

**YENGO NATIONAL PARK,
PARR STATE CONSERVATION AREA AND
FINCHLEY ABORIGINAL AREA**

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change

January 2009

This plan of management was adopted by the Minister for Climate Change and the Environment on 12th January 2009.

Since adoption of this plan of management by the Minister for Climate Change and the Environment, the Yengo Wilderness Area, covering approximately 120,000 hectares, was gazetted on 14 August 2009 under the *Wilderness Act 1987*. In addition Mount Yengo down to the Big Yengo Loop Trail, an area of 1,825 hectares, was declared an Aboriginal Place on 11 July 2008 under the *National Parks and Wildlife Act 1974* in recognition of its special significance with respect to Aboriginal culture.

Acknowledgments

This plan of management is based on a draft plan prepared by staff of the Blue Mountains and Central Coast Regions of the National Parks and Wildlife Service.

The involvement and co-operation of the Central Coast District Advisory Committee and the Interim Community Committee for Yengo National Park and Parr State Recreation Area in the preparation of this plan are gratefully acknowledged.

Cover photograph by Ian Brown.

For additional information contact:

Central Coast – Hunter Range Region
Suites 36-38, 207 Albany Street North
PO Box 1477
GOSFORD NSW 2250
Phone: (02) 4320 4200

© **Department of Environment and Climate Change NSW 2009**: Use permitted with appropriate acknowledgment.

ISBN 978 1 74232 156 1

DECC 2009/141

FOREWORD

Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area cover a combined area of almost 200,000 hectares to the north of the Hawkesbury and Colo Rivers and south of the Hunter Valley.

Yengo National Park and Parr State Conservation Area occupy a critical place in the system of protected natural lands as they provide the only natural east-west link between the coastal and sub-coastal conservation areas in the Hawkesbury Valley/Broken Bay region and those of the Central Tablelands. In addition, Yengo National Park forms part of the Greater Blue Mountains World Heritage Area which was dedicated for its rich Eucalypt diversity.

Important values of the parks include the many threatened or restricted native plant and animal communities and the large number of Aboriginal sites, with Finchley Aboriginal Area and Mt Yengo being of particular significance to Aboriginal people. Four-wheel drive vehicles are the main form of access into the parks due to the nature of the roads. Bushwalking is a popular recreational pursuit in the area, and horse riding is popular in the southern sections of the parks.

A draft plan of management for Yengo National Park and Parr State Conservation Area (then called a state recreation area) was placed on public exhibition from 13th July 2001 until 28th February 2002. In addition, a draft precinct plan for Big Yango was placed on public exhibition from 1st December 2001 until 28th February 2002. The submissions received on both plans were carefully considered before adopting this plan of management.

This plan contains a number of actions to help achieve Priority E4 in the State Plan, *Better environmental outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways*, including revegetation of previously disturbed areas, control of introduced plants and animals, and development of fire management strategies. It also includes actions to help achieve Priority E8 *More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity* through the development of camping areas, provision of signs to inform visitors of the attractions of the parks, and upgrading of walking tracks. The plan also encourages the formation of a Friends of Big Yango volunteer group, consistent with Priority R4 *Increased participation and integration in community activities*.

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

CONTENTS		page
1.0	MANAGEMENT CONTEXT	1
1.1	NATIONAL PARKS	1
1.2	WORLD HERITAGE	2
2.0	YENGO NATIONAL PARK, PARR STATE CONSERVATION AREA AND FINCHLEY ABORIGINAL AREA	5
2.1	LOCATION, HISTORY OF DEDICATION AND REGIONAL CONTEXT.	3
2.2	SIGNIFICANCE OF THE PARKS	4
3.0	MANAGEMENT OBJECTIVES	7
4.0	MANAGEMENT FRAMEWORK AND POLICIES	8
4.1	NATURAL LANDSCAPE	10
4.1.1	Geology, Geomorphology and Soils	10
4.1.2	Catchment Management	12
4.1.3	Native Plants & Animals	13
4.1.4	Introduced Plants and Animals	18
4.1.5	Fire Management	21
4.1.6	Wilderness	25
4.2	CULTURAL HERITAGE	28
4.2.1	Aboriginal Heritage	28
4.2.2	Historic Heritage	31
4.3	USE OF THE AREA	34
4.3.1	Community Relations, Education & Interpretation	34
4.3.2	Recreation Opportunities	36
4.3.3	Public Vehicle Access	38
4.3.4	Horse-riding	43
4.3.5	Cycling (Mountain bikes)	44
4.3.6	Bushwalking	45
4.3.7	Research	46
4.3.8	Management Operations	47
4.3.9	Alien Uses, Leases and Licences	50
5.0	PLAN IMPLEMENTATION	53
6.0	SELECTED REFERENCES	60

1.0 MANAGEMENT CONTEXT

1.1 NATIONAL PARKS, STATE CONSERVATION AREAS AND ABORIGINAL AREAS

1.1.1 National Parks

National parks are reserved under the *National Parks and Wildlife Act 1974* (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 (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.

1.1.2 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 (section 30G) state conservation areas are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes;
- conserve places, objects and features of cultural value;
- provide for the undertaking of uses permitted under other provisions of the NPW Act (including uses permitted under section 47J such as mineral exploration and mining), having regard to the conservation of the natural and cultural values of the state conservation area;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area;

- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area; and
- provide for appropriate research and monitoring.

The NPW Act requires a review of the classification of state conservation areas every 5 years in consultation with the Minister administering the *Mining Act 1992*. In the long term it is intended for Parr State Conservation Area to become a national park, and so management will also be guided by the management principles for national parks where possible.

1.1.3 Aboriginal Areas

Aboriginal areas are reserved under the NPW Act to protect and conserve areas associated with a person, event or historical theme, or containing a building, place, feature or landscape of natural or cultural significance to Aboriginal people, or of importance in improving public understanding of Aboriginal culture and its development and transitions.

Under the Act (section 30K) Aboriginal areas are managed to:

- conserve natural values, buildings, places, objects, features and landscapes of cultural value to Aboriginal people in accordance with the cultural values of the Aboriginal people to whose heritage the buildings, places, objects, features or landscapes belong;
- conserve natural and other cultural values;
- allow use of the Aboriginal area by Aboriginal people for cultural purposes;
- promote public appreciation and understanding of the area's natural and cultural values and significance where appropriate; and
- provide for appropriate research and monitoring, in accordance with the cultural values of the Aboriginal people.

1.2 WORLD HERITAGE

The International Convention for the Protection of the World Cultural and Natural Heritage was adopted by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1972, and ratified by Australia in 1974. The Convention provides a framework for international cooperation and the collective protection of cultural and natural heritage of outstanding universal value.

The Greater Blue Mountains Area was formally nominated by the Australian Government for inscription on the World Heritage List in June 1998, on the grounds of both natural and cultural criteria (NPWS and Environment Australia, 1998). In November 2000 the nominated area of over one million hectares, which includes Kanangra-Boyd, Blue Mountains, Gardens of Stone, Wollemi, Nattai, Yengo and Thirlmere Lakes National Parks and the Jenolan Caves Karst Conservation Reserve, was inscribed on the World Heritage List.

The Greater Blue Mountains World Heritage Area was inscribed on the World Heritage List because it satisfies the following criteria for natural values of

outstanding universal significance. It contains:

- outstanding examples of significant ongoing ecological and biological processes in the evolution and development of ecosystems and communities of plants and animals (*Criterion II*), particularly eucalypt-dominated ecosystems; and
- important and significant natural habitats for in-situ conservation of biological diversity (*Criterion IV*), including the eucalypts and eucalypt-dominated communities, primitive species with Gondwanan affinities such as the Wollemi Pine, and a diversity of rare or threatened plants and animals of conservation significance.

This plan has been prepared in accordance with the Convention for the Protection of the World Cultural and Natural Heritage. In accordance with the Convention, Yengo National Park will be managed to identify, protect, conserve, present and transmit to future generations, the World Heritage values of the property.

LOCATION MAP

(see end pages)

2.0 YENGO NATIONAL PARK, PARR SCA AND FINCHLEY ABORIGINAL AREA

2.1 Location, History of Dedication and Regional Context.

This plan applies to the lands reserved as Yengo National Park and Parr State Conservation Area, dedicated in March 1988, and to Finchley Aboriginal Area which was dedicated in 1976 (called collectively “the parks” in this plan of management) (see Figure 1). Yengo National Park is named after the Aboriginal word “Yango”, meaning “mountain”, though early Europeans mispronounced the word and spelt it “Yengo”. Mt Yengo is the prominent tabletop mountain in the area and is a sacred site to the Aboriginal community as it is where the creator being Biamie left the earth. Parr State Conservation Area on the other hand received its name after Mr William Parr, the original European explorer of the area, who explored the route of one of the first roads north from Sydney - the Putty Road. Finchley Aboriginal Area was named after the Parish in which it is located, which was in turn named after Mr H Finch, Assistant Surveyor on the Old Great North Road. The current Aboriginal Area replaced a Reserve for the Preservation of Aboriginal Carvings notified in 1929.

The three parks in total cover an area of 192,396 hectares, composed of 154,271 hectares for Yengo National Park, 38,121 hectares for Parr State Conservation Area, and 4 hectares for Finchley Aboriginal Area. They lie to the north of the Hawkesbury and Colo Rivers and south of the Hunter Valley. Nearby towns include Wisemans Ferry, St Albans, Colo Heights, Putty, Howes Valley, Broke, Wollombi, Laguna, Bucketty and Kulnura. Finchley Aboriginal Area lies towards the north of Yengo National Park and is totally surrounded by Yengo National Park.

The parks form part of a group of sandstone national parks within the Sydney Basin bio-region which includes: Wollemi and Blue Mountains to the west; Dharug, Marramarra and Ku-ring-gai Chase to the south; and Popran and Brisbane Water National Parks to the east.

A number of other protected natural areas lie adjacent to and complement the national park reserve system within this sandstone region. These protected areas include State Forests and the Sydney and Central Coast water catchment areas.

The majority of streams within Yengo National Park and Parr State Conservation Area flow south-east into the Hawkesbury River near Wisemans Ferry via the Macdonald River, Webbs Creek and in the south-west corner of Parr State Conservation Area - the Colo River. Streams in the north-eastern section of Yengo National Park flow north-easterly into the Hunter River via Wollombi Brook. There are no streams in Finchley Aboriginal Area.

Management of these catchment areas is undertaken in liaison with the Hawkesbury-Nepean Catchment Management Authority and the Hunter-Central Rivers Catchment Management Authority.

The south-eastern boundaries of the parks adjoin the outer fringes of the Sydney metropolitan area, where the present mix of urban and rural land uses is undergoing rapid change as the region’s population increases. The increasing populations in

these areas are of major significance to park management as they can result in pressure to provide additional and more sophisticated visitor facilities.

Management of recreation within National Parks and Wildlife Service (NPWS) managed lands is undertaken in accordance with the concept of a recreational opportunity spectrum (Clarke and Stankey 1979). This concept recognises that a variety of destinations and settings are required within a region to satisfy the variety of recreational needs. It also recognises that consideration should be given to the range and extent of opportunities provided in surrounding national parks, state conservation areas and other Crown lands to ensure that the facilities and opportunities within Yengo National Park and Parr State Conservation Area complement these other areas.

Yengo National Park lies in the local government areas of Cessnock, Hawkesbury and Singleton. Parr State Conservation Area lies in the Hawkesbury Council area. Finchley Aboriginal Area lies within Cessnock Council area.

2.2 Significance of Yengo National Park, Parr State Conservation Area & Finchley Aboriginal Area

Geological Heritage

Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area are on part of the Hornsby Plateau, a dissected sandstone plateau within the Sydney Basin which extends from the Blue Mountains to the Hunter Valley (Bembrick *et al.* 1980). The western edge of this plateau is of considerable scientific and educational value and includes some interesting alluvial features in the vicinity of Mellong Creek and the Garland Valley which partially lie within the parks (Map 2).

Exposed within the parks are Tertiary Volcanics, which are restricted in distribution with several small outcrop areas of both basaltic extrusions and diatremes (Bell *et al.*, 1993).

Studies of the Macdonald River and Webbs Creek in the 1960s demonstrated that the river systems have experienced substantial change since European settlement. The Macdonald River is one of the best-documented examples of river response to alternating climatic cycles in Australia (Erskine, 1991).

Natural Heritage

Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area partly provide a naturally vegetated east-west link between the coastal and sub-coastal conservation areas in the Hawkesbury Valley / Broken Bay region and those of the Central Tablelands.

They are located in a 'rainshadow' and as a result receive lower rainfall than the higher tableland areas to the west and the coastal ranges to the east. Lower rainfall, together with milder local climates and a few areas of good quality soils, has resulted in an area of high biodiversity including plant species and communities with affinities to the Coast, Tablelands and Western Slopes.

Of significance are the warm temperate rainforests found in sheltered valleys and a dry rainforest found on the basalt tops of Mt Yengo and Mt Wareng. The drier north-eastern part of the national park support plant communities with species typical of the Western Slopes of New South Wales, such as ironbarks and cypress pines. The occurrence of 7 different ironbark species and a total of 43 species of eucalypts in the park is of special interest and in part contributes to the identified World Heritage values of the Greater Blue Mountains Area.

There are 701 plant species recorded for the parks (Bell *et al*, 1993) and at least 20 plant species are at their limit of their known distribution. Nineteen (19) threatened plants have been identified within the parks (NPWS Wildlife Atlas).

There are 349 animal species recorded on the NPWS Wildlife Atlas within the parks, of which 31 species are listed as vulnerable and 3 species as endangered. The endangered species are the Brush-tailed Rock Wallaby *Petrogale penicillata*, Regent Honeyeater *Xanthomyza phrygia* and the Broad-headed Snake *Hoplocephalus bungaroides*. Vulnerable species include the Koala *Phascolarctos cinereus*, Turquoise Parrot *Neophema pulchella*, Glossy Black Cockatoo *Calyptorhynchus lathami* and Powerful Owl *Ninox strenua*.

As of the date of this plan 49 mammal species, 211 birds, 31 amphibians and 58 reptiles have been recorded in the parks (NPWS, Wildlife Atlas).

The parks protect threatened species such as the Brush-tailed Rock Wallaby *Petrogale penicillata*, which occurs only in very small disjunct populations in New South Wales and Queensland. A major population of the Regent Honeyeater *Xanthomyza phrygia*, an endangered species under the *Threatened Species Conservation Act 1995*, is centred on Wollemi and Yengo National Parks and Parr State Conservation Area.

The Helman Report (1976) identified the Yengo National Park and Parr State Conservation Area as having wilderness qualities. In addition, more recent survey work undertaken as part of the Comprehensive Regional Assessment (CRA) process in 2000, identified approximately 100,000 hectares within these two parks as having wilderness qualities or capable of being restored to wilderness.

Cultural Heritage

The landscape of the parks is rich in Aboriginal heritage and the area contains some outstanding rock engraving sites. Of particular significance to Aboriginal people is Mt Yengo, a sacred site with a well-documented ethnographic and cultural significance to the Aboriginal community. Mt Yengo is where the mythological being, Biamie, left the earth after creating the world. It is believed that Finchley Aboriginal Area and other Aboriginal sites in the parks and the surrounding region are connected in some way to Mt Yengo.

The local Aboriginal community have a strong and active interest in the management of these sites and landscape. There has also been an active interest in the revival of the Aboriginal culture in the area.

Historic Heritage

Early European transport routes between Sydney and the Hunter Valley are evident within the parks in remnants of the Old Great North Road and the Putty Road / Old Bulga Road. The Old Great North Road lies adjacent to the eastern boundary of Yengo National Park. An earlier unofficial route between Sydney and the Hunter Valley generally lies to the west of the parks near or on the present route of the Putty Road. Some of the original sections of this unofficial route, such as the Old Bulga Road, occur within the northern section of Yengo National Park just north of Howes Valley.

Also of importance is the "Old Settlers Road", previously known as the "Old Convict Road", which was built by Howes Valley settlers. It linked Howes Valley with the Wollombi District and is almost wholly within Yengo National Park. Stone embankments and pavements along the route of this road are still obvious.

Tourism and recreation

Visitation to the parks is not high compared to the coastal parks nearer to Gosford and Newcastle. Bushwalking is a popular pursuit in the parks. The majority of people access the parks by four-wheel drive vehicles, and to a lesser degree by two-wheel drive vehicles, due to the trails being more suited to the former. Motorcycle trail bike riding and horse riding are also popular in the southern sections of the parks. Other popular forms of recreation include mountain bike riding, photography and bird watching.

3.0 MANAGEMENT OBJECTIVES

In addition to the general objectives listed in sections 1.1.1, 1.1.2 and 1.1.3, the following specific objectives apply to the management of Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area:

- promotion of wildlife corridors that link the parks to other protected lands and enhance their conservation value;
- limiting the impact of fire in the parks and on adjoining properties;
- protection of the warm temperate and dry rainforest communities;
- protection, and where necessary restoration, of wilderness values;
- consultation with the Central Coast Hunter Range Region Aboriginal Heritage Advisory Committee in relation to management of the parks;
- provision of opportunities for the Aboriginal community to continue their traditional practices and maintain sites;
- maintenance of dispersed, low-impact recreation opportunities, including vehicle-based and self-reliant activities, so that visitors may experience the heritage, scenic, natural and wilderness values of the parks;
- management of Big Yango homestead and associated areas to conserve and interpret the cultural heritage values;
- promotion of public awareness and appreciation of the parks, with emphasis on:
 - their importance as part of the system of conservation areas in the Sydney Basin;
 - wilderness values; and
 - adoption of minimal impact recreation practices by park visitors; and
- promotion within the local community of the importance and purpose of management programs necessary for the protection of natural features and the control of fire, weeds and feral animals.

