



Office of  
Environment & Heritage  
NSW National Parks & Wildlife Service



# Plan of Management

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## **Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve**



**NOWENDOC NATIONAL PARK,  
NGULIN NATURE RESERVE AND  
TUGGOLO CREEK NATURE RESERVE**

**PLAN OF MANAGEMENT**

**NSW National Parks and Wildlife Service**

**July 2012**

**This plan of management was adopted by the Minister for the Environment on 9<sup>th</sup> July 2012.**

## **Acknowledgements**

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

The NPWS acknowledges that these reserves are in the traditional country of the Biripai, Anaiwan and Thungutti/Dunghutti Aboriginal people.

FRONT COVER: **View of Nowendoc National Park from Myall Creek Trail.**  
All photographs by Penny Peters, NPWS.

For additional information or any inquiries about this park or this plan of management, contact the NPWS Walcha Area Office, 188W North Street Walcha or by telephone on 02 6777 4700.

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## FOREWORD

Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve are located approximately 50 kilometres south of Walcha, and cover a combined area of 19,270 hectares.

The park and reserves conserve two endangered ecological communities, five threatened plant species, and eighteen threatened animal species including the spotted-tailed quoll and brush-tailed rock-wallaby. A large proportion of Nowendoc National Park, 14,000 hectares of the 17,374 hectare park, is declared as part of the Curracabundi Wilderness.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park and nature reserve. A draft plan of management for Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve was placed on public exhibition from 27 August until 29 November 2010. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the NSW 2021 goal to 'Protect our natural environment', including actions to assist the recovery of threatened species and endangered ecological communities, to identify the values of the park including threatened plant and animal species, and to manage introduced plants and animals. The plan also 'Enhances recreation opportunities' through maintenance of Christies Hut and providing for four wheel driving, bushwalking camping and cycling.

This plan of management establishes the scheme of operations for Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve. In accordance with section 73B of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

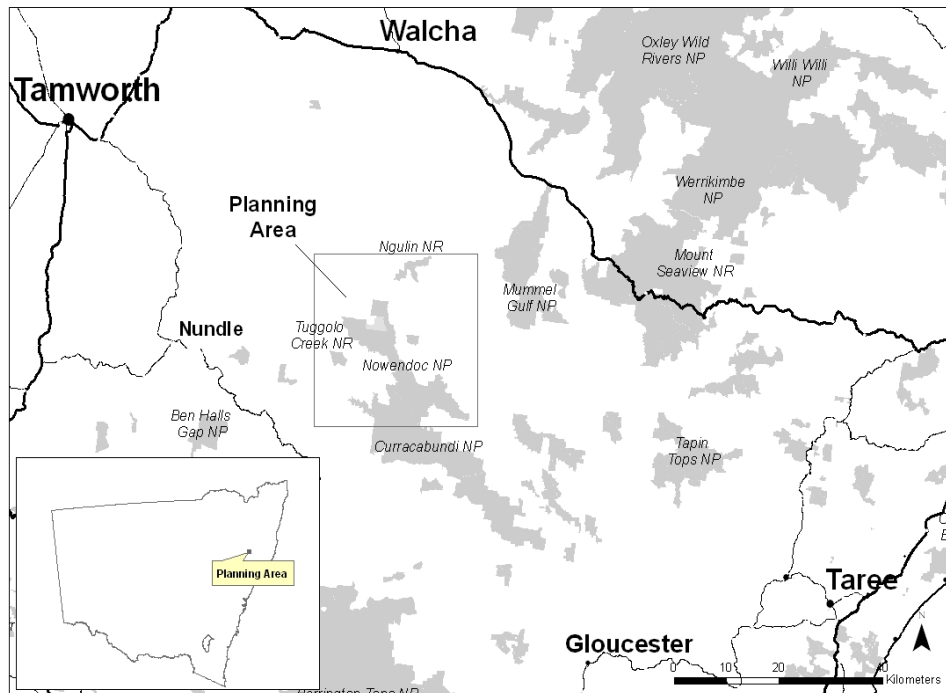
**Robyn Parker MP**  
**Minister for the Environment**



## 1. LOCATION, GAZETTAL AND REGIONAL CONTEXT

Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve (herein referred to as the 'planning area') are located approximately 50 kilometres south of Walcha, on the high eastern edge of the southern New England Tablelands and comprise an area of 19,270 hectares (refer to Map 1 below and Map 2 centre pages).

**Map 1: Locality Map**



The North East Regional Forest Agreement provided for major additions to the reserve system, including the establishment of Nowendoc National Park, Ngulin Nature Reserve and Tuggolo Creek Nature Reserve following assessment of the natural, cultural, economic and social values of forests.

Further additions to Nowendoc National Park also occurred in 2006 and again in 2008 (refer to Table 1).

**Table 1: Planning Area Reservation Details**

Reserve	Year	Area (hectares)	Previous Tenure
Nowendoc National Park <sup>1</sup>	1999	8,820	State Forest
	2003	6,199	State Forest
	2006	1,278	State Forest leasehold land adjoining the southern boundary known as "Christies Lease"
	2008	1,077	State Forest leasehold land adjoining the north-west boundary known as "Hams Lease"
Tuggolo Creek Nature Reserve	1999	645	State Forest
Ngulin Nature Reserve	1999	1250	State Forest

<sup>1</sup>Nowendoc National Park was originally reserved through the *Forestry and National Park Estate Act 1988* as Stony Creek National Park. A notice was published in the Government Gazette in March 1999 altering the name to Nowendoc National Park.

As well as the gazetted reserves, the planning area includes a number of roads which are vested in the Minister under Part 11 of the *National Parks and Wildlife Act 1974* (NPW Act) to ensure continued access to neighbouring land. These include:

- sections of Giro and Christies Management Trails, Myall Trail and Eastern Boundary, Millers and Kulmaren Quarry Roads through Nowendoc National Park;
- sections of Nine K Road through Tuggolo Creek Nature Reserve; and
- sections of Hell Hole Road, Back Creek Trail, Ngulin Neighbour Access Trail and Grundys Fire Tower Trail through Ngulin Nature Reserve.

