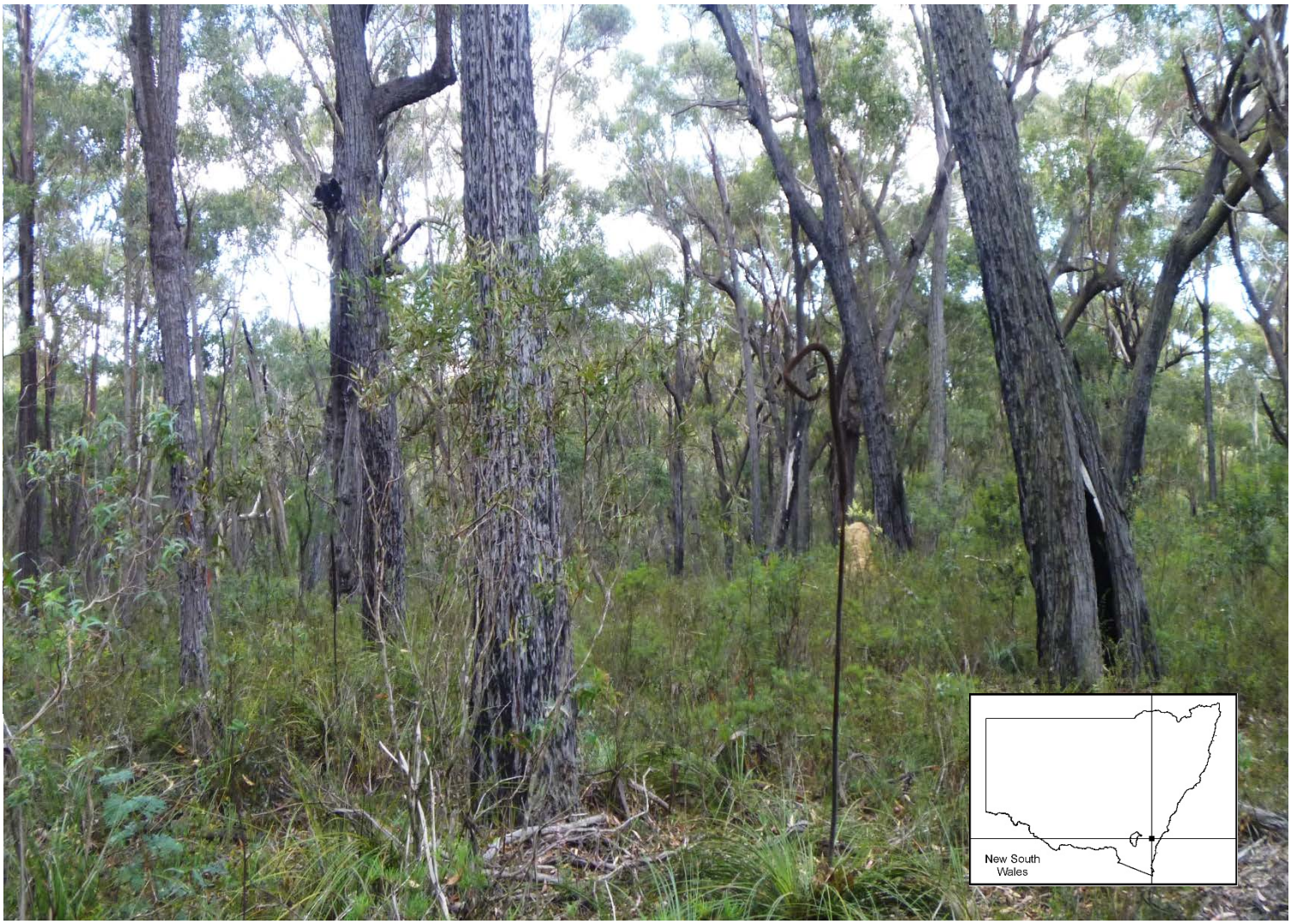
NSW NATIONAL PARKS & WILDLIFE SERVICE

Monga State Conservation Area

Plan of Management



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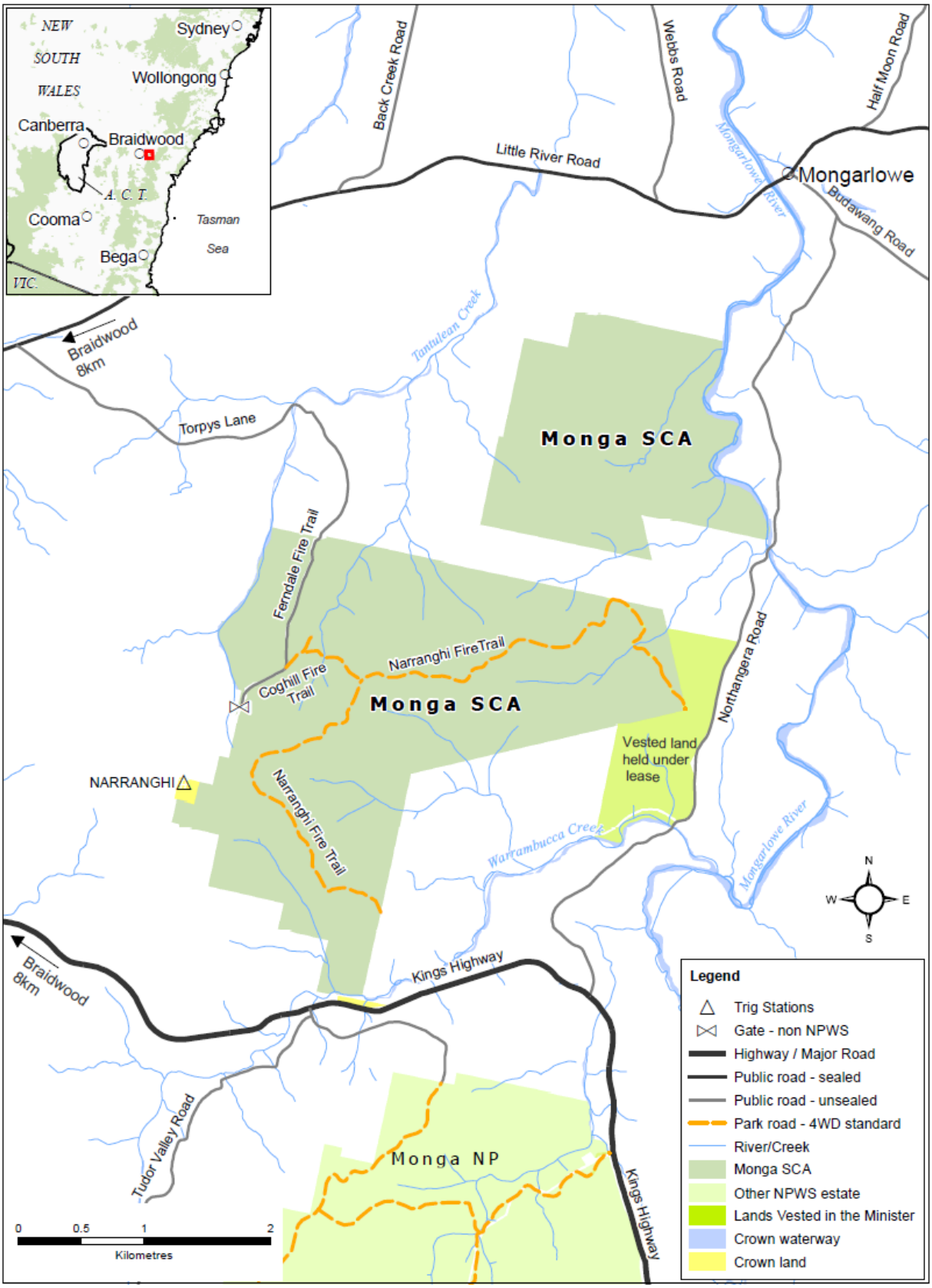