4.0 MANAGEMENT FRAMEWORK AND POLICIES

4.1 NATURAL LANDSCAPE

4.1.1 Geology, Geomorphology and Soils

The parks form part of the Hornsby Plateau, a highly dissected sandstone plateau within the Sydney Basin. The Hornsby Plateau consists of a large number of narrow sandstone ridges and steep-sided valleys, extending from the eastern edge of the Blue Mountains from a height of about 270 metres and gradually increases in altitude to 370 metres in the north on the southern rim of the Hunter Valley (Bell *et al*, 1993). This is in contrast to the Blue Mountains Plateau west of the Putty Road, where the ridges are much higher, being generally between 500-800 metres in altitude.

The lowest rock strata belong to the Narrabeen Group, which is a mixture of sandstone, mudstone and shale. Above this are the rocks of the Hawkesbury Sandstone, which are composed almost entirely of sandstone but also include some shale lenses. In the south-west of the area, around Colo Heights, are small remnants of the shales of the Wiannamatta Group, which once overlaid the Hawkesbury Sandstone, but has now mostly weathered away.

There is a gentle tilting of the rock strata layers upward towards the north so that the rocks of a particular sequence are often located in different topographical positions across the parks (Sanders *et al*. 1988). Thus, in the south, the rocks of the Narrabeen Group generally only outcrop as a thin layer at the base of the slopes, while the Hawkesbury Sandstone forms the majority of the slopes and ridges. In the north, however, the Narrabeen strata occurs from the bottom of the slopes to the tops of the ridges, with the Hawkesbury Sandstone only forming a remnant cap on the highest ridges.

Formations of Tertiary basalt occur as the spectacular mountains of Yengo and Wareng and as plugs at the bottom of crater-like valleys such as at Mogo Creek quarry. Also found in the valley bottoms are diatremes such as that found at Terraborra and Pierces Valley in Parr State Conservation Area. Presently unauthorised vehicle access to Pierces Valley is causing degradation to parts of this area, although natural revegetation around the edges of the valley is occurring.

The sedimentary rocks found in some of these volcanic vents are no longer found elsewhere in the region. It is hypothesised that they are younger rocks of the Great Artesian Basin Series, which were eroded away millions of years ago, and fell into these vents during active volcanic periods. These diatremes are usually saucer-shaped valleys with fertile soils and were often selected by the early settlers for grazing purposes.

Alluvial deposits are mainly in the form of deep soils in the bottom of the broader valleys but also occur as the rather unusual deep sands of the plateau area near Mellong Creek, along the Putty Road. These unusually deep sands occur on the western edge of this plateau, called the Kurrajong Hinge, and is of considerable scientific and educational value, particularly in the vicinity of Mellong Creek and the

Garland Valley which lie partly in Yengo National Park as they feature some interesting alluvial features located on a present-day plateau.

The Macdonald River and Webbs Creek are also of scientific interest. Studies undertaken in the 1960s demonstrated that these river systems have experienced substantial change since European settlement. The changes reflect cycles of both flood and drought regimes. The Macdonald River is one of the best-documented examples of river response to alternating climatic cycles and land use in Australia. Research into the fluvial processes of the Macdonald River and Webbs Creek has also provided a detailed understanding of many important sedimentary landforms. Some of these features are comparatively rare and are important indicators of watercourse evolution (Erskine, 1991).

Unauthorised use of management trails in both parks occurs from time to time and results in accelerated soil erosion, rubbish dumping and bushrock depletion.

Policies

- The parks will be managed to minimise impacts of visitor use, management activities and adjacent land use on geological, geomorphological, hydrological and biological processes.
- Management activities, where relevant, will incorporate soil erosion management principles and practices and will be undertaken on advice from the Soil Conservation Service.
- Soil erosion and sedimentation control measures will be implemented in areas subject to accelerated erosion and instability.
- The extraction of sand, clay, rock, gravel or any like substance will not be permitted in the park except for essential management purposes (refer Section 4.3.9).
- Works involving restoration or rehabilitation will be undertaken with materials which are geologically compatible and free of pollutants and foreign plant material.
- Emphasis will be given to promoting an understanding and appreciation of the parks' geological and geomorphological features.
- The NPWS will protect the high scenic qualities of these parks in line with the Australian Natural Heritage Charter, and provide input into local and regional environmental plans.

Actions

- Existing vehicle trails will be assessed for the impact of continued use on natural processes. Illegal activities of any kind will be discouraged by erecting gates at trouble spots and will only be opened to legitimate user groups visiting a

- Revegetation of Pierces Valley will be undertaken with species endemic to the area.
- Educational display boards will be maintained around the parks (see section 4.3.1). Displays will present information on geological and geomorphological features of the area and on appropriate use of the parks.

4.1.2 Catchment Management

Important sub-catchments of the Hawkesbury and Hunter River systems which are wholly or partly included in these parks are those of the Macdonald River, Webbs Creek and Wollombi Brook.

The headwaters of Webbs Creek and the Macdonald River are outside the parks, and while some boundaries of the parks adjoin grazing lands, this gives rise to difficulties in maintaining water quality. Weeds such as blackberry and weeping willow have washed downstream from disturbed areas in the upper catchment areas, establishing isolated infestations along stream banks within the parks. Increased sedimentation from land clearing and high fire frequencies are also a problem.

In 2006 the Macdonald River was assessed for declaration as a “wild river” under the NPW Act. The river was found to support a rich aquatic macro-invertebrate fauna, however, a loss of diversity was detected which was probably due to a lack of habitat diversity in the substratum caused by sedimentation. It is likely that human activities in general, and land clearing together with high intensity fires in particular, are the cause of sand slugs (large sediment deposits) in the Macdonald River. For this reason the Macdonald River could not be considered “substantially unmodified” since pre-European times and as such did not meet the criteria for declaration as a wild river.

The *Catchment Management Act 1989* provides a framework to manage catchments to ensure cleaner water and minimise environmental degradation, by balancing conservation needs and development pressures and encourages a more aware and involved community. An important means of limiting disturbance and entry of pollutants into the parks’ catchments is to manage with regard to integrated catchment management plans or “blueprints” prepared by the Hawkesbury-Nepean and Hunter/Central Rivers Catchment Management Authorities.

Policies

- Catchment values will be protected and all practical steps taken to limit disturbance and entry of pollutants into catchments.
- The NPWS will continue to support the concept of Total Catchment Management and participate as required on the Hawkesbury-Nepean and Hunter/Central Rivers Catchment Management Authorities.

- The NPWS will work with stakeholders and have regard to Hawkesbury-Nepean Catchment Management Authority and Hunter/Central Rivers Catchment Management Authority Blueprints to improve and protect catchment values.
- Fire management regimes will be prescribed to ensure minimal risk of erosion of sensitive lands.

Actions

- The NPWS will continue to promote Total Catchment Management through field days and newsletters.

4.1.3 Native Plants & Animals

Native Plants

The parks protect a naturally vegetated east-west link between the coastal and sub-coastal conservation areas in the Hawkesbury Valley / Broken Bay region and those of the Central Tablelands. The parks are located within the Central Coast Botanical Sub-division at the convergence of three botanical provinces: the Central Western Slopes, Central Tablelands and Central Coast.

The vegetation types contained within the parks have developed some diverse affinities. The parks are located in a 'rain shadow' and receive lower rainfall than that of the higher tablelands to the west and the coastal range to the east. Lower rainfall, together with milder local climates and a few areas of good quality soils, has resulted in plant species and communities with affinities to the Coast, Tablelands and Western Slopes. This combination of factors has resulted in an area of high diversity.

A high variability in microclimates and soil fertility has led to a high degree of biodiversity within these parks. This is reflected both in the number of plant species present at some sites and quite different plant communities occurring near each other. The vegetation shows some important differences when compared to other reserves managed by the NPWS in the area, such as Dharug National Park to the southeast and Wollemi National Park to the west.

Most of the ridge tops and north-west-facing slopes consist of low woodland with a sclerophyllous shrub understorey. This vegetation is generally similar to that found on Hawkesbury Sandstone closer to the coast, displaying significant differences due to the drier conditions.

The drier north-eastern part of the parks support plant communities with species typical of the Western Slopes of New South Wales, such as ironbarks and cypress pines. The occurrence of 7 different ironbark eucalypt species and 43 eucalypt species in total is of interest and confirms the importance of Yengo National Park's inclusion in the Greater Blue Mountains World Heritage Area on the basis of this high

eucalypt diversity. The NPWS plans to progressively undertake additional biodiversity surveys to improve its knowledge of the parks.

The wetter areas closer to the coast in the south-east supports small stands of tall eucalypt forest and warm temperate rainforest in sheltered valleys. Of special interest is the occurrence of a dry rainforest on the basalt tops of Mt Yengo and Mt Wareng. The dry rainforest on the basalt cap of Mt Yengo and Mt Wareng contain Red Cedar *Toona ciliata* and Stinging Trees *Dendrocnide excelsa*.

The more sheltered slopes and valley bottoms have a complex pattern of vegetation, reflecting local differences in geology, depth of soil and microclimate. These communities differ also from those found outside the area and contain many species at the limits of their distribution. Activities associated with settlement, particularly logging and clearing, were concentrated in these valleys and thus undisturbed remnants of forest vegetation found in the broader valleys are now rare and remnants have high conservation significance. Big Yango is a good example of these broad valleys in a state of regeneration since pastoralism ceased on the property in December 2000. The NPWS plans to monitor and encourage the natural regeneration of these valley floors except where the clearing is of historic heritage significance.

Upland swamps are usually typical of sandstone areas, however because of the dryness of these parks only two small areas of upland sedge swamp are known to occur, in the southeast corner of Yengo National Park.

The vegetation of Yengo National Park and Parr State Conservation Area has been mapped by DECC (2007). Forty three vegetation communities occur, within eleven broad floristic groups:

- Sheltered Hawkesbury sandstone dry forests
- Narrabeen sandstone dry sclerophyll woodlands
- Narrabeen series shale and sandstone dry sclerophyll forests
- Hunter escarpment Permian footslopes dry sclerophyll forests
- Freshwater wetlands
- Dry rainforest
- Mellong sandmass woodlands
- Hawkesbury sandstone exposed woodlands
- Hawkesbury and Narrabeen sandstone wet sclerophyll forests and rainforest
- Alluvial and basalt herb and grass forests and woodlands
- Sandstone warm temperate rainforest

More than 1000 species of indigenous vascular plants have been identified in the parks, of which 6 are endangered and 11 are listed as vulnerable under the *Threatened Species Conservation Act 1995* (TSC Act). Threatened and ROTAP species found in the parks are indicated in Table 1. At least 20 plant species are at the limit of their known distribution, or occur as unusual populations. For example, Yengo National Park protects 3 of the 4 known populations of *Olearia cordata* and most of the population of *Acacia fulva*, which is restricted to the basalt soils of Mt Yengo and Mt Wareng.

Table 1: Threatened and Protected Plants recorded in Yengo National Park & Parr State Conservation Area

Family	Scientific Name	Common Name	Legal Status	ROTAP Status
Fabaceae (Mimosoideae)	<i>Acacia bulgaensis</i>			R
Fabaceae (Mimosoideae)	<i>Acacia bynoeana</i>	Bynoe's Wattle	E	V
Fabaceae (Mimosoideae)	<i>Acacia fulva</i>	Velvet Wattle		R
Fabaceae (Mimosoideae)	<i>Acacia matthewii</i>			R
Fabaceae (Mimosoideae)	<i>Acacia terminalis</i>	Sunshine Wattle		R
Poaceae	<i>Ancistrachne maidenii</i>		V	K
Loranthaceae	<i>Atkinsonia ligustrina</i>			R
Fabaceae (Faboideae)	<i>Dillwynia tenuifolia</i> *		V	V
Myrtaceae	<i>Eucalyptus fergusonii</i> subsp. <i>dorsiventralis</i>			R
Myrtaceae	<i>Eucalyptus fracta</i>		V	R
Myrtaceae	<i>Eucalyptus hypostomatica</i>			R
Myrtaceae	<i>Eucalyptus michaeliana</i>	Brittle Gum		R
Myrtaceae	<i>Eucalyptus prominula</i>	Stringybark		K
Myrtaceae	<i>Eucalyptus wollemiensis</i>			E
Proteaceae	<i>Grevillea montana</i>			K
Dilleniaceae	<i>Hibbertia nitida</i>			R
Dilleniaceae	<i>Hibbertia procumbens</i>	Spreading Guinea Flower	E	
Fabaceae (Faboideae)	<i>Kennedia retrorsa</i>		V	V
Sterculiaceae	<i>Lasiopetalum joyceae</i>		V	R
Epacridaceae	<i>Leucopogon fletcheri</i> subsp. <i>fletcheri</i>		E	R
Epacridaceae	<i>Lissanthe sapida</i>	Native Cranberry		R
Lomandraceae	<i>Lomandra brevis</i>			R
Lomandraceae	<i>Lomandra fluviatilis</i>			R
Myrtaceae	<i>Melaleuca deanei</i>	Deane's paperbark	V	R
Myrtaceae	<i>Melaleuca groveana</i>	Grove's Paperbark	V	R
Asteraceae	<i>Olearia cordata</i>		V	R
Proteaceae	<i>Persoonia hirsuta</i> ssp. <i>hirsuta</i> (including <i>Persoonia hirsuta</i> subsp. <i>nov</i> Yengo National Park)	Hairy Geebung	E	K
Apiaceae	<i>Platysace clelandii</i>			R
Orchidaceae	<i>Pterostylis gibbosa</i> *		E	E
Asteaceae	<i>Rutidosis heterogama</i> *		V	V
Tremandraceae	<i>Tetradlea glandulosa</i>	Black-eyed Susan	V	V
Goodeniaceae	<i>Velleia perfoliata</i>		V	V
Rutaceae	<i>Zieria involucreta</i>		E	V

TSC Act Codes: E = Endangered species, V = Vulnerable species

ROTAP Codes: E = Endangered, V = Vulnerable, R = Rare, K = Poorly known species

* = species recorded in surrounding land

In addition, three Endangered Ecological Communities (EECs) listed under the TSC Act have been recorded within the parks. These are:

- River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions
- Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions
- Shale/sandstone transition forest EEC (also listed under the EPBC Act).

Vegetation communities of high regional conservation significance also occur within the parks.

Native Animals

Three hundred and forty-nine (349) animal species are currently listed as occurring within the parks (NPWS Wildlife Atlas). Included in this list are 34 threatened fauna, comprising 3 endangered species and 31 vulnerable species listed under the *Threatened Species Conservation Act 1995*.

Forty-nine (49) species of mammals occur in the parks. Steep rugged cliff faces found in the parks also provide habitat for the endangered Brush-tailed Rock-wallaby *Petrogale penicillata*. This species is believed to be vulnerable to predation by foxes and now only occurs in very small disjunct populations in New South Wales and Queensland.

The NPWS has embarked on population surveys aimed at species recovery of the Brush-tailed Rock Wallaby at three locations in the Macdonald Valley and one location in the northern part of Yengo National Park over the next four years as part of the Fox Threat Abatement Plan.

Two hundred and eleven (211) bird species have been recorded in the parks, with one of these being an endangered species: the Regent Honeyeater. The parks present an important habitat for this species with a major population centred on the Wollemi and Yengo National Parks and Parr State Conservation Area.

NPWS Wildlife Atlas records indicate that 31 species of amphibians and 49 species of reptiles occur in the parks. This relatively high number is probably related to the lack of disturbance and the extensive and topographically diverse areas of sandstone terrain. The richness of the herpetofauna has been compared to the World Heritage Area rainforests in northern NSW which have a well-documented diversity of amphibians and reptiles (Phillips, 1987).

The illegal removal of rock cover (bush-rock) is a significant threat to the conservation of amphibians and reptiles in the parks. Such cover provides sanctuary from predation, fire and drought, and is a necessary part of the habitat of many species. The removal of bushrock is a major factor in the decline of the Broad-headed Snake *Hoplocephalus bungaroides*.

A list of threatened animals for the parks is shown in Table 2. Other species not listed as endangered or vulnerable found in the parks, but which are of conservation concern, are the Legless Lizard *Anomalopus swainsonii*, New Holland Mouse

Pseudomys novaehollandiae and Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*.

