

BIMBERAMALA NATIONAL PARK

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment and Climate Change NSW

September 2007

This plan of management was adopted by the Minister for Climate Change, Environment and Water on 5th September 2007.

Acknowledgments

This plan of management is based on a draft plan prepared by staff of the South Coast Region of NPWS.

Valuable information and comments were provided by departmental specialists, the Regional Advisory Committee and members of the public.

Cover photograph of a waterhole on the Bimberamala River.

For additional information or enquiries about any aspect of the plan, contact the NPWS Ulladulla Office at Lot 9 Coller Road, Ulladulla or by phone on (02) 4454 9500.

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FOREWORD

Bimberamala National Park is located on the South Coast of New South Wales, approximately 25 kilometres northwest of Batemans Bay.

Bimberamala National Park contains steep forested ridges and gullies, intersected by the Bimberamala River. It includes areas of old-growth forest and six vegetation communities that are rare in the region or have a restricted distribution, including patches of temperate rainforest. Five threatened animal species have been recorded in the park.

Camp sites indicate that Aboriginal people utilised the resources of the area, probably travelling along the rivers and ridges. The southeast corner of the park and areas within adjacent State forests contain the remains of goldmining activities from the late 19th and early 20th centuries.

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

A draft plan of management for Bimberamala National Park was placed on public exhibition for three months from 27th May until 29th August 2005. The submissions received were carefully considered before adopting this plan of management.

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

Phil Koperberg
Minister for Climate Change, Environment and Water

RESERVE PROFILE

- GAZETTAL DATE:** 1 January 2001
- AREA:** 4,396ha
- LOCATION:** Relatively remote location in South Coast hinterland south west of Ulladulla. Shoalhaven City Council LGA. Currowan and Brooman 1:25,000 map sheets.
- LANDFORM:** Steep terrain, elevation range from 70m to 570m ASL. The Bimberamala River winds through a deeply incised valley with narrow river flats. Lies within the Clyde River catchment.
- GEOLOGY:** Tightly folded Ordovician sediments of siltstone, quartzite, and slate, with narrow bands of alluvium along the river.
- VALUES:** Forested landscape with areas of old growth forest. Contains 6 rare or restricted vegetation communities including rainforest and tall riverine forest. Known populations of 5 threatened animal species and 6 regionally uncommon plant species. Remains of former late 19th century gold mining activities including shafts, chimneys and a village site. An Aboriginal camp site has been recorded and there is a high potential for other sites to occur. Protects part of the Bimberamala and Clyde River catchments.
- VISITOR USE:** There is a network of vehicle trails through the park and surrounding state forest. There are no other visitor facilities in the park but Mogood Lookout on the eastern boundary in adjacent state forest provides extensive views of the park and surrounding lands. Opportunities for vehicle touring, scenery viewing, walking along the river, bush camping and fishing. Limited value for horse riding and cycling due to steep terrain. Low visitor numbers.
- ISSUES:** Some areas affected by past logging and grazing; high erosion potential and ongoing sediment contribution from steep vehicle trails, particularly at creek crossings; weeds along disturbed river flats; low populations of foxes, wild dogs, pigs and possibly deer. Visitor safety concerns in former gold mining area. Fire regimes must promote conservation of significant vegetation, recovery of disturbed areas and protection of neighbouring lands. The park's convoluted boundary complicates management.
- MANAGEMENT:** The primary management emphasis will be conservation of significant vegetation communities, threatened species and catchment values. This will be achieved primarily through appropriate fire management, control of introduced species and closure of former logging trails that have no management or recreation value. Because of its landscape and remote location the park is best suited to ongoing provision of opportunities for vehicle touring, low key camping, remote walking, fishing and exploration. No visitor facilities will be provided apart from vehicle trails but interpretive information will be installed at Mogood Lookout in conjunction with Forests NSW.

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1. MANAGEMENT CONTEXT

1.1 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 matters to be considered in the preparation of a plan of management are listed in Section 72AA of the NPW Act. NPWS policies relate to nature conservation, cultural heritage conservation, recreation, commercial use, research and information provision.

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

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

1.2 MANAGEMENT PURPOSES AND PRINCIPLES

National Parks

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

Under the Act, national parks are managed to:

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

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

Regional Forest Agreements

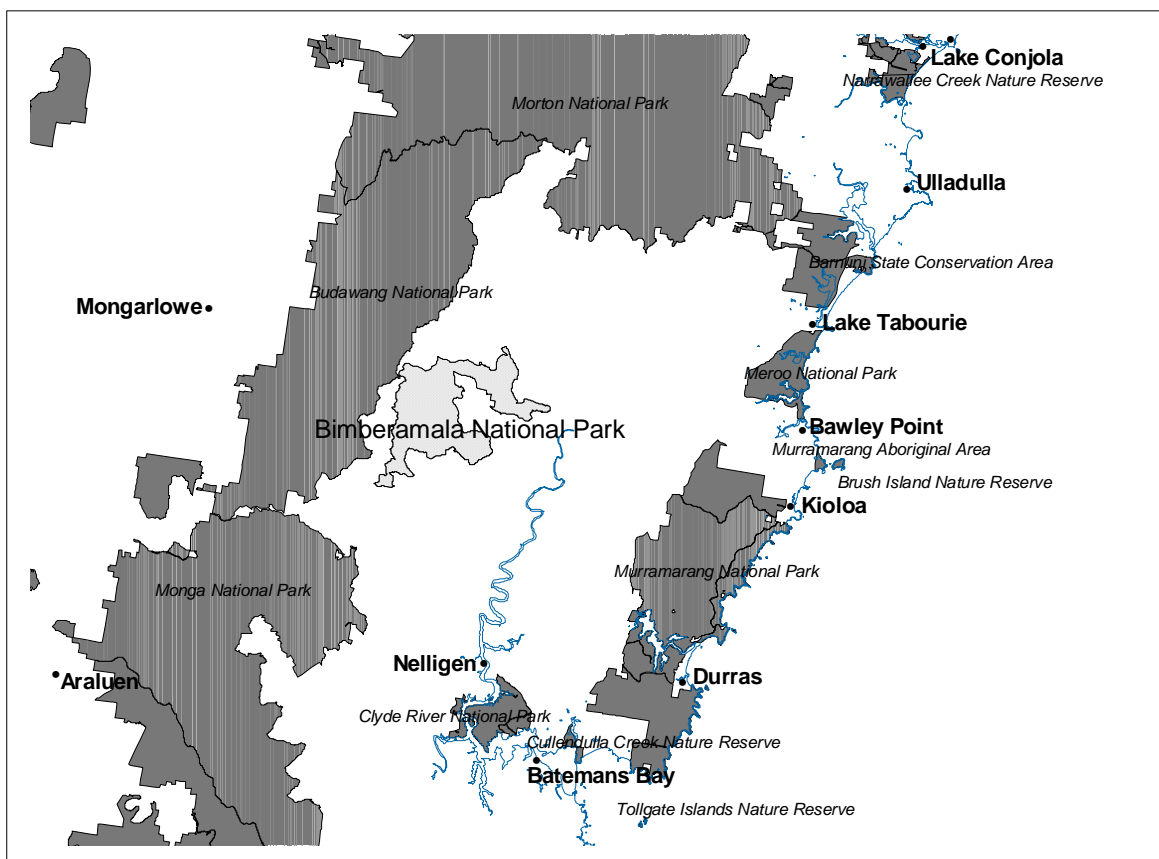
Bimberamala National Park is covered by the Southern Regional Forest Agreement. Regional Forest Agreements (RFA) are one of the principal means of implementing the National Forest Policy Statement of 1992. Under this Statement Commonwealth, State and Territory governments agreed to work towards a shared vision for Australia's forests. Joint comprehensive regional assessments (CRA) were undertaken of the natural, cultural, economic and social values of forests and these assessments formed the basis for negotiation of RFAs providing for, amongst other things, ecologically sustainable forest management.

