

WEREBOLDERA STATE CONSERVATION AREA
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

Part of the Department of Environment, Climate Change and Water

August 2009

This plan of management was adopted by the Minister for Climate Change and the Environment on 10th August 2009.

Acknowledgments

The NPWS acknowledges that this state conservation area is located within the traditional lands of the Wiradjuri People.

This plan of management is based on a draft plan prepared by the staff of South West Slopes Region, Parks and Wildlife Group, Department of Environment, Climate Change and Water, known as NSW National Parks and Wildlife Service (NPWS).

NPWS specialists, the South West Slopes Regional Advisory Committee and members of the public provided valuable information and comments.

For additional information or any inquiries about this park or this plan of management contact the NPWS Riverina Highlands Area Office, 7a Adelong Road, Tumut NSW 2720 or by telephone on 6947 7000.

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

ISBN 978 1 74232 424 1

DECCW 2009/595

FOREWORD

Wereboldera State Conservation Area is located 2 kilometres south west of Tumut in the South West Slopes of NSW. It covers 2,263 hectares and forms part of a vegetated transition between the montane forests of the Snowy Mountains and the drier open woodlands of the South West Slopes and Riverina to the north and west.

Wereboldera State Conservation Area is dominated by dry sclerophyll open forest, consisting of four distinct forest ecosystems. The only location on the South West Slopes where Norton's Box-Red Box open forest occurs is within and around the reserve. A diverse range of reptiles, amphibians, mammals and birds have been recorded in the reserve, including 150 bird species and 13 fauna species listed under the Threatened Species Conservation Act .

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each state conservation area. A draft plan of management for Wereboldera State Conservation Area was placed on public exhibition from 18th January until 9th May 2008. The submissions received were carefully considered before adopting this plan.

This 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 weed and pest animal control, rehabilitation of disturbed areas, and fire management. The plan also contains a number of actions to help achieve Priority E8 in the State Plan "More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity", including maintaining an extensive trail network, maintaining views from Gilmore lookout, and subject to demand providing basic picnic facilities.

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

Carmel Tebbutt MP
Deputy Premier
Minister for Climate Change and the Environment

TABLE OF CONTENTS

1. WEREBOLDERA STATE CONSERVATION AREA	1
1.1 Location, Gazettal and Regional Setting	1
1.2 Landscape	1
2. MANAGEMENT CONTEXT	2
2.1 Legislative and Policy Framework	2
2.2 Management Purposes and Principles	2
2.3 Key Management Directions	3
RESERVE MAP	4
3. NATURAL VALUES	5
3.1 Landform, Geology and Soils	5
3.2 Native Plants	5
3.3 Native Animals	7
4. CULTURAL HERITAGE	10
4.1 Aboriginal Heritage	10
4.2 Historic Heritage	10
5. THREATS TO RESERVE VALUES	12
5.1 Soil Erosion	12
5.2 Climate Change	12
5.3 Introduced Species	13
5.4 Fire Management	15
6. VISITOR OPPORTUNITIES AND EDUCATION	18
6.1 Information Provision	18
6.2 Recreational Use	19
7. MANAGEMENT OPERATIONS AND OTHER FACILITIES	24
8. RESEARCH AND MONITORING	25
9. PLAN IMPLEMENTATION	26
REFERENCES	31
APPENDIX 1	32

1. WEREBOLDERA STATE CONSERVATION AREA

1.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Wereboldera State Conservation Area (referred to as the SCA in this plan) is located 2 kilometres south west of Tumut in the South West Slopes of NSW. It protects 2,263 hectares of mixed open forest at the northern end of the Snubba Range. The SCA forms part of a fragmented vegetated transition between the expansive montane forests of Kosciuszko National Park, Bago State Forest and Maragle State Forest and beyond in the south, and the drier open woodlands of the South West Slopes and Riverina to the north and west. The SCA shares a south-western boundary with Tumut State Forest and is located 5 kilometres south of Minjary National Park.

Much of the SCA was previously managed by the then State Forests of NSW as part of Tumut State Forest (No 798), gazetted in 1926. Other much smaller portions were held as Travelling Stock Reserves or under various lease agreements with the Crown prior to reservation as part of the SCA.

On 1 January 2001, the now SCA was dedicated as Crown Reserve under the *Crown Lands Act, 1989*. NPWS was appointed as a trustee for the land but had no legal jurisdiction over its management. In 2003, the SCA was gazetted as Wereboldera State Conservation Area, to fall under the provisions of the *National Parks and Wildlife Act, 1974*.

Wereboldera State Conservation Area lies within the management area of the Tumut-Brungle Local Aboriginal Lands Council, the Murrumbidgee Catchment Management Authority, the Hume Livestock Health and Pest Authority and Tumut Shire 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.

The geology, landform, climate and plant and animal communities of the area, plus its location, have determined how it has been used by humans. 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 state conservation areas 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 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.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within Werreboldera State Conservation Area except in accordance with this plan. This plan will also apply to any future additions to the SCA. Where management strategies or works are proposed for the SCA 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 State Conservation Areas

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 NPW Act (including uses permitted under section 47J such as mineral exploration and mining), having regard to the conservation of the natural and cultural values of the state conservation area;
- provide for sustainable visitor use and enjoyment that is compatible with conservation of the area's natural and cultural values and with uses permitted in the area;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of the area's natural and cultural values and with other uses permitted in the area; and
- provide for appropriate research and monitoring.

The Act also requires review of the classification of SCAs every 5 years to determine whether they should or should not receive either a national park or nature reserve classification. The classification review for SCAs is described in section 47M of the Act and is undertaken in consultation with the Minister administering the *Mining Act 1992*.

2.2.2 Regional Forest Agreements

Regional Forest Agreements are one of the principle means of implementing the National Forest Policy Statement of 1992. Under this Statement Commonwealth, State and Territory governments agreed to work towards a shared vision for Australia's forests. This aimed to maintain native forest estate, manage it in an ecologically sustainable manner and develop sustainable forest-based industries. The Statement provided for joint comprehensive assessments of the natural, cultural, economic and social values of forests. These assessments formed the basis for negotiation of Regional Forest Agreements that provide, amongst other things, for Ecologically Sustainable Forest Management.

The Southern Regional Forest Agreement (2000) covers most of the South West Slopes administrative region. The process leading up to the RFA provided for major additions to the reserve system, including establishment of Wereboldera State Conservation Area.