Table 2: Known Endangered & Vulnerable Animals in Yengo National Park & Parr State Conservation Area

	Scientific Name	Common Name	Status
Amphibians	<i>Heleioporus australiacus</i>	Giant Burrowing Frog	Vulnerable
	<i>Pseudophryne australis</i>	Red-crowned Toadlet	Vulnerable
Birds	<i>Ninox connivens</i>	Barking Owl	Vulnerable
	<i>Ixobrychus flavicollis</i>	Black Bittern	Vulnerable
	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subsp.)	Vulnerable
	<i>Climacteris picumnus</i>	Brown Treecreeper	Vulnerable
	<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable
	<i>Calyptorhynchus fimbriatum</i>	Gang-gang Cockatoo	Vulnerable
	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	Vulnerable
	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subsp.)	Vulnerable
	<i>Melanodryas cucullata</i>	Hooded Robin	Vulnerable
	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable
	<i>Ninox strenua</i>	Powerful Owl	Vulnerable
	<i>Xanthomyza phrygia</i>	Regent Honeyeater	Endangered
	<i>Tyto tenebricosa</i>	Sooty Owl	Vulnerable
	<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	Vulnerable
	<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable
Mammals	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	Vulnerable
	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Endangered
	<i>Mormopterus norfolkensis</i>	East-coast Freetail-bat	Vulnerable
	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	Vulnerable
	<i>Vespadelus troughtoni</i>	Eastern Cave Bat	Vulnerable
	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable
	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	Vulnerable
	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vulnerable
	<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	Vulnerable
	<i>Phascolarctos cinereus</i>	Koala	Vulnerable
	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable
	<i>Macropus parma</i>	Parma Wallaby	Vulnerable
	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable
	<i>Petaurus norfolcensis</i>	Squirrel Glider	Vulnerable
	<i>Petaurus australis</i>	Yellow-bellied Glider	Vulnerable
Reptiles	<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	Endangered
	<i>Varanus rosenbergi</i>	Rosenberg's Goanna	Vulnerable

Policies

- The NPWS will seek to maintain plant and animal diversity and distribution through the maintenance of natural processes, the mitigation of human impacts and through specific conservation programs where necessary.
- Conservation programs will be developed and applied to native animals and their populations where their conservation status and threatening processes indicate that active management is required to ensure their long-term conservation.

- Research programs will be encouraged with priority given to threatened species, endangered populations and endangered ecological communities.

Actions

- The NPWS will liaise with local councils and other authorities to minimise the impact of potentially threatening processes on native species and communities. Where relevant, threatened species recovery plans, priorities action statements and threat abatement plans will be implemented within the parks in co-operation with other authorities.
- The NPWS will progressively undertake biodiversity surveys at specific habitats of concern, to assist in the development of ecologically based fire management, pest management and visitor management programs.
- Natural regeneration of the Big Yango area will be encouraged except where the clearing is of historic heritage significance (such as the homestead paddocks).
- A system of photo and survey monitoring stations will be erected to monitor vegetation changes and weed control activities in the Big Yango area. Photo monitoring will be undertaken annually.
- The NPWS will liaise with neighbours and interest groups through neighbour newsletters / surveys and direct contact to further gain local knowledge on the location of threatened species and threats.
- Community groups will be encouraged to participate with the NPWS in joint conservation programs targeting threatened species recovery and habitat restoration within the parks.

4.1.4 Introduced Plants and Animals

Introduced plants and animals are those which are not indigenous to the parks. They represent one of the most significant potential threats to the natural values of the parks and are a major focus for management programs. Some of these species may damage natural values by being invasive, directly competing with or preying upon native species. They may also affect soil and water systems and the recreational, cultural, aesthetic and scientific values of the parks. Some introduced fauna species which are known to occur in the parks may have economic impacts on neighbouring lands.

Introduced Plants

Under the *Noxious Weeds Act 1993*, the NPWS has a statutory responsibility to prevent the spread of noxious weeds to adjoining lands. Noxious weeds and local environmental weeds are listed within the relevant local government environmental plans.

Most of the parks are free of introduced plants, with infestations limited to sites that have been subject to modification from past development or agricultural use. Animals, watercourses and vehicles are major agents for the spread of introduced plants.

Watercourses, particularly Webbs Creek and the Macdonald River, are a major concern for the spread of weeds, as the headwaters of these watercourses are outside of the parks in rural settings to the west of the Putty Road. Straying stock is another source of weed infestation. Due to the remote location, rugged nature of some of the park boundaries and associated lack of access, damaged fencing is not always quickly found and repaired.

Another major source of weed infestation is along the Putty and Wollombi Roads where seed dispersal occurs from vehicles and travelling stock. Rubbish dumping is also a concern, particularly in the southern sections of Parr State Conservation Area.

Particularly invasive introduced species such as Blackberry *Rubus fruticosus* have colonised disturbed sites in and around the built up areas and adjoining rural properties and inholdings within the parks. Pampas Grass *Cortaderia selloana* is invading the eastern area of Parr State Conservation Area. Water and wind-borne weeds such as Noogoora Burr *Xanthium occidentale*, Dandelion *Taraxacum officinale*, Black Willow *Salix nigra* and Weeping Willow *Salix babylonica* occur in some isolated localities downstream of disturbed lands that lie within the catchments of both parks.

A weed management strategy was prepared for the main valley of the Big Yango area in 2001 and provides strategies for control of introduced plants in this area.

A number of non-indigenous exotic plants including poplar trees and roses occur near the Big Yango homestead. Significant plantings will be retained as examples of the European cultural history of the site.

The location, monitoring and control of weed species, in particular Blackberry, which is widespread and abundant, is made difficult by the rapid growth of grasses, which in effect hides these populations. Weed control strategies to be investigated will include the strategic burning of selective areas to facilitate poisoning of Blackberry and other weed species.

Introduced Animals

Cats, foxes and wild dogs are distributed throughout the parks, though are more concentrated near to neighbouring rural properties particularly in the southern sections of the parks. Cattle, rabbits, pigs, deer and goats also occur, but are of more localised distribution.

Wild dogs, including feral dogs, dingoes and their hybrids, are declared pest animals under the *Rural Lands Protection Act 1998* (RLP Act) throughout NSW. Hence, the NPWS has a statutory obligation to control wild dogs on its estate "to the extent necessary to minimise the risk of the pest causing damage on any land". However, under the RLP Act, public lands which are identified as significant habitat for dingoes

in Schedule 2 of the Wild Dog Control Order will be managed with the dual objectives of managing wild dogs while at the same time conserving dingoes in core areas. Yengo National Park and Parr State Conservation Area are listed in Schedule 2, requiring public land managers such as the NPWS to assist in the preparation of a local wild dog management plan in accordance with the RLP Act. Before adoption and implementation the plans require the approval of all parties, including the NPWS.

Feral cattle, straying domestic cattle and deer are a major cause of disturbance to native plant and animal communities. Cattle and deer cause the spread of weeds, stream bank and waterhole erosion as well as repetitive and selective grazing of native vegetation. They also reduce the re-colonisation of native vegetation in previously cleared areas by grazing on young shoots.

Feral pigs occur in the Mellong Creek – Wallaby Swamp and Wallabadah areas and cause soil disturbance when rooting for food and wallowing. Isolated small herds of feral goat have occurred in the parks and are targeted quickly for control when located. Goats cause significant damage as they aggressively compete with native animals for food and habitat. Foxes prey on small mammals. The control of goats and foxes in Brush-tailed Rock Wallaby habitat will be given priority, as these may be a vital factor in the survival of this threatened species.

Both Blue Mountains and Central Coast–Hunter Range Regions have Pest Management Strategies which identify introduced species of concern and provide detailed information on methodology and control priorities.

Policies

- Introduced plants and animals will be removed from the parks wherever possible; where this is impractical control measures will be adopted.
- High priority will be given to the control of introduced plant and animal species which:
 - are a risk to threatened species, critical habitat or significant plant communities;
 - are species for which current neighbouring control programs are in place or for which threat abatement plans have been prepared;
 - have a high capacity for dispersal;
 - are new isolated occurrences; or
 - are declared noxious.
- Preference will be given to control techniques, which have minimal environmental impact.
- Control programs will be continually monitored to review their effectiveness.
- The NPWS will cooperate with other agencies, such as Rural Lands Protection Boards and local landholders, in the development and implementation of introduced species control plans and programs.

- Introduced animals will not be permitted in the parks with the exception of authorised horse riding and authorised companion animals, such as guide dogs.

Actions

- A program of priority control of introduced plants and animals will be implemented as set out in the Blue Mountains and Central Coast–Hunter Range Regions' Pest Management Strategies.
- The NPWS will continue to monitor Brush-tailed Rock Wallaby populations in the parks under the Fox Threat Abatement Plan, and implement as a high priority fox, wild dog and feral cat control programs in liaison with neighbours.
- The NPWS will prepare a Wild Dog Management Plan that will include Yengo NP and Parr SCA in conjunction with relevant Rural Lands Protection Boards.
- Control of cattle will be undertaken in the parks.
- The NPWS will survey and control weeds in cooperation with neighbours and other authorities, in the upper catchment areas first and work downstream within single catchment areas, to eliminate reinfestation of the catchment area.
- The NPWS will survey the Macdonald River and Webbs Creek catchment areas for weed infestations and control measures will be put in place as funding allows.
- A program of strategic burning of selected areas will be considered for the exposure and control of Blackberry and other weed species populations.
- A program for priority control of weeds will be developed and implemented in accordance with the Weed Management Strategy for the Big Yango precinct.
- Monitoring of weed control activities will be undertaken through the mapping of weeds and their densities every two years within the Big Yango precinct.
- Ornamental plant species near to the Big Yango homestead which are identified as being of cultural significance will be maintained to preserve the site's European heritage. Any that spread from their original locations will be removed.

4.1.5 Fire Management

Under the *Rural Fires Act 1997* the NPWS is recognised, along with the Rural Fire Service, State Forests of NSW and the NSW Fire Brigades, as a fire authority. The NPWS therefore has shared responsibilities for the co-ordination of bushfire suppression, mitigation and prevention activities in accordance with the principles of ecologically sustainable development within rural fire districts. The NPWS, as a land manager, also has a statutory obligation to prevent the occurrence of wildfire and to minimise the spread of wildfires within the parks. The NPWS works closely with the Rural Fire Service and district bush fire management committees in this regard.

Wildfire within the parks is most severe during late spring and summer, when dry north-west and westerly winds may influence fire behaviour. Later in the fire season thunderstorms with associated lightning strikes tend to be the main fire ignition source. Multiple fires often occur in spring and summer, and may be beyond the resources of any one fire authority to control. The NPWS fire policy therefore emphasises a cooperative approach to fire management.

Since Yengo National Park and Parr State Conservation Area were established in 1988, fire management by the NPWS has involved the implementation of wildfire suppression, mitigation and prevention strategies on both parks.

A bushfire database has been established for the parks. Records for Yengo National Park and Parr State Conservation Area date back to 1975. A total of 187 unplanned fires have been recorded in Yengo National Park and 47 unplanned fires in Parr State Conservation Area since 1975. A history of large events within these two parks gives an indication as to the high bushfire danger potential. Unplanned fires within the parks have shown to burn very large areas including 111,400ha in the 2002/03 fire season, 41,300ha in the 2001/2002 fire season, 43,502ha in the 1997/1998 fire season and 113,726ha in the 1993/1994 fire season. NPWS fire records indicate that escaped burns from surrounding properties, rather than lightning strikes, represents the main cause of wildfires within the parks.

The NPWS undertakes a range of cooperative and consultative fire planning processes as a key aspect of meeting its objectives. The preparation of operational and bush fire risk management plans are required under section 52(1) of the *Rural Fires Act 1997*, and the NPWS contributes to these processes through local bush fire management committees. The Yengo/Parr/Dharug Fire Management Plan (2003) provides guidelines for the management of fire in the parks.

The NPWS also plays a major role in the preparation of community fire plans in conjunction with communities in the Macdonald Valley, and other fire authorities.

Protection of Life and Property

The parks contain a system of east-west trails which assist in the management of fire. These include the Old Settlers, Yango/Howes, Womerah and Wheelbarrow Ridge trails. These trails were constructed to provide access to properties and settlements. Natural control lines, such as streams, are largely ephemeral and in dry periods are often ineffective as natural fire boundaries except along wide sandy creek beds or in dense rainforest gullies.

The NPWS regards cooperative fire management as essential for both the protection of property and natural and cultural heritage. An important part of NPWS responsibility under the *Rural Fires Act 1997* is participation on District Bush Fire Management Committees, and in the preparation of cooperative plans.

Bush fire suppression operations may require the construction of temporary trails, helipads and fire lines that will be closed and rehabilitated as part of post-fire operations.

The NPWS has access to several automated weather observation stations adjoining the parks, primarily for fire management purposes.

The Big Yango homestead and associated infrastructure is an asset within the Big Yango precinct that may be jeopardised by wildfire. Within the disturbed valley floor areas of Big Yango, fire will be used as a management tool to assist in asset protection and in weed control.

Maintenance of Species Habitat and Biodiversity

Bushfire regimes are a major determinant of the distribution and abundance of plants and animals in the reserves. They also affect nutrient cycles, erosion patterns and hydrological regimes. High frequency fire, resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition, has been recognised as a key threatening process under the *Threatened Species Conservation Act, 1995*. Ecological research suggests the following requirements for biodiversity conservation:

- variability of fire intervals and area burnt is important to conserve floristic diversity and provide diversity of habitat for animals; fire at regular intervals will lead to loss of species;
- most plant species and communities require infrequent fires of moderate to high intensity to achieve regeneration but patchy burns are better for fauna as they retain shelter and food;
- fires during the breeding season are the most damaging to fauna because of direct killing of young and increased exposure to predators;
- a fire frequency of between 8 and 30 years is generally appropriate for the reserves' vegetation communities; species decline is predicted if successive fires occur less than 8 years apart.

The fire management policies and procedures of the National Parks and Wildlife Service are contained in the NPWS Fire Management Manual.

Fire management within the parks has main objectives:

- Protect life, property and community assets from the adverse impacts of fire;
- Develop and implement cooperative and coordinated fire management fire management arrangements with other fire authorities, reserve neighbours and the community;
- Manage fire regimes within reserves to maintain and enhance biodiversity;
- Protect Aboriginal sites, historic places and culturally significant features from damage by fire; and
- Assist other fire agencies, land management authorities and landholders in developing fire management practices to conserve biodiversity and cultural heritage across the landscape.

Prevention and suppression strategies will, where possible, be pre-planned and coordinated with neighbours and other agencies. The NPWS will undertake fire prevention programs, through public education, local supervision and enforcement of the Acts and Regulations applying to fires.

Policies

- Liaison will be maintained and cooperative strategies developed with the Rural Fire Service, State Forests, local government and neighbours to ensure co-ordination in fire management in the parks and on adjoining lands.
- Preference will be given to fire suppression methods which have least adverse environmental impact.
- Priority in all fire management will be given to areas of the parks adjoining assets where there is potentially a high fire risk.
- All public vehicle access and management trails will be used for fire management purposes where necessary and emergency authorities will have access to these trails.
- Research will be encouraged into fire behaviour in the local area and the effects of fire on plant and animal communities.
- The NPWS will continue to play a major role in fire planning in accordance with the *Rural Fires Act 1997*, through membership on district bush fire management committees.
- The co-operation of all relevant authorities, neighbours and visitors will be sought in reducing the risk of unplanned fires.
- The NPWS will continue to upgrade its firefighting capability and upgrade its equipment and technologies.
- The NPWS will continue to maintain and update fire history data for the parks for incorporation into fire management planning.
- During periods of fire danger, appropriate risk management strategies such as fire bans and park closures will be implemented.
- Risk management will be conducted in accordance with the approved bush fire risk management plans and the reserve fire management plan.
- Any new trails or other works will need an amendment to this plan.

Actions

- A Reserve Fire Management Strategy will be prepared for the parks, which will be made available for public comments, and will when adopted replace the current Fire Plan.
- An annual hazard reduction program will be submitted in accordance with the reserve fire management plan / strategy to relevant district bush fire management

- The NPWS will regularly review existing fire trails within the parks in conjunction with the Rural Fire Service and district bushfire management committees as part of the bush fire risk management plan process and any unnecessary trails will be closed and rehabilitated.
- Farm dams within the Big Yango precinct will be mapped and assessed for their fire management value, and those not required will not be maintained.
- Identified trails shown in Table 3 will be maintained for the strategic control of fire and protection of assets within the parks (see Table 3 and Figures 2-4).
- A program of mechanical slashing and hazard reduction burning will be implemented in accordance with the reserve fire management plan / strategy to maintain a fuel reduced zone surrounding the Big Yango homestead and associated infrastructure.

4.1.6 Wilderness

As part of the Comprehensive Regional Assessment (CRA) process the NPWS conducted a wilderness assessment of the parks and, as a result, an area of approximately 134,000ha within Yengo National Park has been recommended for formal declaration as wilderness (see Figure 2). The wilderness excludes Mt Yengo and the Big Yango precinct and Finchley Aboriginal Area. An area may be identified as wilderness under Section 61 the *Wilderness Act 1987* if:

- the area is, together with its plants and animal communities, in a state that has not been substantially modified by humans and their works or is capable of being restored to such a state;
- the area is of sufficient size to make its maintenance in such a state feasible:
and
- the area is capable of providing opportunities for solitude and appropriate self-reliant recreation.

Much of the parks have had minimal disturbance except for limited areas of logging and grazing. The rugged landscape, low-nutrient soils and dry climate of most of the area precluded its use for settlement or primary industry.

In recent times, disturbance within the parks has mainly been associated with roads and reserve boundaries. Disturbance is mainly in the form of illegal activities such as arson, bush rock theft, rubbish dumping and weed invasion.

