



Environment,
Climate Change & Water
National Parks & Wildlife Service



Scabby Range Nature Reserve

Plan of Management



**SCABBY RANGE NATURE RESERVE
PLAN OF MANAGEMENT**

NSW National Parks and Wildlife Service

Part of the Department of Environment, Climate Change and Water

February 2010

This plan of management was adopted by the Minister for Climate Change and the Environment on 5th February 2010.

Acknowledgments

The NPWS acknowledges that this reserve is in the traditional country of the Walgalu people.

This plan of management was prepared by the staff of the South West Slopes Region of the NSW National Parks and Wildlife Service (NPWS), part of the Department of Environment, Climate Change and Water.

Cover photograph by Elouise Peach, NPWS.

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FOREWORD

Scabby Range Nature Reserve was gazetted on 3 December 1982 and is located approximately 60 kilometres south-west of Canberra. The reserve consists of two parcels of land totalling 4,982 hectares and contains a suite of vegetation types and the fauna species they support, from native grasslands in the south-west to moist sub-alpine forests and rocky outcrops on the reserve's highest peaks. The majority of the reserve is part of the Bimberi Wilderness.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. 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 Scabby Range Nature Reserve was placed on public exhibition from 27 June until 13 October 2008. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve "Better environmental outcomes for native vegetation, biodiversity, land, rivers and coastal waterways" (Priority E4 in the State Plan) including actions to conserve threatened plant species, communities and populations that may occur within the reserve, and the continuation of wild dog and fox control programs.

This plan of management establishes the scheme of operations for Scabby Range Nature Reserve. In accordance with Section 73B of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Frank Sartor MP
Minister for Climate Change and the Environment

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1. INTRODUCTION

1.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Scabby Range Nature Reserve is located 25 kilometres north-east of Adaminaby and approximately 60 kilometres south-west of Canberra in the Southern Tablelands of NSW. It adjoins the ACT border along the watershed boundary of the Upper Murrumbidgee River catchment. The reserve consists of two parcels of land totalling 4,982 hectares and contains a suite of vegetation types and the fauna species they support - from native grasslands in the south west to moist sub-alpine forests and rocky outcrops on the reserve's highest peaks. A 3,100 hectares area was originally gazetted as nature reserve on 3 December 1982, and its size has since increased to 4,982 hectares. The majority of the reserve is part of the Bimberi Wilderness, which also covers areas to the north of the reserve including parts of Bimberi Nature Reserve and Kosciuszko National Park in NSW and Namadgi National Park in the ACT.

The reserve's eastern boundary forms part of the ACT/NSW border. The dominant land use in the area is conservation of reserved lands. However, land south and west of the reserve has been highly altered for agricultural purposes, predominantly grazing of sheep and cattle. Yaouk Nature Reserve lies to the south of the reserve and shares similar natural and cultural values.

Scabby Range Nature Reserve lies within the management area of the Murrumbidgee Catchment Management Authority, Cooma-Monaro Shire Council, South East Livestock Health and Pest Authority, and Wagonga Local Aboriginal Lands Council.

1.2 LANDSCAPE

Natural and cultural heritage and on-going 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 through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

Scabby Range Nature Reserve protects areas of native grassland and moist montane and sub-alpine forests and the fauna species they support. The ecosystems within the reserve are relatively intact as clearing and grazing have not been carried out on a large scale within the reserve.

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. 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.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves 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). Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of management. The policies arise from the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) 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, no operations may be undertaken within the reserve except in accordance with the plan. The plan will also apply to any future additions to Scabby Range Nature Reserve. Where management strategies or works are proposed for the nature reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

2.2.1 Nature Reserves

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

Under the Act, nature reserves are managed to:

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

Nature reserves differ from national parks in that they do not have, as a management principle, to provide for visitor use.

2.2.2 Australian Alps Agreement

Scabby Range Nature Reserve is one of a number of protected areas in the Australian Alps which include areas of high country in the Australian Capital Territory, New South Wales and Victoria and are recognised as comprising an area of national significance containing:

- Australia's highest peaks and spectacular mountain scenery;
- plants and animals unique to Australian alpine environments;
- a rich heritage of use by both Aboriginal and non-Aboriginal people;
- an outstanding outdoor recreation resource for Australians including important tourist attractions; and
- the headwaters of major river systems supplying snowmelt waters vital to south-east Australia for domestic use, industry, irrigation and hydro-electric energy production.

The co-operative management of the Australian Alps national parks by the Commonwealth, ACT, NSW and Victorian governments is defined through the provisions of a Memorandum of Understanding (MOU) endorsed by the respective Ministers. The MOU acknowledges the fundamental values and responsibilities present, and defines a collaborative management framework to:

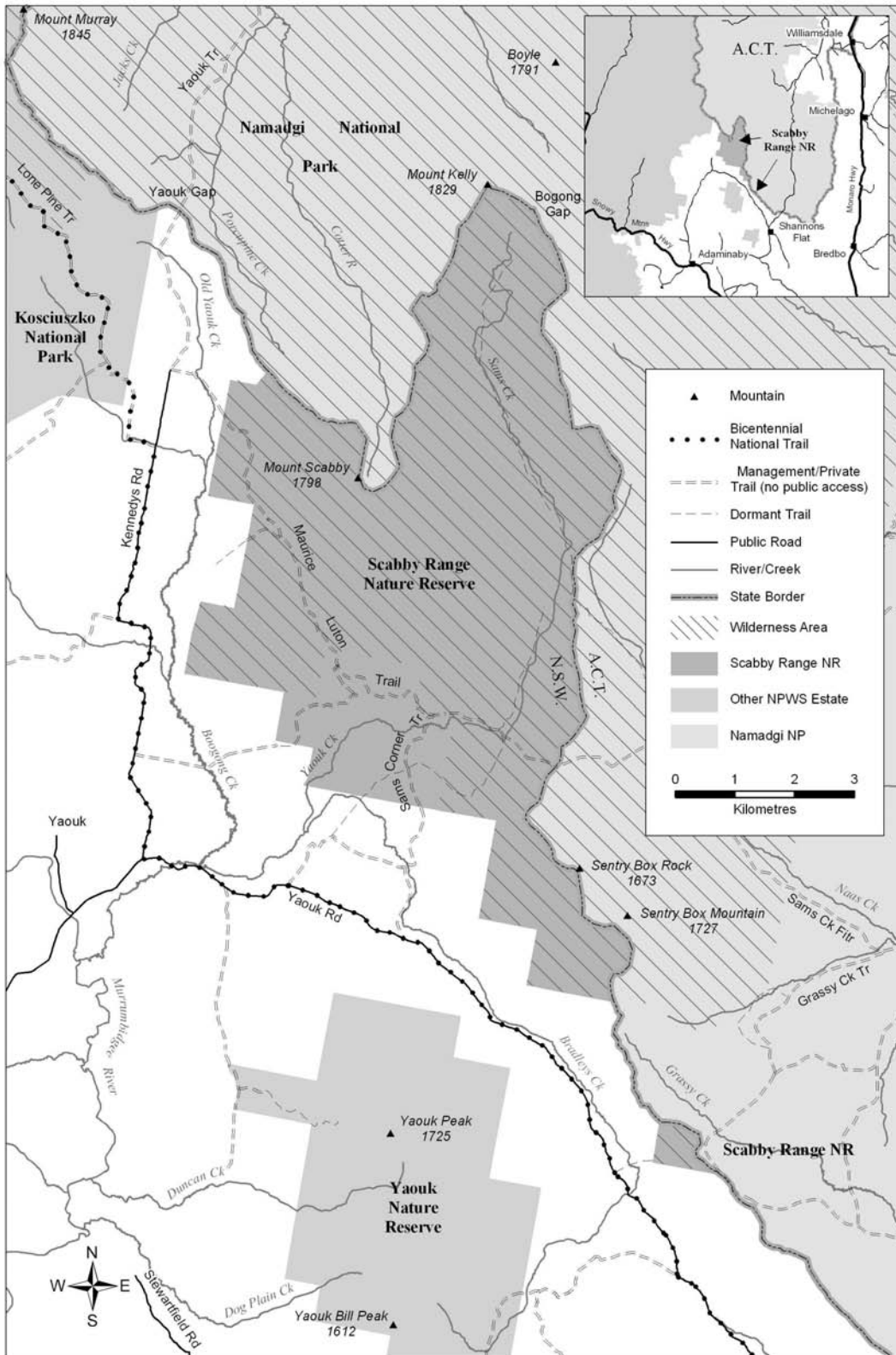
- Pursue the growth and enhancement of inter-governmental co-operative management to protect the important natural and cultural values of the Australian Alps national parks; and
- Co-operate in the determination and implementation of best-practice management of the listed reserves to achieve:
 - Protection of the unique mountain landscapes;
 - Protection of the natural and cultural values of the Australian Alps;
 - Provision of an appropriate range of outdoor recreation and tourism opportunities that encourage the enjoyment, education, understanding and conservation of the natural and cultural value; and
 - Protection of mountain catchments.

