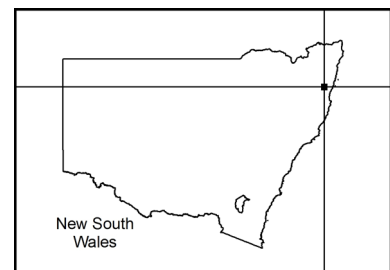




Plan of Management



Ulidarra National Park



ULIDARRA NATIONAL PARK
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

May 2012

This plan of management was adopted by the Minister for the Environment on 14 May 2012.

Acknowledgments

The NSW National Parks and Wildlife Service (NPWS) acknowledges that the planning area lies within the traditional lands of the Gumbaynggirr people.

This plan of management is based on a draft plan prepared by the staff of the North Coast Region of the NPWS, part of the Office of Environment and Heritage, Department of Premier and Cabinet.

FRONT COVER: Unnamed creek in Ulidarra National Park, by Lynn Rees, NPWS.

For additional information or any inquiries about this park or this plan of management, contact the NPWS Coffs Coast Area Office at Marina Drive, Coffs Harbour or by phone on (02) 6652 0900.

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FOREWORD

Ulidarra National Park is located on the north-west outskirts of Coffs Harbour, on the north coast of NSW. The park has an area of approximately 680 hectares.

Ulidarra National Park contains moist forest communities, such as rainforest and wet sclerophyll forest, and provides connectivity between the hinterland and plateau habitats of the World Heritage listed Dorrigo National Park, through the mountain ranges of Tuckers Nob in Bindarri National Park, to the coastal habitats of Moonee Beach Nature Reserve and Coffs Coast Regional Park. As a result Ulidarra National Park supports a high diversity of animals. Twenty-two native animal species recorded in or within a kilometre of the park are listed as threatened species.

Ulidarra National Park lies within a broader area which was regularly used by the local Gumbaynggirr people for hunting, the gathering of foods and bush medicines and for ceremonies.

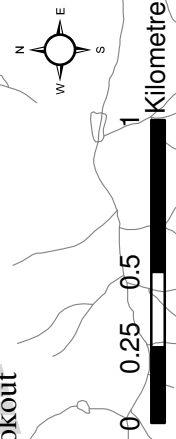
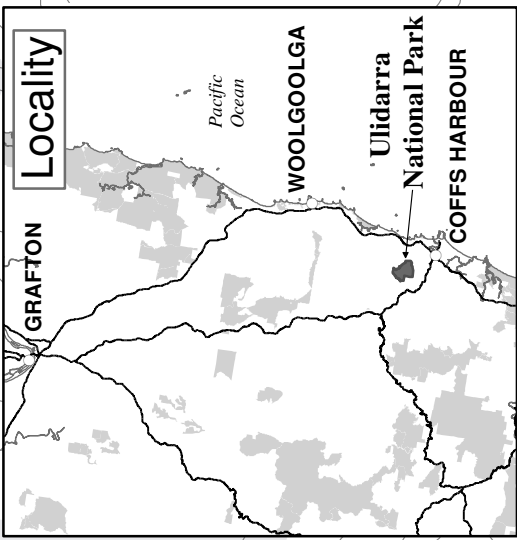
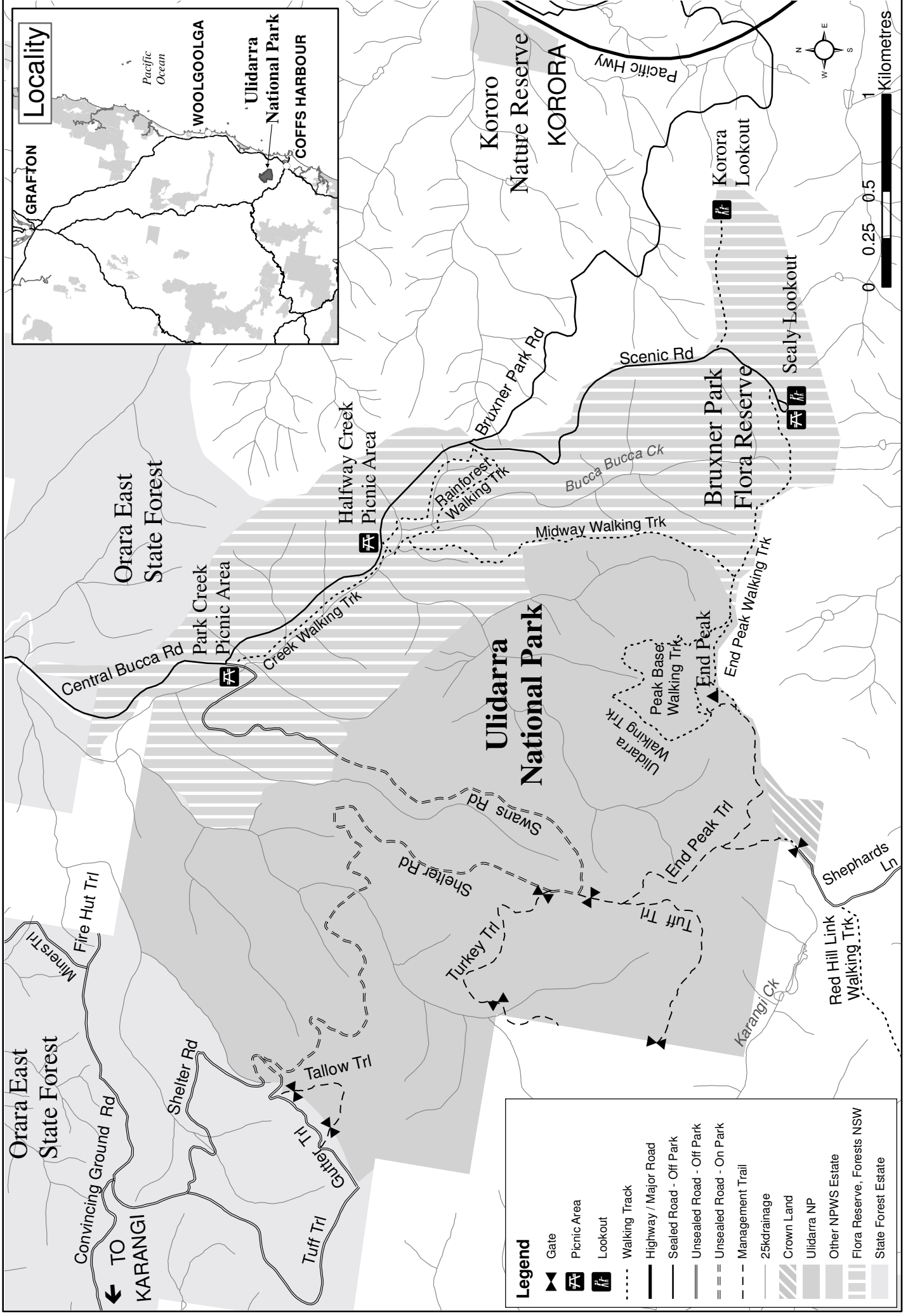
The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park. A draft plan of management for Ulidarra National Park was placed on public exhibition from 22 February to 25 May 2009. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the NSW 2021 goal to protect our natural environment, including bush regeneration in rainforest margins and in the habitat of threatened species to reduce the impacts of weeds, targeted surveys for threatened plants species, and establishment of a permanent monitoring program to assess changes in vertebrate fauna communities. The plan also includes actions to enhance recreational opportunities, including development of facilities and promotion of the park for driving on unsealed roads, walking and cycling.