Policies

- Until such time a decision is made about the declaration of any wilderness within the parks, the Provisionally Identified Wilderness Area (PIWA) within the parks will be managed so as to protect any wilderness values. No new roads or facilities will be established in the PIWA. No existing roads or facilities will be upgraded in the PIWA except where works are essential for the protection of natural or cultural heritage or public safety and there is no feasible alternative.
- Roads currently open to the public within the Provisionally Identified Wilderness Area will be maintained at a basic standard and at current use levels until the assessment process is completed and a decision is made about future use.
- Areas of the parks identified as having wilderness qualities will be managed in accordance with section 9 of the *Wilderness Act 1987* 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 recreation.
- Vehicular access routes within any declared wilderness will be rehabilitated except where required for essential management purposes subject to the policies below.
- Vehicular access within any declared wilderness will only be provided under the following circumstances and will be subject to the prior consent of the NPWS Regional Manager:
 - Access to inholdings where a consent was granted prior to the area being declared wilderness;
 - Access to cultural sites (eg Aboriginal graves) may be permitted under special circumstances and particularly where the activity can be linked to essential management requirements;
 - Access may be permitted for emergency management purposes such as wildfire suppression and search and rescue operations; and
 - Access may be provided for the undertaking of essential park management programs aimed at protecting the wilderness condition (eg wildlife management or pest species control programs, infrastructure maintenance, prescribed burning programs) or for protecting and conserving important cultural sites.
- Temporary tracks and trails created for management purposes (eg wildfire suppression) within any declared wilderness will be actively rehabilitated using local plant and soil materials.
- Pedestrian access to the whole or part of any declared wilderness may be temporarily restricted if visitor use or certain activities are causing unacceptable impacts.

- Group recreational use within any declared wilderness will be restricted to a maximum of 8 persons per group.
- Walking tracks and routes within any declared wilderness will be allowed to overgrow unless required for essential park management and will not be signposted or described in detail in NPWS track notes or other NPWS publications.
- The co-operation of authors of track notes and other publications referring to any declared wilderness area within the parks will be sought to ensure recreational impacts on the wilderness are minimised.
- Recreational use of wilderness will be restricted to those activities which are self-reliant and of minimal impact. Permitted activities will be defined by NPWS policy where not specified in this plan.
- Structures will not be permitted within any declared wilderness (unless for essential wilderness management purposes) and will be removed subject to an assessment of their conservation significance and subject to the provisions of a conservation plan.
- Priority will be given to park protection and species conservation programs within any declared wilderness.
- NPWS will seek the co-operation of the owners of park inholdings and of park neighbours within or adjoining any declared wilderness, to ensure that the wilderness condition of the park is protected to the maximum extent possible.
- Freehold and leasehold Crown lands within any identified wilderness area will not be declared as wilderness without the consent of the landholder.

Actions

- Public awareness of the appropriate use of wilderness areas will be promoted.
- Declared wilderness boundaries will be signposted on tracks and trails and other areas where appropriate to highlight their location.
- NPWS will seek the co-operation of the flight industry, the Civil Aviation Authority and the Department of Defence to minimise the impacts of aircraft use over any declared wilderness area and as a possible extension of the "Fly Neighbourly" program.
- A brochure will be prepared which identifies the boundaries of any declared wilderness and which contains a minimal impact code of conduct for recreational activities within the wilderness. The information will seek to encourage visitors to use fuel stoves and to remove all waste.

- NPWS will condition consents issued for activities within any declared wilderness to minimise impact and user conflicts and to ensure consistency with the policies within this section of the plan.
- NPWS will incorporate details on the location of any declared wilderness and management policies that apply to it into new or revised interpretation and public information displays and programs.
- A program of track and trail closure and removal of unwanted management structures from any declared wilderness will be prepared and implemented subject to the policies within this plan.
- Trails within wilderness areas not required for wilderness management purposes will be closed and rehabilitated.
- NPWS will identify acquisition priorities for freehold properties within any declared wilderness area and seek to negotiate purchase with landholders as funds become available.
- NPWS will seek to negotiate voluntary conservation agreements or wilderness protection agreements as appropriate, with the owners of park inholdings and park neighbours within any identified wilderness area.

4.2 CULTURAL HERITAGE

4.2.1 Aboriginal Heritage

Aboriginal people have a long history of settlement in the area. Archaeological excavation of two shelter sites within the Big Yango precinct has indicated occupation dating back approximately 6,000 years before present (Macdonald, 1985). The Macdonald River area was part of the territory of the Darkinjung people, while the northern portion of Yengo National Park was part of the territory of the Wonaruah people.

The Hawkesbury Sandstone area is particularly rich in Aboriginal sites and the parks conserve an important sample of these. There are currently 648 Aboriginal sites recorded within the boundaries of the parks and on nearby lands. Because of the remote and rugged nature of the terrain and the fact that it has not been systematically surveyed, there are certain to be more sites than those presently recorded.

The large number and wide range of Aboriginal sites recorded in the parks provide valuable insights into past lifestyles, traditions and inter-actions with the environment.

The landscape is a significant part of Aboriginal culture. A prominent feature of this landscape is Mt Yengo, which is sacred site to the local Aboriginal community. Mt Yengo is a mesa (flat-topped mountain) located in the north-west section of Yengo

National Park. The site has well-documented ethnographic and cultural significance to Aboriginal society.

The Aboriginal 'Dreamtime' story recounts the departure of the ancestral being, Biamie, from the top of the mountain into the sky when he had finished his creative tasks in the Dreamtime. For this reason Mt Yengo is believed to be the focus of many other Aboriginal sites in the region, such as rock engravings including sets of footprints aligning with Mt Yengo. Many of the Aboriginal sites in the area demonstrate cultural variations in the design of the rock engravings, which may in turn represent different Aboriginal groups and patterns of Aboriginal land use.

Burrigurra (Devil's Rock) is a significant Aboriginal engraving site within Yengo National Park. It appears to be directly related to Mt Yengo and is thought to bestow information about Aboriginal family kinship. Finchley Aboriginal Area also contains significant Aboriginal engravings which are believed to indicate a tribal boundary. Both engraving sites are easily accessible and, as a result, vandalism has occurred to both sites in the form of vehicle damage and by the practice of tracing / drawing over the engravings to highlight them. Liaison with the Local Aboriginal Land Councils to protect these sites has led to the construction of vehicle barriers at Burrigurra, Finchley, and at the Frying Pan Rock site. Finchley will be the main focus of interpretation programs. The major educational significance of the sites relates, in part, to their relatively close proximity to major urban centres such as Sydney, Newcastle and the Central Coast.

A number of Aboriginal community groups, including the Darkinjung, Koombahtoo, Mindaribba, Wanaruah and Awabakal Local Aboriginal Land Councils, have a strong interest in the management of sites in the parks. The NPWS is liaising with these communities on a range of site management issues. Early in 2003 the Central Coast Hunter Range Region Aboriginal Co-management Committee was formed to improve liaison with the Aboriginal community and to assist with the management of Aboriginal sites and issues within the region.

Policies

- The NPWS will liaise with the Central Coast Hunter Range Region Aboriginal Co-management Committee to involve the Aboriginal community in the management of Aboriginal heritage, including site interpretation, significance assessment, and conservation planning, protection and promotion.
- Visitor impacts on Aboriginal sites within the parks will be closely monitored and site protection works undertaken where necessary.
- Information to be provided to the public will discourage bushwalking to the summit of Mt Yengo due to the site's cultural significance and also state that the summit has poor visibility and the best views are obtained from the lookout and the Yango Walk.
- Non-destructive research in locating new sites or assisting site conservation will be encouraged in the parks.

- Conservation plans for cultural heritage sites will be prepared as required.
- The NPWS will support the Local Aboriginal Land Councils and Aboriginal community groups in the preservation, continuance and promotion of their cultural lore.
- Preference will be given to Local Aboriginal Land Councils and Aboriginal community groups to undertake interpretation of Aboriginal sites and culture.
- Interpretive signs and material referring to Aboriginal culture will only be erected or made available to the public in consultation and agreement with the Central Coast Hunter Range Region Aboriginal Co-management Committee.
- With approval from the Regional Manager, certain trails and or areas within the parks may be closed for short periods for special cultural activities to be carried out by the local Aboriginal community.

Actions

- The NPWS will liaise with the Aboriginal community through the Central Coast Hunter Range Region Aboriginal Co-management Committee, to assist in the management of Aboriginal cultural heritage issues in the parks.
- A strategy and on-going program of surveying and recording Aboriginal sites, including assessments of significance, and oral histories will be developed by NPWS staff in conjunction with local Aboriginal communities.
- A regular program of monitoring impacts at Aboriginal sites which are well known to the public will be developed in conjunction with local Aboriginal communities.
- The Burragurra Aboriginal site walking track will be repaired and erosion control measures implemented.
- The NPWS will prepare guidelines with various Local Aboriginal Land Councils and the Aboriginal community concerning the use and management of traditional and newly created Aboriginal sites for cultural practices.
- In agreement with the Central Coast Hunter Range Region Aboriginal Co-management Committee, an Aboriginal heritage interpretation strategy will be prepared that will include strategies for interpretation of the Finchley and Big Yango Aboriginal sites.
- Interpretive signs will be maintained at Finchley Aboriginal Area to educate park users of the significance of the site and how to assist in site conservation.
- Access onto Mt Yengo via those trails known as the “Yango Walk” will be gated and regulatory signs erected to prevent unauthorised access onto the mountain.

- Information will be provided to the public to discourage bushwalking to the summit of Mt Yengo due to the site's cultural significance.

4.2.2 Historic Heritage

The parks contain one of the earliest European attempts to settle and explore eastern Australia. Early transport routes ran south to north between the settlements of Sydney and the Hunter Valley. The Old Great North Road (OGNR) runs along and adjacent to the eastern boundary of Yengo National Park and provides some of the best examples in Australia of convict built road engineering. The most significant engineering features of this road exist within Dharug National Park, which adjoins Yengo National Park along its south-east boundary. A Conservation Plan has been prepared for the OGNR which also covers that part of the road which is within Yengo National Park, including Shepherds Gully (Griffin, 2005).

One section of the OGNR, referred to as the Bucketty Wall, occurs immediately outside Yengo National Park. The wall is located at the corner of George Downes Drive and Mogo Creek Road and is another significant engineering feature. This wall has been well cared for by the efforts of the local community and volunteers of the 'Convict Trail Committee'. The local community utilises part of Yengo National Park occasionally for concert nights to raise money for community projects. The NPWS has developed a memorandum of understanding (MOU) with the Bucketty community for the use of this site.

Other features of particular historic interest along the OGNR which exist within Yengo National Park or lie on the boundary are Circuit Flat Bridge, Hungry Flat and Frog Hollow.

An earlier route between Richmond and Wallis Plains was opened in March 1823. This road is therefore eight years older than the OGNR. It lies largely to the west of the parks near or on the present route of the Putty Road. The original descent of this western route from the Culoul Range to Mellong Creek lies within Parr State Conservation Area. Another section of this route, the Old Bulga Trail, is within Yengo National Park and runs north from Howes Valley towards Bulga in the Hunter Valley.

Shepherds Gully Road, which was recently added to Yengo NP, was an alternative road leading from Central Macdonald to the top of Devines Hill on the OGNR. Three road alignments can be seen along this section of road, the Original Line, Sternbecks Gully Road and the road referred to as Shepherds Gully Road. Shepherds Gully was the main access onto the OGNR when Devines Hill was closed for historic conservation and presently is in a state of disrepair. A Remedial Engineering Works Report was prepared for the three combined roads at Shepherds Gully in 2001. The NPWS will work with the community and seek funding to restore Shepherds Gully to a management trail standard and provide an interpretive circuit walk.

The "Old Settlers Road" which runs east to west in the northern section of the park links Howes Valley with the Wollombi District and Yengo National Park now almost

totally surrounds it. Historic stone embankments and pavements along the route of this road are still obvious. This road is a Crown road built by the original European settlers of the area.

The rugged nature of the area and lack of standing water and rapid run-off of rainfall meant that settlement and land use has been largely restricted to the valleys. The fertile valleys of the Macdonald River, Webbs Creek and Wollombi Brook were settled and cleared early in the 19th Century. From these areas, settlers ventured out and cleared most of the remaining valleys that showed any agricultural potential. However it is estimated that only about five percent of the Macdonald River catchment has ever been cleared (Prineas 1997). Much of the rugged country between the valleys was subject to rough grazing for cattle, linked with frequent burning to induce green feed.

The area was gazetted as Yengo National Park and Parr State Conservation Area in 1988. Cattle grazing within these two parks on permissive occupancies has been phased out, though grazing still exists on some freehold in-holdings.

Big Yango was first settled by John White in 1851, and over the years the area has been used for breeding cattle, horses, training racehorses, timber getting and more recently conservation. In 1988 Yengo National Park was declared around "Big Yango", and in September 2000 Big Yango was purchased by the NPWS for addition to Yengo National Park.

Policies

- The provisions of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (ie Burra Charter), the Regional Cultural Heritage Strategy and the conservation management plan for the Big Yango precinct (when prepared) will guide management decisions for historic and cultural places within the area.
- All known cultural heritage places will be recorded and an assessment made of each site's significance and threats to its long-term conservation.
- Care will be taken to ensure that historic roads are conserved.
- Non-destructive research for the purpose of locating new sites or assisting site conservation will be encouraged.
- The Bucketty Wall is a modified natural area and may be licensed for educational programs, functions and cultural activities.
- Visitation to historic places will be monitored and use regulated when necessary.

Actions

- Interpretation of historic features in the parks will be undertaken through NPWS Discovery tours and by the provision of interpretive display boards (see Section 4.3.1).
- NPWS will liaise and assist the Convict Trail Committee in providing interpretation and implementing works programs along the OGNR.
- NPWS will seek funding and implement strategies outlined in the OGNR Conservation Plan and Remedial Engineering Works Report for Shepherds Gully.
- A conservation management plan will be prepared for the Big Yango precinct which will record structures and assess its value as a cultural landscape.
- Subject to the conservation plan:
 - those fences shown to be a threat to public safety will have the wire removed.
 - vegetation will be removed from within and around cattle yards outside the proposed wilderness area to protect these historic assets from fire.
 - feed holders will be maintained in near proximity to the Big Yango homestead, those elsewhere will not be actively maintained.
 - all non-spreading exotic trees in proximity to the Big Yango homestead and which are part of the garden landscape will be retained.
- Machinery operators will be advised of the need for care to ensure they do not damage stone retaining walls on historic roads and trails when undertaking maintenance.
- Oral history of the Big Yango area will be gathered through liaison with the previous owners of the property and their family and friends.

4.3 USE OF THE AREA

The major categories of use that may be appropriate are:

- community relations, promotion of natural and cultural heritage both conservation and environmental and cultural history education;
- recreation in a natural setting
- scientific research; and
- conservation and recreation management operations by the NPWS and other authorities with statutory responsibilities in the area.

The extent to which these categories of use are appropriate are indicated in the following sections of the plan.

4.3.1 Community Relations, Education & Interpretation

The NPWS is actively seeking to improve community relations with the local community and stakeholders. It presently liaises with the local community and major stakeholders through neighbour newsletters, giving talks and slide shows, media, participating in major field days and by being active in Landcare and by being members of catchment management and bush fire management committees.

The parks are promoted in a NPWS statewide guide to national parks, as well as a variety of commercially produced travel and park guides. NPWS also produces a small park brochure for the parks, which briefly explains their natural values, history and the recreational opportunities. This brochure is available through the NPWS regional office, other NPWS information outlets and various local tourist information outlets. A small amount of information on the parks is also available on the NPWS web site.

Educational tours are organised within the parks as part of the NPWS Discovery program. Interpretive display signs are provided and maintained at main entry and activity locations, such as Mogo Camping Area and Finchley Trig Lookout. Wollemi, Dharug, Popran and Blue Mountains National Parks are also promoted in roadside displays, where appropriate, to emphasise a regional perspective of the conservation areas of the Sydney Basin.

Previous owners of Big Yango, including the Bowen and Walker families, have an interest in the management of this area. A "Friends of Big Yango" volunteer group is to be established which will assist the NPWS in managing specific issues on Big Yango.

The Big Yango Area has a significant Aboriginal heritage and consequently the Aboriginal community will be involved in the management of the area and provision of interpretation and education of the public in cultural aspects of the area.

Policies

- The NPWS will continue to seek opportunities to improve working relationships with neighbours and will encourage community input into park management.
- The major interpretive themes for Yengo National Park and Parr State Conservation Area will be:
 - the importance of the parks in the conservation system of the Sydney Basin;
 - appreciation of wilderness and world heritage values;
 - the appropriate recreational use of the parks; and
 - the importance and purpose of management programs in natural and cultural heritage conservation.

- The major interpretive theme for Finchley Aboriginal Area will be Aboriginal cultural heritage and its protection.
- Emphasis will be given to promoting management programs with neighbours on common peripheral boundaries.