2.2.3 Wilderness

Of the 4892 hectares of Scabby Range Nature Reserve, 4336 hectares, or 87 percent, are declared as part of Bimberi Wilderness under the *Wilderness Act 1987*. Wilderness areas are large natural areas of land that, together with their native plant and animal communities, are essentially unchanged by human activity. Wilderness areas contribute to the long-term protection of biological diversity and serve as scientific reference areas. An important purpose of wilderness areas is to provide opportunities for solitude and appropriate self-reliant recreation. Protection of natural values, however, has priority over providing for recreational use of wilderness areas.

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

RESERVE MAP



3. NATURAL HERITAGE

3.1 LANDFORM, GEOLOGY AND SOILS

Scabby Range Nature Reserve forms part of a striking mountain landscape that can be seen from great distances. Equally, extensive vistas can be enjoyed from certain points within the reserve. The reserve comprises a steep fall from the watershed divide with a local elevation range of between 600 and 700 metres, topped with rocky knolls and ridges. The highest points in the reserve include Mount Scabby (1798 metres), Mount Kelly (1829 metres) and Sentry Box Rock (1673 metres). The steep western fall of the reserve is characterised by heavily timbered slopes falling some 700 metres to the valley floor. In contrast, the local relief of valley floor has a very small range, leading to deposition of material and formation of a wetland ecosystem.

The reserve is incised by drainage lines fed by 1200-1500 millimetres of annual rainfall. The largest of these drainage lines is Sams Creek, which flows into Yaouk Creek and forms a large wetland that is of national significance (Environment Australia, 2001). Scabby Range Nature Reserve lies within the watershed of the Upper Murrumbidgee River Catchment.

The local geology is almost entirely based on Devonian granite of the Murrumbidgee Batholith. This has formed massive domes, tors and exposed rock shelves. Soils are generally of moderate depth, varying from alpine humus to brown podsolics. In places small bogs or fens have developed, leading to limited peat development. On the steeper exposed peaks and upper slopes skeletal soils commonly occur.

The climate of the area is dominated by extremes in weather, although generally cool and reasonably dry conditions prevail. Prevailing winds are from the south and west. Snow generally persists on the ground at higher elevation for two to three months each year.

Desired Outcomes

- Soil erosion is minimised.
- Water quality and health of reserve streams and Yaouk wetland is maintained.

Strategies

- Undertake all works in a manner that minimises erosion and water pollution.
- Periodically monitor the wetland to ensure that erosion is minimised.

3.2 NATIVE PLANTS

Vegetation survey and mapping undertaken on behalf of NPWS by EcoGIS (2004) revealed that the diversity of vegetation in the reserve is extremely high. This is expected given the reserve's large altitudinal range. Within the reserve there are at least 14 distinct vegetation types. The vegetation types, their preferred geology and soil type and environmental niche are summarised on the following pages.

1. Alpine Ash/Mountain Gum/Snow Gum Acacia/Dry Shrub/Herb/Grass Forest – containing a closed canopy dominated by mountain gum *Eucalyptus dalrympleana* ssp *dalrympleana*, snow gum *E. pauciflora* and alpine ash *E. delegatensis*. The shrub layer consists of blunt-leaf bitter pea *Daviesia mimosoides* ssp *mimosoides*, pink-tip daisy-bush *Olearia erubescens*, dwarf geebung *Persoonia chamaepeuce*, silver wattle *Acacia dealbata* and river tea-tree *Leptospermum obovatum*. The ground layer is dominated by the snow grasses *Poa sieberiana* var *cyanophylla* and *P. sieberiana* var *sieberiana*, small poranthera *Poranthera microphylla* and showy violet *Viola betonicifolia* ssp *betonicifolia*. This forest type occurs in moderately deep soils on partially sheltered easterly facing slopes.

2. Scabby Snow Gum – Mountain Gum grassy forest – containing a canopy of mountain gum *Eucalyptus dalrympleana* ssp *dalrympleana* and snow gum *E. pauciflora*. The shrub layer is dominated by blunt-leaf bitter pea *Daviesia mimosoides* ssp *mimosoides*, native cherry *Exocarpos strictus*, silver wattle *Acacia dealbata*, prickly woodruff *Asperula scoparia* and pepper everlasting *Ozothamnus conditus*. The ground layer consists of the snow grasses *Poa induta* and *Poa sieberiana* var *cyanophylla*, spiny-headed mat-rush *Lomandra longifolia*, prickly starwort *Stellaria pungens*, twining glycine *Glycine clandestina*, button everlasting *Helichrysum scorpioides* and showy violet *Viola betonicifolia* ssp *betonicifolia* in moderately deep clay loams on sheltered southerly slopes.

3. Yaouk-Scabby Mountain Gum – Snow Gum mimosa hop-bush open forest – containing an open canopy dominated by mountain gum *Eucalyptus dalrympleana* ssp *dalrympleana* and snow gum *E. pauciflora*. The shrub layer is dominated by blunt-leaf bitter pea *Daviesia mimosoides* ssp *mimosoides*, native cherry *Exocarpos strictus*, prickly broom heath *Monotoca scoparia*, burgan *Kunzea ericoides* and dwarf geebung *Persoonia chamaepeuce*. The ground layer consists of daphne heath *Brachyloma daphnoides*, digger's speedwell *Derwentia perfoliata*, snow grass *Poa sieberiana* var *cyanophylla*, prickly starwort *Stellaria pungens*, spiny-headed mat-rush *Lomandra longifolia* and wallaby grass *Danthonia tenuior* in shallow organic soils on moderately exposed slopes.

4. ACT Montane Snow Gum Poa induta Dry Shrub/Grass Forest – containing a sparse snow gum *Eucalyptus pauciflora* canopy, with a shrub layer of silver wattle *Acacia dealbata*, coast myall *Acacia binervia* and harsh shield fern *Polystichum australiense*. The ground layer consists of the snow grasses *Poa induta* and *Poa sieberiana* var *cyanophylla*, derwent speedwell *Derwentia derwentiana* ssp *derwentiana*, twining glycine *Glycine clandestina*, prickly starwort *Stellaria pungens*, showy violet *Viola betonicifolia* ssp *betonicifolia*, spiny-headed mat-rush *Lomandra longifolia*, downy geranium *Geranium potentilloides* var *potentilloides* and Austral geranium *Geranium solanderi* var *solanderi* in moderately deep clay loams on sheltered slopes of the Gudgenby and Sentry Box ranges.

5. ACT Montane Snow Gum/Alpine Ash Poa Dry Shrub/Grass Forest – containing a canopy dominated by alpine ash *Eucalyptus delegatensis* and snow gum *E. pauciflora*. The shrub layer consists of golden rosemary *Oxylobium ellipticum*, cascade everlasting *Ozothamnus secundiflorus*, dusty daisy-bush *Olearia phlogopappa*, ovens everlasting *Ozothamnus stirlingii*, tall rice flower *Pimelea ligustrina* ssp *ciliata*. The ground layer consists of prickly starwort *Stellaria pungens*, the snow grasses *Poa sieberiana* var *cyanophylla* and *P. sieberiana* var *sieberiana* and purple eyebright *Euphrasia collina*

ssp diversicolor in deep colluvial soils on sheltered fireshadow zones on the lee faces of mountain sides.