Two quarries, Kulmaren Quarry and Rubys Nob Quarry in Nowendoc National Park are also vested in the Minister under Part 11 of the NPW Act and are not part of the gazetted area of the park. Walcha Council is the Gravel Extraction Authority for both quarries.

Part of the land subject to the original Forest Lease known as 'The Ranges' adjoining Myall Creek (and shown by the stippling on Map 2) is also vested in the Minister under Part 11 of the NPW Act. Lands which are vested in the Minister under Part 11 of the NPW Act do not form part of the gazetted area of the reserves but their management is subject to the NPW Regulation and the requirements of the *Environmental Planning and Assessment Act 1979* (EPA Act).

Major land uses in the surrounding area include timber harvesting and cattle grazing. Tourism is growing in the area and the planning area and the surrounding State Forests are popular for scenic driving, mountain bike riding and bushwalking. The planning area comprises three reserves of many in the area, with Mummel Gulf, Cottan-Bimbang and Werrikimbe National Parks located to the east and Curracabundi National Park located to the south. Collectively they form part of a regional system of conservation reserves.

The planning area is located within the administrative areas of the Biripai, Purfleet and Amaroo Local Aboriginal Land Councils, the Hunter-Central Rivers and Namoi Catchment Management Authorities, Walcha Shire and the New England and Mid-Coast Livestock Health and Pest Authorities.



## 2. MANAGEMENT CONTEXT

### 2.1. LEGISLATIVE AND POLICY FRAMEWORK

The management of national parks and nature reserves in NSW is in the context of the legislative and policy framework, primarily the NPW Act and Regulation, the *Threatened Species Conservation Act 1995* (TSC Act), *the Wilderness Act 1987* and the policies of the National Parks and Wildlife Service (NPWS). These policies arise from the legislative background and internationally accepted principles of park management, and relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

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

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the planning area except in accordance with this plan. This plan will also apply to any future additions to the planning area. Should operations be proposed in the future that are not in accordance with this plan, an amendment to the plan will be required.

### 2.2. MANAGEMENT PURPOSES AND PRINCIPLES

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

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

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

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

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

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

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

### **Wilderness**

In 2011 approximately 14,000 hectares of Nowendoc National Park was declared as part of the Curracabundi Wilderness under the *Wilderness Act 1987* (refer to Map 2 centre pages). Wilderness areas are large areas of land that, together with their native plant and animal communities, are in an essentially natural state or are capable of being restored to such a state.

Under the Wilderness Act (Section 9) wilderness areas are managed to:

- restore (if applicable) and to protect the unmodified state of the area and its plant and animal communities;
- preserve the capacity of the area to evolve in the absence of significant human interference; and
- permit opportunities for solitude and appropriate self-reliant (whether of a commercial nature or not) recreation.

Management of natural and cultural heritage, introduced species and fire is carried out in wilderness areas as in other parts of the park, but with special attention to minimising impacts on wilderness values.

## **2.3. STATEMENT OF SIGNIFICANCE**

The planning area is considered to be of significance for the following reasons:

### **Biological Values**

- Nowendoc National Park contains approximately 14,000 hectares of the declared Curracabundi Wilderness Area.
- Nowendoc National Park contains five plant and eighteen animal species listed as threatened under the TSC Act.
- It conserves significant areas of two endangered ecological communities.

- Nowendoc National Park contains extensive areas of old growth forest and is large enough to support space dependant top order predators such as the spotted-tailed quoll (*Dasyurus maculatus*), powerful owl (*Ninox strenua*), sooty owl (*Tyto Tenebricosa*) and the masked owl (*Tyto novaehollandiae*).
- Nowendoc National Park supports key populations of the endangered brush-tailed rock-wallaby (*Petrogale pencillata*) and the common wombat (*Vombatus ursinus*).
- Tuggolo Creek and Ngulin Nature Reserves protect significant vegetation communities and provide habitat for several plant species of conservation significance.
- There are relatively few weeds present in the planning area with minimal impact on the biological values.

### **Geological Values**

- Tuggolo Creek Nature Reserve takes in most of a regionally significant granite outcrop known as the Nundle Plutonic Suite.

### **Landscape/Catchment Values**

- Ngulin Nature Reserve straddles the Great Dividing Range with waters flowing west into the Macdonald and Namoi Rivers and east into the Manning River.

## **2.4. SPECIFIC MANAGEMENT DIRECTIONS**

This plan aims to conserve the natural and cultural values of the planning area. Visitor opportunities that are compatible with and promote the understanding and enjoyment of these values are also a key emphasis. This will be achieved through the following:

- protection of wilderness and old growth forest;
- conservation of rare, threatened and/or isolated plant and animal species, communities and their habitat;
- conservation of Aboriginal and non-Aboriginal heritage values, including relics of past logging and mining activities;
- management of the planning area as part of the system of protected lands along the eastern escarpment, with particular emphasis on maintenance of the ecological relationships with other reserves; and
- provision of opportunities for self-reliant recreation in a remote natural setting consistent with the protection of the areas natural and cultural values, including wilderness values.

### **3. VALUES**

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

#### **3.1. GEOLOGY, LANDSCAPE AND HYDROLOGY**

The planning area encompasses a dramatic altitudinal gradient from the tableland rim (1,410 metres above sea level in Ngulin Nature Reserve) to valley floor, centred on the wild and rugged Myall Creek, a tributary to the Manning River.

Myall Creek, which has formed a deep V-shaped gorge, runs through the middle of Nowendoc National Park. Nowendoc National Park is subject to a wide rainfall range of 700 to 1100 millimetres per annum varying with elevation and draining primarily into Myall Creek.

Ngulin Nature Reserve is located in the headwaters of the Manning and Namoi River catchments, receiving 900 to 1,200 millimetres of rainfall annually, with most of this collected by tributaries of the Macdonald River. A small portion of rainfall drains south into Back Creek, which is a tributary of the Nowendoc River system.

Tuggolo Creek Nature Reserve lies within the upper catchment of the Manning River and receives an average annual rainfall of 1,000 to 1,200 millimetres. Tuggolo Creek flows into Myall Creek.