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



Robyn Parker MP
Minister for the Environment



Legend

	Gate
	Picnic Area
	Lookout
	Walking Track
	Highway / Major Road
	Sealed Road - Off Park
	Unsealed Road - Off Park
	Unsealed Road - On Park
	Management Trail
	25kdrainage
	Crown Land
	Ulidarra NP
	Other NPWS Estate
	Flora Reserve, Forests NSW
	State Forest Estate

1. ULIDARRA NATIONAL PARK

Ulidarra National Park (referred to as "the park" in this plan) is located on the Coast Range, five kilometres north-west of Coffs Harbour (30°18'S 153°6.6'E), on the north coast of NSW (see map).

Ulidarra National Park was gazetted in 1999 in the lead up to the signing of the North East NSW Regional Forest Agreement (RFA). The RFA provided for major additions to the reserve system, including the establishment of Ulidarra National Park, following a comprehensive regional assessment of the natural, cultural, economic and social values of forests.

The park comprises 680 hectares and adjoins Bruxner Park Flora Reserve to the east and Orara East State Forest to the north and north-west. A Crown reserve (R.63790) abuts part of the southern boundary of the park. Private property adjoins most of the southern, the south western and part of the northern boundary. The predominant land uses surrounding the park include forestry, cattle grazing, light agricultural activities, banana plantations and rural settlement.

The park's name is a derivation of the Gumbaynggirr word for the first Hero Ancestor or "The Dreaming" (Morelli 2008; G. Williams, Muurrbay Language Centre, pers. comm. 2008). It is also closely associated with the name of the local conservation group (the Ulitarra Conservation Society) which campaigned for the park's protection. Ulidarra National Park is culturally significant to the Gumbaynggirr people and lies within the area of the Coffs Harbour Local Aboriginal Land Council.

The park comprises land formerly part of the Orara East State Forest. It is part of an important forested corridor linking the plateau and coastal forests, and is part of the dramatic forested backdrop to Coffs Harbour. Much of the park is rugged and remote, supporting moist forest communities such as rainforest and wet sclerophyll forest. A long-term study of the fauna found in the park and the neighbouring flora reserve has revealed a high diversity of animals.

The park, along with Bindarri National Park to the south-west and a small section of Sherwood Nature Reserve west of Woolgoolga, protects part of the Coast Range located in the Coffs Harbour Local Government Area. It lies within the area of the Northern Rivers Catchment Management Authority.

2. MANAGEMENT CONTEXT

2.1 Legislative and Policy Framework

The management of national parks in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). The policies are based on the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) may require the assessment and mitigation of the environmental impacts of works proposed in this plan. The Commonwealth *Environment Protection*

and Biodiversity Conservation Act 1999 (EPBC Act) also applies in relation to actions that may impact on matters of national environmental significance, such as threatened species listed under that Act.

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

2.2 Management Purposes and Principles

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

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

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

2.3 Management Directions

Ulidarra National Park will be principally managed to conserve the diversity of native plant and animal species, and to maintain the water quality of streams flowing into Bucca Bucca Creek. Ongoing Aboriginal cultural associations with the park will be encouraged.

The park will also be managed to allow for the public appreciation of the park's natural beauty and its wildlife. The provision of visitor opportunities in the park however will complement (rather than duplicate) those opportunities already available in the adjacent Bruxner Park Flora Reserve. A key emphasis of NPWS management of the park will therefore be on achieving effective co-operation with Forests NSW on the provision of visitor services, including access.