6. Sub-alpine Snow Gum Alpine Poa Tussock Grass Woodland – containing a sparse canopy of snow gum *Eucalyptus pauciflora ssp debeuzevillei*. The shrub layer is dominated by prickly woodruff *Asperula scoparia*, mountain hickory *Acacia obliquinervia*, moth daisy-bush *Olearia erubescens*, alpine pepper *Tasmannia xerophila*, needle bush *Hakea lissosperma*, mountain shaggy pea *Oxylobium alpestre* and golden rosemary *Oxylobium ellipticum*. The ground layer is dominated by the snow grasses *Poa sieberiana var sieberiana* and *P. sieberiana var cyanophylla*, bidgee widgee *Acaena novae-zelandiae*, button everlasting *Helichrysum scorpioides*, prickly starwort *Stellaria pungens*, showy violet *Viola betonicifolia ssp betonicifolia*, graceful fescue *Festuca asperula*, small poranthera *Poranthera microphylla* and common wheat grass *Elymus scaber var scaber* in shallow granitic soils on eastern slopes of the high peaks of Scabby Range.

7. Valley Floor Black Sallee – Snow Gum moist grass woodland – containing a sparse canopy dominated by snow gum *Eucalyptus pauciflora* and candlebark *Eucalyptus rubida ssp rubida*. The shrub layer is dominated by honey pots *Acrotriche serrulata*, leafy bossiaea *Bossiaea foliosa*, river leafless bossiaea *Bossiaea riparia* and prickly bush pea *Pultenaea juniperina var mucronata*. The ground layer consists of snow grass *Poa sieberiana var cyanophylla*, kangaroo grass *Themeda australis*, trigger plant *Stylidium graminifolium*, clustered everlasting *Chrysocephalum semipapposum*, alpine wallaby grass *Danthonia nudiflora* and kidney plant *Dichondra repens* in partially organic clay loams in frost hollows in deep valley floors.

8. Montane Mountain Gum moist grass herb forest – containing a canopy of mountain gum *Eucalyptus dalrympleana ssp dalrympleana*, snow gum *E. pauciflora* and narrow-leaved peppermint *E. radiata ssp radiata*. The shrub layer is dominated by drumstick heath *Epacris breviflora*, silver tea-tree *Leptospermum myrtifolium*, mountain beard heath *Leucopogon hookeri*, alpine baeckea *Baeckea gunniana* and golden rosemary *Oxylobium ellipticum*. The ground layer is dominated by bidgee widgee *Acaena novae-zelandiae*, creeping cudweed *Euchiton gymnocephalus*, branching raspwort *Gonocarpus micranthus ssp ramosissimus*, button everlasting *Helichrysum scorpioides*, trigger plant *Stylidium graminifolium*, snow fescue *Austrofestuca eriopoda*, slender wallaby grass *Danthonia penicillata* and snow grass *Poa clivicola* in moderately deep clay loams on sheltered southern slopes.

9. Candlebark Gum/Broad-leaved Peppermint tall dry shrub open forest – containing a canopy of broad-leaved peppermint *Eucalyptus dives*, candlebark, *E. rubida ssp rubida*. The shrub layer consists of honey pots *Acrotriche serrulata*, silver wattle *Acacia dealbata*, rosemary cassinia *Cassinia quinquefaria*, creeping hovea *Hovea linearis*, prickly broom heath *Monotoca scoparia* and pepper everlasting *Ozothamnus conditus*. The ground layer consists of daphne heath *Brachyloma daphnoides*, prickly starwort *Stellaria pungens*, twining glycine *Glycine clandestina*, snow grass *Poa sieberiana var hirtella* and short-stem hedge *Carex breviculmis* in shallow colluvial clay loams on dry exposed boulder slopes at higher elevations.

10. Hakea micrantha – Baeckea utilis Montane Wet Heath/Bog – with a low shrub layer of swamp heath *Epacris paludosa*, mountain milkwort *Comesperma retusum*, river bottlebrush *Callistemon sieberi*, drumstick heath *Epacris breviflora*, small-fruited hakea *Hakea microcarpa*, alpine bush-pea *Pultenaea fasciculata* and mountain baeckea

Baeckea utilis. The diverse ground layer consists of spreading rope-bush *Empodisma minus*, the rush *Restio australis*, alpine sedge *Carex blakei*, mountain aciphyll *Aciphylla simplicifolia*, mountain woodruff *Asperula gunnii*, alpine woodruff *A. pusilla*, creeping raspwort *Gonocarpus micranthus ssp micranthus*, bog carraway *Oreomyrrhis ciliata*, matted pratia *Pratia pedunculata* and dwarf buttercup *Ranunculus millanii* in deep organic loams in impeded drainage valleys.

11. Montane Carex Swamp – containing a shrub layer of drumstick heath *Epacris breviflora*, small-fruited hakea *Hakea microcarpa*, mountain pimelia *Pimelea bracteata* and a diverse ground layer of trigger plant *Stylidium graminifolium*, variable plantago *Plantago varia*, mountain woodruff *Asperula gunnii*, billy buttons *Craspedia variabilis* and Australian carraway *Oreomyrrhis eriopoda* in deep organic loams in impeded drainage valley floors.

12. Alpine Teatree heath – with a sparse distribution of snow gum *Eucalyptus pauciflora ssp debeuevillei*, and a shrub layer of yellow kunzea *Kunzea muelleri*, tea-tree *Leptospermum namadgiensis*, mountain phebalium *Phebalium squamulosum ssp ozothamnoides*, alpine oxylodium *Oxylodium alpestre*, golden rosemary *O. ellipticum*, alpine star bush *Asterolasia trymalioides*, the heath *Epacris robusta* and shining westringia *Westringia lucida* in shallow soils on exposed mountain tops.

13. Alpine Teatree heath – with a sparse distribution of candlebark *Eucalyptus rubida ssp rubida* and a shrub layer of burgan *Kunzea ericoides*, yellow kunzea *K. muelleri*, tea-tree *Leptospermum micromyrtus* and *L. namadgiensis*, snow grass *Poa induta*, short-stem hedge *Carex breviculmis* and mountain bent-grass *Deyeuxia monticola var monticola* in moderately deep clay loams on sheltered slopes on top of Mt Scabby.

14. Natural Temperate Grassland – transitional community of tall grassland and sod-tussock grassland dominated by kangaroo grass *Themeda australis*, the snow grasses *Poa sieberana* and *P. costiniana*, yellow buttons *Chrysocephalum apiculatum*, sheep's burr *Acaena ovina*, rosetted cranesbill *Geranium antrorsum* and scaly buttons *Leptorhynchos squamatus* on partial organic clay loams in frost hollows in deep valley floors.

The wetland on Yaouk Creek is of national significance (Environment Australia 2001). It is a wet tussock wetland that has received very little disturbance, apart from occasional low intensity cattle grazing, and as such remains relatively intact. The upper reaches of the wetland remain saturated and support a reasonable fen vegetation community, fed by groundwater from the granites of the Scabby Range. In areas of semi-permanent surface saturation, a *Carex gaudichaudiana* – *Scirpus polystachus* fen community occurs. The shallower, braided channels which characterise the upper parts of the catchment are occupied by more aquatic communities. The site has high scientific value in terms of depth and freshness of the peat, and the size of the peatland. It is relatively isolated from other montane peat areas although sub-alpine bogs occur nearby above 1500m (Hope 1983). Yaouk wetland is significant in that it is one of the few wetlands of this region that has not been severely affected by erosion.