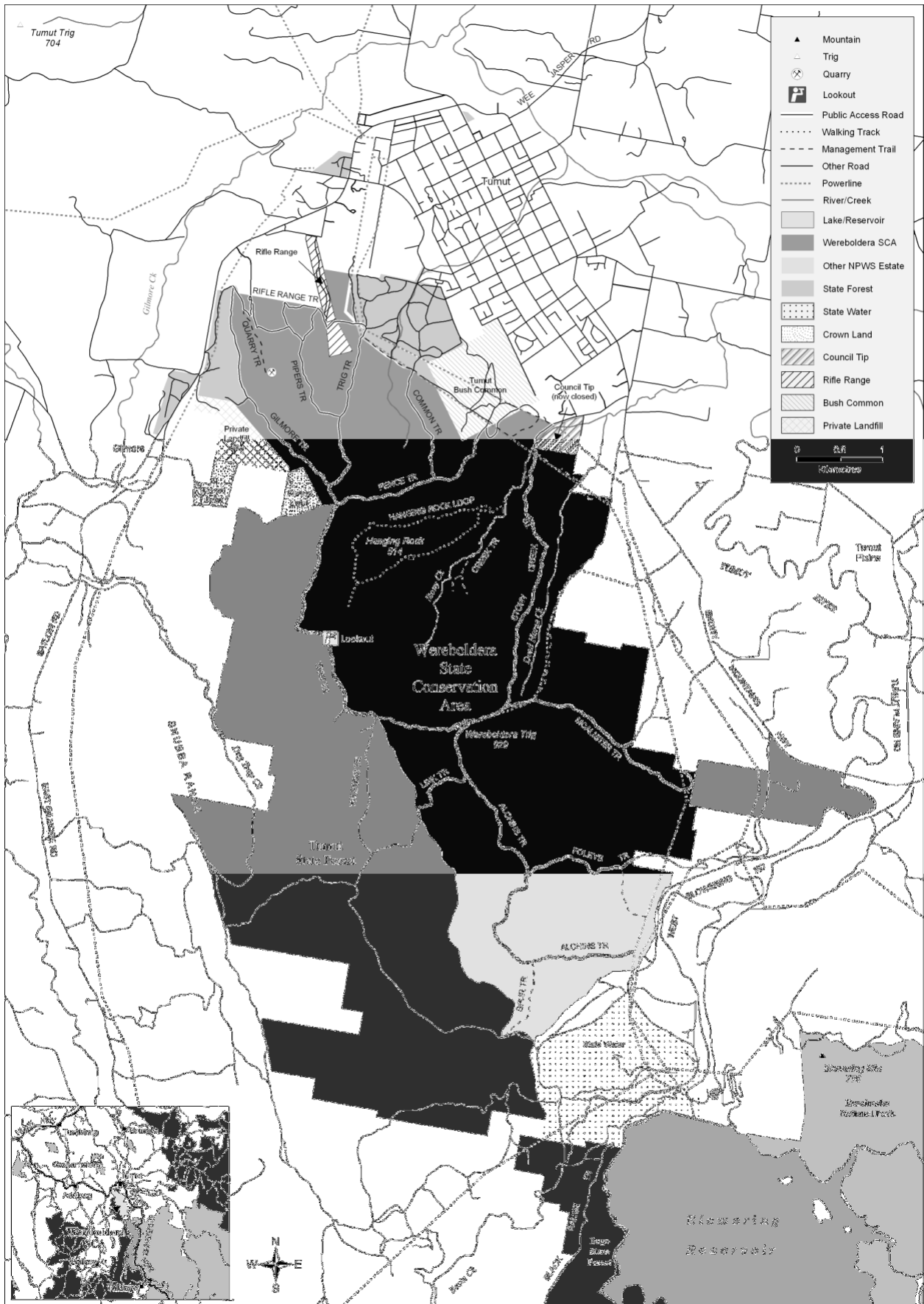
2.3 KEY MANAGEMENT DIRECTIONS

Management of the SCA will focus on the protection of significant vegetation communities and habitats, the protection of threatened fauna populations, the protection of Aboriginal cultural heritage sites, and the provision of low-key recreation opportunities and facilities.

Major strategies to achieve the management objectives are:

- Protection of significant vegetation communities and habitats;
- Protection of the diverse range of native fauna including threatened species and their habitats.
- Protection of cultural values in consultation with the local Aboriginal and non-Aboriginal community;
- Provision of educational and interpretive opportunities through signage, park brochures and activities to assist visitors understanding and enjoyment of park values.
- Development and implementation of a fire management strategy to assist in the protection of park values and neighbouring life and property.
- Provision of sustainable recreation opportunities, in consultation with stakeholder groups, that recognise complementary recreation opportunities provided nearby.
- Implementation of pest control programs to assist with the protection of park values through control and, where possible, eradication of introduced plants and animals.
- Protection and enhancement of scenic values through retention of forested landscapes and ensuring the design, location and management of park facilities is not visually intrusive.

RESERVE MAP



3. NATURAL HERITAGE

3.1 LANDFORM, GEOLOGY AND SOILS

The landscape of the SCA is dominated by a deeply incised north-south aligned ridge that falls sharply to the Tumut River in the east and Gilmore Creek in the west. The elevation of the SCA varies from 280m at Tumut to 829m at the Wereboldera Trig Station.

The geology is dominated by Upper-Silurian conglomerate, sandstone and siltstone, with minor volcanic outcrops appearing in isolated locations. Soils are generally shallow and skeletal, with low organic content, little horizon differentiation and high friability, and are dominated by weathered rock and rock fragments. These factors combine to make the soils highly susceptible to erosion, particularly after disturbance events such as off road vehicle use, fire, heavy rainfall and road maintenance activities. In some locations, such as in creek beds and on valley floors, soils are deeper and more fertile.

The SCA lies wholly within the Tumut River catchment. Water draining to the north and west flows into Dog Trap, McFarlanes and Gilmore Creeks and on to the Tumut River, whilst drainage lines to the east enter the Tumut River via several smaller tributaries including Stony Creek and Dead Horse Creek. Creeks within the SCA do not generally hold permanent water. Annual average rainfall is in the range of 900-1200mm, though since gazettal much less than average rainfall has been experienced.

Desired Outcomes

- Soil erosion is minimised.
- Water quality and health of SCA streams is improved.

Actions

- Undertake all works in a manner that minimises erosion and water pollution.
- Close and rehabilitate unauthorised trails in the SCA within the next five years, in accordance with the map in this plan.

3.2 NATIVE PLANTS

The vegetation of the SCA is dominated by dry sclerophyll open forest. Vegetation survey and mapping commissioned by the NPWS in 2004 revealed four distinct forest ecosystems existing in the SCA. These can be summarised as follows:

Narrow-leaved Peppermint moist grass forb forest – containing a canopy of narrow-leaved peppermint (*Eucalyptus robertsonii* ssp *robertsonii*) and red stringybark (*E. macrorhyncha*) and a mid-storey of guinea flower (*Hibbertia obtusifolia*), silver wattle (*Acacia dealbata*), bracken fern (*Pteridium esculentum*) and soft tree fern (*Dicksonia antarctica*). The ground layer consists of a sparse grassy layer of weeping grass (*Microlaena stipoides* var *stipoides*) and snow grass (*Poa sieberana*) and a variety of forbs including purple violet (*Viola betonicifolia* ssp *betonicifolia*), Austral geranium (*Geranium solanderi* var *solanderi*) and bidgee-widgee (*Acaena novae-zelandiae*). This vegetation type is found on sheltered southerly slopes and valley floors with deeper moist soils in the SCA's south.

Apple Box-Norton's Box moist grass forest – containing a canopy of Norton's box (*Eucalyptus nortonii*), apple box (*E. bridgesiana*) and red stringybark (*E. macrorhyncha*), with a mid-storey of silver wattle (*Acacia dealbata*) and tick indigo (*Indigofera adesmiifolia*). The ground layer consists of snow grass (*Poa meionectes*), weeping grass (*Microlaena stipoides* var *stipoides*), common wheat grass (*Elymus scaber* var *scaber*), pennywort (*Hydrocotyle laxiflora*), Austral geranium (*Geranium solanderi* var *solanderi*), sheep's burr (*Acaena echinata*) and Austral carrot (*Daucus glochidiatus*). This vegetation type is found in limited distribution at lower elevations in the incised valleys of Stony Creek and Dead Horse Creek in the SCA's north-east.

Brittle Gum-Broad-leaved Peppermint Poa grass forest – containing a canopy of brittle gum (*Eucalyptus mannifera*), broad-leaved peppermint (*E. dives*), narrow-leaved peppermint (*Eucalyptus robertsonii* ssp *robertsonii*) and a mid-storey of red-stemmed wattle (*Acacia rubida*), handsome flat-pea (*Platylobium formosum* ssp *formosum*), prickly broom heath (*Monotoca scoparia*) and sand grevillea (*Grevillea arenaria* ssp *arenaria*). The ground layer consists of the snow grasses (*Poa tenera* and *P. sieberiana* var *sieberiana*), red-anther wallaby grass (*Joycea pallida*), and grass trigger-plant (*Stylidium graminifolium*). This forest type is found on mid slopes with sheltered easterly aspects in the south of the SCA.