3. VALUES OF THE RESERVE

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

3.1 Landform, Geology and Soils

Ulidarra National Park is part of a sub-coastal wet forested environment of undulating to hilly metasedimentary terrain situated between 180 metres to 400 metres in elevation. The area experiences a high annual rainfall of 1600 to 1900 millimetres, draining principally to the north-east into Bucca Bucca Creek, a tributary of the Orara River and part of the Clarence River catchment. The headwaters of Bucca Bucca Creek lie within the park and the adjoining Bruxner Park Flora Reserve. Bucca Bucca Creek has high conservation value, as it is one of the few tributaries of the Orara River in pristine condition (Murphy & Murphy 2005).

The park lies within the physiographic regions known as the Coast Range and the Orara Valley. The underlying geology is predominantly the Coffs Harbour Late Carboniferous metasediments, comprised of partially metamorphosed sedimentary rock (Milford 1999).

The Coast Range extends in a broad arc from the north to the central south-west of the Coffs Harbour region, and encompasses the majority of the park. The terrain of the Coast Range is characterised by steep to precipitous hills and mountains (Milford 1999). It includes the spectacular escarpment that forms part of the southern boundary of the park.

The Orara Valley physiographic region includes the alluvial floodplains and terraces of Bucca Bucca Creek. A small section of the north and north eastern boundary of the park is within this region and this part of the park is characterised by gently undulating terrain, with occasional evidence of older drainage lines dating from the Pleistocene (Milford 1999).

The high susceptibility of soil types in the park to erosion, together with erosive summer rainfall and steep terrain, has implications for management because areas of soil disturbance inevitably require substantial works to stabilise and rehabilitate. Areas of specific concern include parts of the management trail network and disused logging tracks. The roads within the park have received extensive upgrading since its gazettal in 1999. Substantial maintenance and periodic upgrading are required to ensure that sediment loads from the roads do not silt and pollute watercourses within the park.

3.2 Native Plants

Ulidarra National Park conserves an important tract of sub-coastal lowland old growth sclerophyll forest. There are two major vegetation communities within the park dominated by coastal blackbutt (*Eucalyptus pilularis*) and turpentine (*Syncarpia glomulifera*), namely Dry Foothills Blackbutt/ Turpentine and Wet Foothills Blackbutt/ Turpentine (NPWS 1999). Small areas of wet sclerophyll forest dominated by brush

box (*Lophostemon confertus*) are also present in the park. These intergrade with stands of rainforest dominated by red carabeen (*Geissois benthamiana*) and booyong (*Heritiera* spp.), often with an understorey of bangalow palms (*Archontophoenix cunninghamiana*). Due to the extensive clearing of lowland rainforest and its ongoing decline, all rainforest stands below 600 metres altitude on the NSW North Coast – including those present in the park – are listed as an endangered ecological community under the TSC Act.

Ulidarra National Park contains a rich flora including several threatened plants listed in Table 1. In addition, habitat exists in the park for other threatened plants, such as the arrow-head vine (*Tinospora tinosporoides*) (which is known from the adjacent Bruxner Park Flora Reserve), milky silkpod (*Parsonsia dorrigoensis*), rainforest senna (*Senna acclinis*) and the Moonee quassia (*Quassia* sp.B). It is likely that further surveys in the park may locate other rare, threatened and significant plant species.

The park also provides connectivity between the hinterland and plateau habitats of the World Heritage listed Dorrigo National Park, through the mountain ranges of Tuckers Nob in Bindarri National Park, to the coastal habitats of Moonee Beach Nature Reserve and Coffs Coast Regional Park.

Past timber harvesting in some areas of the park has led to the establishment of some even-aged and multiple-aged stands of regrowth forests. However, areas of old growth forest exist, protected from logging by the steep terrain and watercourses. The old growth forests and rainforest areas in the park have high scientific importance.

Table 1. Rare or threatened plants in or within 1km of Ulidarra National Park

Common name	Scientific name	Status*
Dorrigo waratah	<i>Alloxylon pinnatum</i>	Rare
rusty plum	<i>Niemeyera whitei</i> (syn. <i>Amorphospermum whitei</i>)	Vulnerable
pink cherry	<i>Austrobuxus swainii</i>	Rare
Orara boronia	<i>Boronia umbellata</i>	Vulnerable
slender marsdenia	<i>Marsdenia longiloba</i>	Endangered #
stinky lily	<i>Typhonium</i> sp. aff. <i>brownii</i>	Endangered

Source: NPWS Atlas & Graham (2001)

* Status is given by the schedules of the TSC Act (either Endangered or Vulnerable) or, for non-threatened flora, by Briggs & Leigh (1996).

Species recognised as nationally threatened under the EPBC Act.

3.3 Native Animals

The park protects a rich diversity of animal species. A nine year fauna study of the park and the adjoining Bruxner Park Flora Reserve (Murphy & Murphy in press) and other sources provide records for 232 native vertebrate species (40 mammals, 125 birds, 36 reptiles, 21 frogs and 10 fish) in or within a kilometre of the park, 22 of which are listed as threatened under the TSC Act (see Table 2) and another 20 considered to be of regional conservation significance. Many of the species recorded in Ulidarra National Park and Bruxner Park Flora Reserve are endemic to the NSW north coast or have a distributional stronghold there (Murphy & Murphy 2005).