2. THE PLANNING AREA

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Bimberamala National Park is located on the South Coast of New South Wales approximately 25 kilometres north west of Batemans Bay, within the Shoalhaven City local government area. It was reserved in January 2001 as part of the Southern Forest Agreement. The park has an area of 4,396 hectares and covers former areas of Clyde, Yadboro, Currowan and Shallow Crossing State Forests, including the former Lyons Creek and Mogood Forest Preserves.

The park forms part of a system of conservation reserves on the South Coast and is very close to the much larger Budawang National Park. It protects part of the catchment of the Bimberamala River which flows through the park. The surrounding land use is predominantly forestry but rural properties border the eastern edge of the park.



2.2 LANDSCAPE CONTEXT

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

The park landscape consists largely of steep forested ridges and gullies. The dominant feature is the winding Bimberamala River, with its riffles and pools. The geology, landform, climate and plant and animal communities, together with the relatively remote location, have determined how the park area has been used by humans. Camp sites indicate that Aboriginal people utilised the resources of the area, probably travelling along the rivers and ridges. Non-indigenous people have undertaken gold mining and forestry since the late 19th century and small amounts of grazing and recreation. These uses have had an impact on the vegetation structure and formed the existing network of roads and trails.

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

3. KEY VALUES AND MANAGEMENT DIRECTIONS

3.1 VALUES OF THE AREA

Natural values

Bimberamala National Park has the following important natural values:

- contains six vegetation communities that are rare in the region or have a restricted distribution, including patches of temperate rainforest;
- contains areas of old growth forest and makes a significant contribution to the conservation of two old growth forest ecosystems;
- contains six regionally uncommon plant species that are near their known limits of distribution and has habitat for the ROTAP (rare or threatened Australian plants) species *Pultenaea villifera* and *Prostanthera porcata*;
- contains populations of five threatened animal species, the glossy-black cockatoo (*Calyptorhynchus lathamii*), masked owl (*Tyto novaehollandiae*), powerful owl (*Ninox strenua*), spotted-tailed quoll (*Dasyurus maculatus*) and eastern bent-wing bat (*Miniopterus schreibersii oceanensis*), and provides potential habitat for several other threatened animal species;
- protects part of the catchment of the Bimberamala River and plays a significant role in protecting river water quality. The Bimberamala River is part of the Clyde River system, which is significant for the largely natural condition of most of its catchment.

Cultural heritage values

An Aboriginal camp site has been recorded within the park and a large number have been recorded in the immediate vicinity. There is high potential for archaeological sites to occur throughout the park, particularly along ridges and creek lines. Such sites are important to Aboriginal communities and provide information about past use of the area.

The south east corner of the park and areas within adjacent state forest contain the remains of goldmining activities from the late 19th and early 20th centuries. The area has numerous shafts plus hut sites, battery sites, fire places and dray tracks. There are few remaining structures within the park apart from shafts but the former town site is of particular interest. Bimberamala was also used for grazing and for forestry activities during the 20th century.

Recreation and scenic values

The park is located in a relatively remote and extensively forested area of the South Coast hinterland that has high value for vehicle touring and bush camping. The Bimberamala River, while quite narrow and shallow along much of its length, is attractive and a focus for visitors, particularly for swimming, fishing and walking. Some of the park's vehicle trails have the potential to provide opportunities for cycling and horse riding in attractive forest environments but the steep terrain limits use.

Exceptional views of the park and the adjacent Budawang Range can be seen from Mogood Lookout, located within state forest on the eastern boundary of the park.

3.2 MANAGEMENT DIRECTIONS

Bimberamala National Park is a relatively new national park and has no visitor facilities except for vehicle trails. Because of its landscape and remote location it is unlikely to receive significant levels of use and is unsuitable for development of significant visitor facilities. It will continue to be available for vehicle touring and low key camping. In cooperation with Forests NSW, picnic tables and visitor information will be provided at Mogood Lookout.

Primary management emphasis will be on conservation of the significant vegetation communities and plant and animal species occurring in the park and protection of the catchment of the Bimberamala River. Areas of the park that have been disturbed by logging will be allowed to regenerate naturally, assisted by closure of unnecessary vehicle trails, weed control in the riverine communities and appropriate fire management. Surveys will be undertaken to improve knowledge of the area's significant plant and animal species.

The former gold mining area will not be actively promoted in order to minimise disturbance of remaining structures and because of the presence of open mine shafts. Public safety information will be provided at key locations. A conservation assessment and management plan will be prepared to determine significance and any necessary conservation work.

4. CONSERVATION OF NATURAL AND CULTURAL HERITAGE

4.1 GEOLOGY AND LANDFORM

The geology of Bimberamala National Park is relatively homogenous and is dominated by tightly folded, Ordovician undifferentiated metasediments including siltstone, quartzite, phyllite and slate. Narrow bands of riverine alluvium of Quaternary and recent origin occur along the Bimberamala River valley (CSIRO 1995).

Gold bearing strata occur in the south eastern corner of the park. Reef and alluvial mining during the late 19th and early 20th century removed the economic deposits (see section 3.5 Historic Heritage).

The topography of the park comprises rugged, steep terrain. Elevation varies from approximately 70 metres above sea level in the north east along the river to approximately 570 metres in the west along the Bimberamala Trail. Most of the park, however, is located at an elevation below 300 metres. The Bimberamala River valley is narrow and deeply incised, with only minimal development of river flats within the park.

The park is situated almost entirely within the catchment of the Bimberamala River with the exception of the two former forest preserves, which lie outside the catchment. The former Mogood Forest Preserve is located in the headwaters of a small catchment that flows directly to the Clyde River and the former Lyons Creek Forest Preserve is located in the headwaters of Currowan Creek catchment. The Bimberamala River follows a large loop around and through the park and eventually flows into the Clyde River north east of the park.

The forest slopes are attractive and scenic views are afforded from a number of vantage points in the park. The Bimberamala River has high landscape value but is accessible at only a few locations.

Desired Outcomes

- Geological features and scenic values are protected.

Strategies

- *Maintain the scenic values of the park when viewed from public access roads, Mogood lookout and other vantage points.*
- *Liaise with Forests NSW, other neighbours and authorities as needed to minimise the impact of adjacent land use on the scenic values of key locations in the park, particularly Mogood Lookout and Bimberamala River Road.*

4.2 NATIVE PLANTS

The comprehensive regional assessment undertaken for the Southern Forest Agreement provided preliminary mapping of forest ecosystems in the park and this modelled information was updated by a recent survey (Douglas and Bell 2003).

The park primarily supports a mix of open forest and tall moist forest with occasional areas that tend towards a more woodland-like structure. It includes areas of old growth forest found in steeper, less accessible terrain and within the former Lyons Creek and Mogood Forest Preserves. Some strips of riparian closed scrub and patches of temperate rainforest are also found in the park.

Forests NSW records indicate that approximately 15% of the park has been subject to selective logging. Areas south of the Bimberamala River were logged in the mid 1960s, the north eastern section was logged in 1990 and the central area and south eastern corner were logged in 1991. Parts of the south eastern corner would have been subject to clearing during the former gold mining era.

The distribution of eucalypt forest types is largely a function of topography, in particular altitude and aspect. Three vegetation types occupy nearly 92% of the park:

- on ridges and exposed slopes is a heathy stringybark (yertchuk *Eucalyptus consideniensis*) and silvertop ash *E. sieberi* association known as Northern Plateau and Escarpment Heath Shrub Dry Forest. The majority of this forest community can be considered to be old-growth forest as it rarely contains any commercial timber resources and most of it would not have been affected by logging. Access trails associated with logging have, however, fragmented many of the ridgetops where this forest association occurs. Important attributes such as trees bearing large hollows are present at low densities. The community provides potential habitat for the nationally rare plant species *Pultenaea villifera* var. *villifera* and possibly the threatened midge orchid *Genoplesium vernale*;
- on sheltered slopes and gullies are the moist forest associations known as Southern Coastal Hinterland Moist Shrub/Vine/Grass Forest (dominated by yellow stringybark *E. muelleriana* and monkey gum *E. cypellocarpa*) and Coastal Escarpment and Hinterland Dry Shrub/Fern Forest (dominated by yellow stringybark and rough-barked apple *Angophora floribunda*). These forest associations contain relatively high levels of commercial timber resources and are likely to have been extensively logged. Some areas of moist old growth forest occur in localities with difficult access.