The grassland communities in the reserve are also significant in that they sample a large area of this vegetation type at an altitude transitional between the lower Monaro grasslands and higher montane grasslands, with representative species from both regions. The grassland is highly diverse and has a very high ecological integrity (i.e. it has a very low density of exotic species). An undescribed leek orchid (*Prasophyllum*

sp. A “Sam’s Corner”) has been collected in this grassland (Rainer Rehwinkel *pers. comm.*). In addition, the snake orchid *Diuris pedunculata* has been recorded in the reserve. It is listed as endangered under the *Threatened Species Conservation Act 1995*. The grassland is also notable for the large population of Murrnong (*Microseris lanceolata*), also known as Yam Daisy. This species was a very important food resource for Aboriginal people, and is now uncommon in grasslands of the Monaro.

Other plants of interest is the existence of the Namadgi tea-tree *Leptospermum namadgiensis*. Discovered in 1986, the species has a very limited distribution (<15km²) and is limited to a handful of exposed mountain peaks in Scabby Range and Yaouk Nature Reserves in NSW and nearby Namadgi National Park in the ACT. It is considered rare, but it is not currently listed as vulnerable or endangered (Lyne 1993).

Land to the west and south of Scabby Range Nature Reserve has been cleared for agricultural purposes, while the western and northern boundaries of the reserve abut Namadgi National Park in the ACT. The conservation of areas of native vegetation in the vicinity of the reserve is important because it provides links to other reserves in the area such as Yaouk Nature Reserve, and protects a greater range of habitats for threatened species in the region that are impacted by loss of habitat.

A Priorities Action Statement has been prepared that identifies strategies and actions to promote the recovery of threatened species, populations and ecological communities and manage key threatening processes.

Desired Outcomes

- The full range of native plant species and communities found in the reserve is conserved.
- Structural diversity and habitat values are restored in areas subject to past disturbance.
- The habitat and populations of all significant plant species are protected.
- Reserve neighbours support conservation of remaining areas of privately owned native vegetation near the nature reserve.

Strategies

- Encourage surveys for threatened plant species.
- Implement relevant actions from the Priorities Action Statement for threatened species, communities and populations that may occur within the reserve.
- Support periodic survey of established grassland monitoring transects.
- Liaise with neighbours, Landcare, vegetation management committees and land use authorities to encourage retention and appropriate management of key habitat and corridors adjacent to the reserve.

3.3 NATIVE ANIMALS

Habitat value of the reserve is greatly enhanced by the large contiguous expanses of native forest to the reserve's north, east and south-east, including Kosciuszko and Namadgi National Parks. The suite of fauna species that exist in the reserve is known to be diverse, and this is expected given the large altitudinal range and habitat diversity within and surrounding the reserve.

Atlas of NSW Wildlife searches and fauna surveys carried out by NPWS (2003) revealed a diverse range of native animals existing within the reserve. Threatened species known to occur in the nature reserve include:

Scientific Name	Common Name	Status
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable
<i>Myotis adversus</i>	Large-footed Myotis	Vulnerable
<i>Mastacomys fuscus</i>	Broad-toothed Rat	Vulnerable
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	Vulnerable
<i>Climacteris picumnus</i>	Brown Treecreeper	Vulnerable
<i>Melanodryas cucullata</i>	Hooded Robin	Vulnerable
<i>Pachycephala olivacea</i>	Olive Whistler	Vulnerable
<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable

Key: Vulnerable = listed as vulnerable to extinction under the *TSC Act, 1995*

A Priorities Action Statement (PAS) have been prepared which identify strategies and actions to promote the recovery of threatened species, populations and ecological communities and manage key threatening processes, for species for which there is no recovery plan. The actions listed for these species in the priorities action statement include landholder education, habitat restoration, research and surveys.

Broad-toothed Rats have been recorded in the Yaouk wetland. Bush and Reside (2004) state that the presence of lactating and post-lactating female and juvenile Broad-toothed Rats indicate that some recruitment into the population is occurring. Threats to the population include competition for food and shelter from rabbits and predation by dogs, foxes and cats.

Surveys of quoll populations within the reserve were undertaken in the late autumn/early winter of 2002, 2003 and 2005. These surveys took the form of ground-based searches for latrine sites (ie. searching prominent rock outcrops for scats). To date, three confirmed latrine sites have been located within the reserve, all high up on the mountain, including one on Sentry Box Mountain. In the 2005 survey, two animals were sighted around the head of Sams Creek. A survey period of once every 5 years is considered as appropriate for on-going monitoring.

A complete bird, amphibian, reptile and non-threatened mammal species list for the reserve is included in Appendix 1.

Many more species are likely to occur seasonally within and around the reserve, particularly birds.

Desired Outcomes

- The full range of native animal species and communities found in the reserve is conserved.
- The habitat and populations of all threatened fauna species and biogeographically significant species are protected and maintained.
- Impacts on native species from feral animals are minimised.
- There is greater understanding of species diversity, distribution and ecological requirements.

Strategies

- Monitor the Broad-toothed Rat population in Yaouk wetland. Resurvey every 5 years.
- Survey for Spotted-tailed Quolls every 5 years.
- Encourage surveys for predicted threatened animal species, and continue to record the distribution of threatened and significant fauna species.
- Implement relevant strategies in recovery plans and the Priorities Action Statement for threatened species, communities and populations within the reserve.

4. CULTURAL HERITAGE

4.1 ABORIGINAL HERITAGE

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

Scabby Range Nature Reserve and the lands surrounding it have a long history of use by Aboriginal people. The reserve lies within the area of the Wagonga Local Aboriginal Land Council, but it is difficult to state with any certainty which Aboriginal group occupied the area where the reserve is situated. According to Tindale (1974) the reserve lies well within the territory of the Walgalu people, however these territories were based on fragmentary linguistic evidence and Officer (1989) states that these boundaries should be treated as approximate only. Other research by Winston-Gregson (1978), Howitt (1904) and Gale (1927) indicate that people of the Ngunnawal tribe would have used the area as a southern boundary of their country. The Monaro-Ngarigo people also share a boundary with other groups in the proximity of the reserve.

Flood (1980) describes a large area of the mountains, including the reserve, as being of high importance for bogong moth (*Agrotis infusa*) harvest and ceremony. The rock outcrops on the reserve's peaks provide habitat for the moths, and other sites found in the area provide further evidence of past occupation for resource exploitation purposes. The degree to which the reserve itself contributed to this is not clear.

Although the area has the potential to have been utilised throughout the year, it is thought that the reserve and surrounding lands may not have been permanently inhabited by Aboriginal people. The reserve was most likely used primarily as "a rallying point and corridor" to the highlands for moth harvest, ceremonial purposes, or during periods of resource scarcity in other areas (Winston-Gregson, 1978). Field survey of a broader area, including most of the ACT, revealed a multitude of sites including art sites, stone arrangements, rock shelters, artefact scatters and a quarry.

Surveys carried out by Navin Officer (2003) within the reserve revealed 25 sites including artefact scatters, isolated artefacts and of particular significance, a previously recorded 60 metre J-shaped stone arrangement. There is little evidence of this important site left and what remains is at threat from human disturbance. Shelters containing potential archaeological deposits were also recorded across a range of slope features in the Yaouk Creek/Sams Creek valley, although the potential for these as human shelters is debatable (Navin Officer 2004).

The Yaouk wetland is likely to have been a plentiful source of food and water. The potential for archaeological deposits in and around this wetland area is high, given its location and the number of artefacts found on the fringe of the wetland during fire rehabilitation operations.

As previously mentioned, the reserve has a large population of Murrnong or Yam Daisy *Microceris lanceolata*, a plant that was widely used as a food resource by Aboriginal people for its succulent tubers or roots.

4.2 NON-ABORIGINAL HERITAGE

Scabby Range Nature Reserve is located within the parishes of Yaouk and Cochran, County of Cowley. It is listed on the Register of National Estate for many reasons, including its place as part of a significant wilderness area, and because it protects a good sample of well developed, minimally disturbed montane forests of mountain gum *Eucalyptus dalrympleana* and alpine ash *E. delegatensis*.