Figure 1 Monga State Conservation Area

1. Introduction

1.1 Location, reservation and regional setting

Features	Description
Location	Monga State Conservation Area (referred to as 'the park' or 'Monga SCA' in this plan) is located on the Southern Tablelands of New South Wales, just to the west of the rugged coastal ranges, approximately 11 kilometres east of Braidwood and approximately one kilometre south of the village of Mongarlowe (see Figure 1).
Area	Monga SCA comprises two separate sections totalling 1009 hectares. This plan also includes some unreserved land that is vested in the Minister for the Environment for the purposes of Part 11 of the *National Parks and Wildlife Act 1974*. These Part 11 lands are part of Narranghi Fire Trail, which provides access to neighbouring private land (see Section 5.2). This plan does not apply to a large parcel of Part 11 land immediately east of the southern section of the park (see Figure 1, Land vested in the Minister), which is subject to a Crown lease in perpetuity. There is no intention to add this land to Monga SCA or to manage it as a park.
Reservation date	Monga SCA was reserved under the *National Park Estate (Reservations) Act 2005* on 17 November 2005. A small addition (about 0.5 hectares) was reserved in 2009. A further addition of 3.9 hectares of former Crown road and Crown land was reserved in 2014.
Previous tenure	Apart from the additions in 2009 and 2014, Monga SCA was previously part of Monga State Forest.
Regional context	
Biogeographic region	Monga SCA lies in the Bungonia subregion of the South Eastern Highlands Bioregion (Thackway & Cresswell 1995). It is located in the Shoalhaven River drinking water catchment and is part of a network of parks in the area including Monga and Budawang national parks.
Surrounding land use	The majority of Monga SCA is bounded by freehold rural land, including heavily forested areas as well as cleared areas used for farming and grazing. Two small areas of Crown land adjoin the park.
Other authorities	Monga SCA is located in the areas of the Queanbeyan-Palerang Regional Council, Batemans Bay Local Aboriginal Land Council and the South East Local Land Services.

1.2 Statement of significance

Monga State Conservation Area (SCA) is of significance for its protection of water catchment values and habitat for a number of threatened plants and animals that have been identified in or surrounding the park.

2. Management context

2.1 Legislative and policy framework

The management of state conservation areas in New South Wales is in the context of a legislative and policy framework, primarily the National Parks and Wildlife Act and Regulation, the *Biodiversity Conservation Act 2016* and the policies of the NSW National Parks and Wildlife Service (NPWS).

Other legislation, strategies and international agreements may also apply to management of the state conservation area. In particular, the *Environmental Planning and Assessment Act 1979* may require assessment of the environmental impact of works proposed in this plan. The NSW *Heritage Act 1977* may apply to excavation in known archaeological sites or in sites with potential to contain historic archaeological relics. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may apply in relation to actions that impact matters of national environmental significance, such as migratory and threatened species listed under that Act.

A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to Monga SCA. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

2.2 Management purposes and principles

State conservation areas

State conservation areas are reserved under the National Parks and Wildlife Act to protect and conserve areas that:

- contain significant or representative ecosystems, landforms or natural phenomena or places of cultural significance
- are capable of providing opportunities for sustainable visitor or tourist use and enjoyment, the sustainable use of buildings and structures, or research
- are capable of providing opportunities for uses permitted under other provisions of the Act.

Under the Act (section 30G), state conservation areas are managed to:

- conserve biodiversity, maintain ecosystem functions, protect natural phenomena and maintain natural landscapes
- conserve places, objects and features of cultural value
- provide for the undertaking of uses permitted under other provisions of the National Parks and Wildlife Act (including uses permitted under section 47J, such as mineral exploration and mining), having regard for the conservation of the natural and cultural values of the state conservation area
- provide for sustainable visitor or tourist use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area
- provide for sustainable use (including adaptive re-use) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area
- provide for appropriate research and monitoring.