The major factor contributing to the area's high species diversity is its geographical position on the NSW north coast – a bioregion that lies in a transitional zone between the southern Bassian, northern Torresian and eastern highland Tumbunan faunal

divisions, and which is recognised as a significant centre for endemism (Murphy & Murphy in press). Areas of old growth forest within the park provide essential habitat for a number of threatened species dependent on hollow-bearing trees, such as Stephens' banded snake (*Hoplocephalus stephensii*), the yellow-bellied glider (*Petaurus australis*) and the powerful owl (*Ninox strenua*).

Table 2. Threatened animal species in or within 1 km of Ulidarra National Park

Common name	Scientific name	Legal Status*
<u>Frogs</u>		
giant barred frog	<i>Mixophyes iteratus</i>	E #
Stephens' banded snake	<i>Hoplocephalus stephensii</i>	V
<u>Birds</u>		
glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	V
brown treecreeper	<i>Climacteric picumnus</i>	V
barred cuckoo-shrike	<i>Coracina lineata</i>	V
black bittern	<i>Ixobrychus flavicollis</i>	V
barking owl	<i>Ninox connivens</i>	V
powerful owl	<i>Ninox strenua</i>	V
wompoo fruit-dove	<i>Ptilinopus magnificus</i>	V
rose-crowned fruit-dove	<i>Ptilinopus regina</i>	V
masked owl	<i>Tyto novaehollandiae</i>	V
sooty owl	<i>Tyto tenebricosa</i>	V
<u>Mammals</u>		
eastern pygmy-possum	<i>Cercartetus nanus</i>	V
golden-tipped bat	<i>Kerivoula papuensis</i>	V
little bentwing bat	<i>Miniopterus australis</i>	V
eastern bentwing bat	<i>Miniopterus schreibersii</i>	V
large-footed myotis	<i>Myotis macropus</i> (= <i>M. adversus</i>)	V
yellow-bellied glider	<i>Petaurus australis</i>	V
koala	<i>Phascolarctos cinereus</i>	V
long-nosed potoroo	<i>Potorous tridactylus</i>	V #
grey-headed flying-fox	<i>Pteropus poliocephalus</i>	V #
greater broad-nosed bat	<i>Scoteanax rueppellii</i>	V

* Status under TSC Act (E = endangered, V = vulnerable)

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

Source: Murphy and Murphy (in press) and NPWS Atlas data 1km search

The fauna in the park benefits from the park being part of a large contiguous area of protected habitat with the adjoining flora reserve, as well as the broader landscape connectivity of forested habitat between the coast and the hinterland and tablelands. By itself, Ulidarra National Park is considered too small to support the full range of vertebrate fauna present in isolation (Murphy & Murphy in press). Therefore the continued conservation of many species within the park is dependant on the sympathetic management of adjoining lands.

Of the threatened fauna occurring in the park, recovery plans have so far been prepared for the koala, yellow-bellied glider, barking owl and other large forest owls.

Recovery actions for other species are also included in the Priorities Action Statement, which will be used to guide management of threatened species in the park.

3.4 Aboriginal Heritage

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

The local Gumbaynggirr people have indicated their ongoing strong connection to the park. Generally, the escarpment was used as a travel route from the Orara Valley in the west to the Coffs Harbour area. The park lies within a broader area (roughly defined as occurring between Mount Coramba to the north west and Macaulays Headland to the east) which is considered a 'men's area' regularly used for hunting and the gathering of foods and bush medicines. This area forms part of an important creation story to the Gumbaynggirr people, and was also used for ceremonies and initiation (S. Hart, Mudjay Elders Group, pers. comm. 2008).

There is one recorded Aboriginal site within the park, which has implications for the management of a section of Swans Road.

3.5 Historic Heritage

It is believed that selective logging, of rainforest timber, first occurred in the vicinity of the park in the 1880s. Many tree stumps throughout the area bear the scars of board cuts, a style of tree felling that ended in the early 1950s with the advent of the chainsaw. To assist with the transport of logs, a tramline was constructed from Coffs Harbour to Orara East State Forest, passing through what is now Bruxner Park Flora Reserve. It operated between 1908 and 1914.

Orara East State Forest was dedicated in 1917. After the road to the forest was improved in the early 1930s, there was some concern in the local community that the rainforest would soon be destroyed and lobbying began for the protection of Bruxner Park. This protection was announced in 1933, although the original part (57 hectares) of Bruxner Park Flora Reserve was not formally gazetted until 1958. In 1984, the flora reserve was expanded to its current size of 407 hectares to provide a larger buffer for the rainforest and to incorporate Sealy Lookout, a major tourist destination in Coffs Harbour.

Intermittent logging continued in what is now Ulidarra National Park while it remained part of Orara East State Forest until its gazettal as a national park in 1999, although some compartments containing a high proportion of old growth forest were deferred from logging in the early 1990s.

During the 1990s in the lead up to the Regional Forest Assessment, the Ulitarra Conservation Society proposed to make all the deferred forest compartments in the local area into a national park. Though not all the lands proposed were protected, both Ulidarra and nearby Bindarri national parks were in part created due to the efforts of this local conservation group.

3.6 Education and Research

Ulidarra National Park supports a very high diversity of native vertebrate fauna which are of conservation significance at a regional, state and national level. The nine year fauna study by Murphy and Murphy (in press) provides one of the most complete site-specific studies of vertebrate fauna within the NSW north coast bioregion. This study provides a valuable set of data for long-term monitoring of fauna, for example of changes in response to climate change (see section 4.6). As most logging ceased in the neighbouring flora reserve in the 1950s, the flora reserve forms an important reference site for monitoring the recovery of the park's ecosystems from past logging disturbances.

