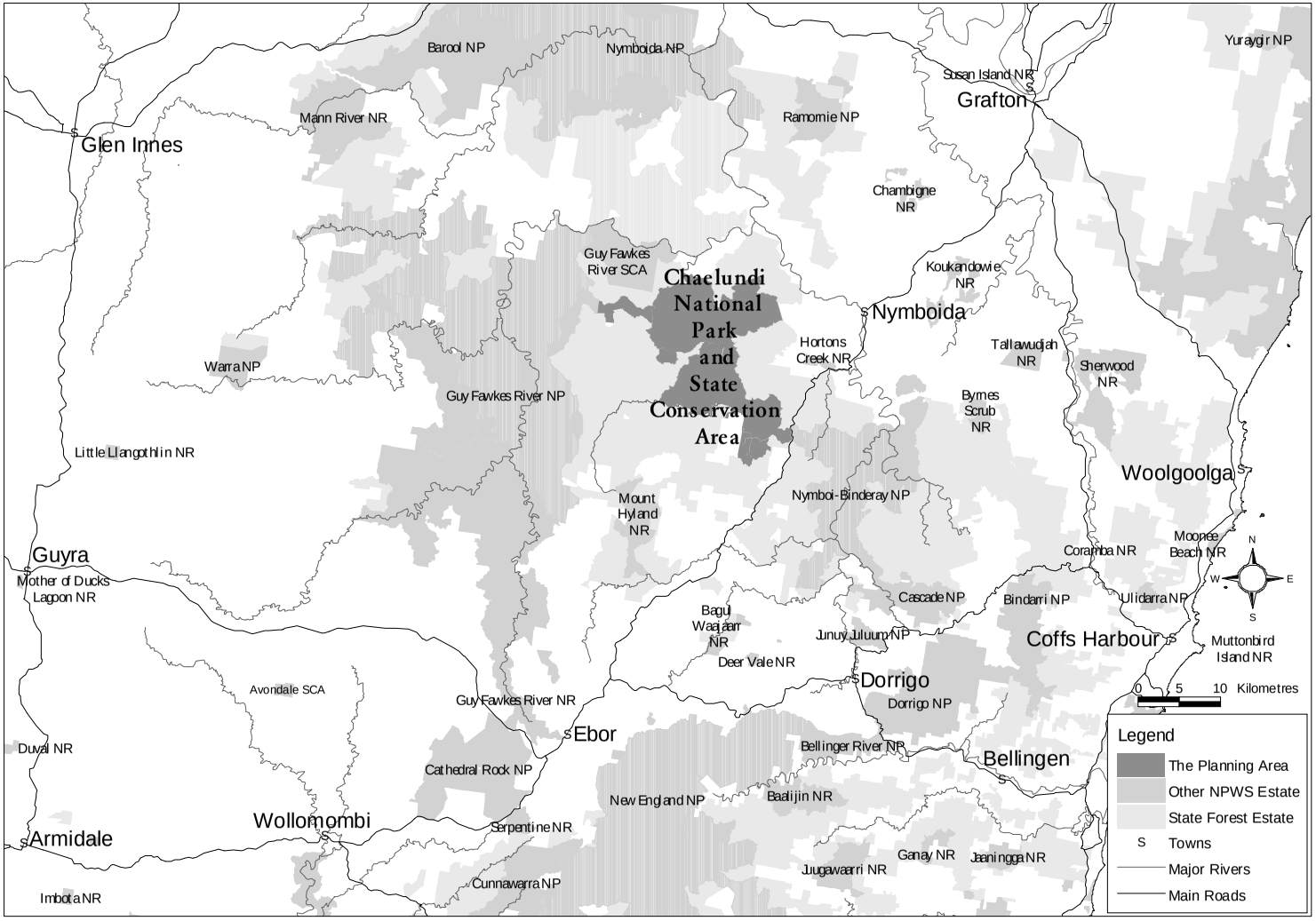


Figure 1: Regional setting of the planning area.

3. CONSERVATION OF NATURAL AND CULTURAL HERITAGE

3.1 Geology, Soils and Landform

The planning area is located on the eastern verge of the Great Dividing Range and is characterised by high ridges and deeply incised streams. Altitude in the park ranges between 210 metres above sea level at Chandlers Creek on the northern boundary of the planning area, to 930 metres at Red Herring Hill near the south western boundary. The eastern plateau areas of Chaelundi National Park have undulating relief. The most prominent peak at the northern end of the park, is Mount Royal at 794 metres along with two associated peaks.

The geology of the planning area is mainly comprised of sedimentary rocks formed from metasediments including massive greywacke, laminated siltstone, mudstone, cleaved massive argillite and minor conglomerate and chert.

The soils of the planning area are closely associated with the geology of the area and are best described by the following soil landscape units:

- Deadmans soil landscape is an erosional unit formed primarily by the erosive action of running water. It is found on the higher plateau areas in the park and is characterised by moderate slopes of less than 33° and relatively shallow soils. Soil types include yellow earth, yellow podsolic, red podsolic and red earth.
- Black Mountain soil landscape is a colluvial unit formed primarily from the process of mass movement. It is found on steep hills and narrow, deeply dissected valleys with narrow ridge tops and slopes up to 66°. Soil types include yellow and brown earths.
- Nymboida Gorge soil landscape is also classified as colluvial and is found on narrow ridgelines separated by steep sided valleys with slopes greater than 33°. Soil types include brown earth and lithosol.

The soils of Chaelundi National Park are of low fertility and are highly erodible in areas of steep terrain. Many management trails within the planning area are susceptible to soil erosion, particularly the steeper trails such as Chandlers Creek Trail, Stockyard Trail, Red Herring Hill Trail and Frenchmans Trail (refer to section 6.2). Soil disturbance is also evident in areas that have in the past been extensively grazed by cattle, such as sections of Frenchmans Ridge, Chandlers Creek, Stockyard Creek and the Mount Royal area. Stray cattle are occasionally found in the planning area and they are likely to be contributing to soil erosion and compaction in areas.

Desired Outcomes

- To minimise accelerated rates of soil erosion due to disturbance.

Strategies

- Undertake soil erosion control works on steep management trails such as Chandlers Creek Trail, Stockyard Trail, Red Herring Hill Trail and Frenchmans Trail.
- Prepare a fencing and stock exclusion strategy to minimise the impact of straying cattle on the planning area's soils and geology (refer to section 6.3).

3.2 Catchments and Water Quality

The planning area is within the Clarence River catchment area. Chandlers Creek dissects the park and flows northward into the Boyd River. This creek drains a number of smaller creeks within the park including Marara Creek, Laytons Creek, Stockyard Creek and Frenchmans Creek. The north eastern section of the park is drained by Middle and Back Creeks that flow directly into the Boyd River. The eastern section of the planning area drains into the easterly flowing Blandford and Shannon Creeks that are tributaries of the Nymboida River. The south east section of the planning area is drained from Boundary Creek and Clouds Creek. The Nymboida River provides the water supply for the Clarence Valley and Coffs Harbour Regions. The Shannon Creek in the planning area is not the same Shannon Creek where the dam for the Regional Water Supply Scheme is being constructed.

Stream flow in the planning area is highly variable and reflects the annual rainfall pattern. The highest stream flows generally occur in late summer following high intensity but short duration summer rainfall events.

Previous water quality studies have indicated mild levels of pollution in the lower section of Chandlers Creek which may be the result of grazing upstream from the park (Chessman *et al.* 1994). Cooperative fencing with neighbours of the planning area boundary will assist in improving water quality by excluding cattle from waterways (refer to section 6.3).

Desired Outcomes

- To improve water quality and the health of waterways within the planning area.

Strategies

- In cooperation with neighbouring landholders, prepare a fencing and stock exclusion strategy to minimise the impact of straying cattle on the planning area's water quality (refer to section 3.1 and 6.3).
- Liaise with the Northern Rivers Catchment Management Authority and landowners in the catchment to assist in improving water quality within the planning area.

3.3 Native Flora

The vegetation of the planning area is relatively diverse (refer to Table 1). It is generally characterised by extensive areas of open eucalypt forest on plateau areas and significant areas of rainforest in protected gully areas. The majority of Chaelundi National Park supports spotted gum *(Corymbia variegata)* forest that is of regional significance. Large populations of the endangered macrozamia *(Macrozamia johnsonii*) are dominant in the understorey of this forest type, often adjacent to areas of rainforest. This macrozamia is endemic to the Chaelundi and Dalmorton area and reaches its southern distributional limit in the park. The park is an important area for the conservation of this species.