Thin strips of the heathy silvertop ash association, Southern Coastal Foothills Dry Shrub Forest, occur along ridge tops. Small areas of this community, largely located within the former Mogood and Lyons Creek forest preserves, are old growth forest.

A small area (12 hectares) of the grassy stringybark association, Southern Coastal Hinterland Shrub/Tussock Grass Dry Forest, dominated by blue-leaved stringybark *E. agglomerata* and yellow stringybark occurs in the south east of the park. It is likely that logging occurred in this vegetation association and dense stands of black oak *Allocasuarina littoralis* are probably a response to fire and logging history. Areas of

old growth remain, however, and the park makes a significant contribution to the total old growth area for this ecosystem. The community is regarded as significant due to its relative rarity and scattered distribution and potential habitat for a number of terrestrial orchid species. Targeted survey is needed to check for orchids.

The spotted gum association, Coastal Lowlands Cycad/Shrub Dry Forest, also occurs at the eastern end of the park (31 hectares) and is dominated by spotted gum *Corymbia maculata*, with grey ironbark *E. paniculata* ssp. *paniculata* and yellow stringybark as occasional co-dominants. Most, if not all, of this vegetation type is regrowth and was probably subject to intensive logging. Nevertheless, the park makes a significant contribution to the conservation of this ecosystem in the region.

The main riverflat community along the Bimberamala River is Southern Hinterland Shrub/Herb/Grass Riparian Forest, dominated by river peppermint *E. elata* with occasional smooth barked apple and Sydney blue gum-bangalay *E. saligna*-*E. botryoides*. The wider flats have been modified by grazing, associated burning and some alluvial gold mining and to a large extent are regrowth, with bracken *Pteridium esculentum* often prevalent. This community is significant, however, due to its rarity in the park and within the region. Along the riverbanks is a disturbed riparian association dominated by water gum *Tristaniopsis laurina* with river oak *Casuarina cunninghamiana* as the primary emergent.

Two rainforest communities occur in the park. A blend of the rainforest types Lowland Warm Temperate Rainforest and Coastal Hinterland Sub Tropical Warm Temperate Rainforest is found in locations that are topographically protected from fire, particularly on eastern and south-eastern slopes (total 57 hectares). Ninety percent of this community is found in the former Lyons Creek Forest Preserve and is considered to be old growth forest. Small areas (154 hectares) of a blend of the rainforest types known as Coastal Hinterland Ecotonal Gully Rainforest and Southern Coastal Hinterland Dry Gully Rainforest occur primarily in gully heads and associated watercourses. Compared to the Lowland Warm Temperate/Coastal Hinterland Sub Tropical Warm Temperate Rainforest blend, this community is more often floristically depauperate and structurally simple. Many gullies also carry a substantial young rainforest understorey within moist forest associations.

Rainforests in Bimberamala National Park are important due to their natural rarity and as they contain species that are generally absent from the widespread sclerophyll communities. They also contain several species that are near their southern distributional limits and are regionally uncommon including churnwood *Citronella moorei*, featherwood *Polyosma cunninghamii*, elkhorn *Platynerium bifurcatum* ssp. *bifurcatum*, coda *Ehretia acuminata* and a fern *Tmesipterus parva* (Mills 2003).

Two non-forest associations occur in the park: a small heath/scrub community found on rocky outcrops in the north-west of the park, co-dominated by the shrubs *Beyeria viscosa* and *Babingtonia pluriflora* (Budawang form), and a mallee/heath community found in the far central-west of the park. The latter is comprised of species similar to the understorey found in typical Northern Plateau and Escarpment Heath Shrub Dry Forest but with distinctive copses of privet-leaved stringybark *E. ligustrina* and possibly Port Jackson mallee *E. obstans*. Both vegetation associations are of

conservation significance due to their rarity in the park and surrounding state forests. The substantial population of privet-leaved stringybark is regionally significant and is near its known limit of distribution.

Other species found in the park that are regionally uncommon and near their known limits of distribution are *Goodenia heterophylla* ssp. *eglandulosa*, *Beyeria viscosa*, white pomaderris *Pomaderris cinerea* and *Babingtonia pluriflora*.

As stated earlier, potential habitat is present for the rare plant species *Pultenaea villifera* which has been recorded near the north western border of the park. It is also possible that the rare plant *Prostanthera porcata* occurs as it has been recorded near the west and south western borders of the park. Potential habitat also exists for the recently described *Thismia clavarioides* which is a new species of fairy lantern found in warm temperate rainforests in nearby Morton National Park.

Desired Outcomes

- The full range of native plant species found in the park is conserved.
- Vegetation structural diversity and habitat values are conserved, and are restored where subject to past logging and clearing.
- The significant and restricted communities are conserved.
- The habitat and populations of all significant plant species are protected.

Strategies

- *Protect significant plant species and restricted plant communities from visitor impacts and management operations.*
- *Undertake additional vegetation surveys, in particular to map regionally uncommon plants and check for the presence of *Prostanthera porcata*, *Pultenaea villifera* var. *villifera*, *Thismia clavarioides* and orchid species.*

4.3 NATIVE ANIMALS

Although parts of the park have been logged in the past it retains high fauna habitat values, particularly in the two former forest preserves. Habitat values are likely to increase as disturbed areas regenerate and, along with nearby Budawang National Park, Bimberamala National Park will play an important role as a refuge and source of recolonisation to surrounding logged areas.

As stated in section 3.1, five animal species listed as vulnerable under the Threatened Species Conservation Act have been recorded in the park; the glossy black-cockatoo, masked owl, powerful owl, spotted-tailed quoll and eastern bent-wing bat. Three other threatened species have been recorded nearby and are likely to occur in the park: the yellow-bellied glider (*Petaurus australis*), regent honeyeater (*Xanthomyza phrygia*) and sooty owl (*Tyto tenebricosa*). The park makes a significant contribution to the habitat available for the masked owl, sooty owl and spotted-tailed quoll. Recovery plans may be prepared for threatened species under the TSC Act and, if prepared, will be used to guide management of these species.

Habitat modelling indicates that the park may also provide habitat for a large number of additional threatened species: the greater broad-nosed bat (*Scoteanax rueppellii*), grey headed flying-fox (*Pteropus poliocephalus*), eastern false pipistrelle (*Falsistrellus tasmaniensis*), golden-tipped bat (*Kerivoula papuensis*), smoky mouse (*Pseudomys fumeus*), brush-tailed rock wallaby (*Petrogale penicillata*), southern brown bandicoot (*Isoodon obesulus*), white-footed dunnart (*Sminthopsis leucopus*), swift parrot (*Lathamus discolor*), olive whistler (*Pachycephala olivacea*), pink robin (*Petroica rodinogaster*) and square-tailed kite (*Lophoictinia isura*). Habitat modelling shows that the park may also contribute to the conservation of a number of regionally significant species, in particular the little red flying-fox (*Pteropus scapulatus*).