Norton's Box-Red Box open forest – the only location on the South West Slopes where this forest type occurs is within and around the SCA. It consists of a canopy of red box (*Eucalyptus polyanthemos* ssp *polyanthemos*) and Norton's Box (*E. nortonii*) and a mid-storey of grey bush-pea (*Pultenaea cunninghamii*), fan grevillea (*Grevillea ramosissima*), handsome flat-pea (*Platylobium formosum* ssp *formosum*) and grass tree (*Xanthorrhoea glauca* ssp *angustifolia*). The ground layer consists of tall bluebell (*Wahlenbergia stricta* ssp *stricta*), snow grass (*Poa sieberiana* var *sieberiana*), spreading flax lily (*Dianella revoluta* var *revoluta*) and wattle mat-rush (*Lomandra filiformis* ssp *coriacea*). This forest type dominates the northern half of the SCA on exposed northerly slopes and at higher elevations in the SCA's south.

There are no known threatened plant species in the SCA.

The forests of the SCA have been subject to small-scale timber removal for firewood and fencing materials in the past. Coppicing of trees for distilling of eucalyptus oil was also undertaken in the area, although the highest intensity harvesting occurred further south on Crown Land. Forestry operations have been very limited in the SCA. The main focus of management for State Forests was a small pine plantation of approximately 25ha near the town limits. This plantation was clear-felled in 1991 and the land remains under Forests NSW management. Grazing of cattle and sheep, under permit, by private landholders also occurred sporadically in the past.

Desired Outcomes

- The native plant species and communities found in the SCA are conserved.
- Structural diversity and habitat values are restored in areas subject to past disturbance.

Actions

- Reduce impacts on vegetation, and particularly the Norton's Box-Red Box open forest, by maintaining the road network in accordance with the map in this plan and undertaking regular patrols to control firewood collection and removal of timber for fencing materials.
- If threatened species are identified in the future, implement relevant strategies in priorities action statement and recovery plans for those species.
- Liaise with neighbours and other public land managers to encourage the retention and appropriate management of key habitat and corridors adjacent to the SCA through Voluntary Conservation Agreements or other appropriate strategies.

3.3 NATIVE ANIMALS

Historical records, Atlas of NSW Wildlife searches and fauna surveys commissioned by NPWS in the past three years have revealed a diverse range of native animals recorded within or near the SCA. The habitat value of the SCA is greatly increased due to large-scale land clearing in other areas to make way for agriculture, particularly on the South West Slopes.

The TSC Act lists native species, populations and communities that are in danger of becoming extinct under current conditions. Thirteen fauna species listed in the schedules of the TSC Act have been recorded in the reserve. These species are shown in the following table.

Scientific Name	Common Name	Legal Status
<i>Delma impar</i>	Striped Legless Lizard	V
<i>Neophema pulchella</i>	Turquoise Parrot	V
<i>Climacteris picumnis</i>	Brown Treecreeper	V
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	V
<i>Grantiella picta</i>	Painted Honeyeater	V
<i>Pachycephala olivacea</i>	Olive Whistler	V
<i>Stagnopleura guttata</i>	Diamond Firetail	V
<i>Petroica rodinogaster</i>	Pink Robin	V
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V
<i>Melanodryas cucullata</i>	Hooded Robin	V
<i>Ninox connivens</i>	Barking Owl	V
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V

V = Listed as Vulnerable to Extinction in the *Threatened Species Conservation Act, 1995*

The presence of threatened species in the SCA is important, and may influence the prioritising of sites for pest control or bush regeneration activities and the potential for additions to the SCA. NPWS will need to consider impacts on these species when planning any management operations such as road maintenance and fuel management in the SCA.

In addition to these species, a diverse range of reptiles, amphibians, mammals and birds have been recorded in the reserve. These species are listed in the following tables, and a complete list of the 150 species of birds recorded in the reserve has been included as Appendix 1.

Although these species have been recorded in the SCA at some point, not all are likely to exist in the SCA at any one time. Indeed some, such as the spotted-tailed quoll, are thought to be locally extinct and other species may only use the SCA seasonally or occasionally.

Amphibian species recorded in the reserve include:

Scientific Name	Common Name
<i>Crinia signifera</i>	Common Eastern Froglet
<i>Crinia parinsignifera</i>	Eastern Sign-bearing Froglet
<i>Limnodynastes dumerilii</i>	Bullfrog
<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog
<i>Pseudophryne bibronii</i>	Bibron's Toadlet
<i>Litoria booroolongensis</i>	Booroolong Frog
<i>Litoria ewi ngii</i>	Southern Brown Tree Frog
<i>Litoria lesueuri</i>	Lesueur's Frog
<i>Litoria verreauxii</i>	Verreaux's Tree Frog
<i>Litoria peronii</i>	Peron's Tree Frog

Reptile species recorded in the SCA include:

Scientific Name	Common Name
<i>Oedura lesueurii</i>	Lesueur's Velvet Gecko
<i>Delma impar</i>	Striped Legless Lizard
<i>Lialis burtonis</i>	Burton's Snake-lizard
<i>Amphibolurus muricatus</i>	Jacky Lashtail
<i>Varanus varius</i>	Lace Monitor
<i>Carlia tetradactyla</i>	Southern Rainbow-skink
<i>Egernia striolata</i>	Tree-crevice Skink
<i>Eulamprus heatwolei</i>	Warm-temperate Water-skink
<i>Hemiergis decresiensis</i>	Three-toed Earless Skink
<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink
<i>Morethia boulengeri</i>	South-eastern Morethia Skink
<i>Saproscincus mustelinus</i>	Weasel Shadeskink
<i>Tiliqua scincoides</i>	Common Bluetongue
<i>Ramphotyphlops nigrescens</i>	Blackish Blind Snake
<i>Furina diadema</i>	Red-naped Snake
<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake
<i>Pseudonaja textilis</i>	Eastern Brown Snake
<i>Vermicella annulata</i>	Eastern Bandy-bandy

Mammal species recorded in the SCA include:

Scientific Name	Common Name
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna
<i>Antechinus flavipes</i>	Yellow-footed Antechinus
<i>Antechinus stuartii</i>	Brown Antechinus
<i>Vombatus ursinus</i>	Common Wombat
<i>Petaurus breviceps</i>	Sugar Glider
<i>Petauroides volans</i>	Greater Glider
<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum
<i>Trichosurus vulpecula</i>	Common Brushtail Possum
<i>Macropus giganteus</i>	Eastern Grey Kangaroo
<i>Macropus robustus</i>	Common Wallaroo
<i>Wallabia bicolor</i>	Swamp Wallaby
<i>Mormopterus planiceps</i>	Little Mastiff-bat
<i>Nyctinomus australis</i>	White-striped Freetail-bat
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
<i>Chalinolobus morio</i>	Chocolate Wattled Bat
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat
<i>Nyctophilus gouldii</i>	Gould's Long-eared Bat
<i>Vespadelus darlingtoni</i>	Large Forest Bat
<i>Vespadelus vulturnus</i>	Little Forest Bat
<i>Hydromys chrysogaster</i>	Water-rat

Under the TSC Act, recovery plans may be prepared which identify actions and priorities for each threatened species, population and ecological community within the state. In addition, a Priority Action Statement (PAS) for all threatened species, ecological communities and key threatening processes has been produced. The PAS and recovery plans will be used to guide management of threatened species in the area. Recovery Plans for the Striped Legless Lizard, Barking Owl and Spotted-tailed Quoll are currently in draft.

Desired Outcomes

- The full range of native animal species and communities found in the SCA is conserved.
- Structural diversity and habitat values are restored in areas subject to past logging.
- Impacts on native species from feral animals are minimised.
- There is greater understanding of species diversity, distribution and ecological requirements.

Actions

- Implement relevant strategies in Priorities Action Statement and recovery plans for threatened species.
- Encourage surveys for predicted threatened animal species, and continue to record the distribution of threatened and significant fauna species.