The geology of the planning area forms part of the New England Fold Belt and is characterised by highly metamorphosed Paleozoic sedimentary rocks, intruded by granites of the Devonian age, as well as partially covered Tertiary basalt flows. The dominant lithostratigraphic units within the planning area include the Sandon Associations, which are characterised by steep v-shaped valleys comprised of metasediments, basalt and amphibolite. The soil types characteristic of this unit includes lithosol, red earth, krasnozem, yellow podsol and chocolate soils (Packham, 1969).

#### **3.2. NATIVE PLANTS**

The planning area protects a diverse and extensive range of forest ecosystems. The predominant vegetation communities are dry sclerophyll forests with wet sclerophyll forests and rainforest in drainage lines and on southerly aspects. Systematic flora surveys and vegetation mapping have been undertaken throughout most of the planning area with five threatened plant species being recorded (refer to Table 2).

**Nowendoc National Park** has 30 forest ecosystems recorded. The most extensive forest ecosystems are dry open New England blackbutt (*Eucalyptus campanulata*) and diehard stringybark (*E. cameronii*) ecosystems. Messmate stringybark (*E. obliqua*), open ribbon gum (*E. viminalis*), open silvertop stringybark (*E. laevopinea*) - blue gum (*E. saligna*), and New England peppermint (*E. andrewsii*) also occur and are all predominantly in old growth condition (see photographs, end pages).

Subtropical and dry rainforest communities dominated by figs, giant stinging trees and myrtles also occur at lower elevation in the southern section of the reserve and are confined to narrow sheltered gullies.

Small areas of peatland/swamp occurring to the north of Rubys Nob are consistent with the listed endangered ecological community “Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions” on the TSC Act. This community is very poorly reserved on a regional scale and as a result the peatland/swamps in Nowendoc National Park are of particular significance.

The diversity of forest ecosystems and the large altitudinal gradient within Nowendoc National Park supports the presence of a species rich flora. Two threatened flora species have been recorded in the reserve (refer to Table 2). Additionally, the park protects suitable habitat for the vulnerable orchid *Chiloglottis platyptera* and the vulnerable herb *Euphrasia ciliolata*.

**Ngulin Nature Reserve** is ecologically diverse with 15 forest ecosystems recorded, which are largely in old growth condition. The most extensive forest ecosystems are dry open messmate stringybark, mountain manna gum (*E. nobilis*), brown barrel (*E. fastigata*) - manna gum and snow gum (*E. pauciflora*).

This reserve contains the vulnerable leafless tongue-orchid (*Cryptostylis hunteriana*) (refer to Table 2) and plant species of regional significance including *Acianthus apprimus*, mountain laurel (*Cryptocarya nova-anglica*) and *Leptostigma reptans* (Hunter, 2005).

Five distinct vegetation communities have been recorded within **Tuggolo Creek Nature Reserve** including two endangered ecological communities listed under the TSC Act: the montane peatland/swamp, and the snow gum grassy woodland consisting of *E. pauciflora*, *E. acaciiformis*, *E. stellulata* (see photographs, end pages). Two small patches of sassafras – possumwood temperate rainforest within the reserve are also of significance (Copeland, 2007). The dominant community is a layered open forest consisting of *E. nobilis*, *E. oblique*, *E. radiata*, *E. cameronii*, *E. dalrympleana*, with ribbon gum riparian forest consisting of *E. nobilis*, *E. acaciiformis*, *E. radiata*, *E. obliqua* occurring along creek lines.

Three threatened flora species (refer Table 2) are recorded in Tuggolo Creek Nature Reserve including, the largest known reserved population of *Asterolasia* sp. ‘Dungowan Creek’, which is considered highly endangered and is still known from fewer than 100 plants. Of the 303 vascular plant species recorded in the reserve 26 of these are native orchids and this represents an unusually rich orchid flora given the small size of the reserve (Copeland, 2007).

**Table 2: Threatened flora recorded within the planning area.**

Common Name	Scientific Name	Legal Status	Reserve
Dungowan starbush	<i>Asterolasia</i> sp. 'Dungowan Creek'	Endangered*	Tuggolo Creek Nature Reserve
Leafless tongue orchid	<i>Cryptostylis hunteriana</i>	Vulnerable**	Ngulin Nature Reserve
Elegant greenhood	<i>Pterostylis elegans</i>	Vulnerable*	Tuggolo Creek Nature Reserve
New England bush-pea	<i>Pultenaea campbellii</i>	Vulnerable**	Nowendoc National Park & Tuggolo Creek Nature Reserve
Austral toadflax	<i>Thesium australe</i>	Vulnerable**	Nowendoc National Park

\* Status under TSC Act 1995.

# Status under the EPBC Act 1999.

Source: NPWS ATLAS of NSW Wildlife & Copeland, 2007.

The planning area demonstrates major facets of the evolution of plants and animals and Australian rainforests with sub tropical and eucalypt transition zones with rainforest all represented. Following an assessment of the forests of the Nowendoc National Park, Ngulin or Tuggolo Creek Nature Reserves may warrant their inclusion as part of the Gondwana Rainforests of Australia World Heritage Area.

Under the TSC Act recovery plans may be prepared to identify actions and priorities for threatened species, populations or ecological communities. Additionally, the threatened species Priorities Action Statement (PAS) outlines broad strategies and detailed priority actions in NSW to promote the recovery of threatened species, populations and endangered ecological communities and to manage key threatening processes. The PAS includes detailed actions for all species listed in Table 2 except the New England bush-pea and will be used to guide management of threatened species in the planning area.

Vegetation communities and flora species of the planning area are most vulnerable to invasion by weed species, grazing by introduced species and the peatlands and swamps are susceptible to damage from feral pigs and straying stock grazing the roadside (refer to Section 4.1).

### 3.3. NATIVE ANIMALS

Fauna surveys conducted in Nowendoc National Park have recorded 7 species of frog, 14 species of reptile, 78 native species of bird, 19 native mammals and 14 species of bat. Of these species 18 were identified as threatened species. Comprehensive fauna surveys have not been undertaken in Ngulin and Tuggolo Creek Nature Reserves; however opportunistic sightings have recorded 6 threatened fauna species in Ngulin Nature Reserve and 2 different threatened fauna species in Tuggolo Creek Nature Reserve. Threatened fauna of the planning area are listed in Table 3 below.