Actions

- A Regional Community Relations Strategy will be prepared.
- Neighbour issues will be sought through postage-paid surveys.
- Major field days will be attended by staff to promote the role of the NPWS.
- Interpretive displays will be provided and maintained at main entry points and destinations including: NPWS Bucketty depot, Bucketty Wall, Big Yango precinct, Mogo and Finchley camping areas, Finchley Lookout, Circuit Flat Bridge, Shepherds Gully, NPWS Hunter Range Area office at Bulga, Half Way House on Putty Road, Wollombi and St Albans townships.
- The NPWS will continue to liaise with the Aboriginal community regarding the management of the parks, including the provision of interpretive displays at Finchley Aboriginal Area, Finchley Lookout and in Big Yango precinct.
- Brochures will be developed promoting selected natural and cultural features in the parks and covering a range of management issues, vehicle use, minimum impact bushwalking and fire management.
- A visitor map similar to the tourist map of Wollemi National Park will be produced to assist visitors touring the parks with public access routes, visitor facilities and points of interest.
- The NPWS will produce a Big Yango brochure and permit application. The brochure and permit will include conditions of use of the Big Yango area.
- Brochures will be distributed from tourist information outlets, user group organisations and NPWS offices and centrally located shops tourists often visit.
- Regional staff will actively seek the upgrading of the NPWS web site to include maps on the parks.
- The NPWS will keep neighbours and user groups informed of conservation heritage, recreation and management issues as they relate to the parks through the media, displays, field days and newsletters.
- The NPWS will seek to engage neighbours and key stakeholder groups through volunteer programs that aim to conserve or restore the natural integrity of the parks.

- A Friends of Big Yango group will be established and members will be kept informed on the management of the area and what activities / tasks are planned. This group will be registered as a NPWS volunteer group.
- The NPWS will liaise and co-operatively manage cultural heritage issues with the Aboriginal community.

4.3.2 Recreation Opportunities

Recreational use of the parks has not changed significantly over the years, with vehicle touring and bushwalking being the main activities. Horse riding is popular, particularly in the southern section of Yengo National Park and in Parr State Conservation Area.

Other forms of recreational use include picnicking, camping, bird watching, photography, nature study and mountain bike riding. Over recent years, mountain bike riding has become increasingly popular along the Old Great North Road and management trails in the southern parts of the parks.

The boundaries of Yengo National Park and Parr State Conservation Area are readily accessible by two-wheel drive vehicles. Day trips, particularly by recreational vehicles from Sydney, Central Coast or Newcastle, is the most common use of the northern section of Yengo National Park, with the Howes Trail and Old Settlers Road being most popular.

Trail bike riding is popular as the parks offer easy access to remote trails from Sydney. Unauthorised use of closed trails by trail bikes and also the use of NPWS access trails by unregistered bikes is a growing concern.

Vehicle-based camping facilities are provided at Mogo and Finchley camping areas, and at Blue Gum and Mountain Arm camping areas in the Big Yango precinct. For bushwalkers and mountain bike riders, camping areas are provided at Heartbreak Hill along the Womerah Range Track and adjacent to Yengo National Park along the Old Great North Road (OGNR) at Ten-Mile Hollow (Dharug National Park). Overnight camping is permissible along the OGNR for walkers travelling between Ten-Mile Hollow and Mogo camping area. Picnic facilities are provided at Finchley, Mogo camping area, Bucketty Wall and Little Mogo. Toilet facilities are provided at Finchley, Little Mogo, Heartbreak Hill, Pierces Valley and in the Big Yango precinct.

Big Yango provides opportunities for homestead stays, bushwalking, horse riding and cycling, as well as for vehicle-based camping, in close proximity to vast unspoilt areas and only a few hours away from two major metropolitan areas, Sydney and Newcastle.

Some commercial recreational and environmental education opportunities eg eco-tourism, may be appropriate in the parks provided such operators are licensed, promote conservation practices and values, avoid environmentally sensitive areas and pay applicable use fees.

Policies

- Low key camping and picnicking areas may be provided along the public vehicle access system subject to visitor demand and environmental and financial impact assessment (refer actions below).
- Recreational use of the area will be regulated so as to minimise user conflict, protect visitor safety and welfare, minimise nuisance to neighbours and protect the natural and cultural heritage values of the park.
- Sections of the parks which show unacceptable environmental damage may be temporarily closed for repairs or permanently closed and rehabilitated.
- The NPWS may require special conditions to be imposed on recreational use of the park during periods of extreme fire danger or in the event of bush fires.
- Consent from the Regional Manager will be required for the following activities:
 - military exercises;
 - competitive activities; and
 - organised group activities (>20 persons).
- All commercial operators will be licensed and their activities monitored.
- Precinct plans will be prepared where necessary to guide the management of popular visitor areas or potential visitor areas.
- Assistance animals are permitted everywhere in the parks in accordance with the *Disability Discrimination Act 1992*.

Actions

- Two vehicle-based camp grounds with basic facilities, including composting toilet and communal fire rings, will be provided in the Big Yango area, with a third constructed if visitor use so warrants. Locations of these proposed camp grounds are indicated on Figure 4. The two camp grounds will be named Blue Gums and Mountain Arm. Construction of a third camping area will require an amendment to this plan.
- The Big Yango homestead and the associated Haddens Hall cabin will be maintained to accommodate visitors (refer section 4.3.8).

4.3.3 Public Vehicle Access

The park road system is one of the major determinants of recreation opportunities in a national park or state conservation area. It is the primary means whereby most visitors reach features of interest. The growing popularity of recreational four-wheel drive vehicles and trail-bikes, has led to increased use of remote areas. In the Hawkesbury and southern Hunter region, this new pattern of recreation has focussed on the area of Yengo National Park and Parr State Conservation Area.

A good public road system surrounds the parks, consisting of the Putty Road to the west, the Great Northern and Bucketty-Wollombi-Broke Road to the east, and the Wheelbarrow Ridge Road to the south. The public access system within the parks comprises the Mogo, Boree, Yango / Howes and Old Settlers trails. A number of other roads provide access to public utilities and private inholdings. Many of these roads and trails are private or are Crown roads excluded from Yengo National Park and Parr State Conservation Area.

The Old Settlers Road is a gazetted public road running from Paynes Crossing in the east through to the Putty Road and Howes Valley in the west. NPWS maintains this road where it passes through Yengo National Park, and will continue to do so to provide for public vehicle access. Access to the Old Settlers Road is from the Putty Road end. There is currently no access through private property at the Paynes Crossing. NPWS will continue to liaise with property owners and the local Council in regard to this road.

There are many tracks in Yengo National Park and Parr State Conservation Area which were established essentially for the purpose of extraction of timber. These tracks have no legal status and detract from the natural values and are often sites for illegal activities such as car and rubbish dumping, theft of bushrock and wildflowers and arson.

The southern sections of the parks near Colo Heights and the Putty Road have seen a large increase in recreational vehicle use in recent years. Illegal access along closed trails is a problem, particularly by unregistered trail bikes and by a small minority of four-wheel drivers with modified vehicles looking for extremely rough terrain. This targeting of rough terrain has led not only to utilising closed trails but to constructing their own trails, with a focus on steep slopes which are highly prone to erosion.

Public vehicle access into the Big Yango area is by permit and key only, along a system of trails that primarily follow the valley floors as shown on the attached maps. It is possible to gain access to the homestead by conventional vehicles with care, though the rest of the trails are generally only suitable for four-wheel drive vehicles. Motor cycles and trail bikes, unlike other forms of motor vehicle use, would destroy the ambience of the site and will therefore be directed to public access roads and trails outside the precinct.

Big Yango precinct information brochures and access permit will include general information on the area including a map, general conditions of use, and etiquette to

be followed while visiting the area. Visitors will be actively encouraged to assist in the management of the area by providing feedback and reporting any incidents.

Policies

- The vehicle access and management trail system is shown on Figures 2, 3 and 4. Table 3 shows the access approved for those particular roads and trails. Other roads and trails not part of this system will be assessed for management purposes and if not required will be closed and rehabilitated.
- The following have been identified as two-wheel drive public vehicle access routes (maintenance authority in brackets):
 - Putty Road (RTA)
 - Mogo Creek Road between St Albans and George Downs Drive (Council)
 - Webbs Creek Mountain Road (Council)
 - The Bicentennial Road (Council)
 - Wheelbarrow Ridge Track (NPWS)
 - Wheelbarrow Ridge Road (Council)
 - The loop network of Boree Track (north of Boree Valley), Yango Track, Finchley Track and Yango Creek Road to George Downs Drive (Council / Department of Lands)
 - The Boree Valley and Wallabadah access tracks (Council/ Lands)
 - The Yango Track to Big Yango Homestead (Council / Lands to Werong Creek turnoff, then NPWS to homestead).
- Where these routes are outside park boundaries co-operation will be sought from local councils, adjoining landowners and other relevant management agencies to maintain these routes to two-wheel drive standards.
- The Old Settlers Road (public access is available to the western section only), Womerah Range and Howes Trails will be maintained to a suitable four-wheel drive standard.
- Management of access to the Big Yango Precinct will be via an access permit system. Visitors will be issued with a security key after payment of a security bond, which will be returned after the key is returned.
- Big Yango access permits will be available on application from the Yango Area or Regional Office at Gosford and may be issued subject to weather, safety and impact considerations.
- Due to the narrow construction of the Big Yango Loop Trail, the majority of this trail will be one way only. The section of this trail on the western side of Mt Yengo from the Yokey Trail junction through to Mountain Arm will be one way traffic, to ensure the safety of visitors and to reduce vehicle impacts on the trail.
- No new public access roads will be constructed during the life of this plan. Relocation of an existing road may be undertaken if required for environmental or public safety reasons.

- Pending approval from the RTA and local councils where appropriate, the NPWS may temporarily close the public vehicle access system during high fire danger periods, adverse weather conditions or local emergencies.
- NPWS managed public vehicular access trails within the parks will be managed to an appropriate trafficable condition and will be clearly sign posted including symbol signs showing the type of access approved for the particular trail.
- Recreational vehicles will be expected to follow minimal impact driving codes within the parks.

Actions

- The Bala Range Trail will be gated near the park boundary at the western end of “New Place”.
- The NPWS will negotiate with the relevant councils and landowners regarding the management of the Old Settlers Road, Howes Trail and Yango Trail to prevent illegal access to private property and damage to these roads irrespective of tenure, particularly during wet weather.
- Clear park identification and vehicle directional signage will be provided along park entrance and public access roads.
- The one way designated sections of the Big Yango Loop will be indicated in the Big Yango brochure and signposted if required.
- Impacts on Big Yango tracks and trails will be monitored through the access permit system and through visitor surveys and field observations.
- The NPWS will implement measures to curtail the unauthorised use of tracks and trails by increasing ranger patrols in trouble spots, erecting regulatory sign posting and by the placement of gates at strategic locations.

Table 3: Trails within and directly adjoining Yengo NP & Parr SCA and their access.

Trail Name	Authority	Public Access (2WD)	Public Access (4WD)	Horse Riding	Cycling	Walking	NPWS Management	Private Access	Notes
Bala Range Trail	C,NPWS					■	■	■	Access to private property then enters wilderness
Bakers Creek Trail	P, NPWS			■			■		Access through private property - consent required
Boyds Trail	P, NPWS			■			■		Access through private property - consent required
Browns Road (Sullivans Arm)	NPWS			■	■	■	■		Access through private property - consent required
Burragurra Walking Track	NPWS					■	■		Walkers only
Blue Door Trail	C				■	■	■		Gosford City Council requires consent
Blue Hills Trail	P,NPWS			■			■	■	Requires consent for horse riding
Boree Track	C					■	■	■	Locked Gate. No vehicle access to St Albans.
Circuit Flat Bridge Walking Track	NPWS					■	■		Walkers only
Derwents Trail	P, NPWS			■			■		Access through private property - consent required
Doyles Hollow Trail	P,NPWS						■		Locked Gate
Eight Mile Trail	NPWS			■		■	■		Access through private property - consent required
Grono Trail	NPWS			■	■	■	■		Locked gate. Requires consent for horse riding
Howes Range Trail	NPWS					■	■		Enters Proposed Wilderness
Jacks Gully Trail	P,NPWS			■		■	■		Access through private property - consent required
Jurds Trail	P,NPWS			■			■		Access through private property - consent required
Lyndrian Trail	P,NPWS			■			■		Access through private property - consent required
Long Wellums Trail	P,NPWS			■			■		Access through private property - consent required
Left Arm Trail	NPWS					■	■	■	Access to private property only
McKechnies Trail	P,NPWS			■		■	■		Access through private property - consent required
Mellong Trail	NPWS				■	■	■		Enters proposed wilderness
Mogo Creek Rd (Wollombi Road)	C	■	■	■	■	■	■		Public Road
Mt Manning Walking Track	C,NPWS					■	■		Walkers only
Old Great North Road (Historic Road)	C,NPWS			■		■	■		Consent required for traditional trail rides only to ride between Shepherds Gully & 8 Mile Trail. Rides are limited to Mud Hut; Careflight, Shahzada & Waratah endurance events)
One Mile Ridge (Funnel Web) Trail	NPWS			■	■	■	■		Access through private property. Consent required for horse riding
Pierces Valley Trail	NPWS			■	■	■	■		Locked gate. Requires consent for horse riding
Prestons Trail	P,NPWS			■		■	■		Access through private property - consent required
Rush Creek Loop Trail	NPWS			■	■	■	■		Requires consent for horse riding
Shepherd's Gully Road	NPWS			■	■	■	■		Requires consent for horse riding
Short Wellums Trail	P,NPWS			■			■		Access through private property - consent required
Terraborra North Trail	P, NPWS					■	■	■	Access to private property only
Terraborra South (Devils Hole) Trail	NPWS					■	■		Access through private property - consent required
The Steps Trail	NPWS			■	■	■	■		Access through private property - consent required
Three Mile Trail	NPWS			■	■	■	■		Access through private property - consent required
Wallaby Swamp Trail	NPWS					■	■		Enters proposed wilderness

Trail Name	Authority	Public Access (2WD)	Public Access (4WD)	Horse Riding	Cycling	Walking	NPWS Management	Private Access	Notes
Webbs Creek Trail	NPWS, T			■	■	■	■		Requires NPWS consent for horse riding
Wheelbarrow Ridge Road	C	■	■	■	■	■	■		Public Road
Wheelbarrow Ridge Trail	NPWS	■	■	■	■	■	■		Public vehicle access (2WD standard)
Womerah Range Trail	NPWS			■	■	■	■		Controlled access - requires NPWS consent
Wrights Ck Transmission Trail	NPWS			■	■	■	■		Requires NPWS consent for organised horse riding events
Boree Link Trail	P, NPWS			■		■	■		
Boree Track (Nth)	C	■	■	■	■	■	■		2WD access to Boree Valley
Graham Trail	NPWS							■	Access is through private property into proposed wilderness
Gilli Gilli Gully Trail	NPWS					■	■		
Little Boree Trail	C			■			■	■	
Little Darkey Trail	NPWS		■		■	■	■		
Mt Simpson Trail	C		■	■	■	■	■		
North Link Trail	NPWS					■	■		Enters proposed wilderness
Old Bulga Road	C,P, NPWS		■			■	■		Historic Trail, Consent required
Old Settlers Road (Historic Trail)	C,P		■	■	■	■	■		PP western end and eastern end. Closed at eastern end. Owners permission required.
Sandy Creek Trail	NPWS					■	■		
South Link Trail	NPWS					■	■		
Stockyard Creek Trail	C						■	■	
Wallabadah Trail	C						■	■	
Werong Creek Trail	C						■	■	
Yango Creek Road	C	■	■	■	■	■	■		
Yango Track	C, NPWS	■	■	■	■	■	■		Requires consent for horse riding
Big Road Arm Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Big Yango Loop Trail	NPWS		■	■	■	■	■		Big Yango. Permit required. Horse riding from Blue Gums camp area to Yokey trail turnoff only.
Blue Gums Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Jacks Trail	NPWS					■	■		Big Yango, Permit required
Little Mountain Arm Trail	NPWS					■	■		Big Yango, Permit required
Mountain Arm Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Mt Calore Trail	NPWS					■	■		Big Yango, Permit required
Nowlands Link Trail	NPWS			■	■	■	■		Big Yango, Permit required
Nowlands Trail	NPWS			■	■	■	■		Big Yango, Permit required
Rileys Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Rascally Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Spring Arm Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Timor Creek Trail	NPWS		■	■	■	■	■		Big Yango, Permit required
Tumbledown Trail	NPWS			■	■	■	■		Big Yango, Permit required
Wollombi Arm Trail	NPWS	■	■	■	■	■	■		Big Yango, Permit required
Yango Walk Walking Track	NPWS					■	■		Big Yango, Permit required
Yokey Trail	NPWS			■	■	■	■		Big Yango, Permit required. Horseriding from Big Yango Loop Rd to Rascally Trail junction only.
Tally Ho Trail	NPWS			■	■	■	■		Big Yango, Permit required

4.3.4 Horse riding

Horse riding is a popular activity in the Colo Heights and Macdonald Valley areas. The majority of the current rides occur around the St Albans and Colo Heights township areas. This use mainly involves endurance rides by individuals or groups co-ordinated through a local network of horse riding associations, and the Australian Endurance Riders Association (AERA). Many of the events, including the Shazada and Quilty rides, attract national entrants.

Most of the horse tracks leading into the parks cross private land, with access agreements in place between the local horse riding associations and private property owners.

Big Yango has a long history with horse riding and it has been part of the environment since European settlement of the area. The only access to Big Yango until the 1950s was by horse or foot. Horse riding will continue to be permitted along a network of trails. Endurance or competitive events will not be permitted in Big Yango to ensure that use of the area is sustainable. The NPWS will also monitor use of the area through the permit system proposed for the Big Yango area.

As with other uses, horse riding does have an impact on the environment, and consequently its use will be limited to roads and management trails, and primarily those trails in the southern and south-eastern section of the parks. This network of trails, as shown on Table 3 and on Figures 2, 3 and 4, will be used for other management requirements including fire and pest management.