Rainforest occurs in areas of high rainfall and localised fertile soils. The planning area has been identified for future assessment as a potential addition to the Gondwana Rainforests of Australia World Heritage Area.

Surrounding rainforest areas on the escarpment which are already World Heritage listed include Mount Hyland Nature Reserve and Washpool, Dorrigo, and New England National Parks.

The vegetation of the planning area has been investigated in a number of studies (SFNSW 1994 & 1995, NPWS 1994). Early reports by Dodkin (1979) and Floyd (1979) outline the conservation significance of the Chaelundi area. The park is particularly significant for its old growth forest. Approximately sixty per cent of the park is classified as old growth forest, which represents one of the largest contiguous stands of old growth dry forest types in north eastern NSW. This forest is characterised by mature and senescent eucalypts, fallen logs and well-developed understorey. These forests are high quality habitat for many threatened flora and fauna species.

Threatened flora species recorded in the planning area include endangered species such as the shrub *Acalypha eremorum*, the cycad *Macrozamia johnsonii*, and two vines: cryptic forest twiner (*Tylophora woollsii*) and slender marsdenia (*Marsdenia longiloba*). Vulnerable species recorded from the planning area include hairy jointgrass (*Arthraxon hispidus*) and milky silkpod (*Parsonsia dorrigoensis*).

Table 1: The structural and floristic classification of significant vegetation types in Chaelundi National Park

STRUCTURE AND LOCATION	FLORISTIC ASSOCIATION	CONSERVATION SIGNIFICANCE
Dry Open Forest Slopes	Spotted gum *(Corymbia variegata)* association with a Macrozamia (*Macrozamia johnsonii)* and rainforest understorey.	Regionally significant. Old growth.
Ridges	Spotted gum *(C. variegata)* association and forest oak association *(Allocasuarina torulosa and A. littoralis)* with a mixed wattle (*Acacia spp.*) understorey.	Regionally significant.
Alluvial plains	Forest red gum *(Eucalyptus tereticornis)* association.	Poorly represented in current reserve system.
Peaks (> 500m above sea level)	New England eucalypt *(E. campanulata* and *E. nova-anglica)* association.	Old growth.
Dry Open Forest to Dry Rainforest ecotone	Wollomombi wattle *(A. diphylla)* association.	High conservation and scientific significance.
Tall Open Forest Riparian	Brush box *(Lophostemon confertus)* association.	Old growth.
Sub tropical Rainforest Creeks and gullies	Grey myrtle *(Backhousia myrtifolia),* brush box *(L. confertus)* and water gum *(Tristaniopsis laurina)* alliance.	Inadequately reserved and close to its northern most distribution in the park.
Dry rainforest South and east facing gullies	Hoop pine *(Araucaria cuninghamii)* alliance.	Small discrete stands of exceptional heights, up to 60m tall.

Sources: SFNSW 1994; SFNSW 1995; NPWS 1994; Sheringham & Westaway 1995; Dodkin 1979; Floyd 1979.

Nambucca ironbark *(Eucalyptus fusiformis)* and the sub-shrub *Plectranthus suaveolens* are recorded in the planning area and are considered to be nationally rare (Briggs & Leigh 1996). Other nationally rare species recorded in the planning area include the epiphyte *Papillilabium beckleri* and climber *Parsonsia tenuis.*

The park also contains the northern most distribution of the Wollomombi wattle *(Acacia diphylla)* association in the ecotone between the dry rainforest and dry sclerophyll forest types on Blandford and Chandlers Creeks (Floyd 1979). This association is characteristic of the Macleay Gorges area to the south.

Under the TSC Act, preparation of recovery plans for threatened species is discretionary and recovery actions are now included in the Priorities Action Statement. Current priority actions for threatened flora species recorded from the planning area include targeted surveys, mapping and habitat assessment, and the identification of roadside populations and their protection during road works. The development and implementation of site management plans for some populations of hairy jointgrass are also a priority.

Maintaining appropriate fire regimes for vegetation communities is an important consideration in the management of the planning area (refer to section 5.1). Whilst the sclerophyll communities in the planning area are somewhat dependent on a particular frequency and intensity of fire, rainforest communities require the exclusion of fire.

Mature plants of the endangered macrozamia (*Macrozamia johnsonii)* are thought to be relatively resilient to disturbance (Moore & Floyd 1994), however, fire that is too frequent may adversely affect the ability of juvenile plants to become established. Fire is more frequent in areas west of Chandlers Creek where macrozamias occur with little competition from other plant species, whereas on the east of Chandlers Creek where fire is less frequent, macrozamia is struggling to compete with the rainforest understorey.

Desired Outcomes

- To conserve the range of native vegetation communities and their floristic and structural diversity.
- To protect significant vegetation, such as old growth forest, subtropical and dry rainforest communities.
- To reduce or eliminate threats to threatened and other significant flora species or communities occurring within the planning area.

Strategies

- Encourage research into the habitat requirements and optimum fire regime for the conservation of *Macrozamia johnsonii.*
- Assess the park for nomination on the World Heritage list as an addition to the Gondwana Rainforests of Australia as part of an overall review of all potential additions.
- Implement the Priorities Action Statement for threatened species (including actions in recovery plans as they are prepared).

3.4 Native Fauna

The planning area supports a diverse range of fauna, many of which are threatened species (refer to Table 2).

Table 2: Threatened fauna recorded in the planning area

Species	Common name	Conservation Significance
Reptiles and Amphibians		
Cacophis harriettae	white-crowned snake	Vulnerable
Hoplocephalus stephensii	Stephens banded snake	Vulnerable
Mixophyes balbus	stuttering frog	Endangered
Mixophyes iteratus	giant barred frog	Endangered
Philoria sphagnicolus	sphagnum frog	Vulnerable
Mammals		
Aepyprymnus rufescens	rufous bettong	Vulnerable
Dasyurus maculatus	tiger quoll	Vulnerable
Macropus parma	parma wallaby	Vulnerable
Petrogale penicilliata	brush-tailed rock wallaby	Endangered
Petaurus australis	yellow-bellied glider	Vulnerable
Phascogale tapoatafa	brush-tailed phascogale	Vulnerable
Phascolarctos cinereus	koala	Vulnerable
Pseudomys oralis	Hastings River mouse	Endangered
Chalinolobus nigrogriseus	hoary bat	Vulnerable
Falsistrellus tasmaniensis	great pipistrelle	Vulnerable
Kerivoula papuensis	golden tipped bat	Vulnerable
Miniopterus schreibersii	eastern bent-wing bat	Vulnerable
Miniopterus australis	little bent-wing bat	Vulnerable
Myotis adversus	large-footed mouse-eared bat	Vulnerable
Pteropus poliocephalus	grey-headed flying fox	Vulnerable
Scoteanax rueppellii	greater broad-nosed bat	Vulnerable
Thylogale stigmatica	red-legged pademelon	Vulnerable
Birds		
Calyptorhynchus lathami	glossy black-cockatoo	Vulnerable
Melithreptus gularis	black-chinned honeyeater	Vulnerable
Ninox strenua	powerful owl	Vulnerable
Pomatostomus temporalis	grey-crowned babbler	Vulnerable
Ptilinopus magnificus	wompoo fruit dove	Vulnerable
Tyto novaehollandiae	masked owl	Vulnerable
Tyto tenebricosa	sooty owl	Vulnerable
Xanthomyza phrygia	regent honeyeater	Endangered

Source: NPWS Wildlife Atlas 2005 and *Threatened Species Conservation Act 1995*.

The large proportion of old growth forest in the park provides high quality habitat for a diverse range of fauna. This includes a high number of threatened fauna species which are recorded in Table 2. Under the provisions of the TSC Act recovery plans may be prepared for threatened species. At the time of writing, recovery plans are in place for the koala, yellow-bellied glider, regent honeyeater and the Hastings River mouse, while draft recovery plans have been prepared for the barking owl and large forest owls. Other recovery plans and priority action statements are progressively being prepared and will be used to guide management of threatened fauna in the area.

The regent honeyeater is a species with a highly specialised diet primarily consisting of nectar and insects. A national recovery plan has been prepared for this species (Menkhorst *et al.* 1999). Due to the highly specific dietary preferences of this honeyeater, the main threats include a loss of their food source and possibly competition from honeybees for nectar.

The main threats to the glossy black-cockatoo arise from the loss of nesting and feeding resources. The species nests in hollows of senescent eucalypts in open forest. It feeds almost exclusively on the seeds of mature forest oaks, namely *Allocasuarina torulosa* and *A. littoralis* (Clout 1989). Forest oaks regenerate well from seed after fire, but it may take 20 years before the trees produce suitable food resources for the glossy-black cockatoo (SFNSW 1995). Loss of mature cone-producing forest oaks represents a threat to the glossy-black cockatoo.