Records of native animals are collected and stored on the *Atlas of NSW Wildlife*, a state wide database established by the NPWS. Information is built up about locality, habitat and breeding records and used to assist in the management of native wildlife. The Atlas database lists a total of fourteen mammal species occurring in the park including the eastern grey kangaroo (*Macropus giganteus*), swamp wallaby (*Wallabia bicolor*), common wombat (*Vombatus ursinus*), sugar glider (*Petaurus breviceps*), greater glider (*Petauroides volans*), agile antechinus (*Antechinus agilis*), brown antechinus (*Antechinus stuartii*), bush rat (*Rattus fuscipes*), and six bat species of which the little forest bat (*Vespadelus vulturnus*) is the most commonly recorded. Sixty-six bird species have been sighted within the park of which the brown thornbill (*Acanthiza pusilla*), eastern spinebill (*Acanthorhynchus tenuirostris*), Lewin's honeyeater (*Meliphaga lewinii*) and white-naped honeyeater (*Melithreptus lunatus*) are the most commonly sighted. Three frog species and six reptile species have been recorded although many more species are expected to occur in the park.

A survey was undertaken during 2003 to check whether bats use the abandoned mine shafts from former gold mining activity in the south eastern part of the park. Bats were found only in a horizontal shaft on adjacent state forest land. This was the threatened large bentwing-bat (*Miniopterus schreibersii*) and it is probable that these bats feed in the park as well as in surrounding state forest (Spate, 2004).

The Bimberamala River may contain populations of the vulnerable fish species Australian grayling (*Prototroctes maraena*) and Macquarie perch (*Macquaria australasica*). The Department of Primary Industries has legislative responsibility for fish conservation but where significant fish habitats are located in or adjacent to national parks NPWS aims to minimise detrimental impacts on them. The main impacts on fish habitat are likely to be from trail erosion and creek crossings (see section 5.1).

Protection of the habitat values of the park depends on maintaining its connection to other large naturally vegetated areas, particularly because of its convoluted shape and relatively small size. Fortunately the park is largely surrounded by state forest and is close to Budawang National Park, which is separated from the park by a narrow strip of state forest.

Desired Outcomes

- The full range of native animal species found in the park is conserved.

- The habitat and populations of all threatened and regionally significant fauna species are protected and maintained.

Strategies

- *Design management operations, including any provision for visitor use, to protect the habitats of threatened and regionally significant species.*
- *Undertake targeted surveys for threatened and regionally significant animal species that may occur in the park but have not yet been recorded.*
- *Implement relevant measures included in recovery plans for threatened animal species when they are prepared.*
- *Liaise with neighbours to encourage retention of areas of significant native vegetation and animal habitat close to the park.*
- *Liaise with Forests NSW concerning protection of the population of the threatened bentwing bat in the former mining area.*

4.4 ABORIGINAL HERITAGE

The lands incorporating the park were part of the territory of South Coast Aboriginal groups speaking the Dharawal or Dhurga languages. It is likely that use was sporadic since the area is some distance from the coast, and primarily by small family groups travelling through the area. The South Coast Aboriginal people had a diverse economy, with trade and cultural links with neighbouring groups. It is possible that the Bimberamala area may have been shared with groups living primarily on the tablelands.

The landscape and the plants, animals and physical features within the landscape are all an integral part of Aboriginal cultural heritage. Within the park and surrounding areas there may be places that are significant to Aboriginal people. These may include archaeological sites, mythological sites, ceremonial sites and resource sites. Some sites may not contain any physical evidence of past use.

An Aboriginal camp site has been recorded on a ridgeline in the northern part of the park and a large number have been recorded nearby along the lower Budawang Range and the Clyde River. There is also an engraving site close to the park. There is high potential for similar sites to occur throughout the park, particularly along ridges and creek lines. It will be important to check for the presence of Aboriginal sites and places prior to any works involving ground disturbance.

The arrival of timbergetters, miners and pastoralists in the district during the 19th century is likely to have resulted in the introduction of disease, conflict and restricted access by Aboriginal people to places in their country. Some Aboriginal people were probably employed in the timber industry and it is reported that Browns Gully Trail was named after an Aboriginal charcoal burner who lived at Currowan (Goodland, 2002).

While the NPWS has legal responsibility for the protection of Aboriginal sites, it acknowledges the right of Aboriginal people to make decisions about their own

heritage. Therefore Aboriginal communities will be consulted and involved in the management of Aboriginal sites and values in the park.

Desired Outcomes

- Aboriginal sites and places are protected from damage by management and visitor activities.
- Aboriginal people are involved in management of Aboriginal cultural values in the park.

Strategies

- *Manage Aboriginal heritage in consultation with the Batemans Bay Local Aboriginal Land Council and other relevant Aboriginal community organisations.*
- *Ensure that visitor facilities are not located close to any significant Aboriginal sites and places.*
- *Undertake an archaeological survey and cultural assessment prior to all works that have the potential to impact on Aboriginal sites and places.*
- *Do not publicise the location of Aboriginal sites and places except where the agreement of relevant Aboriginal community organisations has been obtained. Prior to any promotion of a site or place, prepare a conservation study and undertake any management work necessary to protect the site or place.*

4.5 HISTORIC HERITAGE

The south eastern section of the park and adjacent state forest areas were the site of gold mining activities during the late 19th and early 20th centuries. The area was known as the Brimbramalla gold field and the first mining title, adjacent to the Bimberamala River in Yadboro State Forest, was registered in 1879. Work may have commenced as early as 1867, however, in relatively high level river terraces and along the riverbed (Spate, 2004). By 1891 a large number of leases were being worked along a line of reef and two batteries were in operation. By 1883 there were stores, blacksmiths shops and plans for a town site in the park area south of the river. Most of the easy gold had been won by 1885, however, after which mining activity slowed down considerably. By 1902, most mining activity was focussed on the Brimbramalla Mine, now located in state forest, and in 1906 only one mine was working. Some claims and leases were taken up again in the 1930s but were largely unsuccessful. All work on the field stopped in the 1940s apart from a prospecting licence taken out during the 1970s (Goodland, 2002).

The mining features have been surveyed and mapped. There are three major clusters of shafts, pits and costeans of which part of the southern cluster and all of the northern cluster are in state forest. The part of the southern cluster in state forest is easily accessible while the other features are relatively difficult to find. The park also contains some former hut sites, two battery sites, dray tracks and extensive alluvial diggings along the river. The only remaining structures in the town site are the partly buried floor of one hut and two chimneys. The dray tracks lead from the town site to an area of shafts north of the river.

A formal assessment of the significance of the mining remains has not been undertaken but it is likely that the area is of regional cultural heritage significance. A conservation management plan is needed to understand and conserve the area's archaeological and other cultural values and this should be undertaken across the whole gold mining landscape, in conjunction with Forests NSW.

Public visitation to the mining remains is sporadic but it is estimated that a few hundred people per year may visit the area. The presence of numerous shafts, many of which are hidden by vegetation, poses public safety concerns and warning signs have been erected along access roads in conjunction with Forests NSW.

The relatively remote location, the scattered and dispersed nature of the features in the park, safety concerns and the need to protect remaining structures makes it inappropriate to promote the area to visitors, at least at this stage. If visitor facilities other than fencing/gating, signage and other essential safety works are needed in the mining area in the future, an amendment to the plan of management will be prepared.

Small amounts of grazing have occurred along the river, particularly in areas where the river flats are wider. Goodland (unpublished) quotes from the late Charlie Backhouse "we would take the cattle over to Wrays Reef and let them loose up the Brim" and "the men would fire up the Brim flats during winter". Goodland (pers. comm.) reports that in the 1970s the flats were still open and grassy.

The park was formerly state forest and, as described in section 3.2, areas of the park have been selectively logged since the mid 1960s. Logging began in other parts of the district in the latter half of the 19th century but less accessible and less valuable areas such as Bimberamala were not logged until much later. Vehicle trails and minor changes to forest structure are the only obvious remains from the former logging activities. Mogood Forest Preserve was declared in 1975 and Lyons Creek Forest Preserve followed later.

Desired Outcomes

- Historic features are appropriately conserved and managed.
- Visitors are aware of the existence and safety hazard of derelict mine shafts in the south east corner of the park.