According to Dearling (2003), before the establishment of the reserve, the area had been subject to various Crown, Annual and Special leases, primarily for grazing of cattle and sheep. Prior to 1885, the entire area was part of the "Yaouk Run". This run was variously broken up over the ensuing years into smaller portions. In 1905 the southern parcel of the reserve was gazetted as part of a combined Travelling Stock, Camping, and Water Reserve.

Within the reserve there are reportedly several sites of historical interest. An old pack horse/stock trail that connected Bradleys Gap and Boboyan is thought to have passed through the isolated southern section of the reserve. The exact alignment of the original track is unknown today. A trail used by Chinese miners between Boboyan and Kiandra, and a Chinese cemetery were reportedly located beside Sams Creek. Evidence of these two sites has not been located by NPWS.

The remains of an old sheep dip shed and stockyards are located near the south western boundary of the nature reserve. An old hut site is also located in the west of the reserve. Associated with this site are the remains of a tip and various remains of old furniture and building materials. A concrete footing is also visible at the site.

An old poplar tree is also located within the reserve at Sam's Corner. This is known locally as "The Old Poplar" and is an established part of the cultural landscape of the area.

There are a number of historic border markers, in varying states of repair, along the reserve boundary where it is shared with the ACT. These markers consist mainly of wooden or steel posts in rock cairns and have all suffered some level of natural deterioration or disturbance from fire or human interference since their installation in the early 1900s. A detailed inventory of their location and condition was carried out by Higgins in 1996.

Desired Outcomes

- Aboriginal and historic features and values are identified and protected.
- Aboriginal people are involved in management of the Aboriginal cultural values in the reserve.
- Understanding of the cultural values of the reserve is improved.

Strategies

- Retain and record all Aboriginal and historic sites and places.
- Precede all new ground disturbance work by an assessment for cultural features.
- Encourage further survey and research into the Aboriginal heritage of the area in consultation with the Wagonga Local Aboriginal Land Council.
- Consult and involve the Wagonga Local Aboriginal Land Council and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values, including interpretation of places or values.
- Monitor the condition of the Aboriginal stone arrangement at least annually and take action if non-natural impacts on the site become evident.
- Encourage further research into the history of Chinese mining occupation of the area in and around the reserve.
- Allow one sucker from the Old Poplar to grow to replace the Old Poplar when it dies, in order to maintain the cultural significance of the site.
- Manage historic places and features in accordance with the principles of the Burra Charter.

5. THREATS TO RESERVE VALUES

5.1 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the *Threatened Species Conservation Act 1995*.

Projections of future changes in climate for NSW include higher temperatures, elevated CO₂, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporative demand. These changes are likely to lead to greater intensity and frequency of fires, more severe droughts, reduced river runoff and water availability, regional flooding, increased erosion and ocean acidification.

Individual species have two possible survival mechanisms in response to changes in climate – adaptation or migration. The rate and extent of predicted warming, however, is likely to exceed the ecological tolerances of many species and the ability of species to shift their range may be compromised by loss, fragmentation and isolation of natural habitats. Evolutionary responses are also likely to be too slow for most species to adapt in the short term. Shifts in distribution, behavioural changes, and local extinction are therefore more likely responses. There is also increasing evidence of earlier flowering and fruiting in plants, and earlier reproduction in amphibian and birds in response to warmer temperatures (Department of Environment and Heritage 2007).

The direct impacts of climate change on species and ecosystems may include:

- Range shifts and species movement towards cooler latitudes or higher elevations
- Extinctions of local populations along range boundaries
- Changes in productivity and nutrient cycling within ecosystems, due to a combination of climate change and increasing carbon dioxide levels
- Increasing invasion by opportunistic, weedy or highly mobile species, especially into sites where local populations of existing species are declining
- Increasing threat to freshwater ecosystems through decreasing water flows and changes in water temperature and chemistry, and
- Progressive decoupling of species interactions (for example plants and pollinators).

Adjusting our management of the environment through programs to reduce the pressures arising from other threats such as habitat fragmentation, invasive species, bushfires, pollution and urban expansion will help reduce the severity of the effects of climate change.

Desired Outcomes

- The effects of climate change on the reserve are better understood.
- The impacts of climate change on natural systems are reduced.

Strategies

- Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.

- Liaise with neighbours, local Landcare groups, catchment management authorities, and other agencies to encourage retention, and if possible expansion, of areas of native vegetation close to the reserve.
- Encourage research into appropriate indicator species within the reserve to monitor the effects of climate change.

5.2 INTRODUCED PLANTS

An introduced plant species is defined in this plan as any plant species not endemic to the reserve. Introduced species within the reserve and on adjoining land are of concern because they have the potential to have detrimental effects on ecological values and can spread to and from neighbouring land. 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. NPWS also aims to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

The South West Slopes Region Pest Management Strategy (2006) identifies priority pest species and programs for action through set criteria. By following a similar process the prioritisation of reserve pest species programs may be established and directly linked into the regional strategies (refer to the South West Slopes Region Pest Management Strategy). This risk analysis will consider such issues as (yet not limited by) the control of weeds in endangered ecological communities, significant remnant vegetation associations, threatened/endangered species habitat and areas of community/neighbour concern. The risk of new weed incursions will also be considered.

Introduced plant species recorded in the reserve include broom *Cytisus scoparius*, hawthorn *Crataegus monogyna*, scotch thistle *Onopordum acanthium*, nodding thistle *Carduus nutans*, African lovegrass *Eragrostis curvula*, sweet vernal grass *Anthoxanthum odoratum* and other pasture weeds. Since gazettal, weed control programs have focused on reducing the extent of scotch thistle, local eradication of broom and biological control of nodding thistle.

Nodding thistle exists in the lower parts of the reserve on the fringe of the wetland. This weed is a noxious weed that has the ability to set large amounts of wind-borne seed and readily infests otherwise intact native vegetation. In the last six years a number of biological control agents have been trialed in an attempt to control the spread and seed set of the thistles in the area around the reserve. These biological controls have included the seed-head fly *Urophora solstitialis*, the thistle head weevil *Rhinocyllus conicus* and the rosette weevil *Trichosirocalus horridus*, all of which were released across the Southern Tablelands in the early 1990s.

The seed-head fly and rosette weevil have both been successful in limiting infestations within and around the reserve and a population of *T. horridus* has successfully established in the Yaouk Valley (CSIRO, no date). A small infestation of nodding thistle near Sam's Corner has been treated with a biological control agent and will be left untreated by other methods, in order to monitor the effectiveness of the bio-control over time. New infestations or individuals of this species in other locations in the reserve will be controlled as a matter of priority through a number of means including chemical spraying, physical removal of plants and removal of seed heads from individual flowering plants.

Chilean needle grass, *Nassella neesiana* is a weed of national significance and poses a threat to the reserve for its potential for spread and economic and environmental impacts. As an environmental weed it reduces biodiversity of native grasslands, where it out-competes indigenous species. The weed requires bare ground to establish so it is important to maintain a cover of native species to prevent establishment of a seedbank (DEH 2003). Though not currently recorded in the reserve this species occurs on private lands nearby and has the potential to establish in the important grassland areas of the reserve. Monitoring of this species is required to ensure that individuals are controlled prior to infesting large areas.

Sweet vernal grass *Anthoxanthum odoratum* occurs within the native grassland of the reserve. Although not a large infestation, the species requires monitoring to ensure it is not spreading and threatening the integrity of the grassland.

Desired Outcomes

- The impact of introduced plant species on native plants and animals is minimised.
- Introduced plants are controlled and where possible eliminated.
- The integrity of the wetland and grassland is maintained.
- Pest control programs are undertaken in consultation with neighbours.