Of particular significance in the planning area are the populations of three threatened species of forest owl that require large areas over which to range and are dependent on old-growth forest. The endangered brush-tailed rock-wallaby (*Petrogale penicillata*) is also of significance as it has the potential to be an important management indicator species and is believed to be in rapid decline over much of its

range. Although not listed as threatened, the planning area also supports key populations of the common wombat (*Vombatus ursinus*).

**Table 3: The 21 Threatened fauna recorded within the planning area.**

Common Name	Scientific Name	Legal Status
Brush-tailed rock-wallaby	<i>Petrogale penicillata</i>	Endangered*
Eastern bent-wing bat	<i>Miniopterus schreibersii oceanensis</i>	Vulnerable*
Eastern false pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable*
Davies tree frog	<i>Litoria daviesae</i>	Vulnerable*
Diamond firetail	<i>Stagonopleura guttata</i>	Vulnerable*
Glossy black cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable*
Golden-tipped bat	<i>Kerivoula papuensis</i>	Vulnerable*
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	Vulnerable*
Grey-headed flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable*
Koala	<i>Phascolarctos cinereus</i>	Vulnerable*
Large-eared pied bat	<i>Chalinolobus dwyeri</i>	Vulnerable*
Masked owl	<i>Tyto novaehollandiae</i>	Vulnerable*
Olive whistler	<i>Pachycephala olivacea</i>	Vulnerable*
Powerful owl	<i>Ninox strenua</i>	Vulnerable*
Sooty owl	<i>Tyto tenebricosa</i>	Vulnerable*
Southern myotis	<i>Myotis macropus</i>	Vulnerable*
Speckled warbler	<i>Pyrrholaemus sagittatus</i>	Vulnerable*
Spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable* Endangered#
Stephens' banded snake	<i>Hoplocephalus stephensii</i>	Vulnerable*
Yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable*
Yellow-bellied sheath-tail bat	<i>Saccolaimus flaviventris</i>	Vulnerable*

\* Status under TSC Act 1995.

# Status under the EPBC Act 1999.

Source: NPWS ATLAS of NSW Wildlife.

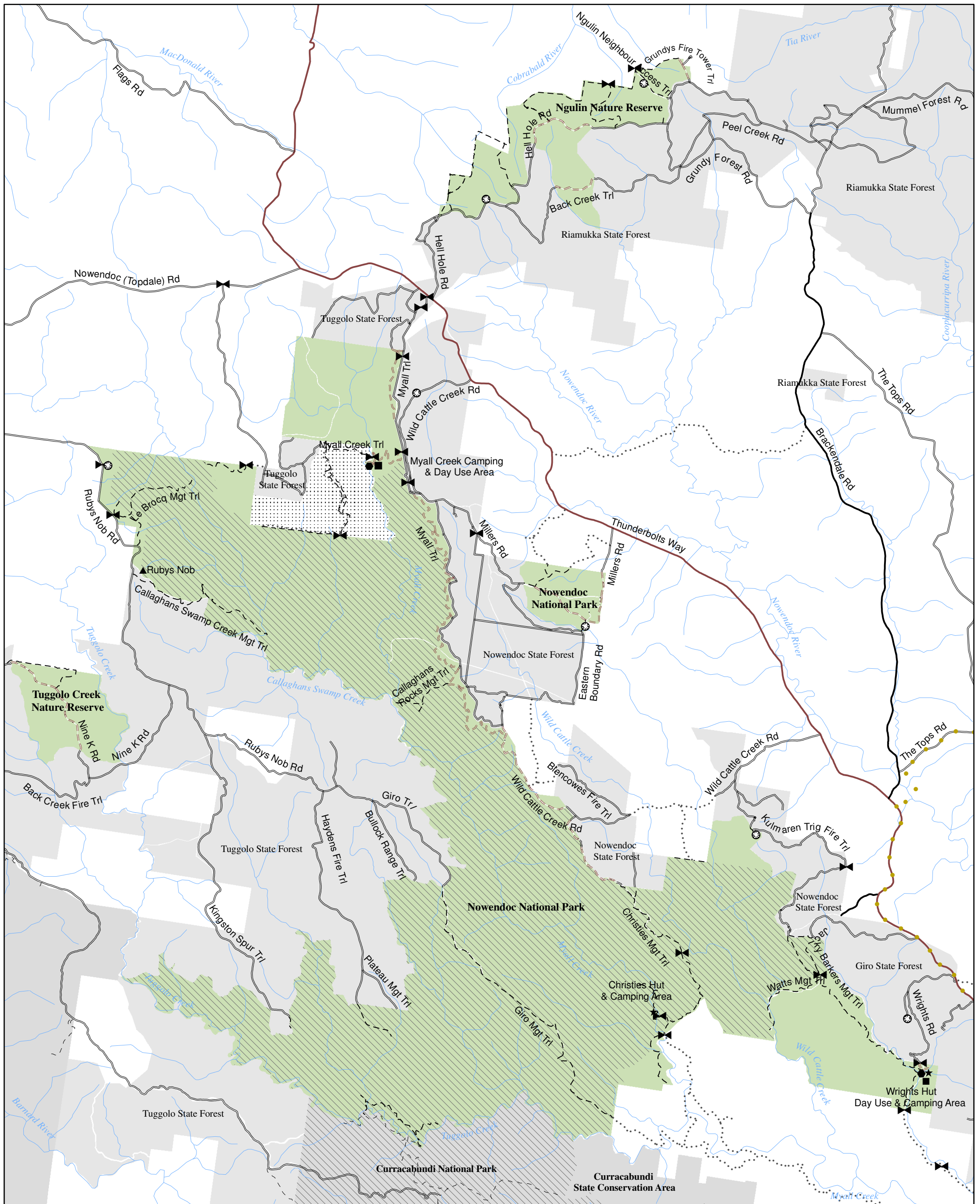
The PAS and recovery plans will be used to guide management of threatened species in the planning area. Recovery Plans have been finalised for the koala, yellow-bellied glider, brush-tailed rock-wallaby, masked owl, and powerful owl.