3.7 Recreation

Ulidarra National Park is located close to the growing regional and tourist centre of Coffs Harbour. It, and particularly the neighbouring Bruxner Park Flora Reserve, have significant and growing visitation. Currently only one commercial tour operator is licensed to use Ulidarra National Park, for motor bike touring.

Access to the park is mainly from the Pacific Highway at Korora (approximately four kilometres north of Coffs Harbour) via Bruxner Park Road and Swans Road through Bruxner Park Flora Reserve. From the west, there is vehicular access from the Coramba Road at Karangi via Convincing Ground Road through Orara East State Forest. The two park roads, Swans and Shelter roads, are the only public access roads through the park, and are generally maintained to two wheel drive dry weather standard within the park. However, they are not suitable for two wheel drives in wet weather and the roads through the state forest are suitable for four wheel drive vehicles only. It is not recommended for any vehicles to enter the park during adverse weather conditions, as high winds create the potential for large tree limbs to drop at any time.

Together with council roads and the roads in the neighbouring state forest, the park roads provide a four wheel drive circuit from Coffs Harbour, which takes in the subtropical rainforest of the flora reserve and the blackbutt forests of the park and Orara East State Forest. This loop drive can be done within four hours allowing for stops (such as at Park Creek Picnic Area or a diversion to Sealy Lookout) along the way.

Coffs Harbour City Council is facilitating a project aimed at transforming Bruxner Park Flora Reserve (managed by Forests NSW) into a significant nature-based tourism destination (CHCC 2009). NPWS has assisted Coffs Harbour City Council in contributing towards the feasibility assessment of this proposal, and to undertake planning and develop a detailed business case. NPWS has also recognised opportunities to complement the existing facilities in Bruxner Park Flora Reserve, as part of this Bruxner Park Ecotourism Proposal (also known as the Bruxner-Ulidarra Ecotourism Proposal).

Ulidarra National Park provides bushwalkers with moderate to challenging walks. The designated management trails in the park (shown on the map) can be used for walking and cycling. Currently some of these trails are linked to the walking tracks in Bruxner Park Flora Reserve by unmarked walking routes that are listed in several bushwalking publications but require a reasonable level of navigation skills. The feasibility of providing track markers, so that these extended walking experiences can be promoted to the general public, will be investigated in liaison with Forests NSW.

4. THREATS TO RESERVE VALUES

4.1 Introduced Plants

There are four main weeds of concern within the park, namely lantana (*Lantana camara*), groundsel bush (*Baccharis halimifolia*), camphor laurel (*Cinnamomum camphora*) and broad-leaf paspalum (*Paspalum mandiocanum*). Other weeds of potential concern include crofton weed (*Ageratina adenophora*), palm grass (*Setaria palmifolia*), whisky grass (*Andropogon virginicus*) and giant Parramatta grass (*Sporobolus fertilis*). These weeds are controlled on a regular basis.

Camphor laurel poses the most serious threat to the park due to the continual spread of seeds by birds from mature camphor laurel trees on neighbouring private property along the southern boundary. Lantana also poses a significant threat to biodiversity and occurs mostly in areas of the park that were subjected to logging and along roadsides, tracks and trails and areas where sufficient sunlight penetrates the canopy.

The invasion of native plant communities by lantana and exotic perennial grasses, such as broad-leaf paspalum, are both listed under the TSC Act as key threatening processes.

Another source of introduced plants is the dumping of domestic waste, including garden waste, in the park. This currently has localised impacts alongside vehicular trails.

4.2 Introduced Animals

Ten introduced vertebrate species have been recorded in the park or the neighbouring flora reserve (Murphy & Murphy in prep). Most of these were scarce and generally restricted to the southern margins of the park adjoining agricultural land. Three introduced predators, the dog (*Canis lupus familiaris*), European red fox (*Vulpes vulpes*) and cat (*Felis catus*), were recorded on tracks and trails throughout the study area and are of management concern. These feral predators are known to prey on 13 native mammal species as well as reptiles and birds (Murphy & Murphy in prep). Predation by feral cats and the red fox are both listed as key threatening processes under the TSC Act. A threat abatement plan has been prepared for predation by the red fox; currently no sites within the park are identified as priorities for fox control under this plan.

Although not recorded in the park, chital deer (*Axis axis*) have been found on private property east of Sealy Lookout. These deer are believed to have escaped from a tourist attraction around 2001 and to be increasing in numbers in the surrounding bushland (B. Vercoe, DECC, pers. comm. 2005).

Orara East State Forest to the east and west of Ulidarra National Park (but not including the flora reserve) is designated as a Conservation Hunting Reserve for the use of bows only. Hunting activity is subject to licence and permit requirements from the Game Council of NSW and Forests NSW, and is prohibited in the park.

4.3 Inappropriate Fire Regimes

Fire is a natural feature of many environments and is believed to be essential for maintaining biodiversity in some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities, and high frequency fire has been listed as a key threatening process under the TSC Act.

Requirements for most plant species can be summarised on the basis of vegetation communities and there is a threshold in fire regime variability, which marks a critical change from a high species diversity to low species diversity. The regime guidelines for the park's vegetation communities are given in Table 3.

The terrain in Ulidarra National Park ranges from steep to undulating, and comprises largely wet sclerophyll forest with some small areas of subtropical rainforest in the gullies and therefore poses only a small risk to uncontrollable fire.