Strategies

- Manage introduced plant species in accordance with the Regional Pest Management Strategy.
- Monitor noxious and significant environmental weeds. Treat any new outbreaks where possible.
- Monitor for the emergence/introduction of Chilean needle grass in the reserve.
- Avoid unnecessary environmental disturbances. Where disturbance is inevitable or is planned, consider the likely impact of the activity in terms of introduced species and put in place controls or programs to reduce any such impact.
- Poplar suckers and seedlings originating from “The Old Poplar”, other than the one replacement sucker, will be controlled.
- Seek the cooperation of neighbours in implementing weed control programs.
- Undertake control in cooperation with Cooma-Monaro Shire Council.

5.3 INTRODUCED ANIMALS

An introduced animal species is defined in this plan as any animal species not native to the reserve. Introduced animals may impact upon native fauna populations through predation or competition for food or shelter. Introduced animals in the reserve include dogs, pigs, foxes, rabbits, cats and a number of bird species. All introduced species are managed in accordance with the actions listed in the Regional Pest Management Strategy.

An on-going program of wild dog baiting and trapping will continue while this method of control is cost effective and achieves the desired result. This program is carried out in conjunction with a complementary program in the nearby Yaouk Nature Reserve and on

large tracts of private property in the area. The reserve is included in the Yaouk/Adaminaby Cooperative Wild Dog Control Plan.

Foxes are controlled as a consequence of the wild dog control program. If fox populations are observed to be increasing, fox specific control programs may be implemented. Specific fox control programs need to be carefully planned to ensure there are no significant impacts on threatened species. Any such program should be planned prior to rabbit control programs in order to minimise impacts on Broad-toothed Rats.

Feral pigs occur in the reserve in low numbers. Pig numbers, and levels of impact caused by this species are constantly monitored by staff, and pigs are removed as they are located.

All control programs proposed for the nature reserve will need to consider the effects that the program may have on threatened species, especially Spotted-tailed Quolls and Broad-toothed Rats.

The SWS Region Pest Management Strategy also identifies the pest animal species known to occur within the region, including the reserve, and ranks them in terms of their potential to damage land, alter natural processes and/or disturb native animal populations and habitats. Management strategies for each species are outlined in this document as well as preferred methods of control.

Desired Outcomes

- The impact of introduced animals on native plants and animals is minimised.
- Introduced animals are controlled and where possible eliminated.
- Pest control programs are undertaken in consultation with neighbours.

Strategies

- Wild dog and fox control programs will continue in line with the Adaminaby/Yaouk Wild Dog Control Plan.
- Manage introduced animal species in accordance with the Regional Pest Management Strategy.
- Rabbit control programs will be concentrated around the wetland and in open grassy areas in the reserve's south west, in line with the Regional Pest Management Strategy.
- Continue to control feral pigs in the reserve on an as-needed basis.
- Seek the cooperation of neighbours in implementing pest animal control programs.
- Undertake control programs in cooperation with the South East Livestock Health and Pest Authority.

5.4 FIRE MANAGEMENT

Prior to 1986, data recorded on wildfire in the reserve was limited. In 1970 a small fire (<50 hectares) resulting from an escaped campfire was contained at the ACT border. In 1971 and 1977, two fires were started by arsonists. These fires were also relatively small (<60 hectares each) and were contained or went out of their own accord. In 1988 a small fire (cause unknown) burnt 20 hectares.

The two largest fires to affect the reserve occurred in 1983 and 2003. In 1983, lightning started a fire outside the reserve, which moved into the reserve and burnt 1026 hectares or 20% of its total area. A similar situation occurred in 2003, when 3258 hectares (65%) of the reserve was affected by fire. This fire started outside the reserve, and was contained along Maurice Luton Trail.

A number of hazard reduction and unplanned fires have occurred near the reserve boundary in the past 10 years. These mostly burnt on private property and were contained to small areas.

There is a high probability that fire has affected other areas of the reserve, or the entire reserve, prior to records being taken. This adds to the potential impact of a frequent fire regime disturbance. The frequency and interval between fires has important implications relevant to biodiversity and fire management. Fire incident records should continue to be updated and accurate fire maps be produced, as a basis for predicting appropriate future fire management.

The effects of the 2003 fires on the reserve's native vegetation has been assessed, with changes in diversity, structure and abundance being recorded post-fire in areas where pre-fire data had previously been recorded. A recent report on the effects of the 2003 fires by Doherty and Wright (2004) for Brindabella National Park indicates that vegetative response to fire is varied and mainly dependent on pre-fire composition. Preliminary findings indicate that most sites have responded with no marked decrease in abundance and diversity, although further analyses of vegetative response is required as some short-term changes in species composition have been recorded at some sites after fire.

Given that most of the reserve was burnt in 2003, and with knowledge of the forest types known to exist within it, it is important to confine unplanned wildfires in the reserve over the next 15-20 years to as small an area as possible. Too frequent fire can lead to loss of plant and animal species and communities. Fire can also damage cultural heritage, recreation and management facilities and can threaten visitors, neighbouring land and catchment values.

There are a number of assets which border the reserve, the main ones being facilities associated with agricultural activities such as homesteads, sheds, machinery and pastures. A number of cultural heritage features such as an Aboriginal stone arrangement and historic border markers also exist along the main ridge, although the potential for fire to impact on these features is low.

The NPWS uses a zoning system for bushfire management in NPWS reserves. NPWS zones are compatible with the system adopted by the Bushfire Coordinating Committee for use in the local Bushfire Management Committee (BFMC) bushfire risk management plans.

NPWS maintains cooperative arrangements with surrounding landowners, RFS and local volunteer brigades and is actively involved in the Cooma-Monaro Bush Fire Management Committee. Cooperative arrangements include approaches to fuel management, support for neighbours fire management efforts and information sharing.

In line with NPWS policy, a map based Fire Management Plan and accompanying Fire Operations Map have been prepared for the reserve. This plan details life, property, natural and cultural resource protection strategies specific to the reserve and provide a single agreed strategy and contact points for various agencies working to suppress fire in the reserve.

Desired Outcomes

- Life, property and natural and cultural values are protected from bushfire.
- Fire regimes are appropriate for conservation of plant and animal communities.

Strategies

- Manage fire in accordance with the fire management strategy and operations plan.
- Continue to participate in the Cooma-Monaro/Snowy River Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service Officers and local volunteer brigades and ACT fire management authorities with regard to fuel management and fire suppression.
- Monitor vegetation recovery following the 2003 fires. Resurvey monitoring plots every 5 years.
- Manage the nature reserve to protect biodiversity in accordance with the fire interval guidelines for vegetation communities identified in the fire management strategy.

6. PUBLIC USE

Public use of the reserve has been limited due to its isolation and lack of public access points. Low levels of bushwalking and nature appreciation activities have occurred in the past, and this low level of use is expected to continue in the future. The reserve has received low levels of use from rock climbers since the 1960s, these users undertake the sport in a self reliant manner, using traditional removable anchors, and require no further facilities in the reserve. The reserve also receives some use by recreational anglers.

There are no formed public vehicular access roads leading to the reserve and no visitor facilities are provided. A number of crown road reserves exist in the vicinity of the reserve but roads have not been constructed within the reserves. Public access to the reserve is via private freehold land with permission required from the landholder. The reserve can also be accessed on foot via Namadgi National Park to the north and east.

Consistent with DECCW policy, cycling and horse riding will not be permitted in the nature reserve, primarily because much of the reserve is a wilderness area, and also due to the lack of public access and the need to promote consistent management with the national park that borders the reserve.

Recreational activities not consistent with the study of nature and natural environments are generally considered inappropriate uses of nature reserves. Reserve identification signs are located at the three main entrance points.

Desired Outcomes

- A variety of low key visitor opportunities are available that encourage appreciation of the natural environment and the reserve's values.
- Visitor use is appropriate and ecologically sustainable.