The planning area has also been listed under Schedule 2 of the Wild Dog Control Order made under the *Rural Lands Protection Act 1998* (RLP Act) as providing high quality dingo habitat (refer to Section 4.1). These areas also contain significant wild dog populations which are hybrids of the dingo.

### 3.4. ABORIGINAL HERITAGE

Aboriginal communities have an association and connection to the land. The land and water biodiversity values within a whole landscape context are the centre of Aboriginal spirituality and contribute to Aboriginal peoples identity. Aboriginal communities associate natural resources with the use and enjoyment of valued 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.

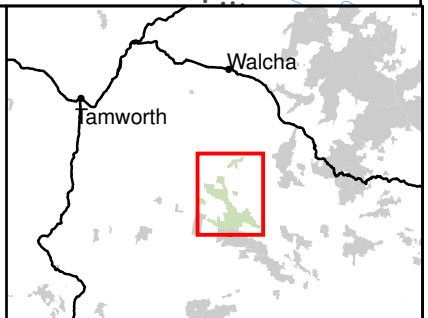
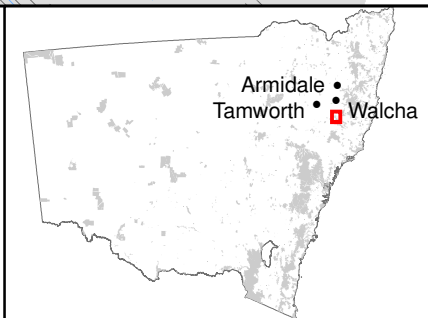
The planning area is primarily in the traditional land of the Biripai people but borders the country of several other Aboriginal peoples including Anaiwan and Kamilaroi to



**Nowendoc NP, Ngulin NR & Tuggolo Creek NR**

- |                          |                          |                  |                             |
|--------------------------|--------------------------|------------------|-----------------------------|
| Planning Area            | Highway / Major Road     | Camping Area     | Gates                       |
| Vested with the Minister | Sealed Road - Off Park   | Day Use Area     | Quarry                      |
| Other NP Estate          | Unsealed Road - Off Park | Building         | High Point                  |
| Forests NSW              | Unsealed Road - On Park  | Management Trail | Bicentennial National Trail |
| Declared Wilderness      | Private Property Trail   |                  |                             |
| Rivers c.AUSLIG          |                          |                  |                             |

0 1.25 2.5 5 Kilometres





the west, the Nganyaywana people of the southern New England Tablelands and the Dunghutti of the hinterland valleys. The planning area is within the area covered by the Biripai, Purfleet and Amaroo Local Aboriginal Land Councils.

Evidence from studies on the New England Tablelands shows that Aboriginal groups have been in the area for thousands of years; however, it is not specifically known how the planning area was utilised by Aboriginal people. The area would have provided a wide variety of fruits and other edible plants as well as a range of fauna species, resulting in the landscape having significant cultural and spiritual values to the local people.

### **3.5. HISTORIC HERITAGE**

European exploration by John Oxley in 1818 and botanist Allan Cunningham in 1827, described the Tablelands as being heavily timbered with some naturally cleared areas which were ideally suited for pastoral purposes. Nowendoc Station, was established by the Australian Agricultural Company (AAC) in 1837.

By the turn of the century, cattle and sheep grazing were well established on the Tablelands. The planning area has been grazed periodically by cattle since the 1900s. Evidence of European settlement in Nowendoc National Park includes anecdotal oral history, photographs and ruins which date back to the early 1900s (Messner, 2009).

Some alluvial gold mining took place near Nowendoc in the 1870s. Red cedar was logged in the late nineteenth and early twentieth centuries throughout the Nowendoc area including in the planning area. More inaccessible areas were also logged by a past land owner, Bill Haydon's employees, using tractors and heavy duty winches in the early 1940s. Logging equipment used by Haydon's cedar teams remains in situ in Nowendoc National Park. The late 1940s brought increased hardwood logging activity from accessible areas, but much of the hardwood in the planning area remained unlogged due to the steep terrain.

Exotic pine plantations were established adjacent to the planning area on a major scale in 1967. Nowendoc National Park, Ngulin and Tuggolo Creek Nature Reserves were formerly part of Tuggolo State Forest, of which some sections have been state forest since the 1920s.

The oldest surviving structure in the planning area is Wrights Hut (see Map 2 and Photo 2). It was built in the early 1960s from materials recycled from older slab huts located nearby, Watts Hut and Schultz's Hut. Stabilisation work has been carried out on Wrights Hut with restoration work proposed to enable its continued use as accommodation (refer to Section 3.6).

Christies Hut (see Map 2 and Photo 4) is a modern construction built in the late 1990s, adjacent to the original red cedar hut built at the Racecourse on the Myall River in the late 1920s.

Hams homestead (ruins), was built in the late 1920s at the base of Rubys Nob. A hut was later built adjacent to this site in the 1960s. The homestead and hut were built by the Ham family utilising the same construction methods of timber slab walls and

corrugated iron roofing. A corrugated iron shed used for processing potatoes was also built during this period adjacent to the hut. The hut and shed are still standing but a large poplar tree has destroyed the homestead.

Fruit trees and garden plants still grow near all huts within the planning area; however they are not considered a threat to the natural values of the park. Fire and damage by termites are the greatest threat to these buildings (refer to Sections 4.1 and 4.2).

A historic heritage assessment for Nowendoc National Park determined that these sites and huts were of local significance, with Hams hut having regional significance due to its method of construction and the materials used. This assessment and report will guide future management and maintenance (Messner, 2009).

### **3.6. RECREATION, EDUCATION AND RESEARCH**

The management of recreation and tourism in NPWS parks aims to ensure that visitors enjoy, experience and appreciate the natural and cultural heritage of parks while park values are conserved and protected. Under the NPW Act, provision for visitor use is an important objective of national parks. Nature reserves, while providing for appreciation of reserve values, place greater emphasis on conserving natural environments. For this reason, planning for visitor use will focus primarily on providing a range of opportunities in the national park while still permitting low key self reliant use of the nature reserves in the planning area.