4. CULTURAL HERITAGE

Cultural heritage is the value people have given to any physical or non-physical items through their association. They can be natural or modified with examples including landforms, flora, fauna, minerals, cultural practices, knowledge, songs, stories, art, buildings, relics, paths, and human remains. The community determines the cultural value of a heritage item, and different groups may have different values attached to the same item.

The NPWS is responsible for managing cultural heritage on its estate, and indeed across all land tenures in NSW. Activities such as fire management, feral animal and weed control, recreational activities, track maintenance and construction, and building works may disturb or negatively impact on cultural heritage items and require prior environmental impact assessment.

4.1 ABORIGINAL HERITAGE

Parks are part of landscapes that give identity to Aboriginal people who have traditional and historical connections to the land. Aboriginal people are recognised and respected as the original custodians of the lands and waters. Their living and spiritual connections with the land through traditional laws, customs and beliefs passed on from their ancestors are also recognised. The statutory role of Aboriginal land councils in the protection and management of Aboriginal heritage values is respected, as are the roles and responsibilities of other Aboriginal groups that have traditional and historic connections with the land.

The significance of the SCA to Aboriginal people is not well understood. Aboriginal heritage surveys commissioned by NPWS in 2005 revealed a number of sites in the SCA including various stone artefacts, a modified tree and potential archaeological deposits, indicating past resource use of the SCA. There are a number of highly significant cultural sites in the region, and the SCA is an integral part of this broader cultural landscape. Threats to these sites include unauthorised vehicle use, trail maintenance activities, erosion and fire. Impacts include physical damage to artefacts, removal from site and vandalism.

NPWS maintains a working relationship with Tumut-Brungle Local Aboriginal Land Council and South West Slopes Aboriginal Working Group regarding management and identification of Aboriginal sites across the region. NPWS will work with these groups in the future on matters specifically relating to the SCA and heritage features contained within it.

4.2 HISTORIC HERITAGE

Desktop research carried out by Dearling (2003) revealed no significant historical sites in the SCA. A number of trig reserves and several old lease boundary fences still exist, but the level of significance of these is considered to be low.

Small scale timber harvesting has occurred in the SCA in the past, generally to supply locals with firewood and fencing materials. Eucalyptus oil production was an important industry in the area in the past, with some small-scale distilling still occurring south of the SCA today. Trees were not usually totally removed, rather they were coppiced and allowed to regrow to obtain a sustainable harvest of leaf and, therefore oil. South of the SCA old boilers, huts, dams and coppiced regrowth provide evidence of this former use.

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 park.
- Understanding of the cultural values of the park is improved.

Actions

- Precede all new ground disturbance work by an assessment for cultural features.
- Consult and involve the Tumut-Brungle Local Aboriginal Land Council, the South West Slopes Aboriginal Working group and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values, including interpretation of places or values.
- Encourage further survey and research into the cultural heritage values of the park in consultation with relevant members of the community.
- Retain and record historical features.

5. THREATS TO RESERVE VALUES

5.1 SOIL EROSION

The soils of the SCA are relatively shallow, skeletal soils that can be prone to erosion when disturbed. The lack of organic content and ground cover, combined with the friable, gravelly nature of the soils and steep local topography exacerbates this process. These soils lack water holding capacity and nutrient fertility and this is reflected in the vegetation types that they support.

At lower elevations in the north east of the SCA the soils are of moderate depth and have a higher clay content and water holding capacity. Recreational activities in these areas has led to the establishment of a large number of tracks and trails, and has resulted in the formation of small boggy areas and extensive erosion, particularly in and around intermittent watercourses. This has led to a decrease in seasonal water quality and a reduction in the quality of native fauna habitat in the vicinity.

Trail maintenance activities can also affect soil stability in the park, however since the gazettal of the SCA, maintenance activities have focused on improving drainage and stability of trails.

Desired Outcomes

- Human induced soil erosion and track formation, particularly in ephemeral watercourses in the park, is minimised.
- Water quality and health of reserve streams is improved.

Actions

- Rehabilitate disturbed areas, such as unauthorised trails, by controlling access, implementing drainage and erosion control and undertaking revegetation where necessary.
- Undertake regular trail maintenance activities to minimise erosion and maintain drainage features.
- Monitor areas of active erosion and treat if found to be extending.

5.2 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, increasing sea levels and water 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.

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. The potential impact of climate change is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

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.

Actions

- 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.

5.3 INTRODUCED SPECIES

An introduced species is defined in this plan as any species not endemic to the SCA. Introduced species within the SCA 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 has a priority to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

NPWS South West Slopes Region has formulated a Regional Pest Management Strategy (RPMS) for all reserves under its control. This strategy outlines the types of introduced species of plants and animals commonly occurring in the reserve network, strategies for their control, and priorities for the direction of funding to best achieve pest reduction targets. The strategy also outlines the NPWS commitment to the control and management of feral animals and weeds within and around its reserves in the region.

5.3.1 Introduced Plants

Significant introduced plants (weeds) known to occur in the SCA include blackberry, St John's wort, Paterson's curse, sweet briar, hawthorn, tree of heaven and various thistle species. A number of other less invasive weed species exist in the SCA. The distribution of weeds in the SCA is largely due to activities causing ground disturbance such as grazing of domestic stock, the urban interface and inappropriate recreational use. Disturbance to the natural environment often encourages weed infestations.

Dumping of green garden waste in the SCA is a continuing problem. Invasive species such as English ivy, privet, fruit trees and succulents, such as cacti, often take root where they are dumped and although the spread of these is localised, controlling these species is time consuming, costly and ongoing.

Weed management is costly and requires significant resources. The NPWS utilises a variety of management strategies to control weed species within reserves under its control. Weed management programs are most effective when they are conducted in co-operation with neighbouring landholders.

Weed control programs that have occurred in the SCA since gazettal have focussed on control of large blackberry infestations in the Stony Creek area and in the north west of the SCA. Blackberry, St. John's wort and woody weeds such as hawthorn and sweet briar will continue to be targeted in the future, along with fruit trees and other invasive garden species.

5.3.2 Introduced Animals

Feral animals occur across the Australian landscape. The proliferation of some introduced species has led to large-scale effects on native animals, including extinction of a number of native species within Australia. Introduced animal species known to occur within the SCA include rabbits, pigs, foxes, dogs and cats. Infrequent sightings of deer and goats have also been reported. Feral animals compete for food and nest or roost sites; prey on adults, juveniles and eggs; and damage and degrade natural habitats and breeding sites of native animals. The effects of some of these species on native animals have been identified as Key Threatening Processes under the TSC Act.

Pest management programs are most effective when carried out cooperatively with neighbouring landholders, including on private lands and lands administered by other government agencies.

The SCA is included in the Gundagai Rural Lands Protection Board (RLPB) Cooperative Wild Dog and Fox Control Plan, and the East Gilmore Wild Dog Working Group Area. Since gazettal, successful fox and dog baiting and trapping programs have been undertaken in the SCA in conjunction with Forests NSW and RLPB (now the Hume Livestock Health and Pest Authority) programs. In addition, pig-baiting and trapping programs have been successful in reducing local populations to a low level.

Due to its close proximity to Tumut, the SCA has been commonly used by residents to walk domestic dogs. Dogs can disturb native animals (their smell can disturb even if they are restrained), leave waste behind and can attract wild dogs to an area. Domestic animals are not permitted on most NPWS lands, including state conservation areas.

In addition, cats and dogs from nearby residential areas stray into the SCA, unwanted pets have been dumped in the SCA, and lost hunting dogs have been observed in the SCA in the past. Domestic animals disturb and prey on native wildlife, impact on organised wild dog and fox control programs and can affect the enjoyment of other park users.