Policies

- All horse riding activities in the parks will require consent from the Regional Manager, and will be subject to consent preparation and event fees if relevant.
- The only horse riding activities permitted within Yengo NP and Parr SCA will be the existing annual organised endurance rides (that is: Mud Hut, Careflight, St Albans, Mactrac, Zone One, Waratah, Yengo and Shazada), and non-endurance, non-competitive recreational riding within Big Yango Precinct. No horse riding will be permitted in Finchley Aboriginal Area.
- All horse riding activities within the Big Yango Precinct will require an access permit. Competitive horse riding events will not be permitted in the Big Yango Precinct.
- Horse riding, with permits, will only be on the designated management trails within the parks as listed in Table 3. Closed tracks and trails will be encouraged to grow over or will be actively rehabilitated.
- The track and trail network will be managed for sustainable use with minimal impact. Authorised horse riding routes may be temporarily closed at any time to riders depending on trail conditions or management needs. Prior consultation on

- Regular and on-going consultation will be held with community groups and stakeholders on the management of horse riding in the reserves.

Actions

- A monitoring program will be instigated specifically to assess the effect of horse riding activities on the trail system within the parks.
- A horse riding code will be developed in association with local horse riding groups.
- The NPWS will design a horse stile in conjunction with horse riding groups to prevent illegal trail bike access along trails which are part of the horse riding trail network.
- A map showing all authorised horse riding trails will be prepared and issued to all visitors proposing to ride horses in the Big Yango precinct.

4.3.5 Cycling (Mountain Bikes)

Cycling is an increasingly popular recreational activity within the parks, especially with the expanding use of mountain bikes. Public roads and management trails provide opportunities for rides of up to two days duration. The Old Great North Road is a particularly popular trail for mountain bike riding.

Policies

- Cycling will be permitted on all public roads and management trails except in those areas where trails pass through the private property and access is prohibited. Trails closed will be signed posted as “Private Property Ahead” and symbol signs erected indicating that access is not permitted.
- The NPWS will promote minimal impact cycling within the parks and promote codes developed by groups such as the Australian Mountain Bike Association.
- Group rides (> 8 persons) and commercial cycling activities within the parks will require prior approval from the Regional Manager.
- Competitive cycling events will not be permitted in the Big Yango precinct.

Action

- The NPWS will negotiate with neighbouring property owners in reference to cyclist access along management trails passing through their property. Trails where access is not permitted will be sign posted.

4.3.6 Bushwalking

Bushwalking in the parks is not currently as popular as in adjoining national parks, though it is on the increase. Few popular routes or destinations for bushwalking have developed apart from in the vicinity of Mt Yengo, Old Great North Road and along the Macdonald River. Since the parks were declared, the level of bushwalking use has increased.

Two walking tracks used regularly are the Mogo Camping area to Circuit Flat Bridge and Burrigurra walking tracks. Both tracks require formalisation and erosion control works. The Circuit Flat Bridge Track requires upgrading due to illegal vehicle access and fire damage and clearing as a result of thick vegetation regrowth caused by fires. Burrigurra is a popular walking track and leads to an Aboriginal engraving site. Illegal vehicle access and uncontrolled water drainage has caused severe erosion along the track.

Despite the current low level of bushwalking in the parks, many opportunities exist for walking off trails and along management trails and access roads.

Shepherds Gully and Sternbecks Roads provide the opportunity for an interpreted circuit walk that is accessible from both the top of Devines Hill and the bottom of Shepherds Gully. Examples of early road engineering exist in this area and the walk would provide a well-shaded alternative to Devines Hill.

Mt Yengo is a popular destination for visitors and, like any prominent peak or land feature, attracts a lot of attention. A vehicle trail leads to a grassed clearing on the shoulder of Mt Yengo, which provides good views. No walking track continues on to the summit and the views from the summit are hindered by dense vegetation. Due to the cultural significance of Mt Yengo, walking to the summit will be discouraged.

Policies

- New walking tracks will only be constructed if:
 - relocation of an existing track is necessary to avoid or minimise environmental impact or improve public safety;
 - it will assist in the protection of natural or cultural features; and
 - it is required as part of the design of another visitor facility.
- Priorities for walking track construction and maintenance will be developed and reviewed in consultation with relevant interest groups.
- Walking tracks and routes will be promoted in brochures and displays.

Actions

- Trails and tracks will be appropriately sign posted.

- Mogo Camping Area to Circuit Flat Bridge walking track will be upgraded and maintained and will include signposting and interpretation.
- Circuit Flat Bridge to Mt Lockyer walking track will be upgraded and maintained and will include signposting and interpretation.
- Interpretation and signposting will be provided at interest points along the Old Great North Road.
- The walking track to Burragurra will be upgraded in consultation with relevant Aboriginal community groups.
- Access onto Mt Yengo via the 'Yango Walk' will be sign posted with lookout and circuit walk distances indicated.
- The NPWS will monitor impacts of bushwalkers in the vicinity of Mt Yengo, and will review access to the mountain if additional tracks are formed.
- The NPWS will assess the suitability of developing a walk in the vicinity of Finchley Camping Area and will construct this track if consistent with the above policies.
- The NPWS will investigate and construct if appropriate a circuit walking track with interpretation along Shepherds Gully Road and Sternbecks Gully Road.
- NPWS will investigate options with the Bulga/Milbrodale/Broke community in reference to developing a walking track in the Bulga/Milbrodale/Broke community area.

4.3.7 Research

Large natural areas are recognised as being essential for the continued survival of biodiversity. Yengo National Park and Parr State Conservation Area are an essential link in a system of natural areas that protects these values. Accordingly these two parks offer a wide range of research opportunities.

Little research has been carried out on the broader natural features and processes to date, although considerable notable work has been undertaken on the fluvial geomorphology of the Macdonald River catchment.

Scientific research in the parks aims to improve the NPWS understanding of the natural and cultural heritage and the processes which effect them. Research may also seek to establish the requirements for the management of particular sites or species. Where relevant, the results of research studies and surveys will be utilised in the management of the parks.

Policies

- Research institutions will be encouraged to undertake research within the parks which is of direct benefit to conservation and presentation.
- The NPWS will encourage research in the following priority areas:
 - monitoring and impact of recreational activities, including horse riding and recreational vehicles;
 - conservation strategies for threatened species;
 - comparative studies of the two parks and other major and contiguous conservation areas in the Hawkesbury, Hunter and Blue Mountains region, particularly of the World Heritage values;
 - cultural heritage;
 - effects of fire on threatened flora and fauna; and
 - ecologically acceptable techniques for the control of introduced plants and animals.

Action

- The Region will develop a prospectus as a guide to priority research projects in the parks.

4.3.8 Management Operations

Management of the parks is presently the responsibility of two NPWS Regions, the Blue Mountains and Central Coast - Hunter Range. Area depots are located at strategic points around the parks at Bucketty, Mill Creek, Colo Heights and Bulga.

The public road system previously described surrounds and provides access through the parks for both the public and for management purposes. The large numbers of access roads to inholdings, are however of limited value for park management purposes. The trails required for management operations are outlined within Map 2.

Shepherds Gully Road is required for fire management access and for access to the Old Great North Road for historic heritage conservation works, though at present this road is in a state of disrepair. This road will be upgraded in line with the Remedial Engineering Report 2001.

The NPWS has responsibility for the management of hundreds of kilometres of trails in the parks. Gravel may be brought into the parks, or excavated from existing road alignments that are not historically significant, to help maintain the roads. Imported gravel can, however, pose a threat to the parks natural integrity through the introduction of exotic materials such as weeds.

In some locations no suitable gravel source is economically available to maintain infrastructure due to the remoteness of many sites. The creation or maintenance of gravel pits on the national park or state recreation area may in some cases be the only practical alternative.

Any extraction of gravel will be limited to that required for the NPWS's own use on the parks. This activity will be undertaken only when the material is necessary to achieve approved management objectives and practices and the program of extractions is subject to an approved review of environmental factors or environmental impact statement.

For fire management purposes the collection of weather data in the form of rainfall figures, humidity and temperatures is vital for planning. Information provides a valuable planning tool to plan and predict future fire management works and also fire danger periods. Due to the remote areas in the parks without weather recording stations, it is planned to establish up to 4 automatic weather-monitoring points around the parks to improve fire management.

Volunteer groups are a valuable source of assistance for management operations. These groups get a sense of ownership of the parks and aid in the maintenance of the park infrastructure. This plan proposes to implement volunteer programs to assist in management operations, such as trail clearing, fauna and flora surveys and trail monitoring, and assist in the reporting of illegal activities.

Accommodation at Big Yango varies from the homestead and the associated Haddens Hall cabin, through to the staff quarters in the form of portable huts used for extended work programs. While the homestead and cabin will essentially be for guests they can also be utilised for management operations if required.

For security of the Big Yango infrastructure and to monitor and control access to the area a permit key access system is to be implemented. Obtaining a key to Big Yango will require visitors or contractors to provide a substantial key deposit to ensure the key is returned. Keys will be security keys that cannot be copied without approval.

Policies

- Public vehicle access will not be allowed on management trails.
- Management trails will be managed and maintained for the following management purposes:
 - fire management including prescribed burning and wildfire control and associated purposes;
 - introduced species management;
 - maintenance of cultural heritage sites;
 - search and rescue;
 - essential vehicular access for other organisations undertaking their statutory responsibilities;
 - other purposes associated with the implementation of this plan.
- Park management access routes will be sign posted and mapped and managed for essential park management, authorised property access and authorised non-vehicle based recreation.
- Park management access routes and other management facilities no longer required by the NPWS or other authorised authority will be allowed to overgrow

- The extraction of gravel will be limited to that required for the NPWS's own use on the parks. Gravel will be extracted in accordance with an approved extractions program, which will be subject to a review of environmental factors or an environmental impact statement.
- The extraction of sand, clay, rock, gravel or any like substance from new quarry sites will be prohibited, except for essential management work where no practical/prudent alternative is available such as along the Old Great North Road and where environmental impact is considered acceptable.
- Rehabilitation of borrow areas will use local soils and plants propagated from local genetic stock.
- Up to 4 remote weather stations may be established.
- Big Yango homestead and the associated Haddens Hall cabin will be managed for overnight accommodation and management purposes (emergency incident management).
- Big Yango permits will be available on application from the Yango Area or Regional office at Gosford and may be issued subject to weather, safety and impact considerations.

Actions

- The NPWS will install regulatory signage and undertake regular patrol programs in order to minimise unauthorised activities on the parks.
- NPWS staff will prepare and implement an annual program of trail maintenance and rehabilitation works consistent with the above policies.
- Shepherds Gully Road will be upgraded to a trafficable level for management purposes in line with the strategies outlined in the Shepherds Gully Road Remedial Engineering Report 2001.
- Trails where public vehicle access is restricted may be gated and/or signposted at trailheads if required.
- The NPWS will adopt best practice in the management of existing quarries used for essential management purposes.
- The NPWS will assess the feasibility, both economically and environmentally, of maintaining the existing gravel pits within the parks for the maintenance of infrastructure.
- Up to 4 remote weather stations may be positioned around the parks.

- Trails used for weed management operations will be maintained until weed control operations have been effective, these trails will then be left to re-vegetate.
- The business plan for Big Yango will be reviewed after 5 years to re-assess the viability of the operation of the camping and accommodation and determine if it should continue.
- A Big Yango works schedule and strategy will be prepared for the area identifying where the 'Friends of Big Yango' volunteer group can assist in management operations.
- The Big Yango homestead and infrastructure will be maintained and a maintenance schedule will be prepared.
- A permit and booking system will be implemented for the recreational use of Big Yango to provide security for the area, homestead and associated infrastructure, and to manage the use of the precinct.

4.3.9 Alien Uses, Leases and Licences

There are currently a number of organisations occupying or using lands within and immediately surrounding Yengo National Park and Parr State Conservation Area for public purposes. There are also a number of individuals occupying or using lands immediately surrounding the parks for private purposes (there are no permissive occupancies remaining in the parks). These works, facilities and operations can affect to varying degrees the natural, cultural and recreation values of the park.

Roadside drainage works and stockpile sites can have undesirable impacts, including alterations to water drainage and water quality in the parks. Some stockpile sites encroach on the parks. There are a number of power lines and associated developments through Yengo National Park and Parr State Conservation Area, which impact on scenic values, significant vegetation communities and rare or threatened plant species and contribute to erosion, weed dispersal and problems of illegal use. Formal agreements are required to address issues of concern to park management including use and maintenance of vehicle access routes, clearing of vegetation under power lines, use of herbicides and the visual impact of the power lines.

A number of other government organisations currently occupy land in Yengo National Park and Parr State Conservation Area or have influence on park management due to the proximity of their works and utilities. Private interests also have licences, occupancies or non-formalised uses of reserve lands and telephone towers. All were pre-existing tenures and under section 39(2) of the Act continued when the parks were established. They include Energy Australia, Northpower and Transgrid power lines and occupiers of permissive occupancies under the *Crown Lands Act 1993*.

There are also a number of licensed Telstra towers and agreements are in place for the maintenance of access roads to these assets.

The Department of Lands has a remote weather station located at Mt Calore and on the Bala Range. Records have been collected from these locations by helicopter over numerous years.

It is the long-term aim of the NPWS to reduce, and if possible eliminate, the number of non-NPWS tenures including roads used for their maintenance, held under lease, occupancy or licence.

There are a number of radio, repeater and telephone towers that are operated and maintained by communication authorities. These structures are located in and along the boundaries of the parks.

Cattle can significantly disturb native vegetation within the parks through grazing and trampling. The acquisition of further in-holdings especially in the northern section of Yengo National Park would assist with boundary rationalisation and a reduction of cattle straying into the reserve.

Policies

- The NPWS will liaise with organisations and individuals occupying or using lands reserved as Yengo National Park/Parr State Conservation Area, to assess the nature, authority, impact and necessity for their presence.
- Permissive occupancies, occupation permits or any occupancy agreement covering alien uses on land in the parks will be terminated on expiry of the existing interest. Thereafter a licence, lease, permit or consent may be issued for the activity providing it is permissible under this plan and the *National Parks and Wildlife Act, 1974* and appropriate fees may be levied in accordance with NPWS occupation and access rates.
- Existing leases, licences and other occupancies in the parks will be kept under regular review and in conjunction with the licensee and where appropriate, the facility or occupancy, including associated roads, will be relocated, closed or terminated and the site rehabilitated.
- Due to its cultural and natural significance, no permanent communication facilities including masts, towers or associated structures will be installed on Mount Yengo, or in any declared wilderness area within the parks.
- New works, facilities or operations proposed by any organisation or individual will not be permitted within the parks unless they are consistent with the purpose of reservation of the parks and the objectives of this plan.
- Alien tenures will be managed in accordance with the principles and objectives of this plan of management and in accordance with the conditions of the lease, licence or agreement document.

Actions

- The NPWS will formalise and update license agreements for existing essential alien uses including electricity transmission lines, water pipelines, telecommunication facilities and authorised access to in-holdings in order to minimise adverse impacts on the parks.
- The grassed areas around the Mt Calore (Big Yango) and Bala Range weather stations and the Telstra towers will be maintained.
- Weather records from the Mt Calore and Bala Range weather stations will be obtained to provide information for management purposes.
- The NPWS will establish and maintain a register of all alien uses, leases and licences in the parks.
- The NPWS will identify acquisition priorities for in-holdings and adjacent freehold properties that will assist with conservation management and boundary rationalisation.

5.0 PLAN IMPLEMENTATION

This plan of management is part of a system of management developed by the National Parks and Wildlife Service. The system includes the National Parks and Wildlife Act, the Corporate Plan and corporate policies. It also includes Branch and Regional strategic planning.

The orderly implementation of this plan will be undertaken within the annual programs of the NPWS Blue Mountains and Central Coast – Hunter Range Regions and will be subject to the availability of necessary staff and funds and to any special requirements of the Director-General or Minister.

Regional programs are subject to ongoing review, within which works and other activities carried out on the parks are evaluated in relation to the objectives laid out in this plan.

The environmental impact of all activities will continue to be assessed at all stages and any necessary investigations will be undertaken in accordance with established environmental assessment procedures.

Section 81 of the NPW Act requires that this plan shall be carried out and given effect to, and that no operations shall be undertaken in relation Yengo National Park, Parr State Conservation Area and Finchley Aboriginal Area unless they are in accordance with the plan. However, if after adequate investigation, operations not included in the plan are found to be justified, this plan may be amended in accordance with section 73B of the NPW Act.

As a guide to the orderly implementation of this plan, relative priorities for identified activities are summarised below:

Key to Priorities:

High	=	urgent/or very important actions already underway or planned for immediate implementation
Medium	=	actions which are important but not urgent
Low	=	actions which may be deferred in preference to other priorities
Ongoing	=	recurrent actions, generally already underway

TABLE 5: PRIORITY IMPLEMENTATION OF ACTIONS

Actions have been abbreviated for inclusion in this table. For full details refer to the main text of the plan.