The remote location of the planning area, combined with the 4WD only access, means that visitation levels are low. The planning area provides opportunities for visitation in a natural tableland and escarpment setting which includes rivers, gorges, mountains and wetlands. Most visitor activity in Nowendoc National Park is concentrated at Wrights and Christies Huts (see photographs, end pages), with peak visitation occurring in the warmer months. There are no visitor facilities provided in either Ngulin or Tuggolo Creek Nature Reserves and current levels of visitation are centred around low impact, self reliant nature based recreation such as bushwalking and bird watching.

Wilderness areas have high environmental quality and an absence of the sounds, smells and sights of modern society. Wilderness areas provide a sense of naturalness and remoteness from urban or rural development, and opportunities for self-reliance, adventure, challenge and exploration (refer to Map 2, centre pages).

The need to retain wilderness in a substantially unmodified state and to provide opportunities for solitude and self-reliant recreation, directs the management approaches that can be applied. Formed trails are limited but basic walking tracks and remote camping may be appropriate. Facilities, signposting and other management devices are generally avoided unless essential for public safety, management operations or environmental protection.

Commercial recreation and tourism activities in wilderness must be consistent with this plan of management, the Wilderness Act and relevant NPWS park management policies. Commercial recreation activities are permitted in the declared wilderness area subject to licensing and licence conditions. Such activities must be manually

powered (ie. bushwalking, cycling, canoeing etc) and will have a maximum group size of 15 people inclusive of guides.

Public vehicle access (dry weather 4WD standard) will be maintained as identified on Map 2, with most access roads leading off from Thunderbolts Way south of Walcha. Public vehicle access is not permitted on management trails, whilst cycling is permitted on all roads and management trails in the planning area.

There are two day use areas and camping areas accessible by 4WD vehicles and camper trailers within Nowendoc National Park.

Myall Creek Camping and Day Use Area, accessible from the northern end of Wild Cattle Creek Road, is a basic remote camping and day use area situated on Myall Creek with visitors having to be completely self reliant.

Wrights Hut Camping and Day Use Area, situated on Jackey Barkers Creek, is accessed from Wrights Road at the very southern end of the planning area. Entry to Wrights Hut Area is via a permit system. This area is considered a medium camping and day use area as it is slightly more developed than the Myall Creek area, with a toilet, tables, BBQs and the hut. It is considered a rustic and isolated camping experience.

Access to Christies Hut is along Christies Management Trail through the declared Wilderness Area, therefore it is only available to bushwalkers and cyclists (although Christies Hut itself is located within an exclusion zone within the Wilderness). Public vehicle access is not permitted to this hut due to the steep and dangerous access trail through Wilderness. The hut was built prior to gazettal as National Park and is a modern construction with all amenities provided. The number of bushwalkers and cyclists staying at the hut precinct is managed by a booking system from the Walcha Area Office.

There are no formed walking tracks within the planning area, however bushwalkers walk overland along the creeks and trails linking Christies and Wrights Huts.

Visitor facilities available in surrounding areas accessed from the Oxley Highway include a day use and camping area at nearby New Country Swamp within Mummel Gulf National Park. Day use and camping facilities are also provided at Apsley Gorge and Tia Gorge within Oxley Wild Rivers National Park.

The planning area is rugged and remote and provides opportunities for solitude and self-reliant recreation activities. The diversity of landscapes and forest types provide opportunities for bushwalking, nature observation and remote camping. Remote area camping is allowed throughout the planning area but campers must not camp within 200 metres of a public road.

## 4. ISSUES

### 4.1. INTRODUCED PLANTS AND ANIMALS

The planning area contains the following introduced plants: blackberry (*Rubus fruticosus*), common lantana (*Lantana camara*), St Johns wort (*Hypericum perforatum*), cobbler's peg (*Bidens pilosa*), nodding thistle (*Carduus nutans*) and crofton weed (*Ageratina adenophora*). These introduced plants have altered the native vegetation structure and suppressed natural regeneration in some areas. St Johns wort and blackberry are of particular concern because of their ability to invade intact native vegetation in addition to colonising disturbed areas such as roadsides and former logging areas.

Pigs (*Sus scrofa*) and goats (*Capra hircus*) have been recorded in the planning area, although numbers appear to be low, whilst wild dogs (*Canis lupus familiaris*) have also been recorded in the planning area and numbers are variable.

Deer (*Cervidae* family), feral cats (*Felis catus*), feral cattle (*Bos taurus*), rabbits (*Oryctolagus cuniculus*), feral horses (*Equus caballus*), hares (*Lepus capensis*) and foxes (*Vulpes vulpes*) are also present in the planning area but their extent is unknown (NPWS, 2007).

A comprehensive survey of introduced animals and their distribution within the planning area has not been undertaken.

Wild dogs, including dingoes, are a declared pest under the *Rural Lands Protection Act 1998* (RLP Act) due to their impacts on livestock. NPWS therefore has a statutory obligation to control wild dogs on its estate. The dingo (*Canis lupus dingo*), however is also considered to be part of the native fauna of NSW, and certain areas of public land that provide high quality dingo habitat have been listed under Schedule 2 of the Wild Dog Control Order made under the RLP Act. Under the RLP Act, wild dog control activities in areas of high quality dingo habitat must be guided by a wild dog management plan, prepared in consultation with the Livestock Health and Pest Authority (LHPA), that addresses both control and conservation objectives.

To address this problem, a wild dog control program is currently conducted annually in conjunction with Forests NSW and New England and Central North LHPA's. Wild Dog Management Plans are currently being negotiated for the Niangala and Barnard River Wild Dog Association Areas covering the planning area.

Hybridisation of the dingo with wild dogs is occurring across the State. The NPWS undertakes DNA sampling throughout many of its reserves to ascertain the level of hybridisation occurring in each park's dingo population.

While not considered a pest species, termites have the potential to cause significant damage to historic structures and NPWS infrastructure.

The control of all pest species within the reserve will be undertaken in accordance with the Northern Tablelands Regional Pest Management Strategy (NPWS, 2007). This strategy identifies appropriate control mechanisms and management strategies for all pest species throughout the Region.