The main threats to the masked owl are the loss of nesting trees and the availability of its prey, which are mostly small to medium sized mammals. Threats to the sooty owl and powerful owl include a reduction in hollow-bearing trees and the availability of suitable prey. These species may also be sensitive to disturbance during breeding and nesting.

Whilst the distribution of the white-crowned snake is largely unknown, records suggest the species may be nearing its southern-most distribution within the planning area. Potential threats to this species include the loss of preferred habitat such as leaf litter and fallen timber that is caused by frequent burning.

The giant barred frog is a mobile forest dwelling species which occurs mainly along clear flowing streams in moist forest and rainforest areas. The species is normally recorded at low altitudes, but has been recorded at altitudes up to 1,000 metres. The species has been recorded on a tributary of Shannon Creek near Shannon Creek Road and also on Chandlers Creek within the park. Habitat requirements of the species include damp forest leaf litter adjacent to streams, riparian understorey vegetation and clear flowing water.

The yellow-bellied glider feeds predominantly on eucalypt blossoms, sap from trees such as spotted gum, grey gum (*Eucalyptus propinqua*) and forest red gum and insects from under the bark of trees (Strahan 1992). The presence of large trees with hollows for nesting and winter-flowering eucalypts such as spotted gum are likely to be important habitat requirements for this species within the planning area.

The main threats to arboreal mammals generally include the loss of suitable habitat trees, reduced food resources from loss of eucalypt diversity and possibly the loss of understorey vegetation. It is also possible that honeybees compete with arboreal mammals for tree hollows and food resources such as nectar.

Previously thought to be extinct, the Hastings River mouse has been recorded in a small number of locations in north-east NSW including within the park. Little is known about the ecology of the species, although it appears to be found in a narrow geographical range. Its habitat requirements appear to be open forests and woodlands with diverse grass and herb understorey in areas over 400 metres altitude.

The planning area appears to be a stronghold for the rufous bettong. The species prefers areas of well grassed tall open forest or woodland where it builds nests of grass on the ground and feeds on roots, tubers, herbs, grasses and fungi. The main threat to the species appears to be from feral predators, particularly foxes.

Most of the planning area provides suitable habitat for the tiger quoll, which inhabits a wide range of vegetation types across large home ranges up to approximately 1,000 hectares in size. Tiger quolls den in small caves and rock crevices as well as in hollow logs or tree bases. Threats to the species include competition with foxes and feral cats.

The brush-tailed phascogale lives in a variety of habitats with reliable rainfall. It has a habitat preference of open sclerophyll forest with little ground cover on ridges up to 600 metres altitude. The species is largely arboreal and nests in tree hollows.

A population of the brush-tailed rock wallaby has been recorded in the park. The species inhabits rocky escarpment areas using small caves, rock crevices and overhangs for shelter (Lunney *et al.* 1994). The main threat to the species in the planning area is predation by foxes.

The management of native fauna requires an understanding of their habitat requirements and threats. Additional information is required to assist management including the distribution and abundance of fauna species and the impact of introduced species and wildfire.

Desired Outcomes

- To conserve the range of native fauna and their habitats.
- To reduce threats to native fauna species within the planning area.
- To maintain the floristic diversity and habitat values of the planning area.

Strategies

- Undertake further survey and mapping of the distribution of the Hastings River mouse and its habitat within the planning area.
- Encourage research into the distribution and abundance of other threatened species populations within the planning area.
- Conduct a comprehensive survey of the brush-tailed rock wallaby population. Determine potential threats and implement conservation programs as necessary.
- Implement the Priorities Action Statement for threatened species (including actions in recovery plans as they are prepared).

3.5 Aboriginal Cultural Heritage

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

Aboriginal sites are places with evidence of Aboriginal occupation or that are in some other way significant to Aboriginal culture. They are important as evidence of Aboriginal history and as part of the contemporary culture of local Aboriginal people. Although no comprehensive survey of the Aboriginal cultural heritage of the planning area has been undertaken, limited survey work undertaken to date has recorded a scarred tree, lithic quarry site, open camp sites and artefact scatters. Many of the ridgelines are considered to be of high regional and local significance to local Aboriginal people (SFNSW 1995). It is important that Aboriginal heritage values are identified to avoid unintentional impacts from visitor and management activities.

The park lies within the territory of the Gumbayngirr Aboriginal people and in the area of the Grafton-Ngerrie Aboriginal Land Council. The NPWS has a legal responsibility for the management of Aboriginal sites and places of significance under the NPW Act. In carrying out this responsibility, the NPWS is committed to consultation with the Aboriginal community regarding the management of Aboriginal sites and Aboriginal heritage issues. Consultation has traditionally occurred with local Aboriginal people through Local Aboriginal Land Councils.

Desired Outcomes

- To protect Aboriginal heritage values in association with the local Aboriginal community.

Strategies

- Manage Aboriginal heritage values associated with the planning area in partnership with the Gumbayngirr Aboriginal community and the Grafton-Ngerrie Local Aboriginal Land Council.
- Protect all Aboriginal sites, relics, historic places and culturally significant features from damage by human activity and fire.
- Undertake a survey for Aboriginal sites and relics with representatives from the local Aboriginal community prior to the commencement of any proposed new developments.
- Encourage research and surveys into the Aboriginal cultural heritage sites values of the planning area.

3.6 Cultural Heritage Since Colonisation

Past land uses of the planning area since European occupation include timber getting, gold mining, and cattle grazing. The names of many roads and creeks in the planning area are derived from the individuals and families (such as Shea, Chandler, Taylor and Ellis) that have had historic links with the planning area.

Commencing around the 1860s, grazing became the major land use. Clearing for grazing was concentrated on the river flats, particularly along Chandlers Creek (Dodkin 1979). Evidence of the grazing history of the planning area includes remote huts, stockyards, fruit and ornamental tree plantings. There is a ruin of a grazier's hut (referred to as Towns' Hut) and stockyards, located near the northern boundary of the park at the confluence of Marara and Chandlers Creeks which was previously part of the Towns' family property. Also, there are ornamental (exotic) trees at the Towns' hut ruin which have been assessed as having limited heritage value and do not appear to be spreading. A second hut made from local red cedar timber was in the planning area, but was burnt down by wildfire in 1994.

From 1860 to 1884, the MacDougall family leased large areas of land which are now part of the planning area. The remains of the MacDougall's stockyards located at the junction of Stockyard and Chandlers Creeks may have historic value.

There is significant evidence of past gold mining activity throughout the planning area. This evidence includes abandoned gold mines in the form of vertical or horizontal mine shafts, and early road works including hand laid rock cuttings. Within the planning area there are approximately 16 recorded mines, though it is likely that there are other mine shafts which have not yet been identified.

Gold was first discovered in the vicinity of the planning area in 1864 by a local leaseholder. In 1871 a large reef of quartz was discovered adjacent to the planning area. This led to the discovery of another 50 reefs in the area and by 1872 over 500 people were recorded living at Dalmorton, 6 kilometres north of the planning area. Most mining operations in the area ceased around the 1930s.

Other sites associated with early gold mining activities include Silky Road, within the planning area, which shows significant signs of hand road building techniques (such as hand placed rocks for road embankments) and adjacent to the planning area there is a Chinese burial site.

The planning area has a long history of timber harvesting. Logging for red cedar commenced in the Chandlers Creek Basin in the late 1800s. As red cedar became increasingly scarce, timber getters logged hoop pine up until 1930 (SFNSW 1995). Logging progressively moved to the rainforests and hardwood stands adjacent to rainforests. Most areas within the planning area east of Chandlers Creek were logged under the former State Forest tenure. The impact of past logging is evident in the structure and floristic composition of the forest. However, the planning area still contains significant areas of unlogged hardwood forest.

Desired Outcomes

- To preserve and protect significant historic sites in the planning area.

Strategies

- Encourage research into the identification of the historic values of the planning area.
- Assess and record the historic significance of the Towns' Hut, stockyards and MacDougall's stockyards. In the interim, manage Towns' Hut and the stockyards as ruins, whilst ensuring public safety at the site. This may include fencing off of certain areas or erecting appropriate signage.
- Manage exotic trees around Towns' Hut ruin by allowing original trees to senesce and remove wildlings should they occur (refer to section 5.2).
- Undertake an assessment of heritage significance and protection measures for Silky Road before any earth works or road maintenance activities are conducted.
- In liaison with DPI (Minerals), assess safety requirements and the heritage significance of all known abandoned mines. Where appropriate, undertake measures to protect public safety and the historical values of the mines. This may include fencing, interpretive brochures or relevant signage.