Strategies

- *Prepare and implement a conservation management plan, including an assessment of significance, for the former gold mining area in conjunction with Forests NSW. Pending preparation of the plan, the remains will be protected but not actively maintained.*
- *Do not actively promote public access to the former gold mining area or provide visitor facilities in close proximity.*
- *Maintain warning signs related to the presence of mine shafts. If needed, install essential safety facilities such as fencing.*

5. PARK PROTECTION

5.1 SOIL EROSION AND WATER QUALITY PROTECTION

The Ordovician metasediments that occur within the park produce gravelly and stony soils that are subject to sheet erosion and soil creep if cleared of vegetation (CSIRO 1995). The soils are generally low in nutrient levels but they support tall forest when present in depth (Forestry Commission 1983).

Because of the good forest cover, erosion is not a concern in the park except along the vehicle trails. Erosion is notable on some of the steeper trail sections and at points where trails cross the Bimberamala River. The very steep southwestern end of the Bimberamala Trail is a particular problem, as is the river crossing on the Western Link Trail. As well as affecting management access, eroding vehicle trails (both in the park and on the boundaries) can contribute significant amounts of sediment to creeks. There is also some potential for sediment to enter the river system from logging activities and fire management works in adjoining state forest. Regular trail maintenance will be important for minimising sediment input. Engineering solutions may be needed on steep trail sections and at the river crossings. Any changes to river crossings should be designed in conjunction with the Department of Primary Industries to allow fish passage.

Monitoring the impact of public vehicle use on trails will also be needed. Access to park trails may need to be restricted if use is causing excessive erosion and sediment introduction or is impacting on the primary purpose of the trails, that is for fire management access.

There are a number of overgrown former logging trails in the park that do not have any recreational value or management function. These will be closed where needed or allowed to continue to rehabilitate naturally, in order to reduce habitat fragmentation, predator access and sediment input into the river.

Apart from sediment introduction, water quality in park streams is good. Most drainage commences from within the park, apart from the Bimberamala River itself, and the river headwaters are located within Budawang National Park to the west. Invertebrate sampling by Environment Australia from 1994 to 1999 as part of the Australia-wide Assessment of River Health showed that invertebrate diversity in the river is generally comparable to reference sites. A few readings indicated periods of stress, possibly at low flow times.

Former gold mining areas in the south eastern part of the park (see section 3.5) may be a source of small amounts of mercury and cyanide entering into the Bimberamala River (Goodland 2002), however it is unlikely that levels are significant.

Desired Outcomes

- Human induced soil erosion in the park is minimised.
- The park's catchment values and the water quality and health of park streams are maintained.

Strategies

- *Design and undertake all works in a manner that minimises soil erosion and sediment input to park streams.*
- *Undertake regular road maintenance to minimise sediment input to waterways.*
- *Where necessary, undertake engineering works such as water diversion and constructed creek crossings to address significant trail or creek bank erosion. Design any new or upgraded creek crossings to permit fish passage in conjunction with the Department of Primary Industries.*
- *Monitor the public vehicle use of steep trails and river crossings and restrict access if necessary to minimise impacts.*
- *Liaise with Forests NSW to restrict access to trails and river crossings adjacent to the park where necessary to minimise downstream impacts and to encourage good soil conservation practices.*
- *Where needed, actively close trails that are not required for public or management access, to promote vegetation growth.*

5.2 INTRODUCED SPECIES

An introduced species is defined in this plan as any plant or animal species not native to the park. Introduced species within Bimberamala National Park and on adjoining land are of concern because they have the potential to cause detrimental effects on ecological values and can spread to and from neighbouring land. In addition, the *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands.

Vegetation communities adjacent to the Bimberamala River are the only areas in the park identified as having a weed management problem (Douglas and Bell 2003). These areas have been subject to disturbances such as logging and grazing and most readily support weeds because of the greater soil depth and moisture than on steep slopes. Blackberry (*Rubus fruticosus*) has been observed in small isolated patches along the river. Whilst not present in any significant amount, it has the potential to infest the remote riverine gullies if not treated and monitored. The other weed of concern is wild tobacco (*Solanum mauritianum*) which is not a declared noxious weed in the Shoalhaven. A survey of vegetation communities adjacent to the river is needed to ascertain the extent of the weed problem.

Foxes, wild dogs, pigs and deer are known to occur in the park and annual pest control programs are undertaken targeting some of these species in conjunction with Forests NSW. On-going monitoring of feral animals is important in order to ascertain their distribution and level of activity in the park. Control programs have been targeted to feral pigs and to foxes and dogs around adjacent private property where stock losses have occurred.

Desired Outcomes

- The impact of introduced species on native plants and animals is minimised.

Strategies

- *Control introduced species and eradicate them where practicable in accordance with threat abatement plans and best management practices in order to deliver optimal biodiversity outcomes.*
- *Monitor the presence of introduced species in the park and undertake a survey to check for the extent and abundance of weeds in vegetation communities adjacent to the Bimberamala River. If necessary, develop programs for control, and where possible eradication, of weeds in the riverine areas.*
- *Continue control programs for foxes, wild dogs, pigs and deer as necessary.*
- *Undertake control programs in cooperation with the South Coast Rural Lands Protection Board and Shoalhaven City Council. Seek the cooperation of neighbours, particularly Forests NSW, in implementing control programs.*
- *Liaise with neighbours as needed to ensure boundary fencing is effective in preventing domestic stock from entering the park.*

5.3 FIRE MANAGEMENT

Management of bushfire in the park is a complex issue. Fire is a natural feature of the environment and is essential to the survival of some plant and animal communities. Inappropriate fire, however, can damage natural and cultural heritage, affect nutrient cycles, erosion patterns and hydrological regimes. Fire can also endanger park visitors and neighbours. Management must aim to achieve both long-term conservation of native plant and animal communities and ongoing fire management obligations that contribute to the protection of life and property within and adjacent to the park.

Fire history

Forests NSW records indicate that wildfire burnt through most of the park area in 1957-58 and again in 1968-69. Smaller wildfires have burnt pockets of the park every five to ten years since then, in the years 1972-73, 1976-77, 1980-81, 1990-91 and 2002. The 2002 fire burnt the north eastern section of the park including the former Mogood Forest Preserve. Hazard reduction burning undertaken by Forests NSW has also occurred throughout much of the park, including two large burns in 1980-81 and 1982-83 which covered most of the central sections of the park.

Ecological requirements

Ecological research suggests the following requirements for biodiversity conservation:

- Variability of fire intervals and area burnt is important for conserving floristic diversity and providing diversity of habitat for animals. Fire at intervals

exceeding fire tolerance thresholds of native biota will lead to loss of species and should be avoided.

- 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 refuges. Adequate refuge areas should be available for fauna during any prescribed burn.
- Fires during the breeding season of significant native animals should be avoided as these fires are the most damaging to fauna communities.
- Where known, the fire requirements of threatened species and other significant animal and plant species should be considered and specific fire management strategies applied to ensure their protection.

The appropriate mix of fire frequency and intensity is influenced by a range of factors including land uses, topography and climate; for example drought may delay recovery following a fire.

Rainforest is damaged by fire, whether it be wildfire opening up the canopy and destroying the stand structure, or frequent cool burns drying the margins and encouraging the encroachment of grasses and other plants which create more fuel load around the edges. In rainforest areas outside the former Lyons Creek Forest Preserve, past logging activity may have opened up the canopy and increased the density of the understorey in some areas, making them more vulnerable to wildfires. The elimination of prescribed burning and protection from wildfire in and around rainforest vegetation is important for maintenance of these communities (Douglas and Bell 2003).

Tall moist forests often have a high proportion of rainforest species. Transitional rainforest and eucalypt forest occur in many parts of the park. In the absence of frequent fires over a long period, such forests may revert to rainforest. Wildfires may be necessary for canopy species regeneration in the park's wet sclerophyll forest, however prescribed burning is likely to be detrimental to the wet understorey and should be avoided (Douglas and Bell 2003).