Plan Ref.	Activity	Priority
4.1.1	Geology, Geomorphology and Soils	
4.1.1	Existing vehicle trails will be assessed for impacts. Trails with adverse impacts will be upgraded or closed.	High, Ongoing
4.1.1	Revegetate Pierces Valley with endemic species.	Low
4.1.1	Educational display boards will be maintained.	Low
4.1.2	Catchment Management	
4.1.2	The NPWS will continue to promote TCM through field days and neighbour newsletters.	Ongoing
4.1.3	Native Plants & Animals	
4.1.3	NPWS will liaise with local councils and other authorities to minimise the impact of potentially threatening processes on native species and communities. Where relevant, threatened species recovery plans, priorities action statements and threat abatement plans will be implemented in co-operation with other authorities.	Ongoing
4.1.3	NPWS will progressively undertake biodiversity surveys, to assist in the development of ecologically based fire management, pest management and visitor management programs.	Ongoing
4.1.3	Natural revegetation of the Big Yango area will be encouraged except where the clearing is of historic heritage significance	High
4.1.3	A system of photo and survey monitoring stations will be erected to monitor vegetation and weeds in the Big Yango precinct.	High
4.1.3	NPWS will liaise with neighbours and interest groups to gain local knowledge on the location of threatened species and threats.	Ongoing
4.1.3	Community groups will be encouraged to participate with the NPWS in joint conservation programs targeting threatened species recovery and habitat restoration within the two parks.	High
4.1.4	Introduced Plants & Animals	
4.1.4	A priority control of introduced animals will be implemented as set out in the Regions' Pest Management Strategies.	Ongoing
4.1.4	The NPWS will continue to monitor Brush-tailed Rock Wallaby populations in the two parks under the Fox Threat Abatement Plan, and implement as a high priority, fox, wild dog and feral cat control programs in liaison with neighbours.	High
4.1.4	The NPWS will prepare a Wild Dog Management Plan in conjunction with relevant Rural Lands Protection Boards.	High
4.1.4	Control of cattle will be undertaken in the two parks.	High
4.1.4	NPWS will survey and control weeds in cooperation with neighbours and other authorities in the upper catchment areas first and workdown stream.	Ongoing
4.1.4	NPWS will survey the Macdonald River and Webbs Creek catchment areas for weed infestations and control measures will be put in place as funding allows.	Medium

4.1.4	A program of strategic burning will be considered for the control of Blackberry and other weeds.	High
4.1.4	A program for control of weeds will be developed and implemented for the Big Yango precinct.	High
4.1.4	Monitoring of weed control activities will be undertaken through mapping every 2 years in the Big Yango precinct.	High
4.1.4	Ornamental plants near the Big Yango homestead that spread from their original locations will be removed.	Ongoing
4.1.5	Fire Management	
4.1.5	A Fire Management Strategy will be prepared for the parks.	High
4.1.5	An annual hazard reduction program will be submitted to relevant district bush fire management committees for consideration.	High, Ongoing
4.1.5	A regular review of all existing management trails within the two parks will be undertaken in conjunction with the RFS. Unnecessary trails will be closed and rehabilitated.	High, Ongoing
4.1.5	Farm dams within the Big Yango precinct will be mapped and assessed for fire management purposes.	High
4.1.5	Trails shown in table 3 will be maintained for fire control and protection purposes.	Ongoing
4.1.5	A program of mechanical slashing and hazard reduction will be undertaken around the Big Yango homestead and associated infrastructure.	Ongoing
4.1.6	Wilderness	
4.1.6	Public awareness of the appropriate use of wilderness areas will be promoted.	High
4.1.6	The wilderness boundaries will be signposted on tracks and trails, and other areas where appropriate to highlight their location.	High
4.1.6	NPWS will seek the co-operation of the flight industry, the Civil Aviation Authority and the Department of Defence to minimise the impacts of aircraft use over any declared wilderness area and as a possible extension of the "Fly Neighbourly" program.	High
4.1.6	A brochure will be prepared which identifies the wilderness boundaries and which contains a minimal impact code of conduct for recreational activities within wilderness areas.	High
4.1.6	NPWS will condition consents issued for activities within wilderness to minimise impact and user conflicts.	High
4.1.6	NPWS will incorporate details on the location of the wilderness, and management policies that apply to it, into new or revised interpretation and public information displays and programs.	High
4.1.6	A program of track and trail closure and removal of unwanted management structures from the wilderness will be prepared and implemented subject to the policies within this plan.	High
4.1.6	Trails within wilderness areas not required for wilderness management purposes will be closed and rehabilitated.	High
4.1.6	NPWS will identify acquisition priorities for freehold properties within the declared wilderness area, and seek to negotiate purchase with landholders as funds become available.	High

4.1.6	NPWS will seek to negotiate voluntary conservation agreements or wilderness protection agreements as appropriate, with the owners of park inholdings and park neighbours within the wilderness area.	High
4.2.1	Aboriginal Heritage	
4.2.1	NPWS will liaise with the Aboriginal community through the Central Coast Hunter Range Region Aboriginal Co-management Committee to assist in the management of Aboriginal cultural heritage issues.	Ongoing
4.2.1	A strategy and on-going program of surveying and recording Aboriginal sites, including assessments of significance, and oral histories will be developed by Regional staff in conjunction with local Aboriginal communities.	Medium
4.2.1	A regular program of monitoring impacts at Aboriginal sites which are well known to the public will be developed in conjunction with local Aboriginal communities.	Medium
4.2.1	The Burragurra Aboriginal site walking track will be repaired and erosion control measures implemented.	High
4.2.1	NPWS will prepare guidelines with various Local Aboriginal Land Councils and the Aboriginal community concerning the use and management of traditional and newly created Aboriginal sites for cultural revival practices.	Low
4.2.1	In agreement with the Regional Aboriginal Co-management Committee, prepare an Aboriginal heritage interpretation strategy.	High
4.2.1	Interpretive signs will be maintained at Finchley Aboriginal site.	Medium
4.2.1	Access onto Mt Yengo will be gated and regulatory signs erected to prevent unauthorised access onto the mountain.	High
4.2.1	Information will be provided to the public to discourage walking to the summit of Mt Yengo.	High
4.2.2	Historic Heritage	
4.2.2	Interpret historic features through Discovery tours and displays.	Ongoing
4.2.2	Liaise with and assist the Convict Trail Committee in providing interpretation and implementing works along the OGNR.	High
4.2.2	Seek funding and implement strategies outlined in the OGNR Conservation Plan and Remedial Engineering Works Report for Shepherds Gully.	High
4.2.2	A conservation plan will be prepared for the Big Yango precinct. Undertake other works subject to this plan.	High
4.2.2	Machinery operators will be advised of the need for care to ensure they do not damage stone retaining walls on historic roads and trails when undertaking maintenance.	High
4.2.2	Oral history of Big Yango will be gathered.	High
4.3.1	Community Relations, Education, Interpretation & Park Promotion	
4.3.1	Prepare a Regional Community Relations Strategy.	High
4.3.1	Neighbours issues will be sought through postage paid surveys.	Medium
4.3.1	Attend major field days to promote the roles of the NPWS.	Ongoing

4.3.1	Interpretive displays will be provided and maintained at main entry points and destinations.	High
4.3.1	Continue to liaise with the Aboriginal community regarding the management of the parks, including the provision of interpretive displays.	High
4.3.1	Brochures will be developed promoting selected natural and cultural features in the parks and covering a range of management issues, vehicle use, minimum impact bushwalking and fire management.	Low
4.3.1	A visitor map will be produced to assist visitors touring the two parks.	Medium
4.3.1	A Big Yango brochure and permit application will be produced.	High
4.3.1	Brochures will be distributed from tourist information outlets, user group organisations and NPWS offices and centrally located shops tourists often visit.	Ongoing
4.3.1	Regional staff will actively seek the upgrading of the NPWS web site to include maps on the parks.	Medium
4.3.1	Keep neighbours and user groups informed of conservation heritage, recreation and management issues.	High
4.3.1	NPWS will seek to engage neighbours and key stakeholder groups through volunteer programs that aim to conserve or restore the natural integrity of the two parks.	High
4.3.1	Establish, inform of tasks and register Friends of Big Yango as a NPWS volunteer group.	High
4.3.1	Liaise and co-operatively manage cultural heritage issues with the Aboriginal community.	High, Ongoing
4.3.2	Recreational Opportunities	
4.3.2	Two vehicle based camping areas with basic facilities will be provided in the Big Yango area at Blue Gums and Mountain Arm.	High
4.3.2	Big Yango homestead and Haddens Hall cabin will be maintained to accommodate visitors.	Ongoing
4.3.3	Recreational Vehicle Access	
4.3.3	The Bala Range Trail will be gated near the park boundary at the western end of "New Place".	Medium
4.3.3	NPWS will negotiate with the relevant councils and landowners regarding the management of the Old Settlers Road, Howes Trail and Yango Trail.	Medium
4.3.3	Clear park identification and vehicle directional signs will be provided at park entrance and public access roads.	High
4.3.3	The one way sections of the Big Yango Loop Trail will be indicated in the Big Yango brochure, and signposted if required.	High
4.3.3	Impacts on the Big Yango tracks and trails will be monitored.	Ongoing
4.3.3	The NPWS will implement measures to curtail the unauthorised use of tracks and trails by increasing ranger patrols, erecting regulatory signposting and by placing gates at strategic locations	High
4.3.4	Horse riding	
4.3.4	A monitoring program will be instigated specifically to assess the effect of horse riding activities.	High

4.3.4	A horse riding code will be developed.	High
4.3.4	NPWS will design a horse stile and install where necessary.	High
4.3.4	A map showing all authorised horse trails in the Big Yango precinct will be prepared and issued.	High
4.3.5	Cycling (Mountain bikes)	
4.3.5	The NPWS will negotiate with neighbouring property owners in reference to cyclist access. Trails where access is not permitted will be signposted.	High
4.3.6	Bushwalking	
4.3.6	Trails and tracks will be signposted.	Ongoing
4.3.6	Mogo Camping Area to Circuit Flat Bridge walking track will be upgraded, including signposting and interpretation.	High
4.3.6	The Circuit Flat Bridge to Mt Lockyer walking track will be upgraded and maintained, including sign posting and interpretation.	Low
4.3.6	Interpretation and signposting will be provided to interest points along the OGNR.	Medium
4.3.6	The walking track to Burragurra will be upgraded in consultation with relevant Aboriginal community groups.	High
4.3.6	Access to Mt Yengo via the Yango walk will be signposted with lookout and circuit walking distances indicated.	High
4.3.6	NPWS will monitor impacts of bushwalkers in the vicinity of Mt Yengo and will review access to the mountain if additional tracks are formed.	High
4.3.6	NPWS will assess the suitability of developing a walk in the vicinity of Finchley Camping Area and will construct this track if appropriate.	Medium
4.3.6	Investigate and construct if appropriate a circuit walking track with interps along Shepherds Gully Rd and Sternbecks Gully Rd.	Low
4.3.6	NPWS will investigate options with the Bulga/Milbrodale/Broke community in reference to developing a walking track in the Bulga/Milbrodale/Broke community area.	Low
4.3.7	Research	
4.3.7	The Region will develop a prospectus as a guide to priority research projects in all parks.	Ongoing
4.3.8	Management Operations	
4.3.8	The NPWS will install regulatory signage and undertake regular patrol programs in order to minimise unauthorised activities.	High
4.3.8	NPWS staff will prepare and implement an annual program of trail maintenance and rehabilitation works.	Ongoing
4.3.8	Shepherds Gully Road will be upgraded to a trafficable level for management purposes in line with the strategies outlined in the Shepherds Gully Road Remedial Engineering Report 2001.	High
4.3.8	Trails where public access is restricted may be gated and/or signposted if required.	High
4.3.8	NPWS will adopt best practice in the management of existing quarries.	High
4.3.8	NPWS will assess the feasibility, both economically and	High

	environmentally, of maintaining the existing gravel pits.	
4.3.8	Up to 4 remote weather stations may be positioned around the parks.	Low
4.3.8	Trails used for weed management operations will be maintained until weed control operations have been successful, then left to revegetate.	Ongoing
4.3.8	The Big Yango business plan will be reviewed after 5 years to re-assess viability and determine if the operation should continue.	Medium
4.3.8	A works schedule and strategy will be prepared for the Friends of Big Yango.	High
4.3.8	A maintenance schedule will be prepared for the Big Yango homestead and infrastructure.	High, Ongoing
4.3.8	A permit and booking system will be implemented for recreational use of Big Yango.	High
4.3.9	Alien Uses, Leases and Licences	
4.3.9	The NPWS will formalise and update license agreements for existing essential alien uses in the parks.	High
4.3.9	The grassed areas around the Mt Calore and Bala Range weather stations and Telstra towers will be maintained.	Ongoing
4.3.9	Weather records from the weather stations will be obtained.	High
4.3.9	The NPWS will establish and maintain a register of all alien uses leases and licences in the park.	Ongoing
4.3.9	The NPWS will identify acquisition priorities for in-holdings and adjacent freehold properties that will assist with conservation management and boundary rationalisation.	High

6.0 SELECTED REFERENCES

- Bell, S., Vollmer, J., Gellie, N. (1993) Yengo National Park and Parr State Recreation Area, Vegetation Survey, For Use In Fire Management. National Parks and Wildlife Service Report, Sydney.
- Bembrick, C.S., Herbert, C., Scheibner, E. and Stuntz, J. (1980) Structural Subdivision of the Sydney Basin.
- Benson, D. (1974) "Survey of the Natural Vegetation of the Floodplain of the Hawkesbury River and its Major Tributaries." In *Geomorphology of New South Wales Coastal Rivers*, H.A.Scholer Ed.), pp 68-89, Report No 139, The University of New South Wales Water Research Laboratory.
- Benson, D. (1980) Explanatory Notes for the St Albans 1:100,000 Vegetation Map Sheet. National Herbarium of New South Wales, Royal Botanic Gardens, Sydney.
- Benson, D. (1986) The Vegetation of the Gosford and Lake Macquarie 1:100,000 Vegetation Map Sheet. *Cunninghamia* 14), pp467-489.
- Briggs, J.D. & Leigh J.H. (1986) Rare or Threatened Australian Plants. CSIRO, Canberra.
- DECC (2007) The native vegetation of Yengo and Parr reserves and surrounds. Version 1.1, Draft. Climate Change and Environment Protection Group.
- Doherty, M. (1986) Vegetation Patterns on the Quaternary Deposits and their Surrounds in the Upper Mellong Creek Catchment Area, New South Wales. unpublished B.Sc Thesis, University of Sydney.
- Dyson, J.R. (1966) Sand Deposits in the Macdonald and Colo Rivers. *Journal of the Soil Conservation of NSW*, Vol 22, pp158-173.
- Elliot, G.L, Lang, R.D. and Campbell, B.L. (1983) The Association of Tree Species, Landform, Soils and Erosion on Narrabeen Sandstone west of Putty, New South Wales. *Australian Journal of Ecology* Vol 8, pp321-331.
- Erskine, W.D. (1991) Geographic Significance of Yengo National Park and Parr State Recreation Area. Draft Report prepared for the Interim Community Committee for Yengo National Park and Parr State Recreation Area.
- Erskine, W.D. (1986) River Metamorphosis and Environmental Change in the Macdonald Valley, New South Wales, since 1949. *Australian Geographical Studies*, 24:88-107.
- Erskine, W.D. and Melville, M.D. (1983) "Sedimentary Properties and Processes in a Sandstone Valley: Fernance Creek, Hunter Valley, New South Wales". in *Aspects of Australian Sandstone Landscapes* R.W.Young and G.C.Nanson

Eds.) Australian and New Zealand Geomorphology Group Special Publication No 1, pp 94-105.

Galloway, R.V., Van de Graaff, R.M.H. and Story, R. (1963) Land Systems of the Hunter Valley Area. Division of Land Research and Regional Survey, CSIRO Canberra.

Galloway, R.W. (1967) The Stratigraphy of the Putty-Upper Colo Area, Sydney Basin, New South Wales. Journal and Proceedings, Royal Society of New South Wales, 101: 23-36.

Griffin NRM (2005)

Helman, P.M., Jones, A.D., Pigram, J.J. and Smith J.M.B. (1976) Wilderness in Australia. Dept of Geography, University of New England, Armidale.

Henry, H.M. (1977) Mellong Plateau, Central Eastern New South Wales: An Anomalous Landform. Journal and Proceedings, Royal Society of New South Wales. 120: 117-134

IUCN (1994) Guidelines for Protected Area Management. International Union for the Conservation of Nature and Natural Resources.

Martin, L., and Spearitt, P. Wollemi-Macdonald-Wollombi Historical Study. Report for the Dept Environment and Planning.

Maryott-Brown, K., Wilks, D. (1993) Rare and Endangered Plants of Yengo National Park and Adjacent Areas. National Parks and Wildlife Service Report, Sydney.

McDonald, J. (1985) Sydney Basin Aboriginal Heritage Study: Rock engraving and shelter art sites. Report for NPWS NSW.

NPWS (2003) Fire Management Plan: Yengo NP, Parr SRA and Dharug NP.

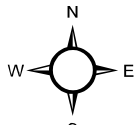
Phillips, S. (1987) Herpetofauna of Yengo National Park and Parr State Recreation Area. Unpublished report, NPWS NSW.

Sanders, J., Bedward, M., Leahy, B., Robinson, M. and Sheringham, P. (1988) Preliminary report on the Vegetation of Yengo National Park and Parr State Recreation Area. Unpublished report, NPWS NSW.