4. RECREATIONAL OPPORTUNITIES AND EDUCATION

The planning area receives relatively low levels of visitor use. With the exception of a small picnic area on Shannon Creek Road and the Doon Goonge camping area on Chandlers Creek Trail, the planning area mainly provides for self-reliant recreation opportunities. Activities undertaken include bush camping and picnicking, bushwalking, four wheel drive touring, fishing, bicycle riding, photography and nature appreciation. Developed day use and camping areas are provided in nearby Guy Fawkes River and Nymboi-Binderay National Parks.

4.1 Public Vehicle Access

The main access to the planning area is from the Armidale-Grafton Road near Nymboida via either Boundary Creek Forest Road and Shannon Creek Road, or Ellis Road which leads onto Sheas Nob Road (see Figure 2).

The eastern side of the park is currently accessible to two wheel drive (2WD) vehicles via Boundary Creek Forest Road, Shannon Creek Road, Joebills Road and Link Road. The western side of the planning area is accessible by 4WD vehicles from Chaelundi Road (also known as Gresham Way) and via Quartz and Chandlers Creek Trails.

Previously, the planning area could be traversed via the 4WD standard Stockyard Trail, however this is within the declared Chaelundi Wilderness area (refer to "Declared Chaelundi Wilderness" on Figure 2). Stockyard Trail has now been closed to public vehicles and will remain a management trail.

Vehicle access can occur through the park along Chandlers Creek Trail subject to a permit system to protect park values, public safety and the remote setting along Chandlers Creek from uncontrolled access. Chandlers Creek Trail requires controlled access due to its erodible subsoils and its steep nature, and because the cleared flats along Chandlers Creek are considered a high fire danger due to the inflammable vegetation. For these reasons vehicle access is limited to a maximum of ten vehicles at any one time. This permit system is administered from the Dorrigo Plateau office of the NPWS, with keys also available from NPWS offices in Coffs Harbour and Grafton.

The road and trail network available for public vehicle access needs to be compatible with park values and must be sustainable. In accordance with NPWS policy management trails in the planning area are not available for public vehicle use. Many of the management trails are steep, susceptible to erosion and are maintained to a lower standard than roads and trails available for public use (refer to section 3.1). Whilst management trails are principally for management purposes such as fire and weed control, they are available for walking by park visitors.

Joebills Road, Middle Creek Road, Marara Road and part of Shannon Creek Road have been excluded from the park under part 2, section 13 of the *Forestry Revocation and National Parks Reservation Act, 1996.* These roads are classified as 'Ministerial Roads' as they remain vested in the Minister administering the NPW Act for the purposes of Part 11 of the *National Parks and Wildlife Act* and may be used for timber haulage or other purposes from the adjoining State forest. In the 2003 additions to the planning area, Ellis Road will be designated as a Ministerial road under the *National Park Estate (Reservations) Act 2003*.

Desired Outcomes

- To provide public vehicle access to selected areas of the planning area where access is sustainable and compatible with the protection of park values.
- To undertake cooperative maintenance of 'Ministerial Roads' with other agencies.

Strategies

- Provide public vehicle access in accordance with Figure 2. Roads and trails in wilderness areas will be closed to public vehicle access.
- Develop a Memorandum of Understanding with Forests NSW and other relevant stakeholders regarding the cooperative maintenance of 'Ministerial Roads' within the planning area.
- Initiate a permit booking system, administered from the NPWS Dorrigo Plateau office, for use of Chandlers Creek Trail. A maximum of ten vehicles will be permitted to use Chandlers Creek Trail at any one time.
- Monitor public vehicle use of the Chandlers Creek Trail, particularly the Chandlers Creek crossing, to assess any possible vehicle damage to the creek flat area. If unacceptable impacts occur, consider restricting vehicles during certain weather conditions or for longer periods if required.
- Provide roadside signage with directional and road condition information where necessary and in accordance with wilderness policy.
- Temporarily close roads and trails where necessary to prevent damage during wet weather and to ensure public safety.
- Provide interpretative signs at locked gates to educate the public about reasons for closure, and inviting use of the trails for self-reliant bushwalking only.

4.2 Recreation Activities

Recreation activities conducted in the park include bushwalking, cycling, vehicle touring, camping and picnicking. Currently self-reliant bushwalking, swimming, fishing and vehicle-based bush camping occurs from access along Stockyard Trail. With the declaration of the wilderness, Stockyard Trail will be closed to public use.

The Shannon Creek picnic area located on Shannon Creek Road contains basic picnic facilities and an interpretive shelter. The Doon Goonge Camping Area is situated on cleared flats in the northern section of Chandlers Creek and provides for low-key vehicle-based camping. No other visitor facility areas are proposed for development in the planning area with the focus being on self-reliant recreational use.

Access to this camping area will be via Chandlers Creek Trail and use of the camping area will be managed as part of the permit booking system for Chandlers Creek Trail (see section 4.1). The capacity of the camping area will be limited to a maximum of ten camping sites to accommodate a small number of campers at any one time. The camping area includes a compost toilet system, two picnic tables and barbecues, and appropriate vehicle management infrastructure (i.e. signage and bollards to prevent vehicles damaging vegetation and the creek bank). Up to ten vehicles can access and use the area at any one time.

Recreational access to Chandlers Creek is also available in neighbouring Ellis State Forest.

There is minimal existing recreational horse riding in the planning area. Horse riding is not considered appropriate in the planning area as it has the potential to accelerate erosion of the highly unstable soils and introduce weeds into and across the park.

Recreation opportunities provided in the park must be compatible with park values and complement other opportunities available elsewhere in the region. As a contrast to the low key facilities provided in the planning area, developed day use and camping areas are provided in nearby Guy Fawkes River and Nymboi-Binderay National Parks.

In the declared Chaelundi Wilderness area no facilities will be provided and visitors will need to be self-reliant in accordance with the provisions of the Wilderness Act (refer to section 2.2 and see Figure 2).

Desired Outcomes

- To provide for low-key recreational opportunities such as self-reliant bush walking and camping.
- To manage visitor use so it does not adversely impact on the natural, cultural and wilderness values of the park.

Strategies

- Maintain the small picnic area on the Shannon Creek Road to a basic day use area standard.
- Maintain the small, low key, day use and camping area on the river flats of the Chandlers Creek Trail. Camping will be limited to a maximum of ten sites. The area will be low key, developed to accommodate a small number of campers and include a compost toilet system, two picnic tables, two barbecues and appropriate vehicle management infrastructure such as signage and bollarding.
- Access to the proposed camping area will be via Chandlers Creek Trail and use of the camping area will be managed as part of the permit booking system for Chandlers Creek Trail (see section 4.1).
- No additional recreational facilities will be developed in the planning area.
- Bush camping is permitted in the planning area provided it is no less than 200 metres from a road or trail shown on Figure 2 and 50 metres from a watercourse.
- Visitors will be encouraged to abide by minimum impact practices, including removal of their own rubbish and supply of own firewood.
- Recreational horse riding will not be permitted in the planning area. Horses may be permitted to remove stray stock with approval from the Regional Manager. (refer 6.3).
- Cycling will not be permitted in the declared wilderness.
- Only self-reliant recreational use will be permitted in the declared Chaelundi Wilderness area. No new visitor facilities or infrastructure will be permitted in the Chaelundi Wilderness.

4.3 Commercial and Group Activities

There are currently no commercial activities in the planning area. The occasional 4WD group tour has been conducted in the park.

Commercial operators can assist park management through encouraging appropriate visitor use and understanding of park values as well as monitoring park conditions. They contribute to the range of recreation, interpretive and educational opportunities for visitors and may provide experiences that otherwise may not be available.

Any commercial activities conducted in the planning area are required to be licensed under the NPW Act and will be subject to conditions of use. Group activities involving more than 40 persons require prior written consent from NPWS.

Desired Outcomes

- To ensure any commercial or group activities are compatible with the provisions of this plan and other visitor use of the planning area.

Strategies

- Ensure commercial and group activities in the planning area are licensed or have appropriate consent from the NPWS.
- Monitor the impacts and levels of commercial and group activities in the planning area, and if necessary to protect park values or ensure public safety, control group sizes and periods during which commercial and group activities can occur.

4.4 Research and Education

The NPWS will undertake appropriate research into the natural and cultural resources in the planning area and encourage research by other organisations and individuals. All research will be subject to the NPWS policy and procedures relating to the granting of permits, the conduct of research and the provision of results.

Desired Outcomes

- To understand the natural and cultural resources of the planning area utilising methods which have minimal impact on the environment.
- To allow appropriate environmental education in the planning area.