Most canopy species in dry sclerophyll forests are adapted to infrequent high intensity fires, which may stimulate regeneration. Successive fires can circumvent the regeneration process if the fire interval is too short. However a long interval between fires can result in smaller shrubs and herbs disappearing from the understorey. The timing of prescribed burning in open forests should aim to achieve a balance between promoting and inhibiting regeneration of understorey species and managing fuel levels so as to limit the risk of species loss as a result of successive intense wild fires.

The fire regime requirements in the heathy low woodlands, heath and scrub found in the park are broadly similar. These vegetation types tends to grow rapidly after fire, quickly accumulating fuel, and then becoming fire prone again after two to four years. Frequent fires can lead to decline of fire-sensitive shrubs such as banksias, hakeas and some casuarinas. Conversely, medium to long-term fire intervals may lead to the decline of some herbs and shrubs. Species with heat-stimulated seed banks stored in the soil, such as wattles and pea-flowers, depend on sufficiently intense

fires for seed germination. The timing and intensity of burning is critical in the long-term management of these vegetation types.

Appropriate fire intervals for vegetation communities in the park are as follows:

Vegetation Type	Biodiversity decline predicted with:		
	successive fires less than x years apart	successive fires more than x years apart	absence of fire for more than x years
Rainforest	any fire occurrence		
Tall Moist Forest	30		200
Open Forest	5		30-50
Eucalypt Woodland	5		30
Shrubland / Heath	8	15	30

Source: (Douglas and Bell 2003)

As higher levels of disturbance, both logging and fire management, are expected to continue in the extensive state forests surrounding Bimberamala National Park, it is reasonable to attempt to maintain fire regimes within the park towards the longer end of interval ranges. In this way, there is greater chance of introducing variability and maximising biodiversity across the landscape.

Strategies and cooperative arrangements

Under the *Rural Fires Act 1997* the NPWS is a fire authority that may undertake fire suppression within reserves and under cooperative arrangements with other fire authorities. As a land management agency, the NPWS is responsible for managing fire on the park including activities that contribute to the protection of life, property and community assets both within the park and on adjoining lands. An important part of fire management for the park is participation by NPWS in local co-operative fire management arrangements, including implementation of Bush Fire Risk Management Plans developed by District Bush Fire Management Committees. The NPWS is a member of the Shoalhaven Bush Fire Management Committee.

A Fire Management Strategy has been prepared for the park that aims to maintain biodiversity and protect cultural heritage, life and property. The Strategy identifies natural and cultural values at risk and locations where fire may be a threat to adjacent lands. Strategic fire advantage zones have been identified along some roads and a private property boundary and fire management guidelines have been established for threatened species and the historic mining ruins.

Bushfire fuel management programs will be designed and implemented in cooperation with Forests NSW and rural neighbours. Trails will be maintained to appropriate standards. Water for fire suppression is available at several points along the Bimberamala River.

Mogood Lookout serves as a strategic fire viewing point because of the 360 degree view of the landscape provided at this location. Control of vegetation around the viewing point will be important in order to maintain the view.

Desired Outcomes

- Fire regimes are appropriate for long-term maintenance of the park's plant and animal communities.
- Human caused unplanned bushfires are minimised.
- The potential for spread of bushfires on, from, or into the park is minimised.
- Persons and property on, or immediately adjacent to, the park are provided protection from injury or damage by bushfires as far as possible.
- Aboriginal sites, historic places and culturally significant features are afforded protection from damage by bushfires and bushfire suppression activities.

Strategies

- *Implement the fire management strategy for the park.*
- *Use prescribed burns and slashing to manage fuel levels as needed in strategic areas and to achieve a variety of fire regimes that maintain fire thresholds for each vegetation community.*
- *Maintain strategic fire advantages where appropriate. Carry out fuel management in cooperation with Forests NSW and private property owners.*
- *Seek to avoid fires in rainforest and riparian areas.*
- *Avoid the use of heavy machinery for fire suppression in areas of significant vegetation communities, Aboriginal sites and mining ruins. Rehabilitate areas disturbed by fire suppression operations as soon as practical after fire.*
- *Continue to actively participate in the Shoalhaven Bush Fire Management Committee. Maintain close contact and cooperation with the Rural Fire Service, Forests NSW and volunteer bush fire brigades.*
- *As far as possible manage visitor activities to prevent human caused bush fires through such means as implementing park closures during extreme fire danger periods if necessary and educating visitors about not leaving fires unattended.*
- *Encourage research into the ecological effects of fire in the park, particularly the fire response of significant plant species and the fire requirements of significant plant and animal communities.*
- *In conjunction with Forests NSW assist in the control of vegetation growth adjacent to Mogood Lookout as needed, in order to maintain adequate views for fire detection.*

6. VISITOR OPPORTUNITIES AND INFORMATION

Existing use

Bimberamala is a relatively new national park and has no visitor facilities apart from vehicle trails. The park is used mainly for four-wheel drive vehicle touring and occasional trail bike touring, as part of the extensive opportunities available for these activities in the forests of the Clyde Valley. Visitor levels in the park are low and are likely to remain so because of its relatively remote location and lack of major recreation attractions.

Vehicle access

Vehicle access to the park is primarily from the west along The Western Distributor or from the east along Clyde Ridge Road. These are 2WD unsealed roads. A network of unsealed roads provides access around and through the park, along the main ridges and to the river at several locations. Due to the steepness of the terrain most of the roads require a 4WD-capable vehicle. The boundary trails are within state forest and link to the larger trail network.

Most of the trails around and in the park are located along ridges and can support public vehicle use as they are stable and have minimal potential for erosion and impacts on drainage. Some sections, however, are particularly steep or lead to steep river crossings. As stated previously (section 4.1) the impact of vehicle use on these trails will be monitored and access will be restricted if necessary.

Visitor orientation

The park has a very high edge to area ratio and its boundaries with adjacent state forest are not obvious. The boundaries largely follow roads, the Bimberamala River and catchment boundaries but the topography and vegetation within the national park and adjacent state forest are similar. Installation of road and park boundary signs will assist visitors in finding their way around the park and with awareness of the land tenure they are crossing.

Provision for visitor use

Provision for visitor use of the park has been considered in a regional context. There are day use and camping facilities within 10 minutes drive to the east of the park at Shallow Crossing on the Clyde River and to the north within 30 minutes drive at Long Gully in Budawang National Park, Blue Gum Flat in Morton National Park and at Yadboro Flat in Yadboro State Forest. Shallow Crossing is popular for swimming and Long Gully is a major entry point to the Budawang Wilderness for walkers. Nearby Pigeon House Mountain offers a high profile walk providing views into the wilderness. There are also a number of popular camp sites without facilities on the Bimberamala River in state forest immediately to the west and north east of the park and at other locations to the west and south. More developed day use and camping opportunities are available at several sites on the coast, including Murramarang National Park.

The primary recreational value of Bimberamala National Park is for remote area walking and vehicle touring (including motorcycling) as part of similar opportunities in the wider area. Features of interest to visitors are primarily the Bimberamala River, the remains of former goldmining activities and the varied and attractive forests. These features will be interpreted in a manner that protects their special values and encourages appropriate use.

The main opportunity for information provision is at Mogood Lookout, which is located immediately adjacent to the eastern boundary of the park, within state forest. This site provides expansive views over the park and surrounding forests towards the Budawang Range. It would be an excellent location to orientate visitors and to interpret the park's natural and cultural values and the overall forest landscape, subject to agreement from Forests NSW. Provision of interpretive information and possibly picnic tables could improve the site's recreation value and its role as a primary visitor focus for the park and surrounding forests.

Walking, cycling and horse riding

The park's vehicle trails provide some opportunities for cycling and horse riding, although use is likely to be limited because of the steep terrain. Riding and cycling will not be permitted on the northern part of Walkers Road, which leads to private property. Horse camping is not an appropriate activity in the park because of the lack of suitable locations.

There is no formal system of walking tracks in the park and walking tracks will not be constructed given the extensive walking opportunities in nearby parks. The Bimberamala River, however, could provide an informal route for remote area walking, both for day walks and overnight. A number of large pools along the river are a particular attraction and liloing may be a feasible activity.