Land is reserved as a state conservation area primarily where mineral values preclude reservation as another category. The National Parks and Wildlife Act requires a review of the classification of state conservation areas every five years in consultation with the Minister administering the *Mining Act 1992*. The review considers whether each state conservation area should or should not be reserved as either a national park or nature reserve. Reviews of the Monga SCA reservation status were undertaken in 2008 and 2013 in which the status remained unchanged.

Subject to the outcomes of future reviews, Monga SCA may become a nature reserve and so the management principles of nature reserves (as outlined in section 30J of the National Parks and Wildlife Act) will be considered in the park's management.

Sydney drinking water catchment

Monga SCA is located in the Shoalhaven River drinking water catchment area. The catchment area is governed by the *Water NSW Act 2014* and *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (SEPP Sydney Drinking Water Catchment), which outline the responsibilities of NPWS and WaterNSW. Under the planning policy, any development or activity in the catchment should incorporate, or at least achieve, the desired outcomes of WaterNSW's current recommended practices and standards. Furthermore, a public authority must, before it carries out or consents to any activity in the catchment, consider whether the activity would have a neutral or beneficial effect on water quality.

2.3 Specific management directions

In addition to the general principles for the management of state conservation areas and drinking water catchments (see Section 2.2), the following specific management directions apply to the management of Monga SCA:

- Consult with Aboriginal communities in the protection and management of Aboriginal cultural heritage.
- Ensure sites associated with early European settlement and use of the area are recorded and assessed to determine their significance.
- Protect areas of old-growth forest, habitat for threatened species and other natural values by limiting disturbance and implementing control programs for fire and pest species.
- Continue to allow private property access to occur through the park.

3. Values

This plan aims to conserve the natural and cultural values of Monga SCA. The landforms, geology, climate and plant and animal communities of Monga SCA coupled with its location and climate determined how the land has been used and valued by Aboriginal and non-Aboriginal people. 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. To make this plan clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use are dealt with individually but their interrelationships are recognised.

3.1 Geology, landscape and hydrology

Monga SCA is located on part of the Lachlan Fold Belt. The Lachlan Fold Belt covers most of New South Wales and Victoria and also extends to other eastern states and territories. It is a geological zone of folded and faulted rocks formed in the Middle Palaeozoic between 450 and 340 million years ago. It consists of sandstones, shales and volcanic rocks that have been intruded by numerous granite bodies and deformed by four episodes of folding, faulting and uplift.

Monga SCA is located on one of the older undifferentiated meta-sedimentary sequences, the Ordovician Adaminaby Group. The area contains a number of significant historical gold deposits, both reef and alluvial (see Section 3.4), which indicates that the park has potential for gold mineralisation (NPWS 2014).

The Monga and Mongarlowe soil landscapes are found in both sections of the park. The northern section of Monga SCA is dominated by the Mongarlowe soil landscape. The southern section is dominated by the Monga soil landscape. The erosion hazard in this soil landscape is low to moderate where vegetation is retained (Jenkins 1996).

Monga SCA sits on the western edge of the forested lands of the Great Dividing Range. The most significant landscape feature of Monga SCA is the central plateau that dominates the northern and southern sections of the park. The plateau radiates out in several directions from a peak at Narranghi Trig, immediately west of the park, and is dissected by numerous drainage lines. The deepest of these drainage lines is Gilligooly Gully, a steep south-east facing gully, located south-east of Narranghi Trig. The highest points of the plateau are 820 metres above sea level.

Monga SCA is located in the Shoalhaven River drinking water catchment. Drainage lines in the park feed into the Mongarlowe River directly or via Warrambucca and Tantulean creeks (see Figure 1). The Mongarlowe River drains into the Shoalhaven River. Monga SCA is considered to be an important component of the Shoalhaven River catchment because it is relatively less disturbed than much of the rest of the southern half of the catchment, and because it encompasses part of the headwaters of the Mongarlowe River (Mackey et al. 1999).

Desired outcome

- Soil erosion is minimised.
- Water quality in the park is protected.

Management response

3.1.1 Ensure the roads in the park are maintained to minimise soil erosion.

3.1.2 Ensure all activities proposed in the park are assessed for their potential impacts on water quality.

3.2 Native plants and animals

From 1995 to 2000, comprehensive regional assessments of the values and attributes of the State's eastern forests were conducted. Information arising from these assessments formed the basis for a series of regional forest agreements. The plant communities protected in the park contribute to the conservation targets identified through this process.

Plant community types known to occur in the park have been described by Tozer et al. (2010) and are listed with reference to the *NSW Vegetation Information System* (OEH 2014a) in Table 1.

Much of Monga SCA is covered by dry sclerophyll forest with Clyde–Deua Ridgetop Forest dominating the upper slopes and ridges, and Braidwood Dry Forest occurring on the drier lower slopes. Another dry sclerophyll forest community, Clyde–Deua Open Forest, is present in isolated pockets on dry slopes in the park.

Wet sclerophyll forests dominate the moist and sheltered sites in the park, in particular, the drainage lines. The most widespread wet sclerophyll forest is Mountain Wet Fern Forest, which occurs on the steep sheltered upper slopes of the drainage lines. Areas of Southern Range Wet Forest occur at lower elevations. A small area of Highland Range Sheltered Forest also occurs in the park.

A small area of Tableland Swamp Flats Forest occurs along Warrambucca Creek at the southern boundary of the southern section of the park.

Table 1 Plant community types present in Monga SCA

Vegetation community name [1]	Vegetation Information System (VIS) plant community	VIS ID No.
Braidwood Dry Forest	Broad-leaved peppermint – brittle gum shrubby open forest on the eastern tablelands, South Eastern Highlands Bioregion	728
Southern Range Wet Forest	Brown barrel – narrow-leaved peppermint moist tall open forest on escarpment ranges, southern South Eastern Highlands Bioregion	744
Mountain Wet Fern Forest	Mountain grey gum – brown barrel very tall moist forest on escarpment ranges, central and southern South East Corner Bioregion	943
Tableland Swamp Flats Forest	Ribbon gum – snow gum grassy open forest on flats and undulating hills of the eastern tableland, South Eastern Highlands Bioregion	1101
Highland Range Sheltered Forest	River peppermint – narrow-leaved peppermint open forest on sheltered escarpment slopes, Sydney Basin Bioregion and South East Corner Bioregion	1107
Clyde–Deua Ridgetop Forest	Silvertop ash shrubby open forest on escarpment ridges, central and northern South East Corner Bioregion	1161
Clyde–Deua Open Forest	Yellow stringybark – silvertop ash open forest on dry slopes of the escarpment ranges, northern South East Corner Bioregion	1339

Vegetation communities described by Tozer et al. (2010).