Strategies

- Prepare a research prospectus for the planning area which is to include priority research topics identified elsewhere in this plan.

5. PARK PROTECTION

5.1 Fire Management

The NPWS regards fire as a natural phenomenon and one of the continuing physical factors influencing the Australian environment. Inappropriate fire regimes have been identified as a key threatening process affecting the biological diversity of NSW. Fire frequency, intensity and season of occurrence are major factors influencing the distribution and composition of plant and animal communities. Many species of Australian flora and fauna have mechanisms to survive fire, and some require fire for reproduction or stimulation of new growth.

The NPWS has a legislative responsibility to protect life and property on NPWS land and to prevent fire from entering or leaving its land. Under the *Rural Fires Act 1997*, the NPWS is a recognised fire fighting authority. The NPWS is also required to manage fire to protect biodiversity and cultural values of the planning area. Accordingly the management of fire should aim to provide a pattern of fires of high, moderate and low intensity, frequency and extent.

The period of highest fire danger within the planning area is during the late spring to early summer when warm westerly winds prevail. The end of the high fire danger period for the area typically coincides with the higher rainfall occurring at the end of summer. Many small mammals and most birds breed in spring and summer and are vulnerable to fire during this crucial period. Unlike eucalypt communities, rainforest communities are particularly sensitive to fire. Juvenile plants of macrozamia are also thought to be sensitive to fire (Moore & Floyd 1994) (refer to section 3.3).

Wildfire in the 1993/94 fire season burnt the majority of the planning area. Wildfires were also recorded in 1990/91 (SFNSW 1995). Approximately 80% of the planning area was also burnt in the 2000/01 and 2002/2003 fire seasons. The most common cause of fires in the area has been burning-off by pastoralists to promote ‘green pick’ for cattle (SFNSW 1995). The importance of cooperative fire management required between the NPWS and neighbours is most evident on the boundaries of the planning area. Another important aspect of cooperative fire management is participation in the local Bush Fire Management Committees and the preparation of Bushfire Operation Plans, District Risk Assessment Plans and NPWS Fire Management Strategies. The NPWS is a member of the Clarence Valley Bush Fire Management Committee.

The NPWS approach to fire planning is based on the level of complexity involved, and uses a zoning system compatible with that used by the Clarence Valley Bush Fire Management Committee in its bushfire risk management plan. For the planning area, NPWS has prepared a separate fire management strategy detailing both Land Management Zones and Strategic Fire Advantage Zones. When preparing fire management strategies for the planning area, the NPWS will liaise with neighbours including Forests NSW. This will assist in establishing a cooperative fire regime to effectively minimise the threat of fire to life and property, whilst not compromising the ecological values of the planning area. The fire management strategies will reflect NPWS responsibilities under the *Rural Fires Act 1997* and the District Risk Assessment and Operational Fire Plans in addition to fire regimes required to maintain biodiversity.

Annual hazard reduction programs are also submitted to the district Bush Fire Management Committees. Fire management in the planning area will continue to place emphasis on the early suppression of wildfire to avoid damage to fire sensitive communities and species. Hazard reduction burns may be carried out in the identified Strategic Fire Advantage Zones to limit the east-west movement of fires through the planning area.

Desired Outcomes

- To reduce the risk of bushfire to life and property both within and immediately adjacent to the planning area.
- To preclude fire from rainforest communities.
- To effectively manage bushfires for the protection and conservation of the natural, cultural, scenic and recreational features.
- To manage fire to maintain the diversity of flowering eucalypts, mature forest oaks, hollow-bearing trees and ground cover including fallen logs.
- To cooperate with other relevant organisations in fire management planning and operations.

Strategies

- Implement the fire management strategy for the planning area and update as required.
- Maintain a system of strategic management trails in accordance with Figure 2.
- As far as practical exclude fire from rainforest and forest types containing *Macrozamia johnsonii* until more is known about the fire needs of this species.
- Promote cooperative fire management in and adjoining the planning area through liaising with neighbours, local Rural Fire Brigades, Fire Control Officers and the Clarence Valley Bush Fire Committee.
- Strongly encourage further research into suitable fire regimes for the planning area's vegetation types and fauna (refer to section 3.3 and 3.4).

5.2 Introduced Plants and Animals

Pest plants and animals have an impact on the natural environment through competition for resources, predation, disturbance to the natural environment and transmission of disease. Activities such as road works, grazing, logging and fire have created opportunities for the introduction of pest species.

Riparian areas, which in the past, were extensively grazed by cattle have been colonised by exotic grasses. The removal of grazing from the planning area is encouraging natural regeneration. Whilst livestock have been excluded from the park, neighbours occasionally require essential access to the planning area to remove stray stock (refer to section 6.3).

Areas subject to other forms of disturbance are also susceptible to colonisation by weed species. Noxious weeds recorded in the planning area include blackberry (*Rubus fruticosus*), lantana *(Lantana camara)* and giant Parramatta grass (*Sporobolus fertilis* (syn. *Sporobolus indicus* var. *major))*.

Blackberry is primarily found along the major creeks and tributaries. This declared noxious plant is highly invasive and can reproduce by seed, root parts, cuttings, and by root formation on any part that contacts soil (Lamp and Collet 1989).

Giant Parramatta grass has established along many of the roads and management trails, especially along the trail system east of Chandlers Creek. The NPWS has initiated control measures for roadsides and will continue to control giant Parramatta grass in the planning area.

Lantana, a native of South America, is generally found in disturbed forest in the planning area. It particularly occurs along disturbed roadsides below 800 metres altitude. The species is relatively shade intolerant and is usually suppressed by the re-establishment of the forest canopy (Moore & Floyd 1994). Disturbance to vegetation cover, soil from fire, road works and grazing favours lantana establishment.

Citrus trees occur randomly on Chandlers Creek and some of its lower tributaries in the park. These are likely to be relics of the early use of the area by graziers and will be removed (refer to section 3.6). Trees planted around the hut ruins have limited heritage value and will be allowed to senesce.

Pest animals in the planning area include foxes, feral cats and wild dogs. Foxes pose a threat to ground-nesting birds and small to medium native mammals including threatened species such as the Hastings River mouse, rufous bettong, brush-tailed phascogale, tiger quoll and the brush-tailed rock wallaby. Fox predation on native fauna has been listed as a key threatening process under the TSC Act and a Threat Abatement Plan has been prepared for this species.

Wild dogs have been recorded in the planning area. Wild dogs are declared pest animals under the *Rural Lands Protection Act 1998* (RLP Act). Wild dogs can be defined to include dingoes, hybrids with domestic dogs and feral dogs.

Wild dogs can inflict losses or disruption to livestock on adjoining lands. Consequently the NPWS has a statutory obligation to control wild dogs on its estate. Under the RLP Act, some public lands, including the planning area, are considered to have high quality dingo habitat and are consequently listed as Dingo Management Areas. These areas are to be managed with the dual objective of controlling wild dogs where necessary to minimise livestock attacks while at the same time conserving dingoes. The RLP Act requires the NPWS to assist in the preparation and implementation of a wild dog management plan, to be developed in cooperation with the local Rural Lands Protection Board, for the Chaelundi Dingo Management Area.

Feral cats have also been recorded in the park. Cats prey primarily on medium to small sized prey and may have a greater proportion of reptiles and birds in their diet compared to foxes and dingoes (May 1997).

The North Coast Regional Pest Species Management Strategy (2003) identifies priorities and guidelines to control pest species in the NPWS North Coast Region. This will guide the management of pest species in the planning area.

Priority for pest species control in the planning area is for those species which are: aggressive competitors known to displace native species; damaging cultural heritage sites; affecting or threatening to invade neighbouring lands; or may be a threat

because of disease; new isolated occurrences; or have the potential to spread along roads and management trails.

Several neighbouring state forests are declared public lands for hunting game under the *Game and Feral Animal Control Act 2002*, including Chaelundi, Marengo and Ellis state forests.

Desired Outcomes

- To minimise damage to native flora and fauna by pest species.
- To minimise the impact of wild dogs on stock on neighbouring properties.
- To stop stray livestock entering the planning area.
- To coordinate pest species control in cooperation with neighbouring landholders and other land management agencies.