The former gold mining area is also an attraction for walkers as it is easily accessible, but mine shafts make the area hazardous. The gold mining area is not suitable for promotion (see section 4.5) but should be part of the values interpreted to visitors at Mogood Lookout. The most accessible mining relics are in state forest, along Mines Road and Browns Gully Trail.

Camping

A small amount of informal vehicle-based camping occurs in the park adjacent to the Bimberamala River at the end of Bimberamala River Road. Use is only occasional, with no more than one or two tents at a time. The area available for camping is very small as there is little level land along the river. Use of this area for day use or short stay vehicle-based camping provides an opportunity for solitude and a remote bush experience, and is sustainable as long as use levels remain low. Camping may be restricted or vehicle access closed, however, if use levels increase significantly and the impacts and management requirements become unacceptable.

Walk-in pack camping occurs throughout the park.

Commercial use

Commercial motor cycle tours use some of the park's roads, camping nearby in state forest. Vehicle tours and other commercial activities are appropriate if they enable people to enjoy and appreciate the park's environment and are conducted in an environmentally sustainable manner. As with camping, monitoring of these activities will be required to ensure that there are no detrimental environmental impacts.

Desired Outcomes

- Visitors are aware of the park's conservation values and recreation opportunities and can find their way safely around the park.
- Visitor use is appropriate to the purposes of national parks and is ecologically sustainable.

Strategies

- *Emphasise the following themes in promotion and interpretation programs:*
 - *the history of use including Aboriginal use, gold mining, timber getting, the RFA process and the change to conservation;*
 - *environmental features such as the Bimberamala River, the range of vegetation communities and how the park fits into the regional landscape, including other parks in the area;*
 - *the role of the park in protecting significant habitats, providing a scientific reference area and a refuge from the surrounding logged forests; and*
 - *recreation opportunities such as vehicle touring, walking, scenic views and public safety in relation to derelict mine shafts.*
- *Install park boundary and road name signage on key roads in the park.*
- *Liaise with Forests NSW regarding installation of interpretive information and possibly picnic tables at Mogood Lookout.*
- *Allow pack camping throughout the park.*
- *Allow vehicle based camping at the end of Bimberamala River Road. Monitor camping and review if use increases significantly or impacts such as vegetation damage, pollution or erosion become unacceptable. Responses may include restrictions on camping or road closure to permit walk-in camping only. Consider installation of toilets if warranted by the amount of use and impacts. Do not promote camping in the park through signage or brochures.*
- *Allow picnic and camp fires, subject to safe set backs from vegetation. Place restrictions on use of fires and firewood collection if unacceptable impacts occur.*
- *Allow driving, motorcycle riding, bicycling and horse riding on public access roads only.*
- *Prohibit horse camping.*
- *Encourage use of minimal impact recreation practices through information signs and other means.*
- *Permit commercial and community group tours and activities subject to the following:*

- *limits on organised group sizes and frequency of use if necessary to minimise environmental impacts and conflicts with other park users; and*
- *a licence for commercial use.*
- *Monitor vehicle numbers within the park using counters placed strategically on trails. Make spot checks to record numbers of visitors using informal camp sites.*

7. RESEARCH AND MONITORING

The purpose of scientific study in national parks is to improve understanding of natural and cultural heritage and the processes affecting them. Research helps to identify the management requirements for particular species, communities or features and provides information to underpin effective decision making and to evaluate the effectiveness of management initiatives. The results of research and monitoring will be used to guide management programs.

As discussed in earlier sections, a vegetation survey was undertaken in the park to update modelling prepared under the Southern CRA but further survey is needed to check for rare and threatened plant and animal species. Surveys have been undertaken to map gold mining features but further research is needed to assess significance and develop management strategies. Earlier sections also provide for survey for Aboriginal sites and places prior to works and monitoring of visitor use.

Under the Southern Regional Forest Agreement all forest managers including Forests NSW, Department of Lands and the NPWS must demonstrate ecologically sustainable forest management (ESFM). ESFM is an over-riding management principle that aims to maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate, including:

- ecosystem biodiversity, health, vitality, productive capacity and functional processes;
- soil and water productive capacity and functional processes;
- long term social and economic benefit; and
- natural and cultural heritage values.

ESFM will be applied to all ecosystem types and implemented primarily through monitoring to provide feedback on management programs and directions for future adaptive management. Criteria and indicators for ecologically sustainable forest management have been identified and regional monitoring programs are being developed to demonstrate the impact of management actions on ecological functions. Remedial management actions will be undertaken as required.

The NPWS has begun a program of assessing and reporting on the condition and management adequacy of reserves through the State of Parks Program. This utilises a number of indicators related to the condition of natural and cultural heritage and visitor facilities, information availability and the management of threats such as fire and pests. Assessment of Bimberamala National Park indicates that overall it is in reasonably good condition.

Desired Outcomes

- Research is undertaken that enhances the information base and assists management of the park.
- Research causes minimal environmental damage.

- Monitoring programs are in place to detect any changes in the status of park values and are used to guide management decisions.

Strategies

- *Apply the principles of Ecologically Sustainable Forest Management to management operations. Develop ESFM monitoring programs in the park where warranted and use the results to guide management programs.*
- *Undertake research as needed to provide information about the park's natural and cultural heritage and human use in order to facilitate management. Give priority to research needs identified within this plan of management.*
- *Permit appropriate research by other organisations and individuals and promote research that is directly useful for management purposes.*

8. MANAGEMENT ACCESS AND OTHER USES

Access to the park is via state forest roads and trails that adjoin the park boundary in a number of locations. Terms agreed to under the Southern RFA include the preparation of a Memorandum of Understanding between NPWS and Forests NSW on joint usage of roads and trails including issues such as contributions to road and trail maintenance and access arrangements.

Four roads through the park – Clyde Ridge Road, Wallaby Road, Walkers Road and Dons Road – provide access to state forest or private property and are not gazetted as part of the park. These roads are vested in the Minister for the Environment on behalf of the Crown for the purposes of Part 11 of the NPW Act. Under the *National Parks Estate (Southern Region Reservations) Act 2000* (NPE Act) these roads can continue to be used for the state forest and private property access purposes for which they were used immediately before the park's creation. NPWS is not under any obligation to maintain Part 11 roads but may enter into maintenance agreements with the users. The northern part of Walkers Road has been designated as a management trail since it leads to private property, but will continue to be available for forestry and private property access.

Three commercial beekeeping sites are located in the southern section of the park and these will be allowed to continue in accordance with NPWS policy.

A number of organisations and individuals have an interest in management of the park, particularly neighbours with regard to issues such as fire management, weed and pest control, fencing and public access. On-going communication with a range of individuals, community groups and agency representatives will be needed.

Desired Outcomes

- The park vehicle trail system adequately serves the needs of management and has acceptable environmental impact.
- Non-park uses have minimal environmental impact.
- A good relationship is maintained with park neighbours.

Strategies

- *Maintain public access roads and management trails through the park (refer map).*
- *Seek to gate the northern end of Walkers Road, in conjunction with the Department of Primary Industries (Forests) and the adjacent private property owner. Continue to permit state forest and private property access as required.*
- *Enter into an agreement on road and trail usage, maintenance and access with Forests NSW.*
- *Continue to permit the existing commercial beekeeping operations in accordance with NPWS policy and licence conditions.*
- *Maintain close liaison with park neighbours, community organisations and other authorities to deal with matters of mutual concern.*

9. PLAN IMPLEMENTATION

This plan of management establishes a scheme of operations for Bimberamala National Park. It will remain in force until amended or replaced in accordance with section 73B of the NPW Act. The plan is part of a system of management which includes the National Parks and Wildlife Act, management policies, established conservation and recreation philosophies, and strategic planning at corporate, directorate and regional levels. The latter may include development of related plans such as regional recreation plans, species recovery plans, fire management plans and conservation plans.