There have been eight recorded fires since 1952. It is believed that the major cause of fires has been arson or from fires escaping private property. Some trees on the edge of the escarpment have lightning scars and it appears that this area is vulnerable to lightning strike. However due to the wet sclerophyll forest on either side of the escarpment, the possibility of a large fire developing in the event of lightning strike is low.

Table 3. Fire interval guidelines for protection of vegetation communities

Vegetation Community	Minimum Interval	Maximum Interval	Notes
Rainforest	n/a	n/a	Fire should be avoided
Wet sclerophyll forest	25	60	Crown fires should be avoided at the lower end of the interval range
Grassy dry sclerophyll	5	50	
Scrubby dry sclerophyll forest	7	30	

Source: Kenny *et al.* (2004)

4.4 Inappropriate Recreational Activities

Given the presence of highly erodible soil types and steep slopes within the park, recreational vehicle use poses a significant threat to park values. Particular problems arise from the riding of trail bikes off the park road network, as this can lead to significant erosion in a short period of time, affecting soil stability and water quality within the reserve. These impacts are likely to be exacerbated by the increased storm and severe rainfall events predicted to occur as part of climate change (see section 4.6).

There are also major public safety concerns arising from unregistered bikes being ridden by unlicensed riders – this illegal use is prohibited under law and NPWS is working with the NSW Police and licensed riders to address the issue.

4.5 Isolation and Fragmentation

The area to the south of Ulidarra National Park has been extensively cleared and urbanised, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Long term conservation of biodiversity in the park depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. Along with the neighbouring Bruxner Park Flora Reserve and Orara East State Forest, the park forms part of a regional ecological corridor and an important link to other forested areas (Scotts 2003). Maintaining the integrity of the remaining habitat within the park and adjacent areas of bushland will facilitate wildlife corridors and is important in ensuring long term viability of the park's biological values.

4.6 Climate Change

Anthropogenic climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for NSW include higher temperatures, increasing sea levels and water temperatures, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporation. These changes are likely to lead to greater intensity, duration and frequency of fires, more severe droughts and increased regional flooding.

Climate change is likely to significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

Within the park, it is likely that rainforest areas will be under greater stress and erosive rainfall events will be more common, negatively impacting upon water quality in creeks and streams. However, other specific impacts of climate change on the park are more difficult to predict since they will depend on the compounding effects of other pressures, particularly barriers to migration and pressure from weeds and feral animals. Programs to reduce pressures arising from such threats will help reduce the severity of the effects of climate change. Good baseline data on fauna exist for the park and neighbouring Bruxner Park Flora Reserve which may be used in monitoring the potential changes in the park's animal communities in response to climate change.