Strategies

- Prepare and implement a Pest Species Management Plan for the planning area.
- Undertake control programs for blackberry, lantana and giant Parramatta grass.
- Remove citrus trees along Chandlers Creek.
- Manage exotic plantings around Towns' hut ruin by allowing the original trees to senesce and removing any wildlings that may occur (refer to 3.6).
- Undertake weed control and rehabilitation works in degraded areas.
- Develop and implement fox control programs consistent with the Fox Threat Abatement Plan.
- Undertake cooperative pest management with neighbours where possible.
- Assist in the preparation and implementation of a Wild Dog Management Plan for the Chaelundi Dingo Management Area.
- Domestic pets, stock and other introduced species will not be permitted to enter the planning area, with the exception of registered assistance animals, such as guide dogs and search and rescue dogs, or as approved through a consent under the NPW Regulation or under this plan. Any use of assistance animals will be managed in accordance with the NPWS Pets Policy.
- Encourage the trialing of approved biological control agents where appropriate to suppress and control pest species.

6. MANAGEMENT OPERATIONS

6.1 Dams

There are two dams on Frenchmans Trail which were associated with former grazing activities. Whilst these dams may have benefits for fire fighting, they may sustain artificial populations of native or feral animals.

Desired Outcomes

- To ensure existing dams in the park do not sustain artificial populations of native or feral animals that are adversely affecting park values.

Strategies

- The dams located along Frenchmans Trail will be fenced to allow access for fire fighting purposes and to minimise access by straying stock and feral animals.

6.2 Management Trails

The NPWS will maintain a road and trail network within the planning area to continue to allow for appropriate public access (refer to section 4.1). In addition to public access requirements, the NPWS will maintain a management trail network that is essentially for management purposes, such as for fire and pest control programs. Many of these trails are steep and are susceptible to erosion if used for general public access.

The Northern Trail located along the northern boundary of the park off Joebills Road requires maintenance works. This trail was constructed during the 1994/1995 fires and needs to be maintained to a standard that serves as a strategic fire advantage.

There are also a number of access tracks remaining from former State forest tenure that were never intended for visitor use and are not required for management purposes. The closure and rehabilitation of these tracks is important to minimise erosion and improve habitat values.

Desired Outcomes

- To maintain a trail network in the planning area that is adequate for management purposes.
- To close, and allow to regenerate, any trail not required for public or management access.

Strategies

- Maintain all management trails shown on Figure 2 to a dry weather four-wheel drive standard. Signpost and gate these trails where required to prevent unauthorised vehicle access. All other trails will be closed and rehabilitated.
- Upgrade the Northern Trail to the west of Joebills Road to a management trail standard.
- Public vehicle access will not be permitted on any trails within declared wilderness (refer to section 4.1).

6.3 Livestock Fencing

Grazing has been undertaken in the Chaelundi area since the 1860s. Former occupational permits for grazing issued under State forest tenure have been revoked and cattle effectively excluded from the planning area. However, it is recognised that cattle may continue to stray into the planning area due to incomplete or ineffective boundary fencing in some locations, particularly in the Chandlers Creek area. In all cases, stray cattle will be removed from the planning area.

It is important to gain the cooperation of neighbours for boundary fencing. However, the NPWS may enter into boundary fencing agreements with neighbours. Fencing assistance may be provided where possible for the exclusion of livestock from the planning area.

There is currently a significant network of internal stock fencing within the planning area as a result of grazing in the past. These fence lines are in disrepair and are not required for management purposes.

There is an inholding of freehold land of approximately 17 hectares located near Link Road in the planning area (see Figure 2). The owner of this property is permitted to move stock from this land through the park under an access agreement.

Desired Outcomes

- To ensure livestock fencing is adequate to exclude stock from the park.

Strategies

- Prepare a fencing and stock exclusion strategy with neighbours to minimise the impact of straying stock (refer to 3 and 5.2).
- The use of horses and working dogs to remove stray stock in the planning area will require approval from the NPWS and must be managed in accordance with the NPWS Pets Policy and any access agreements.
- Assess internal fencing within the planning area on a case by case basis and remove those fences no longer effective or required.

7. OTHER USES

7.1 Apiary Sites

There are currently eleven apiarists licensed to use 22 apiary sites in the planning area. These sites existed prior to the gazettal of the area as NPWS estate. These licences and sites are managed in accordance with NPWS Beekeeping policy.

Apiarists are dependent on the management trail system for access to apiary sites. While management trails are closed to public vehicle access, vehicle access will be allowed for apiarists to licensed sites. The relocation of some apiary sites in the planning area may be required where trails are no longer required for management purposes. The NPWS will consult with licensees to relocate apiary sites to areas outside the declared wilderness area.

Weed and fire management issues require ongoing consideration in management of apiary sites. The responsibilities of apiarists for the maintenance of sites and associated access trails are addressed under the conditions of apiary licences.

Scientific investigations have shown that European honeybees can have an adverse impact on some native plants and animals (Paton 1996).

Desired Outcomes

- To minimise the impact of apiculture activities in the planning area.

Strategies

- In consultation with the licensees, relocate apiary sites where necessary due to the closure of access trails no longer required for visitor or management purposes (refer to section 4.1and 6.2). Sites will be relocated to areas accessible from the road and trail network.
- The NPWS will negotiate the relocation of apiary sites to areas outside of declared wilderness in consultation with licensees.
- Fuel management at apiary sites may be undertaken utilising mechanical means such as mowing or slashing. Use of fire to reduce fuel around apiary sites will not be permitted.
- Monitor use of apiary sites, including any feral bee hives.

7.2 Private Property Access

There is an inholding of freehold land of approximately 17 hectares located near Link Road in the planning area. Section 9(8) of the *Forestry Revocation and National Park Reservation Act 1996* ensures that the short access trail from Link Rd (see Figure 2) cannot be closed while it provides the only access to this land.

While the property is currently unstocked, the owner of this property may seek to move stock to and from this land through the park at some time in the future.

Desired Outcomes

- Private property access rights continue and have minimal impact on park values.

Strategies

- Continue to allow the short access trail from Link Trail to be used to access the private property inholding. Animals may be transported by vehicle using this trail as long as they are kept within the vehicle.
- Seek to make access arrangements for this property subject to a formal licence. Conditions on the licence will include contributions towards trail maintenance.
- If at some future time the land is no longer in private ownership (e.g. through purchase of the land by NPWS), the trail will be closed to public use and maintained as a management trail.

7.3 Mining and Mineral Exploration

As discussed in section 3.6, there is significant evidence of past gold mining activity throughout the planning area. Currently there is one mineral exploration licence for lands within the southern section of Chaelundi SCA and an application for an exploration licence over the north-west section.

The Department of Primary Industries (DPI Minerals) is the lead authority for mining, mineral exploration and mine site rehabilitation. DPI (Minerals) is required under the EPA Act to undertake environmental assessments for mining and exploration activities in all SCAs. The existing Memorandum of Understanding (MOU) between NPWS and DPI (Minerals) describes the management and consultative arrangements associated with exploration and mining in SCAs.

Exploration licences and assessment leases may be granted within SCAs without the concurrence of the Minister administering the NPW Act, but approval must be obtained before any rights under that lease or licence can be exercised. Likewise, the concurrence of the Minister administering the NPW Act must be obtained before any mining lease is issued.

Desired Outcomes

- Mining and mineral exploration activities have minimal impact on natural and cultural values.

Strategies

- Applications for mining or mineral exploration in the SCA will be subject to environmental assessment in accordance with the Memorandum of Understanding between NPWS and DPI (Minerals).

8. PLAN IMPLEMENTATION

This plan of management is part of a framework of management developed by the NPWS. The framework includes the NPW Act, the NPWS Corporate Plan, policies, established conservation and recreation philosophies, and strategic planning at corporate, branch and regional levels.

The orderly implementation of the plan will be undertaken within the annual programs of the NPWS North Coast Region and Dorrigo Plateau Area. Priorities determined in the context of regional and branch strategic planning, will be subject to the availability of necessary staff and funds, and to any specific requirements of the Director-General and Minister.

Regional programs are subject to on-going review, within which works and other activities carried out in the planning area will be evaluated in relation to objectives laid out in this plan.

Section 81 of the NPW Act requires that plans are carried out and given effect to, and that no operations shall be undertaken in relation to the national park unless they are in accordance with the plan. However, if after adequate investigation, operations not included in the plan are found to be justified, the plan may be amended in accordance with Section 76(6) of the Act.

As a guide to the orderly implementation of this Plan, actions are summarised and prioritised in the following categories:

High priority actions are those that are imperative to the achievement of management objectives identified in this Plan and need to be implemented in the near future to prevent degradation of the natural and cultural values or physical resources of the planning area, significant costs associated with rehabilitation at a later date, and/ or unacceptable risk to the public.

Medium priority actions are those that are necessary to achieve management objectives but will be implemented as resources become available because the time frame for their implementation is not urgent.

Low priority actions are desirable to achieve management objectives but can wait until resources become available.