Desired Outcomes

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

Actions

- Manage introduced plant and animal species in accordance with the priorities and control methods in the Regional Pest Management Strategy and in association as far as possible with the Livestock Health and Pest Authority, Forests NSW and neighbouring landholders.
- Continue to undertake wild dog control programs in close consultation with the East Gilmore Wild Dog Working Group, other stakeholders and neighbours. Control programs will include 1080 ground baiting and trapping.
- Continue to implement pig and fox control programs in conjunction with complementary programs on nearby lands.
- Undertake on-going survey and monitoring of introduced plant and animal species and their distribution in the SCA.

5.4 FIRE MANAGEMENT

The NPWS is a fire management authority in NSW and is responsible for fire prevention, detection, and suppression on all lands under its control. It may also be called upon to assist with fire suppression on neighbouring lands in accordance with agreements made with the Bush Fire Coordinating Committee and the Riverina-Highlands Zone Bushfire Management Committee. The primary fire management objectives of the NPWS are to protect life, property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (NPWS 2005)

The NPWS recognises fire as a natural phenomenon and an integral component of many plant communities in Australia. There is a long history of both natural and human-induced fires. For example, hazard reduction burning has been routinely used since Europeans arrived in Australia to reduce the risk of fire to human life, property, sensitive ecological communities and cultural heritage sites. In addition, ecological burning has been undertaken on a more limited basis across Australia in an attempt to mimic natural fire regimes where wildfire is uncommon or non-existent due to other factors. In response to the history of past fires, many native plants have adapted to cope with specific fire regimes.

The fire history of the SCA post-1980 is relatively well documented. There have been 14 recorded ignitions (both wildfires and hazard reductions) within the SCA since 1980, mostly caused by lightning and arson. There may have been more ignitions that were not

recorded, as ignition data is limited prior to 1999. Further ignitions have been recorded adjacent to the park.

Most of the seven wildfire ignitions that have occurred within the SCA since 1999 were kept to small areas of less than 2 hectares. In 2001 and 2004, however, fires burnt out a total of 251 hectares in the reserve. These fires escalated rapidly in the steep terrain, under hot west to north-westerly weather conditions and during periods of prolonged drought. They were both contained and did not spread beyond the SCA boundary. In December 2006, arsonists lit a fire that developed quickly in the Tumut Bush Common. Under a strong easterly wind, the fire spread rapidly into the SCA where it was eventually contained north and west of Common trail. The fire burnt 12 hectares of Common and 72 hectares of SCA.

Since 1999, approximately 733 hectares have been burnt by wildfires on land adjacent to the SCA. This includes a small fire (2.6 hectares) started from lightning between the SE edge of the SCA and the Snowy Mountains Highway, and a larger fire (730 hectares) in Tumut State Forest, adjacent to the south-west boundary of the SCA.

Four prescribed burns were implemented by NSW State Forests between 1980 and 1995. Most of the prescribed burns were conducted in the northern and western part of the SCA, accounting for approximately 1520 hectares or 68% of the SCA. Some areas of the SCA have had three successive fires in 25 years and there are indications that the majority of the SCA has experienced at least one fire event in the last 20-50 years. Areas in the northern section of the SCA are at risk of further simplification of vegetation, erosion, weed infestation and potential loss of biodiversity due to this high frequency fire. The frequency and interval between fires has important implications relevant to future fire management and impacts on biodiversity.

Given the existing high frequency of fire in the SCA, no prescribed burns have been implemented within the park by NPWS since gazettal. Trail maintenance and clearing programs have been applied and will continue as part of the SCA's annual maintenance program in order to maintain access for fire suppression. Asset protection works, involving removal of selected trees, has been undertaken at the trig site to protect the telecommunication facilities from fire.

Given the fire history of the SCA and the adjoining land, and the close proximity to residential Tumut, NPWS has worked closely with other agencies to develop a Fire Management Strategy and Operations Map for the SCA. These agencies include Forests NSW, Dept of Lands, Tumut Shire Council, Hume Livestock Health and Pest Authority, State Water and the Rural Fire Service. This plan details life, property and natural and cultural resource protection strategies specific to the reserve, and provides 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 fire.
- Fire is managed cooperatively with other agencies through the Riverina-Highlands Zone Bushfire Management Committee.
- Fire regimes are appropriate for conservation of plant and animal communities.

Actions

- Manage fire in accordance with the fire management strategy and operations map.
- Continue to participate in the Riverina Highlands Zone Bushfire Management Committee. Maintain cooperative arrangements with local RFS brigades, Forests NSW, Tumut Shire Council and surrounding landowners with regard to fuel management and fire suppression.
- Ensure that hazard reduction programs are undertaken in accordance with the objectives of the BFMC and NPWS Fire Management Manual.
- Manage the SCA to protect biodiversity in accordance with the identified fire interval guidelines for vegetation communities within the SCA, as listed in the Fire Management Strategy.

6. VISITOR OPPORTUNITIES AND EDUCATION

6.1 INFORMATION PROVISION

Visitor information is an important aspect of park management in that it enhances the visitor experience whilst promoting appropriate use and on-going support for the conservation of the park. Visitor information includes promotional, interpretive and advisory material. This information is typically provided through tourist information centres, the NPWS web site, signage, park brochures and inquiries with NPWS staff.

The park has a number of natural and cultural features of interest to visitors including native flora and fauna, scenic values and recreational opportunities. There are also several interpretive themes particularly relevant to the park, including changes in use and park history. These features will be promoted and interpreted to visitors in a manner that protects their special values and encourages appropriate use.

Park facilities and services provide opportunities to enjoy, appreciate and understand the value of our natural and cultural heritage. Only areas that can sustain use are promoted in this way. Information provision at such places and about the area in general assists the protection of natural and cultural heritage, promotes support for conservation and increases the enjoyment and satisfaction of visitors.

Provision of information about these values will involve three levels:

- promotion to increase community awareness of the existence of the park, its conservation importance and visitor opportunities;
- orientation and regulatory signage to enable visitors to find their way around the park, introduce them to its landscape and advise them about use restrictions; and
- interpretation of individual components of the park's environment in order to increase visitor understanding of the park's values and of the environment in general, and provision of minimal impact use information.

Desired Outcomes

- Visitors are aware of park values and recreation opportunities available through the provision of a range of park information and interpretation.
- Visitor use is appropriate and ecologically sustainable.

Actions

- Park promotion will be "low-key" and focus on park values and appropriate use of the park in accordance with the objectives set out in this plan.
- Promote the concept of "minimal impact" for all recreational activities including four-wheel driving, trail bike riding, bush walking, camping, horse riding and cycling.
- Liaise with other visitor information organisations to ensure all information is of a high quality, accurate, consistent, up-to-date and promotes appropriate visitor expectations and behaviour.

- Produce media releases and attend meetings with neighbours and community organisations to promote community understanding of park values and management strategies.
- Provide orientation/interpretive signs at entrances to the park, and additional directional signposting where necessary.
- Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.
- Support and assist appropriate educational use of the park by schools, community groups and individuals.
- Prepare a park brochure outlining features of the park.

6.2 RECREATIONAL USE

The SCA is currently used for four-wheel driving, trail bike riding, horse riding, cycling, walking and other organised group events such as mountain bike rogaining and forest fun runs. Other more passive activities such as nature photography and bird watching also occur in the SCA.

The provisions below are designed to maintain the low-key, scenic, natural settings, which are the special feature of the park, and to provide for future use in a manner that protects ecological integrity and cultural heritage values.

The SCA has a long history of recreational use by a diverse range of user groups. The proximity of the SCA to residential Tumut means that recreational use of the SCA is high, and generally concentrated close to the town. NPWS proposes to continue to offer recreational opportunities in the SCA, however it is recognised that this use must be managed to avoid unacceptable environmental impacts, conflict between various user groups and illegal or unauthorised use of the area.

To the south and west, the SCA adjoins large areas of State Forest and these are connected to Kosciuszko National Park and beyond, leading to use of the SCA by a range of users pursuing recreational interests over a much larger area than just the SCA.