5. MANAGEMENT STRATEGIES AND ACTIONS

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>5.1 Soil and Water Conservation</p> <p>Most of the headwaters of Bucca Bucca Creek, recognised as an important and pristine waterway, lie within the park. All soils in the park have a high erosion potential. The major areas of erosion at the time of the park's gazettal were along vehicle trails and roads. NPWS has carried out substantial works to stabilise those roads that are necessary for access and management, thereby reducing silt loads into the streams of the planning area.</p> <p>Unregulated use of management trails remains an ongoing cause of erosion. During prolonged periods of wet weather, use of Swans and Shelter roads may also pose a sedimentation hazard for the park's waterways.</p>	<ul style="list-style-type: none"> The impact of soil erosion on the values of the reserve is minimised. 	<p>5.1.1 Undertake all works in a manner that minimises erosion and water pollution.</p> <p>5.1.2 Undertake periodic upgrading of roads and trails to reduce sediment loads entering watercourses within the park.</p> <p>5.1.3 Gate management trails as required to prevent unauthorised vehicle use.</p> <p>5.1.4 Institute closure of the park during extended wet periods to protect road surfaces from erosion (see strategy 5.6.3).</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>
<p>5.2 Native Plants and Animals</p> <p>The eucalypt and rainforest communities occurring in the park contain a diversity of species. Surveys for the presence of significant plants in the park have been carried out alongside roads and trails. Four threatened plant species have so far been recorded but at least another four are predicted to occur. Twenty-two threatened fauna species are known to occur in the park and neighbouring forest. Of these, recovery plans for the yellow-bellied glider and large forest owls are approved. Other recovery actions are currently included in the Priorities Action Statement.</p> <p>The lowland subtropical rainforest present in the park is part of an endangered ecological community and requires bush regeneration along its margins to limit the impacts of weeds on its values. Limited but important areas of the park are in an old growth condition and have</p>	<ul style="list-style-type: none"> The diversity of native species and communities is conserved. Structural diversity and habitat values are restored in areas subject to past disturbance. There is improved understanding of the park's biodiversity, its diversity, distribution and its ecological 	<p>5.2.1 Identify habitat trees and populations of threatened plant species occurring along roadsides and avoid damage during road maintenance works and prescribed burns.</p> <p>5.2.2 Undertake bush regeneration, particularly in rainforest margins and in the habitat of threatened species to reduce the impacts of weeds.</p> <p>5.2.3 Encourage or undertake further targeted surveys for threatened plants species, including those predicted to occur in the park.</p> <p>5.2.4 In liaison with Coffs Harbour City Council, neighbours, Landcare groups and other relevant agencies, encourage the retention and appropriate management of key habitat and corridors adjacent to</p>	<p>High</p> <p>Medium</p> <p>Low</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>structural attributes such as hollows which are important for a range of fauna. Regrowth forests elsewhere in the park that have been logged have simpler uniform-age structures.</p> <p>A long-term fauna study of the park and the adjacent Bruxner Park Flora Reserve has detailed the diversity of vertebrate animals present in these protected areas, and can be used for monitoring changes in animal populations.</p> <p>The park and flora reserve lie in a forested corridor which is recognised as a regional corridor for wildlife movement, linking the coast with the hinterland (Scotts 2003). Long term conservation of the reserve's biodiversity would be enhanced by the retention of remaining vegetation on neighbouring lands.</p>	<p>requirements.</p>	<p>the park.</p> <p>5.2.5 Implement other relevant strategies from recovery plans or the priorities action statement to assist in the recovery of threatened species.</p> <p>5.2.6 Encourage the establishment of a permanent monitoring program to assess changes in vertebrate fauna communities. This program should focus on frogs, bats and arboreal mammals, which are key indicators of forest health and the impacts of climate change.</p>	<p>High</p> <p>Low</p>
<p>5.3 Cultural Heritage</p> <p>Ulitarra National Park is culturally significant to the Gumbaynggirr people and its landscape is featured in one of their creation stories. The park was used for day-to-day purposes (such as travelling, hunting and collection of food and bush medicines) as well as for ceremonies. One Aboriginal site is recorded from the park, although it is likely that others are present.</p> <p>Evidence of the park's history of logging is limited to tree stumps (some of which bear the scars of board cuts), changed forest structure in areas of more recent logging and old snig tracks. There are no other historic sites recorded from the park.</p> <p>The Ulitarra Conservation Society actively lobbied for the park's protection and has a strong ongoing association with the park.</p>	<ul style="list-style-type: none"> Aboriginal and historic values are identified, recorded and, where appropriate, protected. Aboriginal people are involved in the management of the park, particularly in regard to Aboriginal cultural values. Understanding of the park's cultural values is improved. 	<p>5.3.1 Consult and involve the Coffs Harbour Local Aboriginal Land Council, the Garlambirla Guuyu Girwaa and Mudjay elders groups and other relevant Aboriginal community organisations in the management of the park, particularly in relation to Aboriginal sites, places and values, their interpretation and research.</p> <p>5.3.2 Implement agreed management guidelines during road maintenance works on Swans Road for the protection of the site.</p> <p>5.3.3 Undertake further site surveys along the escarpment, particularly after fire.</p> <p>5.3.4 Record historical features present in the park and allow to decay with time.</p> <p>5.3.5 Encourage research into the history of the park.</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Low</p> <p>Low</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>5.4 Pest Plants and Animals</p> <p>Noxious weeds occurring in the park include lantana, groundsel bush, giant Parramatta grass and crofton weed. An environmental weed of particular concern in the park is camphor laurel, which is spreading from mature trees that grow on neighbouring private property.</p> <p>Control programs for these weeds and other weeds along roadsides are undertaken regularly, in accordance with the Regional Pest Management Strategy (NPWS 2008).</p> <p>The Regional Pest Management Strategy identifies the desirability for integrated weed and pest control across the landscape, to maximise the effectiveness of control programs. Weed control programs in the park would be assisted by camphor laurel control on neighbouring land.</p> <p>Pest animals of concern are the European red fox, feral cats and wild dogs and there is the potential for chital deer to spread into the park. No control program for these species on the park is currently in place, although some baiting for foxes occurs on neighbouring private property.</p>	<ul style="list-style-type: none"> The impacts of pest plants and animals are controlled. Control programs are undertaken in consultation and cooperation with neighbours. 	<p>5.4.1 Manage introduced species in accordance with the Regional Pest Management Strategy.</p> <p>5.4.2 Monitor noxious and significant environmental weeds. Treat any new outbreaks where possible.</p> <p>5.4.3 Cooperate with neighbours, other land management authorities and council in cooperative pest management programs as appropriate.</p>	<p>High</p> <p>High</p> <p>Medium</p>