Strategies

- Maintain reserve identification signs at key entry points.
- Exclude public vehicular access except for essential management requirements of the reserve.
- Permit minimum impact bushwalking, picnicking and bush camping. No facilities will be provided in the reserve.
- Permit organised group visits, with limited numbers, subject to prior permission from NPWS and neighbours and other conditions as required.
- Cycling and horse riding will not be permitted in the nature reserve.
- Continue to allow rock climbing in the reserve as a low impact, self reliant activity. No permanent anchors or other fixtures are to be placed in relation to this activity.
- Monitor impacts associated with rock climbing in the reserve, and if impacts are occurring, formulate guidelines for this activity in conjunction with user groups.
- Continue to permit recreational angling in the reserve.
- Inform potential visitors of the need to seek permission from neighbours if accessing the reserve across private land, and advise on permitted activities.
- Monitor levels of illegal use and access and take action when required.

7. RESEARCH AND MONITORING

The reserve has been the subject of many research projects in the past. Key topics have included research on the natural values of the wetland system, native flora and fauna and threatened species. Research into the cultural values of the reserve has included Aboriginal and non-Aboriginal surveys.

Further research will improve understanding of the reserve's natural and cultural heritage, the processes that affect them and the requirements for management of particular species.

Desired Outcomes

- Research enhances the management information base and has minimal environmental impact.

Strategy

- Encourage research to improve knowledge and management of natural and cultural heritage. This includes further research into the threatened species of the reserve, and the effects of fire on the reserve's vegetation, particularly regarding management of the grassland areas in the reserve.

8. MANAGEMENT OPERATIONS

A single management trail exists within the reserve. The topography of the reserve limits the construction of additional trails for management operations.

Reserve boundary fencing is of a varying standard and does not exist in some locations.

Desired Outcomes

- Management facilities adequately serve the needs of reserve management and have acceptable environmental impact.
- A good relationship is maintained with reserve neighbours.
- Domestic stock do not enter the reserve.

Strategies

- Maintain the trails shown on the map as management trails (see map, page 4).
- Maintain close liaison with reserve neighbours to deal with matters of mutual concern.
- In conjunction with neighbours and where funds permit, maintain boundary fences and determine strategies to exclude stock where boundary fencing is difficult.

10. PLAN IMPLEMENTATION

Section	Strategy	Priority
3.1	Landform, Geology and Soils	
	Undertake all works in a manner that minimises erosion and water pollution.	High
	Periodically monitor the wetland to ensure that erosion is minimised.	Medium
3.2	Native Plants	
	Encourage surveys for threatened plant species.	Low
	Implement relevant actions from the Priorities Action Statement for threatened species, communities and populations that may occur within the reserve.	Medium
	Support periodic survey of established grassland monitoring transects.	Low
	Liaise with neighbours, Landcare, vegetation management committees and land use authorities to encourage retention and appropriate management of key habitat and corridors adjacent to the reserve.	Low
3.3	Native Animals	
	Monitor the Broad-toothed Rat population in Yaouk wetland. Resurvey every 5 years.	Medium
	Survey for Spotted-tailed Quolls every 5 years.	Medium
	Encourage surveys for predicted threatened animal species, continue to record the distribution of threatened and significant fauna species.	Medium
	Implement relevant strategies in recovery plans and the Priorities Action Statement for threatened species, communities and populations within the reserve.	High
4	Cultural Heritage	
	Retain and record all Aboriginal and historic sites and places.	High
	Precede all new ground disturbance work by an assessment for cultural features.	High
	Encourage further survey and research into the Aboriginal heritage of the area in consultation with the Wagonga Local Aboriginal Land Council.	Low
	Consult and involve the Wagonga Local Aboriginal Land Council and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values, including interpretation of places or values.	High
	Monitor the condition of the Aboriginal stone arrangement at least annually, and take action if non-natural impacts on the site become evident.	High
	Encourage further research into the history of Chinese mining occupation of the area in and around the reserve.	Low

Section	Strategy	Priority
	Allow one sucker from the Old Poplar to grow to replace the old poplar when it dies, in order to maintain the cultural significance of the site.	Medium
	Manage historic places and features in accordance with the principles of the Burra Charter.	High
5.1	Climate Change	
	Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.	High
	Liaise with neighbours, local Landcare groups, catchment management authorities, and other agencies to encourage retention, and if possible expansion, of areas of native vegetation close to the reserve.	Medium
	Encourage research into appropriate indicator species within the reserve to monitor the effects of climate change.	Low
5.2	Introduced Plants	
	Manage introduced plant species in accordance with the Regional Pest Management Strategy.	High
	Monitor noxious and significant environmental weeds. Treat any new outbreaks where possible.	High
	Monitor for the emergence/introduction of Chilean needle grass in the reserve.	High
	Avoid unnecessary environmental disturbances. Where disturbance is inevitable or is planned, consider the likely impact of the activity in terms of introduced species and put in place controls or programs to reduce any such impact.	High
	Poplar suckers and seedlings originating from "The Old Poplar", other than the one replacement sucker, will be controlled.	Medium
	Seek the cooperation of neighbours in implementing weed control programs.	Medium
	Undertake control programs in cooperation with Cooma-Monaro Shire Council.	Medium
5.3	Introduced Animals	
	Wild dog and fox control programs will continue in line with the Adaminaby/Yaouk Wild Dog Control Plan.	High
	Manage introduced animal species in accordance with the Regional Pest Management Strategy.	High
	Rabbit control programs will be concentrated around the wetland and in open grassy areas in the reserves southwest in line with the Regional Pest Management Strategy.	Medium
	Control feral pigs in the reserve on an as-needed basis	Medium
	Seek the cooperation of neighbours in implementing pest animal programs.	Medium
	Undertake control in cooperation with the South East Livestock Health and Pest Authority.	Medium

Section	Strategy	Priority
5.4	Fire Management	
	Manage fire in accordance with the fire management strategy and operations plan.	High
	Continue to participate in the Cooma-Monaro/Snowy River Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service Officers and local volunteer brigades and ACT fire management authorities with regard to fuel management and fire suppression.	High
	Monitor vegetation recovery following the 2003 fires. Resurvey monitoring plots every 5 years.	Medium
	Manage the nature reserve to protect biodiversity in accordance with the fire interval guidelines for vegetation communities identified in the fire management strategy.	Medium
6	Public Use	
	Maintain reserve identification signs at key entry points.	High
	Exclude public vehicular access except for essential management requirements of the reserve.	High
	Permit minimal impact bushwalking, picnicking and bush camping. No facilities will be provided in the reserve.	High
	Permit organised group visits, with limited numbers, subject to prior permission from NPWS and neighbours and other conditions as required.	Medium
	Cycling and horse riding will not be permitted in the nature reserve.	High
	Continue to allow rock climbing in the reserve as a low impact, self reliant activity. No permanent anchors or other fixtures are to be placed in relation to this activity.	High
	Monitor impacts associated with rock climbing in the reserve, and if impacts are occurring, formulate guidelines for this activity in conjunction with user groups	Low
	Continue to permit recreational angling in the reserve.	High
	Inform potential visitors of the need to seek permission from neighbours to access the reserve, and advise on permitted activities.	High
	Monitor levels of illegal use and access and take action when required.	Medium
7	Research and Monitoring	
	Encourage research to improve knowledge and management of natural and cultural heritage. This includes further research into the threatened species of the reserve, and the effects of fire on the reserve's vegetation, particularly regarding management of the grassland areas in the reserve.	Medium

Section	Strategy	Priority
8	Management Operations	
	Maintain the trails shown on the map as management trails (see map, page 4).	High
	Maintain close liaison with reserve neighbours to deal with matters of mutual concern.	High
	In conjunction with neighbours and where funds permit, maintain boundary fences and determine strategies to exclude stock where boundary fencing is difficult.	Medium

Legend:

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

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

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

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Personal Communications

Rehwinkle, R. 2005. Grassland Ecologist

Appendix 1

Native bird species known to occur within and around the nature reserve.