6.2.1 Access

The SCA has a large number of access points. All major access points have been signposted since gazettal, however the terrain and sparse nature of the vegetation in the north and north western portions of the SCA make it relatively easy for recreational users to travel off-road, and over time create new and unauthorised tracks and trails. In addition, a network of smaller, often narrow, trails has been formed closer to the town by recreational users. Most of these trails have no management value and have not been properly maintained.

A number of existing trails are located in sensitive areas and are leading to off-site impacts. Inappropriate trail locations can accelerate erosion and cause degradation to waterways. Degraded and deeply rutted tracks can encourage users to create new paths or widen existing ones. Effects are especially severe on steep slopes, near waterways, or after heavy rain. Maintaining the quality of trails is important because they are used for

fighting fires, emergency and management operations, maintaining infrastructure and providing access for recreational activities.

The NPWS has mapped the roads, tracks and trails in the SCA. In line with the Roads Plan for the SCA, 35 kilometres of formed roads will be maintained for public vehicular access, while others will be retained for management purposes (see Map, page 4). The primary purpose of management trails is to enable management access for fire control, pest management and for access to non-NPWS facilities such as powerlines. Public vehicle access to management trails is prohibited except for essential management purposes as authorised by the Regional Manager. Some tracks and trails will be closed and rehabilitated.

6.2.2 Walking

Two main types of walking activity take place in the SCA. The majority of visitors use existing tracks and trails for walking and running, mostly staying a short distance from residential Tumut. A much smaller proportion use the SCA for off-track bushwalking.

Walking is allowed throughout the SCA. Although current levels of visitation for this activity are reasonably low, there is potential to develop new walking trails or to utilise old road routes in a number of locations in the SCA for walking in the future.

6.2.3 Day use and Camping

The SCA is infrequently used for day use activities such as picnics due to a lack of facilities and destinations. The NPWS will investigate whether there is a need for picnic facilities to be provided at two key entrances to the SCA (see map), to cater for visitors and provide a sense of welcome. Facilities provided may consist of a small car park, basic picnic facilities, interpretation and regulatory signage, as well as access and use maps. Access to the SCA will not be limited to these two entry points, however it will be promoted through these two points.

There is also an informal lookout on Gilmore Trail which overlooks the township of Tumut. The site currently consists of a small natural surface pad adjacent to the trail with no built facilities. NPWS aims to maintain this site as a lookout by judiciously pruning trees periodically to ensure the view is maintained. If the need arises and if funding permits, NPWS may construct a formal viewing platform at the site.

Bush camping (camping without vehicles) has occurred on a limited basis in the past, and is usually associated with off-track bushwalking. Camping with vehicles is more common although it too has occurred on a very infrequent basis. Vehicle based camping will not be permitted in the SCA due to the range of environmental impacts it can have. These include disposal of human and food wastes, damage to vegetation and soils, disturbance to native animals and fire scars from campfires.

The Service will enforce a solid fuel fire ban in the SCA at all times to prevent impacts such as collection of firewood, fire scarring at popular sites and escalation to wildfire from unattended campfires. Gas camping stoves and barbeques will be permitted.

6.2.4 Horse Riding

Horse riding is undertaken in the SCA, and a number of opportunities exist for continued use of the SCA for this purpose. In the past horse riding in the SCA has occurred on the public access network, dormant trails and in some cases, off road. Traditionally the trails in the SCA have been shared with other park users such as four-wheel drivers, trail bike riders, walkers and cyclists.

Where horse riding is undertaken on steep slopes, through drainage areas or off roads, impacts such as erosion of trails, compaction of soils, introduction and spread of weeds and creation of unauthorised tracks can occur. Following the classification and assessment of all trails within the Reserve (see Map, page 4), horse riding will be allowed on public access roads and management trails only. Overnight camping with horses will not be permitted.

6.2.5 Mountain Bike Riding

Mountain bike riding has seen a marked increase in popularity over the past 10-20 years. A network of unauthorised mountain bike trails exists throughout the SCA, and these receive a relatively high level of use. A network of formal walking/mountain bike trails has recently been constructed on State Forest land adjoining the eastern portion of the SCA. These formal trails have been constructed to an approved standard and attract organised cycling events with as many as several hundred participants competing at once.

There is some local community interest in extending the formal network of trails into the SCA. The Service will consider such proposals where there is a defined plan, approved standards of construction are used, there is a demonstrated demand across the community, appropriate environmental assessment procedures are applied and resourcing of construction and ongoing maintenance is considered. NPWS will give preference to proposals that utilise existing vehicle and bike trails, and require minimal disturbance and on-going maintenance.

Impacts associated with mountain bike riding can include erosion, creation of unauthorised tracks, conflicts with other more passive visitors groups, and the cost of ongoing maintenance of trails.

Mountain bike riding will be allowed on public access roads and management trails. Off-road cycling and creation of unauthorised trails will not be permitted.

6.2.6 Trail Bike Riding

The SCA and surrounding public lands have a long history of trail bike use by both legal and illegal riders. The existing trail network within the SCA is popular with licensed riders, most of whom use the trails as part of rides that encompass a much larger area than just the SCA.

Other riders, including unlicensed, unregistered and often underage riders, tend to use those areas of the SCA close to town. The northern end of the SCA, close to residential areas, has been subjected to the most use. Illegal trail bike riding has both environmental and social impacts including erosion, creation of unauthorised tracks, damage to vegetation, disturbance to native wildlife, conflict with other SCA users, noise impacts and

the requirement for higher frequency trail maintenance. Unlicensed and unregistered motorbike use is also illegal on all public lands.

Trail bike riding by registered and licensed riders will be permitted on public access roads in the SCA. Riding on “single trails” or creating new trails will not be permitted in the SCA. NPWS will continue to undertake regular combined patrols of its estate with NSW Police and close and rehabilitate unauthorised trails within the SCA.

6.2.7 Four-Wheel Drive Vehicle Use

Driving of four-wheel drive vehicles is common in the SCA due to its proximity to Tumut, the number of access points and the nature of the reserve’s terrain and trails.

This activity can have a number of impacts including erosion, creation of new trails, damage to vegetation, disturbance to native wildlife, conflict with other more passive park users and an ongoing need for trail maintenance. As with trail bike riding, concentration of impacts occurs closer to residential areas. In some locations new trails have been created up very steep dead-end slopes and in creek lines.

The NPWS proposes to allow four-wheel driving on all public access roads in the SCA. Driving off the designated road network is not permitted. Given the steepness and erodibility of most trails in the SCA there will be no provision for two-wheel drive vehicles, although access and parking for these vehicles may be provided at the two key park entrances.

The NPWS reserves the right to close trails temporarily to public use during periods of high fire danger or high intensity rain/snowfall/wind events when soil moisture levels are high and deterioration of the road surface is accelerated.

6.2.8 Commercial and Group Activities

At present no commercial operations take place in the SCA. Trail bike riding groups commonly use the SCA as a starting point for rides over a much larger area. Occasional group visits for Discovery tours and social cycling and horse riding occur.

Organised group events where 20 or more participants are involved will require consent from the NPWS.

6.2.9 Emergency Agency Training

The NSW Ambulance Service and NSW Rural Fire Service occasionally use the SCA trail network for driver training. With written consent and under appropriate conditions, this will be able to continue provided that only public access trails are used, impacts are acceptable and no off-road driving is undertaken.

Desired Outcomes

- The local community is aware of the significance of the area and of management programs.

- Visitor use is appropriate and compatible with the SCA values, ecologically sustainable and complements other surrounding recreational opportunities.
- Visitor facilities are designed, constructed and sited so as to minimise adverse impacts on the park and enhance the experience available to visitors.