The most common tree species in the park are silvertop ash (*Eucalyptus sieberi*), mountain grey gum (*E. cypellocarpa*), brown barrel (*E. fastigata*), narrow-leaved peppermint (*E. radiata* subsp. *radiata*), broad-leaved peppermint (*E. dives*) and brittle gum (*E. mannifera*).

No threatened plant species have yet been identified in Monga SCA. However, eight rare or threatened plant species have been recorded within five kilometres of the park (see Table 2). As suitable habitat for these species is present in the park, it is likely these species may be found in Monga SCA with further survey.

Table 2 Significant plants recorded within five kilometres of Monga SCA

Common name	Scientific name	Status
Threatened species		**BC Act status**
Black gum	*Eucalyptus aggregata*	Vulnerable
Bungonia rice-flower	*Pimelea axiflora* subsp. *pubescens*	Endangered
Nerriga grevillea	*Grevillea renwickiana*	Endangered
Pale golden moths	*Diuris ochroma*	Endangered [1]
Tangled bedstraw	*Galium australe*	Endangered
Significant species		**Significance** [2]
Mountain pomaderris	*Pomaderris pauciflora*	Rare or poorly known
Watermilfoil (shrub)	*Haloragodendron monospermum*	Rare or poorly known
Wolgan snow gum	*Eucalyptus gregsoniana*	Rare or poorly known

[1] Also listed under the Environment Protection and Biodiversity Conservation Act.
[2] Not listed as threatened but identified as rare or poorly known by Briggs and Leigh (1996).

Monga SCA forms part of a network of vegetated corridors linking the Southern Tablelands to the coast and provides habitat for a range of threatened native animals. Threatened animal species known to occur in or near the park are listed in Table 3. Only scarlet robin (*Petroica boodang*) and varied sittella (*Daphoenositta chrysoptera*) have been recorded within the park. Other species known from near the park include spotted-tailed quoll (*Dasyurus maculatus*) and the endangered Australasian bittern (*Botaurus poiciloptilus*) which has been sighted along the banks of the Mongarlowe River, within five kilometres of the park.

Strategies for the recovery of threatened species and populations have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017). These actions are currently prioritised and implemented through the *Saving our Species* program, which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years. Individual recovery plans may also be prepared for threatened species to consider management needs in more detail. Recovery plans have been drafted or approved for some species expected to occur in the park, as indicated in Table 3.

Issues

- The park's history of logging and mining (see Section 3.4) has resulted in only small areas of old-growth forest remaining, limiting suitable roosting habitat for many hollow-dependent species, including the large forest owls. Since the cessation of logging activities and reservation of the park in November 2005, areas previously logged have been allowed to regenerate naturally.
- A significant area, approximately 20 hectares, in the northern section of Monga SCA was cleared and used for livestock grazing prior to reservation of the park (see Section 5.1). This

area has a higher weed burden and provides limited habitat for native animals. There are also smaller areas throughout the park that have been subject to previous disturbance.

- Pest plants and animals pose a threat to native plants and animals (see Section 4.1).

Table 3 Threatened animals recorded in or within five kilometres of Monga SCA

Common name	Scientific name	BC Act status
Birds		
Australasian bittern	*Botaurus poiciloptilus*	Endangered [1]
Barking owl	*Ninox connivens*	Vulnerable [2]
Brown treecreeper (eastern subsp.)	*Climacteris picumnus victoriae*	Vulnerable
Flame robin	*Petroica phoenicea*	Vulnerable
Gang-gang cockatoo	*Callocephalon fimbriatum*	Vulnerable
Hooded robin	*Melanodryas cucullata cucullata*	Vulnerable
Little eagle	*Hieraaetus morphnoides*	Vulnerable
Little lorikeet	*Glossopsitta pusilla*	Vulnerable
Powerful owl	*Ninox strenua*	Vulnerable [3]
Scarlet robin [4]	*Petroica boodang*	Vulnerable
Varied sittella [4]	*Daphoenositta chrysoptera*	Vulnerable
Mammals		
Spotted-tailed quoll	*Dasyurus maculatus*	Vulnerable [1]
White-footed dunnart	*Sminthopsis leucopus*	Vulnerable

[1] Also listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
[2] Recovery plan drafted.
[3] Recovery plan approved.
[4] Recorded from the park (BioNet Atlas record).

Desired outcomes

- Native plant and animal habitats and populations are conserved. Negative impacts on native plants and animals (in particular threatened species) are minimised.
- Structural diversity and habitat values are restored in the smaller degraded areas.
- Knowledge of the park's plant and animal communities improves and assists in the management of threatened and restricted species.

Management response

3.2.1 Implement relevant strategies in the *Biodiversity Conservation Program* and recovery plans for threatened species, populations and ecological communities present in the park.

3.2.2 Allow the smaller previously disturbed areas to regenerate naturally and assist with regeneration where relevant.

3.2.3 Encourage and assist external researchers to undertake research that will assist in the management of threatened and other restricted species.

3.3 Aboriginal heritage

Monga SCA lies in the traditional Country of the Yuin People. The land, water, plants and animals in 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. It is important for local people to retain a living connection to the landscape and to the Country they live and work in. Aboriginal heritage and connection to Country are inseparable and need to be managed in an integrated manner across the landscape.

The Yuin People have lived around the valleys of the Clyde, Deua and Buckenbowra rivers for around 14,000 years and have strong and continuing cultural connections with Monga SCA and surrounding areas.