Table 3: Implementation Table (summary of strategies)

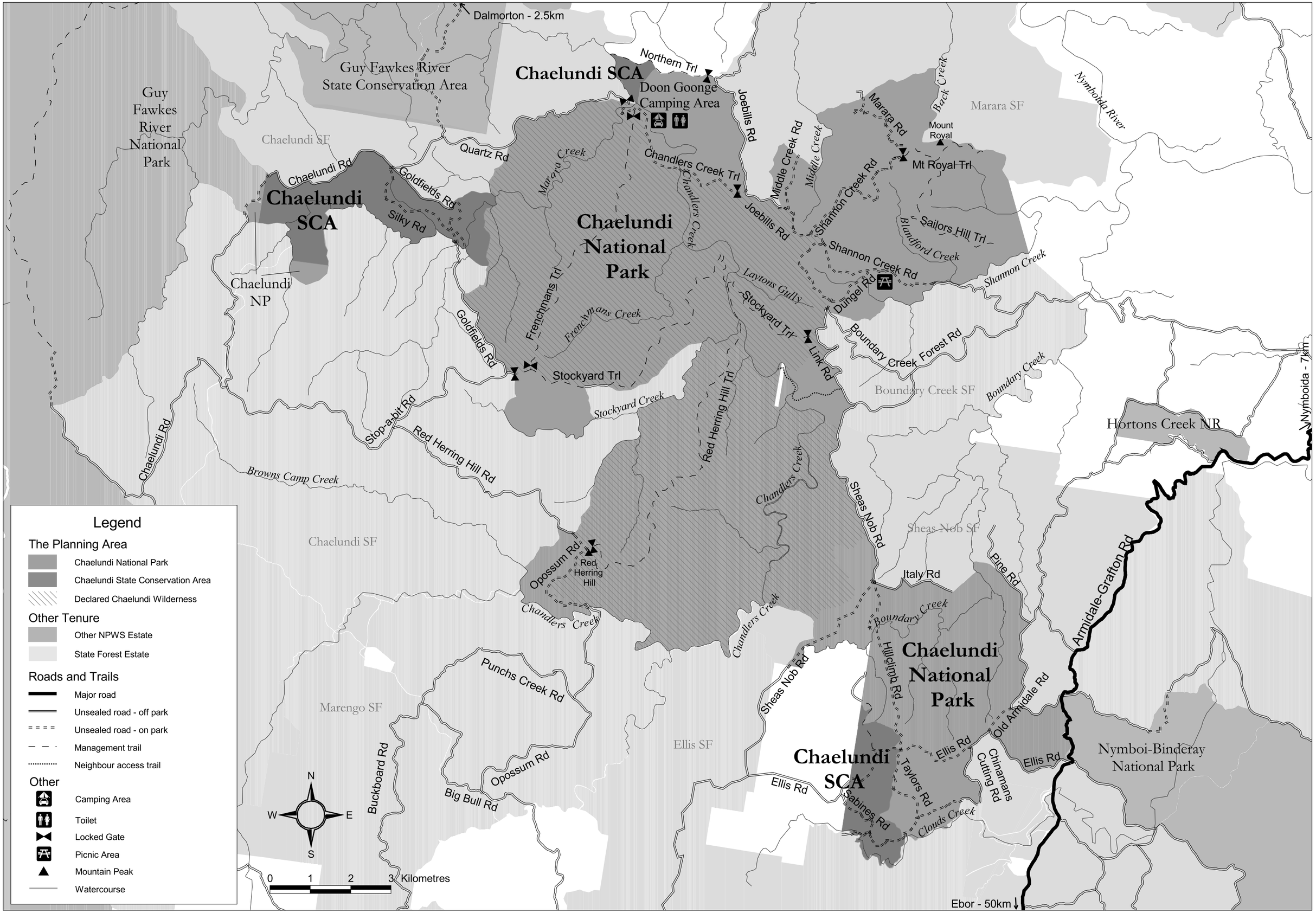
SECTION	STRATEGIES	PRIORITY
3	**CONSERVATION OF NATURAL AND CULTURAL HERITAGE**	
3.1	**Geology, Soils and Landform**	
3.1.1	Undertake soil erosion control works on steep management trails such as Chandlers Creek, Stockyard, Red Herring Hill and Frenchmans Trail.	High
3.1.2	Prepare a fencing and stock exclusion strategy to minimise the impact of straying cattle on the planning area's soils and geology (refer to 6.3).	High
3.2	**Catchments and Water Quality**	
3.2.1	In cooperation with neighbouring landholders, prepare a fencing and stock exclusion strategy to minimise the impact of straying cattle on the planning area's water quality (refer to 6.3).	High
3.2.2	Liaise with the Northern Rivers Catchment Management Authority and landowners in the catchment to assist in improving water quality within the planning area.	Medium
3.3	**Native Flora**	
3.3.1	Encourage research into the habitat requirements and optimum fire regime for the conservation of *Macrozamia johnsonii*.	Medium
3.3.2	Assess the park for nomination on the World Heritage list as an addition to the Gondwana Rainforests of Australia as part of an overall review of all potential additions.	Low
3.3.3	Implement the Priorities Action Statement for threatened species (including actions in recovery plans as they are prepared).	Medium
3.4	**Native Fauna**	
3.4.1	Undertake further survey and mapping of the distribution of the Hastings River mouse and its habitat within the planning area.	Medium
3.4.2	Encourage research into the distribution and abundance of other threatened species populations within the planning area.	Medium
3.4.3	Conduct a comprehensive survey of the brush-tailed rock wallaby population. Determine potential threats and implement conservation programs as necessary.	High
3.4.4	Implement the Priorities Action Statement for threatened species (including actions in recovery plans as they are prepared).	Medium
3.5	**Aboriginal Cultural Heritage**	
3.5.1	Manage Aboriginal heritage values associated with the planning area in partnership with the Gumbangirri Aboriginal community and the Grafton-Ngerrie Local Aboriginal Land Council.	Medium
3.5.2	Protect all Aboriginal sites, relics, historic places and culturally significant features from damage by human activity and fire.	Medium
3.5.3	Undertake a survey for Aboriginal sites and relics with representatives from the local Aboriginal community prior to the commencement of any proposed new developments.	High
3.5.4	Encourage research and surveys into the Aboriginal cultural heritage values of the planning area.	Medium
3.6	**Cultural Heritage Since Colonisation**	
3.6.1	Encourage research into the identification of the historic values of the planning area.	Medium

SECTION	STRATEGIES	PRIORITY
3.6.2	Assess and record the historic significance of Towns' Hut, stockyards and MacDougall's stockyards. In the interim, manage Towns' Hut and the stockyards as ruins, whilst ensuring public safety at the site. This may include fencing off certain areas or erecting appropriate signage.	Medium
3.6.3	Manage exotic trees around Towns' Hut, by allowing original trees to senesce and remove wildlings should they occur (refer to 5.2)	Low
3.6.4	Undertake an assessment of the heritage significance and protection measures for Silky Road before any earth works or road maintenance activities are conducted.	Medium
3.6.5	In liaison with DPI (Minerals), assess safety requirements and the heritage significance of all known abandoned mines. Where appropriate, undertake measures to protect public safety and the historical values of the mines. This may include fencing, interpretive brochures or relevant signage.	Medium
4	**RECREATIONAL OPPORTUNITIES AND EDUCATION**	
4.1	**Public Access**	
4.1.1	Provide public vehicle access in accordance with Figure 2. Roads and trails in wilderness areas will be closed to public vehicle access.	Medium
4.1.2	Develop a Memorandum of Understanding with Forests NSW and other relevant stakeholders regarding the cooperative maintenance of 'Ministerial Roads' within the planning area.	Medium
4.1.3	Initiate a permit booking system, administered from the NPWS Dorrigo Plateau office, for use of Chandlers Creek Trail. A maximum of ten vehicles will be permitted to use Chandlers Creek Trail at any one time.	Medium
4.1.4	Monitor public vehicle use of the Chandlers Creek Trail, particularly the Chandlers Creek crossing, to assess any possible vehicle damage to the creek flat area. If unacceptable impacts occur, consider restricting vehicles during certain weather conditions or for longer periods if required.	Medium
4.1.5	Provide roadside signage with directional and road condition information where necessary and in accordance with wilderness policy.	Medium
4.1.6	Temporarily close roads and trails where necessary to prevent damage during wet weather and to ensure public safety.	High
4.1.7	Provide interpretative signs at locked gates to educate the public about reasons for closure, and inviting use of the trails for self-reliant bushwalking only.	Low
4.2	**Recreation Activities**	
4.2.1	Maintain the small picnic area on the Shannon Creek Road to a basic day use area standard.	Medium
4.2.2	Maintain the small day use and camping area on the river flats of the Chandlers Creek Trail. Camping will be limited to a maximum of ten sites. The area will be low key, developed to accommodate a small number of campers and include a compost toilet system, two picnic table, two barbecues and appropriate vehicle management infrastructure such as signage and bollarding.	High
4.2.3	Access to the camping area will be via Chandlers Creek Trail and the use of the camping area will be managed as part of the permit booking system for Chandlers Creek Trail (see section 4.1).	High