## **4.2. FIRE**

The NPWS recognises that fire is a natural feature of many environments and is essential to the survival of some plant communities and animal species. The frequency of fire, its intensity, and the season in which it occurs are collectively known as the fire regime and are some of the major factors influencing the distribution of vegetation communities and fauna species. An inappropriate fire regime may contribute to a significant loss of biodiversity, and high frequency fires have been listed as a key threatening process under the TSC Act. Any fire has the potential to damage cultural features (ie. historic structures) and infrastructure in the park and may pose a threat to neighbouring properties.

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

Southern boundary sections of Nowendoc National Park have been subject to frequent fires, originating from neighbouring properties, whilst the rest of the planning area appears to have been subject to infrequent fires. Little is known about the impact of fire on the species of plants and animals found in the planning area.

A separate (map-based) fire management strategy has been prepared for the planning area (NPWS, 2005). The fire management strategy outlines the recent fire history of the planning area, key assets within and adjoining the planning area including sites of natural and cultural heritage value, fire management zones which may include asset protection zones, and fire control advantages such as management trails and water supply points. Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the New England Zone Bush Fire Management Committee.

## **4.3. ISOLATION AND FRAGMENTATION**

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

## **4.4. CLIMATE CHANGE**

Climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for NSW include higher temperatures, increasing sea levels and water temperatures, elevated CO<sub>2</sub>, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporative demand. These changes are likely to lead to greater intensity and

frequency of fires, more severe droughts, reduced river runoff and water availability, regional flooding, increased erosion and ocean acidification.

It has been suggested that the greatest detrimental impact will be on the cover and diversity of woody species. The warm to cool temperate sclerophyll forests and woodlands typical of the planning area will see an increased fire risk resulting from more droughts with a decline in shrub species and potentially an increase in invasive grasses (Bradstock, 2007).

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. The potential impact of climate change is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from weeds and feral animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

Programs to reduce pressures arising from such threats, such as habitat fragmentation, invasive species, bushfires, pollution and urban expansion will help reduce the severity of the effects of climate change.

For this reason NPWS will continue with existing pest and weed management programs to increase the ability of native flora and fauna to cope with future climatic disturbances.

## **5. MANAGEMENT OPERATIONS AND OTHER USES**

### **5.1. ACCESS**

A network of management trails exists within the planning area. The primary purpose of the management trail system is to provide access for fire and pest species management and research activities. A number of these management trails are for use by authorised vehicles only (refer to Map 2, centre pages).

As a result of past forestry management there are a large number of “snig” trails within the planning area, many of which are partially or completely overgrown with vegetation and fallen timber. These trails are not required for management purposes and will be closed and allowed to rehabilitate. These trails may be reopened and used during fire suppression operations but will be closed and rehabilitated after operations have been completed.

### **5.2. MINING AND MINERAL EXPLORATION**

Industry and Investment NSW is the lead authority for mining (including quarries), mineral exploration and mine site rehabilitation.

There are four quarries which existed prior to gazettal in the planning area. Two of these quarries (Rubys Nob and Kulmaren Quarry in Nowendoc National Park) are vested in the Minister administering the NPW Act under Part 11 to ensure the continuation of access arrangements for Walcha Shire and Forest NSW, which existed immediately before the gazettal of the national park. These two quarries have historically been utilised for the maintenance of roads that access the planning area.

There are two quarries gazetted on park located adjacent to Ngulin Neighbour Access Road and Hell Hole Road in Ngulin Nature Reserve (refer to Map 2, centre pages). These quarries will be used for the essential maintenance of park roads, management trails and Ministerial roads that access the planning area. All quarries will be managed according to the NPWS Quarry Safety Management System and relevant policies and guidelines.