Actions

- Maintain the public access and management trail network in the SCA (see map) to provide access for a range of recreational activities.
- If demand warrants, provide low-key facilities which may include a small car park, basic picnic facilities, interpretation and regulatory signage at the proposed park entrances near the old tip site and at the end of Sturt Close (see Map).
- Prune trees at Gilmore Trail lookout as necessary to maintain scenic views at the site.
- Continue liaison with user groups to identify a suitable trail network for undertaking existing recreational activities in a sustainable manner and in accordance with the objectives set out for management of SCAs.
- Permit organised group recreational or educational visits, subject to limits on numbers and other conditions if necessary to minimise impacts.
- Close and rehabilitate those trails that are leading to unacceptable off-site impacts, are duplicates of existing roads, or have been constructed without approval.
- Permit motorised recreational activities including four-wheel driving and trail bike riding on all public access roads.
- Permit walking, mountain bike riding and horse riding on all public access roads and management trails.
- Vehicle based camping and solid fuel fires will not be permitted in the SCA.
- Monitor visitor levels and impacts of recreational use, and take action to minimise impacts as necessary.
- Allow emergency agencies to undertake driver training on public roads on a consent basis.
- Investigate the need to construct boundary fencing at strategic locations to minimise unauthorised access and illegal use of the SCA.

7. MANAGEMENT OPERATIONS AND OTHER FACILITIES

All major entry points and trails in the SCA have been signposted. Where the SCA shares a boundary with private property, it is generally fenced, although to a varying standard. Adjoining the SCA is land of various tenures including State Forest, Crown Land, Council Land and private lands (See Map). Interpretation signage may be erected in the future to increase visitor awareness of the natural and cultural values of the SCA.

Boundary fences are of a variable standard throughout the SCA, and in some cases do not exist at all. Due to topographic limitations, some fences were originally erected away from legal boundaries on a give-and-take basis. Assistance with boundary fencing is available as per the NPWS Boundary Fence Policy. This assistance is subject to availability according to regional priorities. Where new fences are to be erected, they will be placed as close to the legal SCA boundary as possible. Domestic stock incursion is not a major issue at present due to the steep topography and lack of water within the SCA.

A disused quarry is located in the north of the SCA. This has not been used for a number of years and will remain closed. The site is relatively stable, there are no off-site impacts and rehabilitation work is not proposed for the site.

Two telecommunications towers, with numerous users, and a trigonometric station are located at the SCA's highest point. Country Energy and TransGrid transmission lines and associated easements are located in the north east of the SCA. NPWS is pursuing shared-cost trail maintenance agreements with service providers and other agencies where access is shared.

The SCA is within an area with potential for base metal and gold mineralisation and there are two known mineral occurrences within the SCA and a number in adjacent areas. The SCA is part of an area covered by a current exploration licence for Group 1 minerals.

Desired Outcomes

- Management operations have minimal impact and facilitate the conservation of the SCA values.
- Domestic stock do not enter the SCA.
- All non-NPWS facilities are licensed.
- Existing non-park infrastructure is managed to minimise impacts on natural and cultural values.
- No new non-park infrastructure is developed in the SCA

Actions

- Maintain all roads and management trails as shown on the map in this plan.
- Where necessary, gate/signpost management trails to restrict unauthorised access.
- In conjunction with neighbours, maintain boundary fences.
- Formalise a licence or lease for existing powerlines, telecommunications facilities and trig stations in accordance with section 153 of the NPW Act, including trail maintenance funding agreements where trails are shared.

8. RESEARCH AND MONITORING

Research on the natural and cultural values of the park and processes affecting them can greatly assist in park management. The park provides research opportunities associated with the diversity of plants and animals.

Under the Southern Regional Forest Agreement (RFA) all forest managers including Forests NSW, Dept of Natural Resources and the NPWS must demonstrate ecologically sustainable forest management (ESFM). ESFM aims to maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate, including:

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

ESFM is an over-riding management principle and will be applied to all ecosystem types, not just forests. It will be implemented primarily through monitoring to provide feedback on management programs and directions for future adaptive management. Performance indicators of ecologically sustainable forest management have been identified. Monitoring programs will be developed using the indicators to demonstrate the impact of management actions on ecological functions. Remedial management actions will then be undertaken as required.

Additional research programs will be considered where they complement ESFM criteria and indicators. The results of research and monitoring will be used to guide management programs.

Research by other organisations and students may provide valuable information for management. Research projects will be encouraged where they have direct relevance to park management and will include: visitor use and impacts; fire and biodiversity monitoring; Aboriginal sites and places; threatened species; significant vegetation communities, habitats and native species; impacts of recreational activities in the park; effectiveness of management activities and programs; significance of historic features and natural regeneration of closed trails.

Desired Outcomes

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

Actions

- Encourage and/or undertake research to provide information about the park's natural and cultural heritage and human use in order to facilitate management.
- Implement a sand-pad monitoring program in the SCA as required to monitor pest populations and implement control programs as necessary in conjunction with the regional pest management strategy.

9. PLAN IMPLEMENTATION

This plan of management establishes a scheme of operations for Weréboldera SCA. The plan is part of a system of management developed by the National Parks and Wildlife Service which includes the National Parks and Wildlife Act, management policies, established conservation and recreation philosophies, and strategic planning at corporate, branch and regional levels. The latter may include development of related plans such as regional recreation plans, species recovery plans, fire management plans and conservation plans.

Section 81 of the Act requires that this plan of management shall be carried out and given effect to, and that no operations shall be undertaken in relation to the SCA unless they are in accordance with the plan.

Implementation of this plan will be undertaken within the annual programs of the NPWS South West Slopes Region, Riverina Highlands Area. The actions identified in the plan are those to which priority will be given in the foreseeable future. Other management actions may be developed consistent with the plan objectives and strategies.

Relative priorities for identified activities are set out in the table below. These priorities are determined in the context of directorate and regional strategic planning, and are subject to the availability of necessary staff and funds and to any special requirements of the Director-General or Minister. The implementation of the plan will be monitored and its success in achieving the identified objectives will be assessed.

The environmental impact of proposed activities will be assessed at all stages in accordance with established environmental assessment procedures. Where impacts are found to be unacceptable, activities will be modified in accordance with the plan policies.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with section 73B of the Act. The plan applies both to the land currently reserved and to any future additions. Where management strategies or works are proposed for additions (or the existing area) that are not consistent with the plan, an amendment to the plan will be required.

Desired Outcomes

- The plan is implemented in accordance with identified priorities.

Actions

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

IMPLEMENTATION TABLE

Section	Action	Priority
3.1	Landform, Geology, Soils and Hydrology	
	Undertake all works in a manner that minimises erosion and water pollution.	High
	Close and rehabilitate unauthorised trails in the SCA within the next five years, in accordance with the map in this plan.	High
3.2	Native Plants	
	Reduce impacts on vegetation, and particularly the Norton's Box-Red Box open forest, by maintaining the road network in accordance with the map in this plan and undertaking regular patrols to control firewood collection and removal of timber for fencing materials.	High
	If threatened species are identified in the future, implement relevant strategies in priorities action statement and recovery plans for those species.	Medium
	Liaise with neighbours and other public land managers to encourage the retention and appropriate management of key habitat and corridors adjacent to the SCA through Voluntary Conservation Agreements or other appropriate strategies.	High
3.3	Native Animals	
	Implement relevant strategies in Priorities Action Statement and recovery plans for threatened species.	Medium
	Encourage surveys for predicted threatened animal species; continue to record the distribution of threatened and significant fauna species.	Medium
4	Cultural Heritage	
	Precede all new ground disturbance work by an assessment for cultural features.	High
	Consult and involve the Tumut-Brungle Local Aboriginal Land Council, the South West Slopes Aboriginal Working group and other relevant Aboriginal community organisations in the management of Aboriginal sites, places and values, including interpretation of places or values.	Medium
	Encourage further research into the cultural heritage values of the park in consultation with relevant members of the community.	Medium
	Retain and record historical features.	Medium
5.1	Soil erosion	
	Rehabilitate disturbed areas, such as unauthorised trails, by controlling access, implementing drainage and erosion control and undertaking revegetation where necessary.	Medium
	Undertake regular trail maintenance activities to minimise erosion and maintain drainage features.	High
	Monitor areas of active erosion and treat if found to be extending.	Low