<p>5.5 Fire Management</p> <p>There have been eight recorded fires in the park since 1952. There are no assets at risk, however the park contains rainforest communities and hollow-bearing trees which are sensitive to fire.</p> <p>The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (NPWS 2005). A separate fire strategy has been prepared for this park (NPWS 2006) however a</p>	<ul style="list-style-type: none"> Life, property and natural and cultural values are protected from fire. Fire frequencies are appropriate for conservation of native plant and animal communities. 	<p>5.5.1 Develop and implement a map-based fire management strategy for the park. Until this is prepared, implement the existing text-based strategy.</p> <p>5.5.2 Participate in the Coffs Harbour BFMC. Maintain cooperative arrangements with RFS brigades and fire control officers, Forests NSW and surrounding landowners in regard to fuel management and fire suppression.</p>	<p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>map-based strategy will assist in the communication of fire objectives and tactics for the park.</p> <p>Consistent with the Coffs Harbour Bush Fire Risk Management Plan, this strategy identifies the park as a Land Management Zone (LMZ). Apart from the overriding legislative objective of protecting life and property, LMZs do not require intensive management, instead focusing on those actions appropriate to conserve biodiversity and cultural heritage. These management actions include exclusion of unplanned fires and the maintenance of the roads and management trails necessary for the control of fire (see map).</p>		<p>5.5.3 Manage the park to protect biodiversity in accordance with the identified fire interval guidelines for vegetation communities (Table 3), including the exclusion of fire from rainforest areas and along watercourses.</p> <p>5.5.4 Undertake small strategic burns within the ridge-top dry sclerophyll forest to establish a mosaic of fuel ages. Action to protect habitat trees will be incorporated in the prescriptions for these fires.</p>	<p>High</p> <p>Medium</p>
<p>5.6 Recreational Opportunities</p> <p>The park has limited current visitation facilities, and this is largely appropriate, given the provision of facilities within the adjacent flora reserve. There are however opportunities to link with these facilities and expand the range of experiences offered to visitors to the park, to accommodate increasing demand for recreation in a natural setting as the Coffs Harbour population increases.</p> <p>Along with roads in Orara East State Forest, the park forms part of a half-day tourist circuit from Coffs Harbour which is suitable for four wheel drive vehicles. Visitors should check with Forests NSW regarding road conditions within state forest to the west of the park before attempting this drive. Access to the park from the east (as far as Gutter Trail) is suitable for two wheel drive vehicles in dry conditions.</p> <p>Horse riding is rarely undertaken in the park. The steep slopes and erodible soils in the park (refer to section 3.1), plus the presence of roadside populations of threatened plant species, mean that horse riding has the</p>	<ul style="list-style-type: none"> • Visitor use is appropriate and ecologically sustainable. • Visitor use encourages appreciation of the reserve's values. • The local community is aware of the significance of the area and of management programs. 	<p>5.6.1 Provide public vehicle access on Swans and Shelter roads (see map), and maintain these roads to dry-weather 2WD standard. Monitor levels and impacts of use.</p> <p>5.6.2 In liaison with Forests NSW and Coffs Coast Tourism, promote visitation to Ulidarra National Park focussing on those experiences that differ from recreational opportunities in Bruxner Park Flora Reserve (e.g. hiking tracks and unsealed drives).</p> <p>5.6.3 During times of adverse weather, the park may be closed for public safety (see strategy 5.1.4).</p> <p>5.6.4 Encourage the use of roads and management trails for walking and cycling. Provide signage at the start of management trails to promote this use. Orientation and interpretative signage may also be provided as appropriate. Cycling may be permitted on suitable walking tracks by signage.</p>	<p>High</p> <p>Medium</p> <p>Low</p> <p>Low</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>potential to adversely impact on the park's values. As the roads and trails are narrow, there is also the potential for conflict with other park users.</p> <p>Use of the park in adverse weather conditions poses a threat to both visitor safety and water quality in the park's streams. Visitation to the park is therefore not recommended during these periods. Bush camping in particular is potentially dangerous in ridge-top open forests or in areas dominated by blackbutts, such as at End Peak, due to limbfall and lightning.</p> <p>The park contains a number of management trails which can be promoted and used for bushwalking and cycling. These trails are currently linked by unmarked walking routes to the walking track network in Bruxner Park Flora Reserve. While cycling is generally not permitted on walking tracks, some tracks in the park, e.g. the Ulidarra Walking Track and parts of End Peak Walking Track, are of sufficient width and configuration to make them suitable and safe for cycling as well as walking.</p> <p>There is currently one commercial tour operation licensed for the park, which takes groups of motorcycles along park roads. Other commercial operations and non-commercial group activities may also be appropriate.</p> <p>Licensed riders on registered motorcycles are permitted to use park roads but not management trails, walking tracks or off roads. A growing problem is unauthorised use of motorbikes, particularly unregistered bikes ridden by unlicensed riders. A region-wide strategy to address the problem of illegal trail bike riding is currently in preparation. This will identify the various instruments that can be used to enforce the law, including education programs.</p>		<p>5.6.5 In liaison with Forests NSW and local bushwalking groups, investigate the feasibility of marking or signposting walking routes linking the park's management trails to Sealy Lookout and the walking track network in Bruxner Park Flora Reserve. If feasible, install and maintain appropriate low-key directional signage.</p> <p>5.6.6 Permit bush camping in the park except in areas within 500 metres of End Peak or within 200 metres from roads open to public vehicles.</p> <p>5.6.7 Prohibit horse riding in the park.</p> <p>5.6.8 Liaise with NSW Police, Forests NSW and other neighbours to address the environmental and social impacts of trail bike use in the park.</p> <p>5.6.9 Work with relevant state government agencies to resolve issues regarding access to the park. This may include the development of access to the park for walkers, cyclists and management vehicles.</p> <p>5.6.10 In consultation with neighbouring landholders, install signage, fencing or route marking as required to reduce the incidence of trespassing on private property.</p>	<p>Low</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>5.7 Management Operations</p> <p>The major management operations within the park are road and trail maintenance, weed control and fire control. Access for management purposes is principally along roads through neighbouring state forest that are open to the public and along the park road and management trail network indicated on the map. Roads through state forests may be impassable, particularly after adverse weather conditions.</p> <p>The intersection of Gutter Trail with Shelter Road is dangerous, particularly for turning vehicles.</p> <p>In the past, the park has been accessed from Shephards Lane via a trail which is partly located on private property. The addition to the park of Crown Reserve 63790 at the end of Shephards Lane may solve continuing problems with public access from the south.</p>	<ul style="list-style-type: none"> • Management facilities and operations adequately serve management needs and have minimal impact. 	<p>5.7.1 Maintain the roads and management trails in the park as shown on the map.</p> <p>5.7.2 Close and rehabilitate all other trails.</p> <p>5.7.3 Investigate the feasibility of improving safety of the intersection of Gutter Trail and Shelter Road. If required, realign and or widen this intersection.</p> <p>5.7.4 Work with other authorities to add appropriate land to the park that assists park management.</p> <p>5.7.5 Liaise with Forests NSW regarding maintenance of access roads outside the park.</p>	<p>High</p> <p>Low</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

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

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

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

6. REFERENCES

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