Aboriginal sites are places with evidence of Aboriginal occupation or that are related to other aspects of Aboriginal culture. They are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. No Aboriginal sites have been recorded in Monga SCA. However, it is likely that sites would be identified by further studies.

Some of the plant species present in the park are known to have been used for food, medicine or fibre. Cultural use of wild resources, such as medicinal plants and bush tucker, are subject to NPWS policies and licensing.

While the NSW Government has legal responsibility for the protection of Aboriginal sites and places, NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. Aboriginal communities will be consulted and involved in managing Aboriginal sites, places and related issues, and in promoting and presenting Aboriginal culture and history.

Issues

- There is potential for Aboriginal sites to occur in the park, and these may be identified through survey effort.
- Park management works and any other works, particularly those involving ground disturbance, may adversely impact Aboriginal sites.

Desired outcomes

- Significant Aboriginal places and values are identified and protected.
- Aboriginal people are involved in managing the Aboriginal cultural values of Monga SCA.
- Negative impacts on Aboriginal heritage values are minimised.
- Understanding of the cultural values of the park is improved.

Management response

3.3.1 Continue to consult and involve local community Elders, relevant Aboriginal community organisations and custodial families in the management of the cultural and natural values of Monga SCA.

3.3.2 Undertake an archaeological survey and cultural assessment before all works with potential to impact Aboriginal sites or values.

3.3.3 Encourage further research into the Aboriginal cultural heritage of the park with local community Elders and relevant Aboriginal community organisations.

3.4 Shared heritage

Heritage places and landscapes are made up of living stories as well as connections to the past that can include natural resources, objects, customs and traditions that individuals and communities have inherited and wish to conserve for current and future generations. Cultural heritage comprises places and items that may have historic, scientific, aesthetic, archaeological, architectural, natural, cultural or social significance. NPWS conserves the significant heritage features of the parks and reserves that it manages.

European settlement began in the 1840s, bringing mining and forestry to the Braidwood area. The sawmill at Monga, some 12 kilometres south of the park, provided timber to the nearby town of Braidwood, and the development of Canberra in the early 1900s brought increased activity to the area.

The start of the mining boom in the Braidwood district brought large numbers of Chinese gold miners to the area and by 1859 they were well-established on the major alluvial fields in Araluen, Majors Creek, Bells Creek and Mongarlowe. Between 1858 and 1862, at least 1500 Chinese miners were on the goldfields around Braidwood in any one year. They were proportionately a very significant part of the mining population and remained as such at least until the early 1870s (Braidwood and District Historical Society 2011).

Evidence of the mining history of the park includes mine shafts and a stone water race. The pastoral history of the park is represented by dams and fencing. Other in situ evidence of historic use includes coppiced trees, which are evidence of cutting eucalypts for use in making eucalyptus oil.

An area known locally as Taylors is located on the western side of the southern section of the park. Here, remnants of Mrs Taylor's occupation can still be found, including house foundations, building materials, fruit trees and other large exotic trees.

The heritage items and sites found in Monga SCA have not been assessed to determine whether they are of historic significance. Before decisions are made about the future management of those items, an assessment of significance is required. Should they be found to be of national, state or high local historic heritage significance, a conservation management plan will be prepared. For simple structures of local heritage significance, a heritage action statement will be prepared to guide future management and works.

Issues

- There have been no historic heritage surveys or assessment of the significance of potential heritage items in the park.

Desired outcomes

- Significant historic features are appropriately conserved and managed, and negative impacts on significant historic heritage values are minimised.
- Understanding of the historic heritage values of Monga SCA is improved.

Management response

3.4.1 Record and assess historic sites, items and places. Manage heritage in accordance with the assessed level of significance.

3.4.2 Undertake an archaeological survey and cultural assessment before all works that have the potential to impact historic sites and places.

3.5 Visitor use

Monga SCA is largely surrounded by private land. There are few legal points for public vehicular access to the southern section of the park, and none at all to the northern section of the park. Four-wheel drive standard park roads traverse the southern section of the SCA (see Figure 1 and Section 5.1).

The park therefore generally experiences low levels of visitation. There are no visitor facilities provided in the park, and so current levels of visitation are centred on low-impact, self-reliant, nature-based recreation such as bushwalking and birdwatching.

Horse riding is a popular recreational activity that has cultural associations for many Australians. The NPWS *Strategic Directions for Horse Riding in NSW National Parks* (OEH 2012b) provides a process for providing riding opportunities in eight priority regions in New South Wales, including the NPWS Far South Coast Region. Horse riding opportunities in other national parks in the region are being progressed in accordance with the *Far South Coast Region Horse Riding Work Plan 2013* (OEH 2013a), including in Monga National Park to the south of the SCA.

Park roads are maintained to a high standard for private property access and for park management purposes, including fire management. The demand for recreational pursuits such as horse riding and cycling is expected to remain low and therefore impacts from these activities, including impacts on park roads, will be low. Consequently, horse riding and cycling will be allowed on the park roads in Monga SCA shown on Figure 1. This is consistent with NPWS policy and the *Sustainable Mountain Biking Strategy* (OEH 2011).

Other areas managed by NPWS, other authorities and private operators in the region provide opportunities for a range of recreation activities.

Issues

- There is limited public access to Monga SCA.

Desired outcomes

- Visitor use of the park is ecologically sustainable.
- The park continues to provide opportunities for self-reliant, nature-based recreation with minimal impact on natural and cultural values.

Management response

3.5.1 Consistent with providing self-reliant, nature-based recreation, allow bush camping to occur in areas more than 150 metres from park roads or the park boundary. Visitor facilities or services will not be provided.

3.5.2 Allow horse riding and cycling on the park roads in Monga SCA shown on Figure 1.

4. Threats

4.1 Pests

Pest species are plants, animals and pathogens that have negative environmental, economic and social impacts, and are most commonly introduced species. Pests can have impacts across the range of park values, including impacts on biodiversity, cultural heritage, catchment and scenic values.