Scientific Name	Common Name
<i>Dromaius novaehollandiae</i>	Emu
<i>Anas castanea</i>	Chestnut Teal
<i>Anas gracilis</i>	Grey Teal
<i>Anas rhynchos</i>	Australasian Shoveler
<i>Anas superciliosa</i>	Pacific Black Duck
<i>Biziura lobata</i>	Musk Duck
<i>Chenonetta jubata</i>	Australian Wood Duck
<i>Cygnus atratus</i>	Black Swan
<i>Tadorna tadornoides</i>	Australian Shelduck
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe
<i>Anhinga melanogaster</i>	Darter
<i>Phalacrocorax carbo</i>	Great Cormorant
<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant
<i>Ardea pacifica</i>	White-necked Heron
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Threskiornis molucca</i>	Australian White Ibis
<i>Threskiornis spinicollis</i>	Straw-necked Ibis
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk
<i>Accipiter fasciatus</i>	Brown Goshawk
<i>Aquila audax</i>	Wedge-tailed Eagle
<i>Circus assimilis</i>	Spotted Harrier
<i>Elanus axillaris</i>	Black-shouldered Kite
<i>Haliastur sphenurus</i>	Whistling Kite
<i>Falco berigora</i>	Brown Falcon
<i>Falco cenchroides</i>	Nankeen Kestrel
<i>Falco longipennis</i>	Australian Hobby
<i>Fulica atra</i>	Eurasian Coot
<i>Gallinula tenebrosa</i>	Dusky Moorhen
<i>Porphyrio porphyrio</i>	Purple Swamphen
<i>Euseyonis melanops</i>	Black-fronted Dotterel
<i>Vanellus miles</i>	Masked Lapwing
<i>Vanellus tricolor</i>	Banded Lapwing
<i>Larus novaehollandiae</i>	Silver Gull
<i>Leucosarcia melanoleuca</i>	Wonga Pigeon
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Calyptorhynchus funereus</i>	Yellow-tailed Black-Cockatoo
<i>Eolophus roseicapillus</i>	Galah
<i>Alisterus scapularis</i>	Australian King-Parrot
<i>Platycercus adscitus eximius</i>	Eastern Rosella
<i>Platycercus elegans</i>	Crimson Rosella

Scientific Name	Common Name
<i>Psephotus haematonotus</i>	Red-rumped Parrot
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo
<i>Cacomantis variolosus</i>	Brush Cuckoo
<i>Cuculus pallidus</i>	Pallid Cuckoo
<i>Ninox boobook</i>	Southern Boobook
<i>Podargus strigoides</i>	Tawny Frogmouth
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar
<i>Hirundapus caudacutus</i>	White-throated Needle-tail
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Todiramphus sanctus</i>	Sacred Kingfisher
<i>Menura novaehollandiae</i>	Superb Lyrebird
<i>Climacteris erythroptera</i>	Red-browed Treecreeper
<i>Cormobates leucophaea</i>	White-throated Treecreeper
<i>Malurus cyaneus</i>	Superb Fairy-wren
<i>Pardalotus punctatus</i>	Spotted Pardalote
<i>Pardalotus striatus</i>	Striated Pardalote
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill
<i>Acanthiza lineata</i>	Striated Thornbill
<i>Acanthiza pusilla</i>	Brown Thornbill
<i>Acanthiza reguloides</i>	Buff-rumped Thornbill
<i>Aphelocephala leucopsis</i>	Southern Whiteface
<i>Gerygone fusca</i>	Western Gerygone
<i>Sericornis frontalis</i>	White-browed Scrubwren
<i>Smicronis brevirostris</i>	Weebill
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill
<i>Anthochaera carunculata</i>	Red Wattlebird
<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater
<i>Lichenostomus fuscus</i>	Fuscous Honeyeater
<i>Lichenostomus leucotis</i>	White-eared Honeyeater
<i>Lichenostomus melanops</i>	Yellow-tufted Honeyeater
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater
<i>Manorina melanocephala</i>	Noisy Miner
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater
<i>Melithreptus lunatus</i>	White-naped Honeyeater
<i>Philemon corniculatus</i>	Noisy Friarbird
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater
<i>Phylidonyris pyrrhoptera</i>	Crescent Honeyeater
<i>Eopsaltria australis</i>	Eastern Yellow Robin
<i>Microeca fascians</i>	Jacky Winter
<i>Petroica boodang</i>	Scarlet Robin
<i>Petroica phoenicea</i>	Flame Robin
<i>Petroica rosea</i>	Rose Robin
<i>Cinclusoma punctatum</i>	Spotted Quail-thrush
<i>Psophodes olivaceus</i>	Eastern Whipbird
<i>Daphoenositta chrysoptera</i>	Varied Sittella

Scientific Name	Common Name
<i>Colluricincla harmonica</i>	Grey Shrike-thrush
<i>Pachycephala pectoralis</i>	Golden Whistler
<i>Pachycephala rufiventris</i>	Rufous Whistler
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Myiagra cyanoleuca</i>	Satin Flycatcher
<i>Myiagra inquieta</i>	Restless Flycatcher
<i>Myiagra rubecula</i>	Leaden Flycatcher
<i>Rhipidura albiscapa</i>	Grey Fantail
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Rhipidura rufifrons</i>	Rufous Fantail
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike
<i>Lalage tricolor</i>	White-winged Triller
<i>Artamus cyanopterus</i>	Dusky Woodswallow
<i>Cracticus torquatus</i>	Grey Butcherbird
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Strepera graculina</i>	Pied Currawong
<i>Strepera versicolor</i>	Grey Currawong
<i>Corvus coronoides</i>	Australian Raven
<i>Corvus mellori</i>	Little Raven
<i>Corcorax melanorhamphos</i>	White-winged Chough
<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird
<i>Anthus australis</i>	Australian Pipit
<i>Neochmia temporalis</i>	Red-browed Finch
<i>Dicaeum hirundinaceum</i>	Mistletoebird
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Petrochelidon nigricans</i>	Tree Martin
<i>Cincloramphus mathewsi</i>	Rufous Songlark
<i>Zosterops lateralis</i>	Silvereye

Amphibian species recorded in the reserve include:

Scientific Name	Common Name
<i>Crinia parinsignifera</i>	Eastern Sign-bearing Froglet
<i>Crinia signifera</i>	Common Eastern Froglet
<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog
<i>Pseudophryne bibronii</i>	Bibron's Toadlet
<i>Litoria lesueuri</i>	Lesueur's Frog
<i>Litoria verreauxii</i>	Verreaux's Tree Frog

Reptile species recorded in the reserve include:

Scientific Name	Common Name
<i>Amphibolurus muricatus</i>	Jacky Lashtail
<i>Egernia cunninghami</i>	Cunningham's Spiny-tailed Skink
<i>Eulamprus heatwolei</i>	Warm-temperate Water-skink
<i>Hemiergus decresiensis</i>	Three-toed Earless Skink
<i>Pseudemoia entrecasteauxii</i>	Tussock Cool-skink
<i>Tiliqua nigrolutea</i>	Blotched Bluetongue
<i>Austrelaps ramsayi</i>	Highlands Copperhead
<i>Drysdalia coronoides</i>	White-lipped Snake

Non-threatened mammal species recorded in the reserve include:

Scientific Name	Common Name
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna
<i>Antechinus stuartii</i>	Brown Antechinus
<i>Antechinus swainsonii</i>	Dusky Antechinus
<i>Vombatus ursinus</i>	Common Wombat
<i>Petaurus breviceps</i>	Sugar Glider
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum
<i>Trichosurus caninus</i>	Mountain Brushtail Possum
<i>Trichosurus vulpecula</i>	Common Brushtail Possum
<i>Macropus giganteus</i>	Eastern Grey Kangaroo
<i>Macropus rufogriseus</i>	Red-necked Wallaby
<i>Wallabia bicolor</i>	Swamp Wallaby
<i>Nyctinomus australis</i>	White-striped Freetail-bat
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
<i>Chalinolobus morio</i>	Chocolate Wattled Bat
<i>Vespadelus darlingtoni</i>	Large Forest Bat
<i>Rattus fuscipes</i>	Bush Rat
<i>Canis lupus</i>	Dingo