Relative priorities for activities identified in this plan are set out in the table below. These priorities are subject to the availability of necessary staff and funds, and to any special requirements of the Director-General or Minister. High priority activities are those considered 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.

The environmental impact of proposed activities will be assessed at all stages in accordance with established environmental assessment procedures. If the impacts of any activity proposed in this plan are found to be unacceptable, the activity will not be undertaken or be modified so as to comply with the environmental assessment outcomes.

Strategies

- *Undertake an annual review of progress in implementing actions in this plan of management.*
- *Undertake an assessment after 5 years of the effectiveness of managing the national park in accordance with this plan and of the degree of success in achieving the plan's objectives and desired outcomes. Base the evaluation on the monitoring programs set out in this plan and any others that may be developed.*

Implementation Table

Priority	Activity	Plan reference
High	Prepare and implement a conservation management plan, including an assessment of significance, for the former gold mining area in conjunction with Forests NSW.	4.5
	Maintain warning signs near areas of mine shafts.	4.5
	Undertake regular road maintenance to minimise sediment input to waterways.	5.1, 9

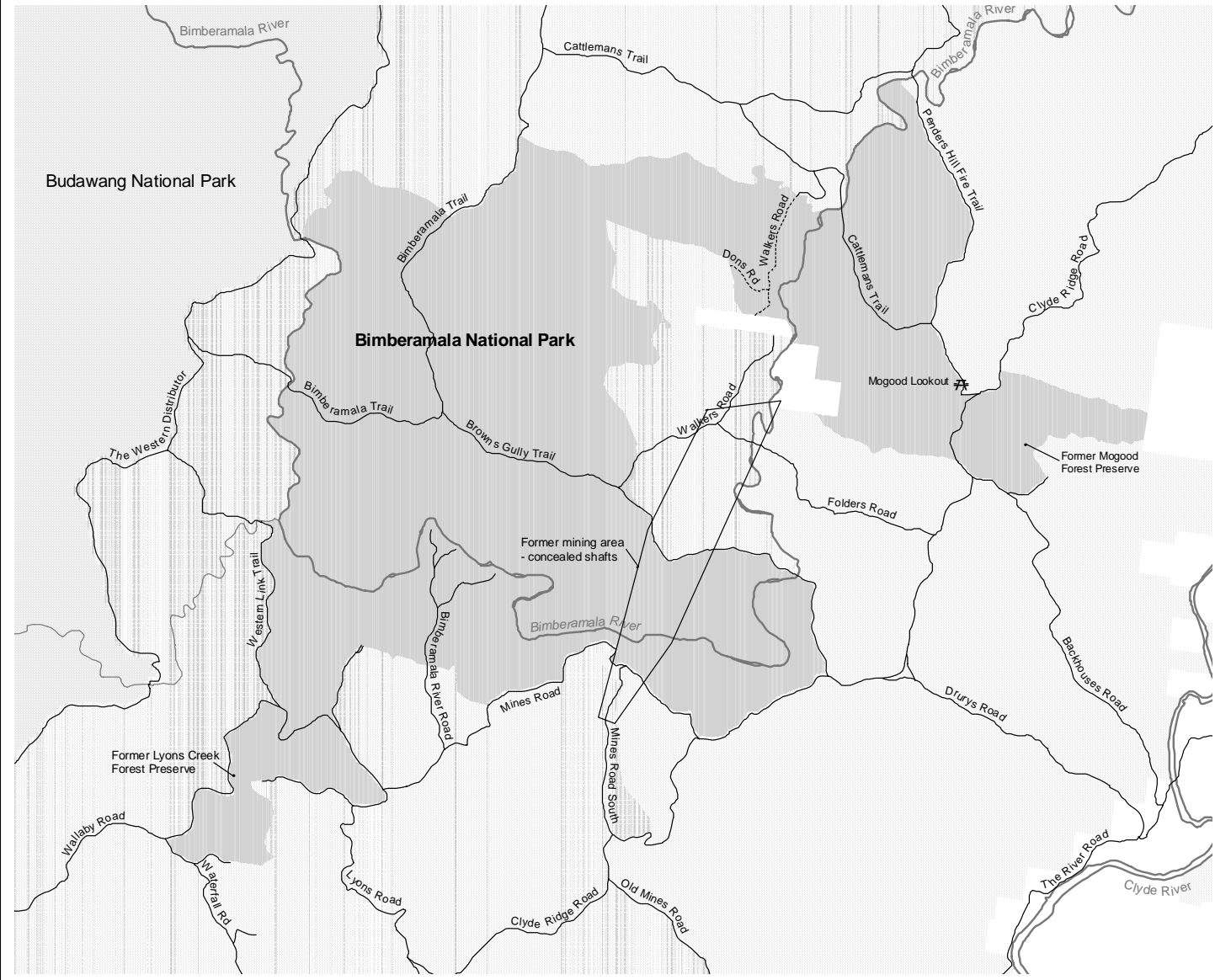
	Close trails that are not required for public or management access.	5.1
	Continue control programs for foxes, wild dogs, pigs and deer as necessary.	5.2
	Implement the fire management strategy for the park.	5.3
	Use prescribed burns and slashing to manage fuel levels as needed in strategic areas and to achieve a variety of fire regimes that maintain fire thresholds for each vegetation community in accordance with the fire management plan. Maintain strategic fire advantage zones along roads and boundaries where appropriate.	5.3
	Continue to actively participate in the Shoalhaven Bush Fire Management Committee. Maintain close contact and cooperation with the Rural Fire Service, Forests NSW and volunteer bush fire brigades.	5.3
	In conjunction with Forests NSW, assist in the control of vegetation growth adjacent to Mogood Lookout as needed.	5.3
	Install road name and park boundary signage on key roads in the park.	6
Medium	Undertake additional vegetation surveys, in particular to map regionally uncommon plants and check for the presence of <i>Prostanthera porcata</i> , <i>Pultenaea villifera</i> var. <i>villifera</i> , <i>Thismia clavaroides</i> and orchid species.	4.2
	Implement recovery plans for threatened plant and animal species when they have been prepared.	4.2, 4.3
	Undertake surveys for threatened and regionally significant animal species that may occur in the park but have not yet been recorded.	4.3
	Monitor the public vehicle use of steep trails and river crossings and restrict access if necessary to minimise impacts.	5.1
	Liaise with Forests NSW to restrict access to trails and river crossings adjacent to the park where necessary to minimise downstream impacts.	5.1
	Monitor the presence of introduced species in the park and undertake surveys to check for the extent and abundance of weeds in vegetation communities adjacent to the Bimberamala River. If necessary, develop programs for control, and where possible eradication, of weeds in the riverine corridor.	5.2
	Liaise with Forests NSW regarding installation of interpretive information and possibly picnic tables at Mogood Lookout.	6







	Enter into an agreement on road and trail usage, maintenance and access with Forests NSW.	8
	Enter into access and maintenance agreements with owners of private properties where appropriate.	8
Low	Liaise with neighbours to encourage retention of areas of significant native vegetation and animal habitat close to the park.	4.3
	Where necessary, undertake engineering works to address significant trail or creek bank erosion. Design any new or upgraded creek crossings to permit fish passage.	5.1
	Encourage use of minimal impact recreation practices through information signs and other means.	6
	Monitor impacts of camping and/or firewood collection and place restrictions on camping if needed to minimise impacts.	6
	Monitor vehicle numbers within the park using counters placed strategically on trails. Make spot checks to record numbers of visitors using informal camp sites.	6
	Undertake an assessment after 5 years of the effectiveness of managing the national park in accordance with this plan and of the degree of success in achieving the plan's objectives and desired outcomes.	10

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Bimberamala National Park



-  Proposed Picnic Area
-  Public Access Road
-  Management Trail (also provides forestry and private property access)
-  Bimberamala National Park
-  Budawang National Park
-  State Forest