The *Biosecurity Act 2015* and its regulations provide specific legal requirements for the response, management and control of biosecurity risks, including weeds and pest animals. These requirements apply equally to public and privately owned land. Under this framework, Local Land Services has prepared regional strategic weed management plans and regional strategic pest animal management plans for each of its 11 regions, including the South East Region (South East LLS 2017, 2018).

The LLS plans identify priority weeds and pest animals in each of the regions, plus the appropriate management response for the region (i.e. prevention/alert, eradication, containment or asset protection).

NPWS prepares regional pest management strategies which identify the operations and control actions undertaken by NPWS to meet the priorities from regional strategic pest and weed management plans. This also includes other important programs such as the *Biodiversity Conservation Program* (see Section 3.2).

The overriding objective of the NPWS regional pest management strategies is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. These strategies are regularly updated. Reactive programs may also be undertaken in cooperation with neighbouring land managers, in response to emerging issues. Significant pest species recorded in the park are listed in Table 4 and discussed below.

Pest species that are also key threatening processes may be managed under the *Biodiversity Conservation Program* where it includes key threatening processes strategies. The *Saving our Species* program has developed targeted strategies for managing key threatening processes using the best available information to minimise current and future impacts of key threatening processes on priority biodiversity values, including threatened species and ecological integrity.

Pest species of concern recorded in Monga SCA, and their distribution in the park, are listed in Table 4. Whilst all are key threatening processes (OEH 2015), wild dogs and foxes are the highest priority for control (OEH 2012a).

The presence of weeds in an area is generally the result of disturbance to natural ecosystems from past land uses. Weeds have the potential to adversely affect the park's biodiversity values and also the economic and conservation values of neighbouring lands.

Wild dogs are known to occur in Monga SCA. Wild dogs, including dingos, are priority pest animals throughout NSW under the *Biosecurity Act 2015*, due to their impacts on livestock. Wild dogs may also have significant impacts on the distribution and abundance of native wildlife. NPWS has a statutory obligation to control wild dogs in the park. Strategic and reactive actions for the control of wild dogs in Monga SCA are outlined in the *Braidwood/South Coast Wild Dog Management Plan* (BSCWDWG 2010).

Table 4 Weed and pest animals recorded in Monga SCA

Common name	Scientific name	Distribution in park
Weeds		
Serrated tussock [1 2 3]	*Nassella trichotoma*	Isolated populations restricted to one area
Blackberry [1 2]	*Rubus fruticosus* agg.	Isolated populations restricted to a small area
Pest animals		
Wild dog [4 5]	*Canis lupus* subspp.	Scattered populations throughout
Goat [4 5 6 7]	*Capra aegagrus hircus*	Isolated populations restricted to a small area
Cat [4 5 6]	*Felis catus*	Scattered populations throughout
Pig [4 5 6 7]	*Sus scrofa*	Scattered populations throughout
European red fox [4 5 6]	*Vulpes vulpes*	Scattered populations throughout

[1] Declared Weed of National Significance.
[2] State-priority weed, asset protection management category (South East LLS 2017).
[3] Regional priority weed, containment management category (South East LLS 2017).
[4] Declared key threatening process under the Biodiversity Conservation Act.
[5] Pest animal, asset protection management category (South East LLS (2018).
[6] Declared key threatening process under the Environment Protection and Biodiversity Conservation Act.
[6] Pest animal, eradication or containment for isolated populations or new incursions management category (South East LLS (2018).

Due to the small size of the park and its close proximity to neighbours, consultation with neighbours regarding pest control programs and maintenance of boundary fencing are important. The *Dividing Fences Act 1991* does not require government agencies such as NPWS to be responsible for, or share the costs of, boundary fencing. However, NPWS recognises the conservation benefits of excluding livestock from parks and encourages neighbours to construct and maintain boundary fences through providing assistance in line with NPWS policy.

Desired outcomes

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of pest plants and animals on park values are minimised.

Management response

4.1.1 Manage pest species in accordance with pest management strategies relevant to the park. Monitor the presence and impacts of pest species and treat any new outbreaks where possible.

4.1.2 Seek the cooperation of neighbours in implementing pest control programs. Undertake control in cooperation with South East Local Land Services, Queanbeyan-Palerang Regional Council and local Landcare groups.

4.1.3 Encourage construction and maintenance of boundary fences to exclude stock from the park. Fencing assistance may be provided in accordance with NPWS policy but is subject to available resources.

4.2 Fire

The primary objectives of NPWS fire management are to protect life, property, community assets and cultural heritage from the adverse impacts of fire, while also managing fire regimes in parks to maintain and enhance biodiversity. NPWS also assists in developing fire management practices that contribute to conserving biodiversity and cultural heritage across the landscape and implements cooperative and coordinated fire management arrangements with other fire authorities, neighbours and the community (OEH 2013b).

Fire is a natural feature of most Australian environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to the loss of particular plant and animal species and communities, and high frequency fires have been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000b).

The fire history for Monga SCA is only partially known. The first documented wildfire event occurred in 1938–39 and much of the park was affected. Further wildfire events are known to have occurred in 1957–58, 1987–88, 1996 and 2013. A prescribed burn was undertaken in the southern section of the park in 1988–89.

The *Deua and Monga National Parks Fire Management Strategy* (NPWS 2011) defines the fire management approach for the park. This strategy outlines the recent fire history of the park, key assets within and adjoining the park (including sites of natural and cultural heritage value), fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the park's vegetation communities.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service and is actively involved with the Lake George Bush Fire Management Committee. Cooperative arrangements include fire planning, fuel management and information sharing. Hazard reduction programs, ecological burning proposals and management trail works are submitted annually to the bush fire management committee.

Desired outcomes

- Negative impacts of fire on life, property and the environment are minimised.
- The potential for spread of bushfires on, from or into the park is minimised.
- Fire regimes are appropriate for conservation of native plant and animal communities.