SECTION	STRATEGIES	PRIORITY
4.2.4	No additional recreational facilities will be developed in the planning area.	High
4.2.5	Bush camping is permitted in the planning area provided it is no less than 200 metres from a road or trail shown on Figure 2 and 50 metres from a watercourse.	Medium
4.2.6	Visitors will be encouraged to abide by minimum impact practices, including removal of their own rubbish and supply of own firewood.	High
4.2.7	Recreational horse riding will not be permitted in the planning area. Horses may be permitted to remove stray stock with the approval of the Regional Manager (refer to 6.3).	High
4.2.8	Cycling will not be permitted in the declared wilderness.	High
4.2.9	Only self-reliant recreational use will be permitted in the declared Chaelundi Wilderness area. No new visitor facilities or infrastructure will be permitted in Chaelundi Wilderness.	High
4.3	**Commercial and Group Activities**	
4.3.1	Ensure commercial and group activities in the planning area are licensed or have appropriate consent from the NPWS.	High
4.3.2	Monitor the impacts and levels of commercial and group activities in the planning area, and if necessary to protect park values or ensure public safety, control group sizes and periods during which commercial and group activities can occur.	Medium
4.4	**Research and Education**	
4.4.1	Prepare a research prospectus for the planning area, which is to include priority research topics elsewhere identified in this plan.	Low
5	**PARK PROTECTION**	
5.1	**Fire Management**	
5.1.1	Implement the fire management strategy for the planning area and update as required.	High
5.1.2	Maintain a system of strategic management trails in accordance with Figure 2.	Medium
5.1.3	As far as practicable exclude fire from rainforest and forest types containing *Macrozamia johnsonii* until more is known about the fire needs of this species.	High
5.1.4	Promote cooperative fire management in and adjoining the planning area through liaising with neighbours, local Rural Fire Brigades, Fire Control Officers and the Clarence Valley Bush Fire Committee.	High
5.1.5	Strongly encourage further research into suitable fire regimes for the planning area's vegetation types and fauna (refer to section 3.3 and 3.4).	High
5.2	**Introduced Plants and Animals**	
5.2.1	Prepare and implement a Pest Species Management Plan for the planning area.	High
5.2.2	Undertake control programs for blackberry, lantana and giant Parramatta grass.	High
5.2.3	Remove citrus trees along Chandlers Creek.	Low
5.2.4	Manage exotic plantings around the Towns' hut ruin by allowing the trees to senesce and removing any wildlings that may occur (refer to section 3.6).	Low
5.2.5	Undertake weed control and rehabilitation works in degraded areas.	High

SECTION	STRATEGIES	PRIORITY
5.2.6	Develop and implement fox control programs consistent with the Fox Threat Abatement Plan.	High
5.2.7	Undertake cooperative pest management with neighbours where possible.	High
5.2.8	Assist in the preparation and implementation of a Wild Dog Management Plan for the Chaelundi Dingo Management Area.	Medium
5.2.9	Domestic pets, stock and other introduced species will not be permitted to enter the planning area, with the exception of registered assistance animals, such as guide dogs and search and rescue dogs, or as approved through a consent under the NPW Regulation or under this plan. Any use of assistance animals will be managed in accordance with the NPWS Pets Policy.	High
5.2.10	Encourage the trialing of approved biological control agents where appropriate to suppress and control pest species.	Low
6	**Management Operations**	
6.1	**Dams**	
6.1.1	The dams located along Frenchmans Trail will be fenced to allow access for fire fighting purposes and to minimise access by straying stock and feral animals.	Low
6.2	**Management Trails**	
6.2.1	Maintain all management trails shown on Figure 2 to a dry weather four-wheel drive standard. Signpost and gate these trails where required to prevent unauthorised vehicle access. All other trails will be closed and rehabilitated.	Medium
6.2.2	Upgrade the Northern Trail to the west of Joebills Road to a management trail standard.	Medium
6.2.3	Public vehicle access will not be permitted on any trails within declared wilderness (refer to section 4.1).	Medium
6.3	**Livestock Fencing**	
6.3.1	Prepare a fencing and stock exclusion strategy with neighbours to minimise the impact of straying stock (refer to 3.1 and 3.2).	High
6.3.2	The use of horses and working dogs to remove stray stock in the planning area will require the approval from the NPWS and must be managed in accordance with the NPWS Pets Policy and any access agreements.	Medium
6.3.3	Assess internal fencing within the planning area on a case by case basis and remove those fences no longer effective or required.	Low
7	**OTHER USES**	
7.1	**Apiary Sites**	
7.1.1	In consultation with the licensees, relocate apiary sites where necessary due to the closure of access trails no longer required for visitor or management purposes (refer to 4.1 and 6.2). Sites will be relocated to areas accessible from the road and trail network.	High
7.1.2	The NPWS will negotiate the relocation of apiary sites to areas outside of declared wilderness in consultation with licensees.	High
7.1.3	Fuel management at apiary sites may be undertaken utilising mechanical means such as mowing or slashing. Use of fire to reduce fuel around apiary sites will not be permitted.	High
7.1.4	Monitor the use of apiary sites, including any feral bee hives.	Medium
7.2	**Private Property Access**	
7.2.1	Continue to allow the short access trail from Link Trail to be used to access the private property inholding. Animals may be transported	High

SECTION	STRATEGIES	PRIORITY
	by vehicle using this trail.	
7.2.2	Seek to make access arrangements for this property subject to a formal licence. Conditions on the licence will include contributions towards trail maintenance.	Medium
7.2.3	If in the future the land is no longer in private ownership, the trail will be closed to public use and maintained as a management trail.	High
7.3	**Mining and Mineral Exploration**	
7.3.1	Applications for mining or mineral exploration in the SCA will be subject to environmental assessment in accordance with the Memorandum of Understanding between NPWS and DPI (Minerals).	High


Dalmorton - 2.5km
Guy Fawkes River State Conservation Area
Guy Fawkes River National Park
Chaelundi SF
Chaelundi SCA
Northern Trl
Doon Goonge Camping Area
Joebills Rd
Quartz Rd
Chaelundi Rd
Goldfields Rd
Silky Rd
Chaelundi SCA
Chaelundi NP
Marara Creek
Chandlers Creek Trl
Chandlers Creek
Chaelundi National Park
Frenchmans Trl
Frenchmans Creek
Laytons Gully
Stockyard Trl
Stockyard Creek
Goldfields Rd
Stockyard Trl
Red Herring Hill Trl
Link Rd
Middle Creek Rd
Middle Creek
Marara Rd
Back Creek
Marara SF
Nymboida River
Mount Royal
Mt Royal Trl
Shannon Creek Rd
Sailors Hill Trl
Blandford Creek
Shannon Creek
Dungel Rd
Boundary Creek Forest Rd
Boundary Creek SF
Boundary Creek
Hortons Creek NR
Nymboida - 7km
Stop-a-bit Rd
Red Herring Hill Rd
Chaelundi Rd
Browns Camp Creek
Chaelundi SF
Opossum Rd
Red Herring Hill
Chandlers Creek
Chandlers Creek
Sheas Nob Rd
Sheas Nob SF
Italy Rd
Pine Rd
Armidale-Grafton Rd
Boundary Creek
Punchs Creek Rd
Marengo SF
Buckboard Rd
Opossum Rd
Big Bull Rd
Ellis SF
Sheas Nob Rd
Hillclimb Rd
Chaelundi National Park
Old Armidale Rd
Ellis Rd
Chaelundi SCA
Taylors Rd
Chinamans Cutting Rd
Ellis Rd
Ellis Rd
Sabines Rd
Clouds Creek
Nymboi-Binderay National Park
Ebor - 50km
Legend
The Planning Area
Chaelundi National Park
Chaelundi State Conservation Area
Declared Chaelundi Wilderness
Other Tenure
Other NPWS Estate
State Forest Estate
Roads and Trails
Major road
Unsealed road - off park
Unsealed road - on park
Management trail
Neighbour access trail
Other
Camping Area
Toilet
Locked Gate
Picnic Area
Mountain Peak
Watercourse
N
W
E
S
0 1 2 3 Kilometres

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