## 6. REFERENCES

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## 7. IMPLEMENTATION

Current Situation	Desired Outcomes	Management Response	Priority*
<p><b>7.1. On-Park Ecological Conservation</b></p>			
<p>Soil erosion hazard is a minor problem on steep slopes and disturbed areas such as old quarries, roads and trails.</p> <p>The planning area contains habitat and potential habitat for a number of threatened plant and animal species and endangered ecological communities.</p> <p>A Priorities Action Statement has been prepared that identifies strategies and actions to promote the recovery of threatened species, populations and ecological communities and manage key threatening processes.</p> <p>The planning area has been identified as being significant core habitat for dingoes.</p> <p>The area demonstrates values that warrant investigation for World Heritage listing as part of the Gondwana Rainforests of Australia World Heritage Area.</p> <p>The planning area has approximately 14,000 hectares of declared wilderness (refer to Map 2, centre pages).</p> <p>Fire, weeds and pests are the major threats to these reserves.</p>	<p>Soil erosion is minimised.</p> <p>Native plant and animal species and communities are conserved.</p> <p>Biodiversity is maintained and threatened species in the park are not further threatened.</p> <p>Values of the planning area are protected, conserved and preserved.</p> <p>Dingo populations are conserved while ensuring wild dogs are controlled.</p> <p>The effects of climate change on natural systems are reduced.</p>	<p>7.1.1. Continue existing fire, pest and weed management programs to protect wilderness values and increase the planning area's ability to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.</p> <p>7.1.2. Assist the Livestock Health and Pest Authority in the implementation of the wild dog management plans for the control of wild dogs and the conservation of dingoes in the planning area.</p> <p>7.1.3. Implement relevant actions in the Threatened Species Priorities Action Statement and recovery plans.</p> <p>7.1.4. Undertake or encourage surveys and DNA sampling of dingo populations to determine the degree of hybridisation of dingoes in the planning area.</p> <p>7.1.5. Encourage and/or facilitate appropriate research that allows identification and documentation of the values of the park, including threatened plant and animal species and investigations/assessments for World Heritage nomination.</p> <p>7.1.6. Monitor areas of erosion and treat if found to be extending.</p>	<p>High Ongoing</p> <p>High Ongoing</p> <p>Medium Ongoing</p> <p>Medium Ongoing</p> <p>Medium Ongoing</p> <p>Low Ongoing</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p><b>7.2. Cultural Heritage</b></p> <p>The planning area is part of a landscape associated with the Biripai, Anaiwan, Nganyaywana and Dunghutti Aboriginal people. A small number of Aboriginal sites have been recorded in the planning area.</p> <p>The planning area has a history of grazing and timber harvesting and there are several buildings of local significance and one of regional significance.</p> <p>Knowledge about Aboriginal and non-Aboriginal cultural heritage values within the planning area is limited. There have been only minimal systematic surveys undertaken.</p> <p>A historic heritage assessment report has been prepared for Nowendoc National Park.</p>	<p>Cultural heritage sites are identified, conserved, recorded and managed and negative impacts are stable of diminishing.</p> <p>Aboriginal heritage values of the planning area are managed in partnership with the Aboriginal community.</p> <p>Community awareness of the cultural heritage value of the planning area is increased.</p>	<p>7.2.1. Consult with relevant Aboriginal communities, Elders, individuals and land councils about management of Aboriginal sites, places and values.</p> <p>7.2.2. Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal or historic sites and places.</p> <p>7.2.3. Encourage surveys for Aboriginal sites within the planning area.</p> <p>7.2.4. Implement the recommendations from the Nowendoc National Park Historic Heritage Report.</p> <p>7.2.5. Retain and record all cultural/historical features in HHIMS and AHIMS.</p>	<p>High Ongoing</p> <p>High Ongoing</p> <p>Medium Ongoing</p> <p>Medium Ongoing</p> <p>Medium</p>
<p><b>7.3. Visitor Use and Services</b></p> <p>Public vehicle access within the planning area is shown on Map 2. Roads are 4WD standard. The planning area receives a low level of visitor use. Visitors are predominantly involved with self-reliant recreational activities such as camping and bushwalking.</p> <p>Basic and medium level day use and camping facilities are provided at Wrights Hut, Christies Hut and on Myall Creek. Accommodation is available for bushwalkers in Christies Hut.</p>	<p>Visitor use is appropriate and ecologically sustainable.</p> <p>Visitor use and services encourage appreciation of the park's values.</p>	<p>7.3.1. Permit public vehicle access on the roads shown on Map 2 in this plan. Public vehicles will not be permitted on management trails.</p> <p>7.3.2. Maintain existing day use and camping facilities as identified on Map 2 and Christies Hut.</p> <p>7.3.3. Undertake monitoring of visitor use levels and impacts in Nowendoc National Park, and respond as necessary.</p>	<p>High Ongoing</p> <p>High Ongoing</p> <p>Medium Ongoing</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p><b>7.4. Weeds and Pest Animals</b></p> <p>Introduced plant species recorded in the planning area include crofton weed, blackberry and nodding thistle.</p> <p>Several feral animals are known to occur within the planning area.</p> <p>Pest control programs are undertaken in accordance with the Regional Pest Management Strategy.</p> <p>Wild dogs, have been declared as pest animals under the RLP Act.</p>	<p>Introduced plants and animals are controlled and where possible eliminated.</p> <p>Negative impacts of weeds and pest animals on park values are stable or diminishing.</p> <p>Pest control programs are undertaken where appropriate in consultation with neighbours.</p>	<p>7.4.1. Manage introduced species in accordance with the Northern Tablelands Regional Pest Management Strategy in association with neighbours and other control authorities.</p> <p>7.4.2. Assist the local Livestock Health and Pest Authorities in the preparation and implementation of wild dog management plans.</p> <p>7.4.3. Develop and implement boundary fencing agreements with neighbours where appropriate in accordance with the NPWS Boundary Fencing Policy.</p> <p>7.4.4. Implement relevant pest control actions identified in the Threatened Species Priorities Action Statement and recovery plans.</p> <p>7.4.5. Monitor the extent of introduced species within the planning area.</p>	<p>High Ongoing</p> <p>High Ongoing</p> <p>Medium Ongoing</p> <p>Medium Ongoing</p> <p>Medium Ongoing</p>
<p><b>7.5. Fire Management</b></p> <p>Fire is a natural feature of many environments but inappropriate fire regimes can lead to loss of particular plant and animal communities. High frequency fires have been listed as a key threatening process under the TSC Act.</p> <p>A Reserve Fire Management Strategy has been prepared for the planning area.</p>	<p>Life, property and natural and cultural values are protected from bushfire.</p> <p>Fire regimes are appropriate for conservation of plant and animal species</p>	<p>7.5.1. Implement the Reserve Fire Management Strategy.</p> <p>7.5.2. Participate in the New England Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service, Forests NSW and neighbours regarding fuel management, fire suppression and notification procedures.</p>	<p>High Ongoing</p> <p>High Ongoing</p>

Current Situation	Desired Outcomes	Management Response	Priority*
<p>The planning area contains fire sensitive rainforest and old growth forest communities. Further information on the effects of fire on native species and communities and appropriate fire regimes is required.</p>	<p>and communities. Identified cultural features are protected from damage by fire.</p>		
<p><b>7.6. Infrastructure and Maintenance</b></p> <p>The network of roads and management trails in the planning area has been assessed for their suitability for public access, fire control, and other management purposes.</p> <p>Quarries are located on Rubys Nob and Kulmaren Road (Ministerial quarries) in Nowendoc National Park and on Ngulin Neighbour Access Road and Peel Creek Road in Ngulin Nature Reserve.</p>	<p>Management facilities are adequate for management needs, and have minimal impacts on natural and cultural values.</p> <p>Infrastructure and assets are routinely maintained.</p>	<p>7.6.1. Maintain the network of roads and trails identified on Map 2.</p> <p>7.6.2. Develop and implement quarry management plans for all quarries in the planning area.</p> <p>7.6.3. Gate/signpost management trails to restrict unauthorised access as appropriate.</p>	<p>High Ongoing</p> <p>Medium Ongoing</p> <p>Medium</p>

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

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

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

**Ongoing** is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.



**Photographs from the Planning**

**Area.**



**Photo 1.** Callaghans Canyon on Callaghans Swamp Creek.



**Photo 4.** Christies Hut and BBQ area.



**Photo 2.** Wrights Hut Day Use and Camping Area.



**Photo 5.** Old Growth forest in Nowendoc NP along Myall Trail.



**Photo 3.** Snow gum woodland in Tuggolo Creek Nature Reserve.