Management response

4.2.1 Implement the fire management strategy for the park and update as required.

4.2.2 Continue to be involved in the Lake George Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.

4.2.3 Manage the park to protect biodiversity in accordance with the identified fire regimes in the fire management strategy, using prescribed fire as appropriate.

4.2.4 Monitor the ability of flora to recover between fires and review regimes where relevant.

4.2.5 Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.

4.3 Climate change

Human-induced climate change is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000a) and the associated loss of habitat is listed under the Environment Protection and Biodiversity Conservation Act (TSSC 2001).

The latest information on projected changes to climate are from the NSW and ACT Regional Climate Modelling (NARCliM) project (OEH 2014b). The climate projections for 2020–39 are described as 'near future', and projections for 2060–79 are described as 'far future'. The snapshot shown in Table 5 is for the South East and Tablelands Region, which includes Monga SCA (OEH 2014b).

The projected increases in temperature, number of hot days and severe fire weather days (OEH 2014b) are likely to influence bushfire frequency and intensity across the South East and Tablelands Region and result in an earlier start to the bushfire season (DECCW 2010). While warmer and wetter summers may, in some years, compensate for winter and spring drying, substantial impacts such as tree deaths in woodlands and forests are likely to occur in drought years that are hotter than at present. Stressed trees may also be more susceptible to additional pressures from insect attack and disease (DECCW 2010).

Table 5 South East and Tablelands climate change snapshot

Projected temperature changes	
Maximum temperatures are projected to **increase** in the near future by 0.5–1.0°C	Maximum temperatures are projected to **increase** in the far future by 1.8–2.5°C
Minimum temperatures are projected to **increase** in the near future by 0.4–0.7°C	Minimum temperatures are projected to **increase** in the far future by 1.4–2.3°C
The number of hot days (i.e. > 35°C) will **increase**	The number of cold nights (i.e. < 2°C) will **decrease**
Projected rainfall changes	
Rainfall is projected to **decrease** in spring and winter	Rainfall is projected to **increase** in summer and autumn
Projected Forest Fire Danger Index changes	
Average fire weather is projected to **increase** in summer and spring in the near and far future	Number of days with severe fire weather is projected to **increase** in summer and spring in the near and far future

Source: OEH 2014b.

Higher rainfalls in summer and autumn are likely to accelerate all forms of soil erosion across the region and increase runoff at these times of year (DECCW 2010). Higher rainfalls may cause flooding in the sections of park adjacent to the Mongarlowe River and its tributaries.

Climate change may significantly affect biodiversity by changing the size of populations and the distribution of species, and altering the geographical extent and species composition 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.

The potential impact of climate change on the park is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from introduced species. Programs to reduce the pressures arising from other threats, such as invasive species (see Section 4.1) and bushfires (see Section 4.2) will also help reduce the severity of the effects of climate change.

Desired outcomes

- The impacts of climate change on natural systems are minimised.

Management response

4.3.1 Continue existing fire, pest and weed management programs to increase the park's ability to cope with future disturbances, including climate change.

4.3.2 Observe the potential impacts of climate change on plant communities at the limit of their ecological ranges.

5. Management operations and other uses

5.1 Management operations and issues

Previously cleared area

An area of approximately 20 hectares on the northern boundary of the northern section of Monga SCA was cleared and used for livestock grazing before reservation as a park. The area has since been fenced and the livestock removed. However, natural regeneration is slow and the ground cover is still dominated by introduced perennial grasses. In this condition the previously cleared area is of limited conservation value. Future management options for this land are yet to be determined.

Roads and trails

Roads and trails in the park provide access for visitors as well as for management purposes. One section of road provides access to a neighbouring private property (see Section 5.2). Maintaining roads requires a major commitment of resources. A number of roads and snigging tracks developed for past timber harvesting are no longer required for park management purposes.

The portion of Coghill Fire Trail between the western boundary and Ferndale Fire Trail and that part of Ferndale Fire Trail located within the southern section of Monga SCA are both Council roads and not reserved as part of the park.

Desired outcomes

- The previously cleared area in the northern section of Monga SCA is managed for environmental outcomes.
- Management facilities adequately serve the needs of park management and have acceptable environmental impact.
- The Council roads are reserved as part of the park to enable consistent management.

Management response

5.1.1 Investigate options for managing the previously cleared area in the northern section of the park, including consultation with local environment groups and exploration of external grant funding to restore this section of the park.

5.1.2 Retain and maintain the park roads shown on Figure 1. Other trails will be closed and allowed to revegetate but may be temporarily reopened as required for management purposes, for example fire control.

5.1.3 In cooperation with Queanbeyan-Palerang Regional Council, seek to include within the park those sections of Coghill and Ferndale fire trails that traverse the southern section of the park and that are Council roads.

5.2 Non-NPWS uses/operations

Private property access

The portion of Narranghi Fire Trail between the northern and eastern boundaries of the southern section of Monga SCA is located on land vested in the Minister under Part 11 of the National Parks and Wildlife Act to ensure continued access to neighbouring land. This section of road does not form part of the reserved area of the park but its management is subject to this plan and the National Parks and Wildlife Regulation.

This road will continue to be maintained to the levels that existed at the time of reservation. Any upgrade will be subject to the formalisation of access arrangements, such as issuing a licence under the National Parks and Wildlife Act.

Domestic animals can be a threat to native animals and visitors to parks. Under the National Parks and Wildlife Regulation it is an offence to take an animal on any road, including public roads, traversing a park or reserve without approval. However, a plan of management can identify roads for the transit of pets and livestock provided there are no alternative routes that do not transit the park. In such situations, the vehicle must not stop while travelling through the park (other than because of traffic conditions), and the animals must not leave the vehicle.

Mining and exploration

As described in Section 3.4, Monga SCA includes sites associated with gold mining in the 19th century. Exploration for minerals and petroleum (including gas), as well as mining and petroleum production, are permissible uses in state conservation areas, and there is ongoing interest in the mineral values of the park. At the time of the second statewide review of state conservation areas, the park was covered by a mineral exploration licence (NPWS 2014).