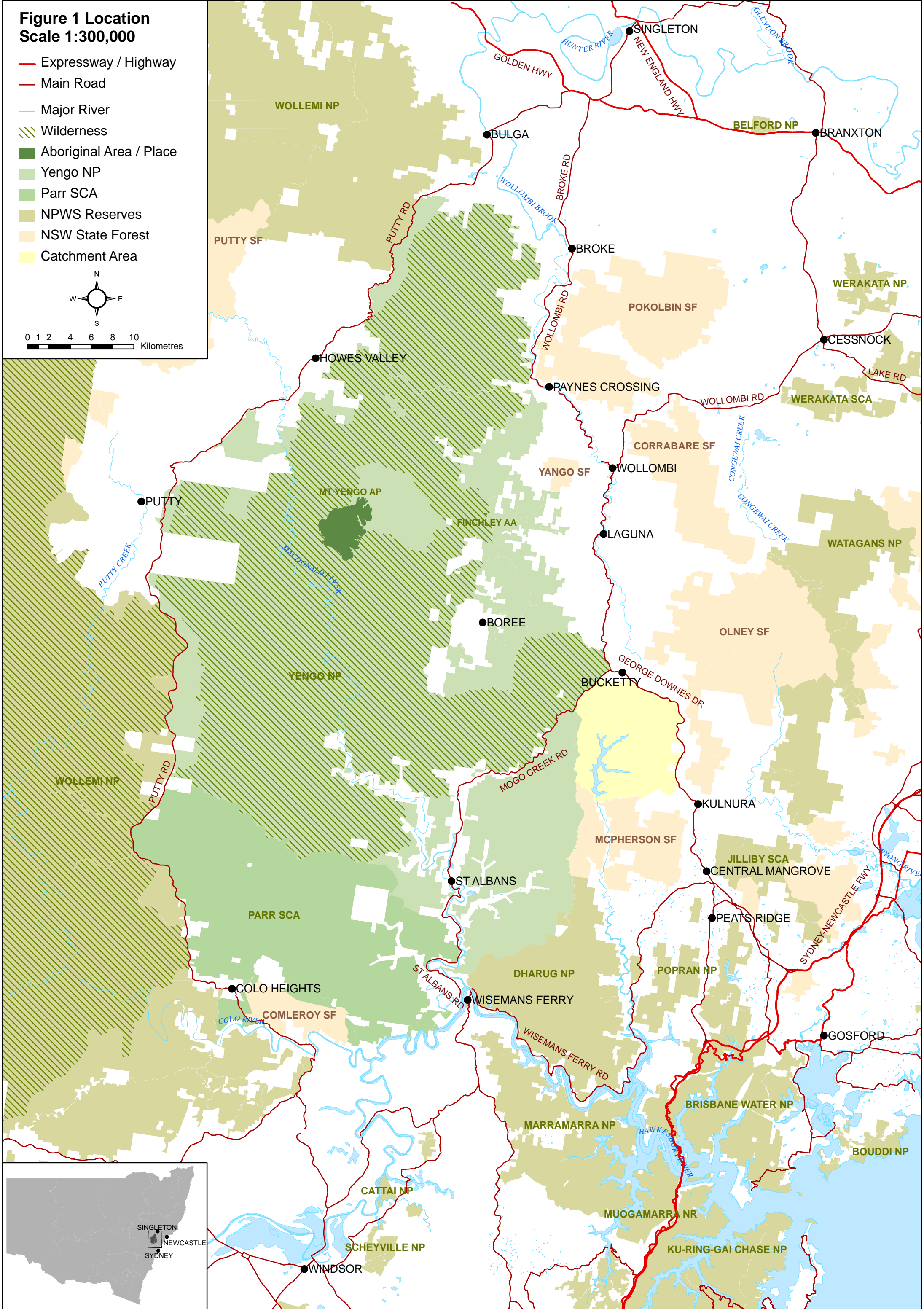
Wilderness Working Group (1986) Report of the Wilderness Working Group to the Hon R.J.Carr, M.P., Minister for Planning and Environment and Minister for Consumer Affairs. Report for Dept. Environment and Planning.

Figure 1 Location
Scale 1:300,000

- Expressway / Highway
- Main Road
- Major River
- ▨ Wilderness
- Aboriginal Area / Place
- Yengo NP
- Parr SCA
- NPWS Reserves
- NSW State Forest
- Catchment Area



0 1 2 4 6 8 10
Kilometres



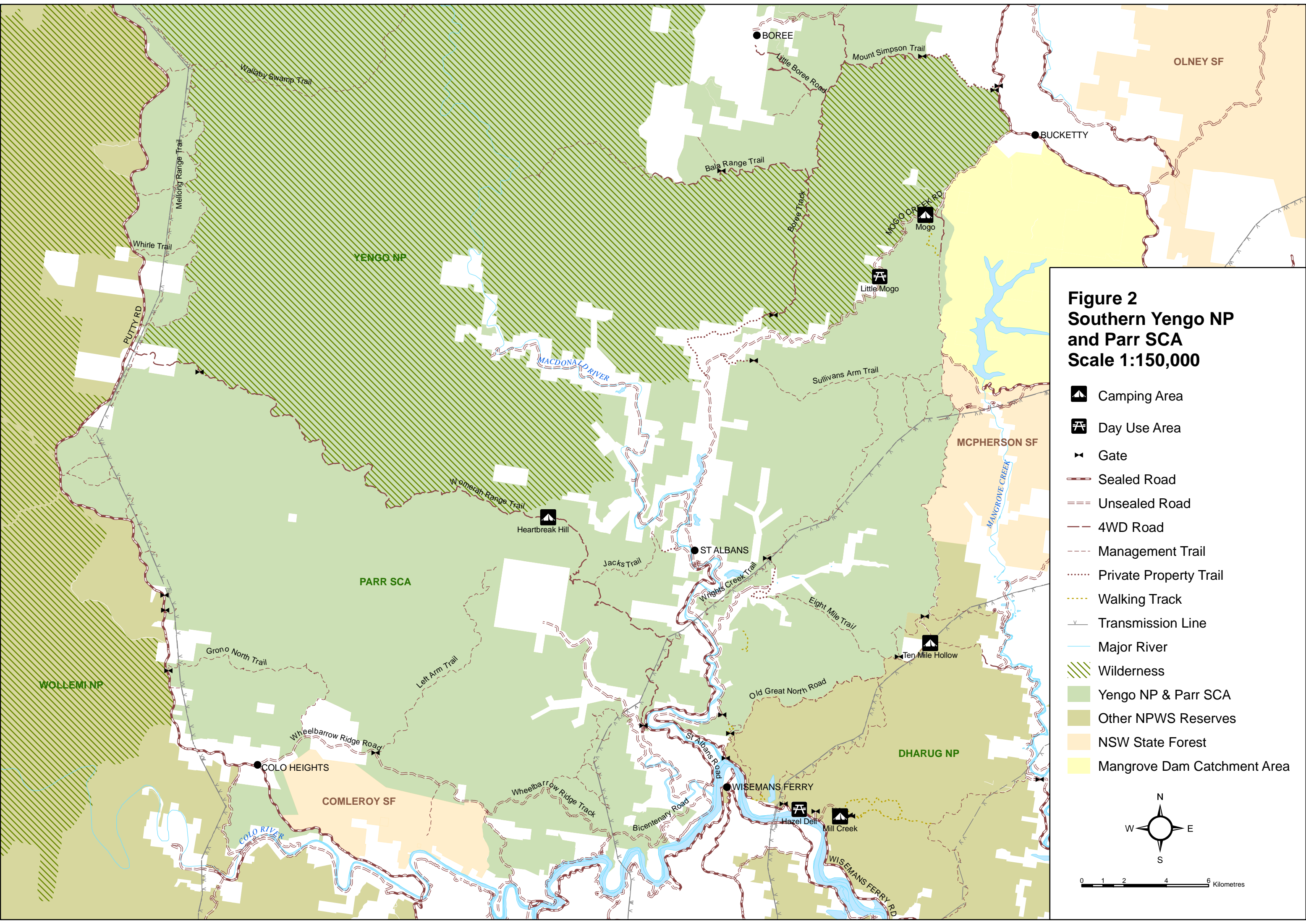
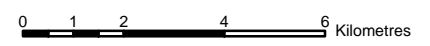
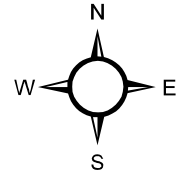


Figure 2
Southern Yengo NP
and Parr SCA
Scale 1:150,000

- Camping Area
- Day Use Area
- Gate
- Sealed Road
- Unsealed Road
- 4WD Road
- Management Trail
- Private Property Trail
- Walking Track
- Transmission Line
- Major River
- Wilderness
- Yengo NP & Parr SCA
- Other NPWS Reserves
- NSW State Forest
- Mangrove Dam Catchment Area



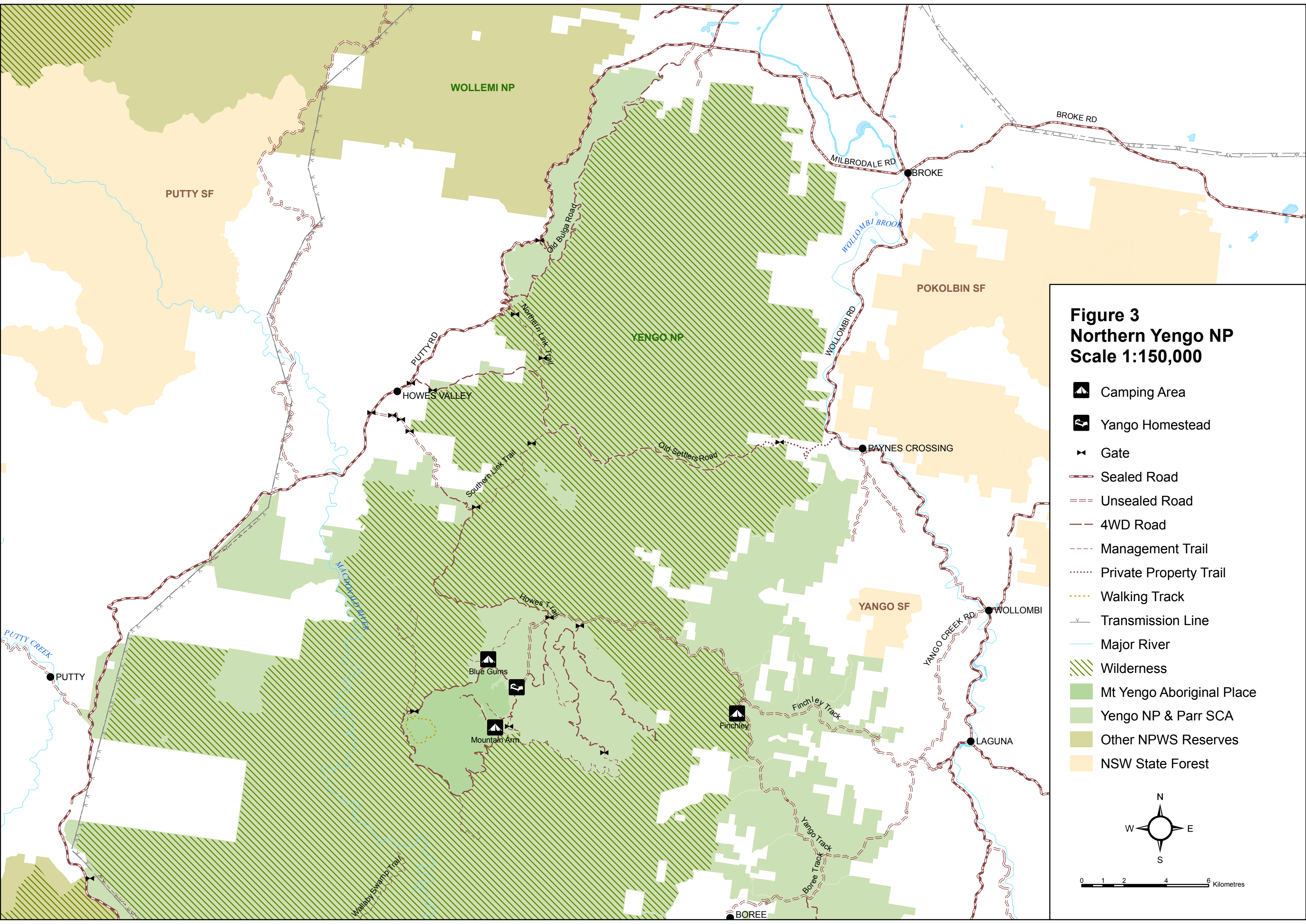
















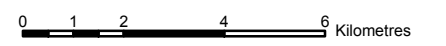
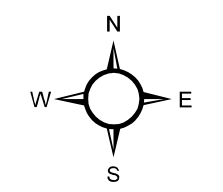


Figure 3
Northern Yengo NP
Scale 1:150,000

-  Camping Area
-  Yengo Homestead
-  Gate
-  Sealed Road
-  Unsealed Road
-  4WD Road
-  Management Trail
-  Private Property Trail
-  Walking Track
-  Transmission Line
-  Major River
-  Wilderness
-  Mt Yengo Aboriginal Place
-  Yengo NP & Parr SCA
-  Other NPWS Reserves
-  NSW State Forest



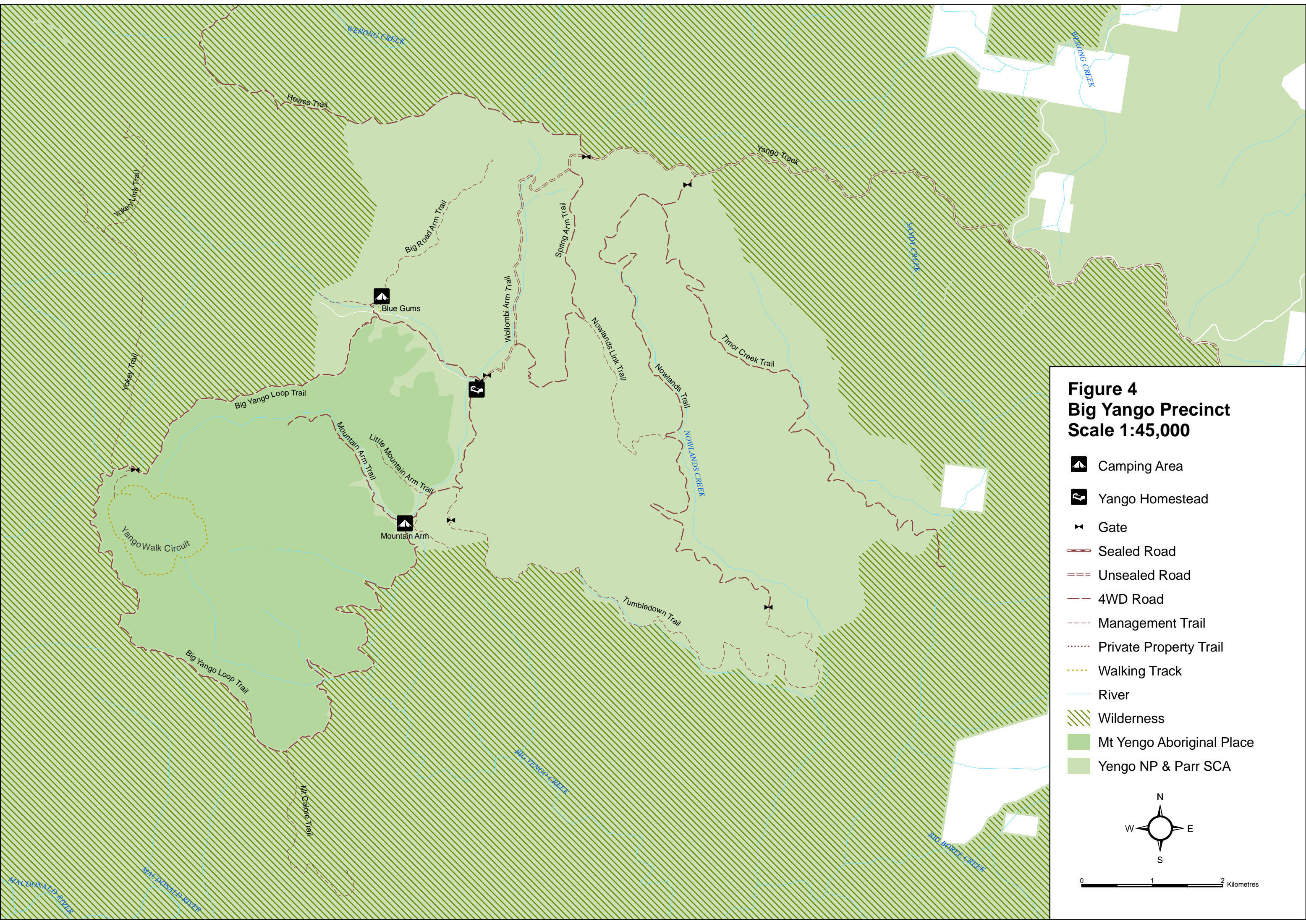













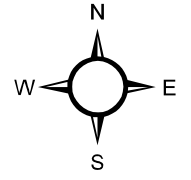


Figure 4
Big Yango Precinct
Scale 1:45,000

-  Camping Area
-  Yango Homestead
-  Gate
-  Sealed Road
-  Unsealed Road
-  4WD Road
-  Management Trail
-  Private Property Trail
-  Walking Track
-  River
-  Wilderness
-  Mt Yengo Aboriginal Place
-  Yengo NP & Parr SCA



0 1 2 Kilometres