NPWS will work with the relevant regulatory authority to ensure that exploration and production proposals in state conservation areas comply with all statutory requirements, including any necessary environmental impact assessments and approvals.

Resources and Energy also regulates fossicking in New South Wales. There has been no fossicking undertaken in the park since it was reserved. Fossicking could adversely impact the values of the park, particularly its water quality values. Consistent with NPWS policy and SEPP Sydney Drinking Water Catchment, fossicking is prohibited in the park (see Sections 2.2 and 3.1).

Desired outcomes

- Non-NPWS uses have minimal impact on natural and cultural values.
- Appropriate access and maintenance arrangements are in place for private property access.

Management response

5.2.1 Continue to allow existing private property access along the section of Narranghi Fire Trail located on Part 11 land.

5.2.2 Allow animals to be transported in vehicles to private property accessed through Monga SCA via Narranghi Fire Trail. The vehicles must not stop and the animals must remain in the vehicle while traversing the park.

5.2.3 Ensure applications for mineral exploration or mining in the park are subject to environmental impact assessment and approvals as set out in the legislation and NPWS policies.

6. Implementation

This plan of management establishes a scheme of operations for the Monga SCA. Implementation of this plan will be undertaken within the annual program of the NPWS. Identified activities for implementation are listed in Table 6. Relative priorities are allocated against each activity as follows:

- **High priority** activities are those imperative to achieve the plan's objectives and desired outcomes and must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.
- **Medium priority** activities are those necessary to achieve the objectives and desired outcomes but are not urgent.
- **Low priority** activities are desirable to achieve management objectives and desired outcomes but can wait until resources become available.
- **Ongoing** is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with the National Parks and Wildlife Act.

Table 6: List of management responses

Management response		Priority
3.1	**Geology, landscape and hydrology**	
3.1.1	Ensure the roads in the park are maintained to minimise soil erosion.	Ongoing
3.1.2	Ensure all activities proposed in the park are assessed for their potential impacts on water quality.	Ongoing
3.2	**Native plants and animals**	
3.2.1	Implement relevant strategies in the *Biodiversity Conservation Program* and recovery plans for threatened species, populations and ecological communities present in the park.	High
3.2.2	Allow the smaller previously disturbed areas to regenerate naturally and assist with regeneration where relevant.	Low
3.2.3	Encourage and assist external researchers to undertake research that will assist in the management of threatened and other restricted species.	Low
3.3	**Aboriginal cultural heritage**	
3.3.1	Continue to consult and involve local community Elders, relevant Aboriginal community organisations and custodial families in the management of the cultural and natural values of Monga SCA.	Ongoing
3.3.2	Undertake an archaeological survey and cultural assessment before all works with potential to impact Aboriginal sites or values.	Ongoing
3.3.3	Encourage further research into the Aboriginal cultural heritage of the park with local community Elders and relevant Aboriginal community organisations.	Ongoing
3.4	**Shared heritage**	
3.4.1	Record and assess historic sites, items and places. Manage heritage in accordance with the assessed level of significance.	Medium

Management response		Priority
3.4.2	Undertake an archaeological survey and cultural assessment before all works that have the potential to impact historic sites and places.	Ongoing
3.5	**Visitor use**	
3.5.1	Consistent with providing self-reliant, nature-based recreation, allow bush camping to occur in areas more than 150 metres from park roads or the park boundary. Visitor facilities or service will not be provided.	Ongoing
3.5.2	Allow horse riding and cycling on the park roads in Monga SCA shown on Figure 1.	Ongoing
4	**Pests**	
4.1.1	Manage pest species in accordance with pest management strategies relevant to the park. Monitor the presence and impacts of pest species, and treat any new outbreaks where possible.	Ongoing
4.1.2	Seek the cooperation of neighbours in implementing pest control programs. Undertake control in cooperation with South East Local Land Services, Queanbeyan-Palerang Regional Council and local Landcare groups.	Medium
4.1.3	Encourage construction and maintenance of boundary fences to exclude stock from the park. Fencing assistance may be provided in accordance with NPWS policy, but is subject to available resources.	High
4.2	**Fire management**	
4.2.1	Implement the fire management strategy for the park and update as required.	High
4.2.2	Continue to be involved in the Lake George Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.	Ongoing
4.2.3	Manage the park to protect biodiversity in accordance with the identified fire regimes in the fire management strategy, using prescribed fire as appropriate.	Ongoing
4.2.4	Monitor the ability of flora to recover between fires and review regimes where relevant.	Low
4.2.5	Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.	Ongoing
4.3	**Climate change**	
4.3.1	Continue existing fire, pest and weed management programs to increase the park's ability to cope with future disturbances, including climate change.	Ongoing
4.3.2	Observe the impacts of climate change on plant communities at the limit of their ecological ranges.	Ongoing
5.1	**Management issues**	
5.1.1	Investigate options for managing the previously cleared area in the northern section of the park, including consultation with local environment groups and exploration of external grant funding to restore this section of the park.	Medium
5.1.2	Retain and maintain the park roads shown on Figure 1. Other trails will be closed and allowed to revegetate but may be temporarily reopened as required for management purposes, for example fire control.	Ongoing

Management response		Priority
5.1.3	In cooperation with Queanbeyan-Palerang Regional Council, seek to include within the park those sections of Coghill and Ferndale fire trails that traverse the southern section of the park and that are Council roads.	Low
5.2	**Non-NPWS uses/operations**	
5.2.1	Continue to allow existing private property access along the section of Narranghi Fire Trail located on Part 11 land.	Ongoing
5.2.2	Allow animals to be transported in vehicles to private property accessed through Monga SCA via Narranghi Fire Trail. The vehicles must not stop and the animals must remain in the vehicle while traversing the park.	Ongoing
5.2.3	Ensure applications for mineral exploration or mining in the park are subject to environmental impact assessment and approvals as set out in the legislation and NPWS policies.	Ongoing

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