Section	Action	Priority
5.2	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 impact of climate change on natural systems.	Low
5.3	Introduced Species	
	Manage introduced plant and animal species in accordance with the priorities and control methods in the Regional Pest Management Strategy and in association as far as possible with the Livestock Health and Pest Authority, Forests NSW and neighbouring landholders.	High
	Continue to undertake wild dog control programs in close consultation with the East Gilmore Wild Dog Working Group, other stakeholders and neighbours. Control programs will include 1080 ground baiting and trapping.	High
	Continue to implement pig and fox control programs when in conjunction with complementary programs on nearby lands.	Medium
5.4	Fire Management	
	Manage fire in accordance with the fire management strategy and operations map.	High
	Continue to participate in the Riverina Highlands Zone Bushfire Management Committee. Maintain cooperative arrangements with local RFS brigades, Forests NSW, Tumut Shire Council and surrounding landowners with regard to fuel management and fire suppression.	High
	Ensure that hazard reduction programs are undertaken in accordance with the objectives of the BFMC and NPWS Fire Management Manual.	High
	Manage the SCA to protect biodiversity in accordance with the identified fire interval guidelines for vegetation communities within the SCA, as listed in the Fire Management Strategy.	High
6.1	Information Provision	
	Park promotion will be “low-key” and focus on park values and appropriate use of the park in accordance with the objectives set out in this plan.	Low
	Promote the concept of “minimal impact” for all recreational activities including four-wheel driving, trail bike riding, bush walking, camping, horse riding and cycling.	High
	Liaise with other visitor information organisations to ensure all information is of a high quality, accurate, consistent, up-to-date and promotes appropriate visitor expectations and behaviour.	Medium

Section	Action	Priority
	Provide orientation/interpretive signs at entrances to the park and additional directional signposting where necessary.	Medium
	Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.	Medium
	Support and assist appropriate educational use of the park by schools, community groups and individuals.	Low
	Prepare a park brochure outlining features of the park.	Low
6.2	Recreation Opportunities	
	Maintain the public access and management trail network in the SCA (see Map) to provide access for a range of recreational activities.	Medium
	If demand warrants, provide low-key facilities which may include a small car park, basic picnic facilities, interpretation and regulatory signage at the proposed park entrances near the old tip site and at the end of Sturt Close (see Map).	Medium
	Prune trees at Gilmore Trail lookout as necessary to maintain scenic views at the site.	High
	Continue liaison with user groups to identify a suitable trail network for undertaking existing recreational activities in a sustainable manner and in accordance with the objectives set out for management of SCAs.	Medium
	Permit organised group recreational or educational visits, subject to limits on numbers and other conditions if necessary to minimise impacts.	Medium
	Close and rehabilitate those trails that are leading to unacceptable off-site impacts, are duplicates of existing roads, or have been constructed without approval.	Medium
	Permit motorised recreational activities including four-wheel driving and trail bike riding on all public access roads.	Medium
	Permit walking, mountain bike riding and horse riding on all public access roads and management trails.	Medium
	Vehicle based camping and solid fuel fires will not be permitted in the SCA.	Medium
	Monitor visitor levels and impacts of recreational use, and take action to minimise impacts as necessary.	Medium
	Allow emergency agencies to undertake driver training on public roads on a consent basis.	Medium
	Investigate the need to construct boundary fencing at strategic locations to minimise unauthorised access and illegal use of the SCA.	Medium

Section	Action	Priority
7	Management Operations and Other Facilities	
	Maintain all roads and management trails as shown on the map in this plan.	High
	Where necessary, gate/signpost management trails to restrict unauthorised access.	Low
	In conjunction with neighbours, maintain boundary fences.	Medium
	Formalise a licence or lease for existing powerlines, telecommunications facilities and trig stations in accordance with section 153 of the NPW Act, including trail maintenance funding agreements where trails are shared.	High
8	Research and Monitoring	
	Encourage and/or undertake research to provide information about the park's natural and cultural heritage and human use in order to facilitate management.	Low
	Implement a sand-pad monitoring program in the SCA as required to monitor pest populations and implement control programs as necessary in conjunction with the regional pest management strategy.	Medium
9	Plan Implementation	
	Undertake a periodic review of progress in implementing this plan of management.	High
	Undertake an assessment after 5 years of the effectiveness of managing the park in accordance with this plan and of the degree of success in achieving the plan's objectives and desired outcomes. Base the evaluation on the monitoring programs set out in this plan and any others that may be developed.	Medium

REFERENCES

- Bradstock, R, Kenny, B and Tasker, E. (2003). *Guidelines for Ecological Sustainable Management. Final Report for NSW Biodiversity Strategy*. Department of Environment and Conservation, Hurstville.
- Briggs, J.D and Leigh, J.H (1996). Revised ed. *Rare and Threatened Australian Plants*. CSIRO, Canberra.
- NPWS (2005). *Fire Management Manual*. NSW National Parks and Wildlife Service, Hurstville.
- NPWS (2006). *South West Slopes Regional Pest Management Strategy*. Unpublished report to NPWS. NSW National Parks and Wildlife Service, Hurstville.

APPENDIX 1 – Bird species recorded in the vicinity of the SCA.

Scientific Name	Common Name
<i>Dromaius novaehollandiae</i>	Emu
<i>Coturnix pectoralis</i>	Stubble Quail
<i>Anas castanea</i>	Chestnut Teal
<i>Anas gracilis</i>	Grey Teal
<i>Anas superciliosa</i>	Pacific Black Duck
<i>Chenonetta jubata</i>	Australian Wood Duck
<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>Phalacrocorax varius</i>	Pied Cormorant
<i>Pelecanus conspicillatus</i>	Australian Pelican
<i>Ardea alba</i>	Great Egret
<i>Ardea ibis</i>	Cattle Egret
<i>Ardea intermedia</i>	Intermediate Egret
<i>Ardea pacifica</i>	White-necked Heron
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Nycticorax caledonicus</i>	Nankeen Night Heron
<i>Platalea flavipes</i>	Yellow-billed Spoonbill
<i>Platalea regia</i>	Royal Spoonbill
<i>Plegadis falcinellus</i>	Glossy Ibis
<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 approximans</i>	Swamp Harrier
<i>Circus assimilis</i>	Spotted Harrier
<i>Elanus axillaris</i>	Black-shouldered Kite
<i>Haliastur sphenurus</i>	Whistling Kite
<i>Hieraaetus morphnoides</i>	Little Eagle
<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>Calidris acuminata</i>	Sharp-tailed Sandpiper
<i>Gallinago hardwickii</i>	Latham's Snipe
<i>Elsayornis melanops</i>	Black-fronted Dotterel
<i>Vanellus miles</i>	Masked Lapwing
<i>Chlidonias hybridus</i>	Whiskered Tern

Larus novaehollandiae
Columba livia
Geopelia placida

Silver Gull
Rock Dove
Peaceful Dove

Appendix 1 (continued)

Scientific Name	Common Name
<i>Leucosarcia melanoleuca</i>	Wonga Pigeon
<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo
<i>Calyptorhynchus funereus</i>	Yellow-tailed Black-Cockatoo
<i>Eolophus roseicapillus</i>	Galah
<i>Alisterus scapularis</i>	Australian King-Parrot
<i>Neophema pulchella</i>	Turquoise Parrot
<i>Platycercus adscitus eximius</i>	Eastern Rosella
<i>Platycercus elegans</i>	Crimson Rosella
<i>Psephotus haematonotus</i>	Red-rumped Parrot
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo
<i>Cacomantis variolosus</i>	Brush Cuckoo
<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo
<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo
<i>Chalcites osculans</i>	Black-eared Cuckoo
<i>Cuculus pallidus</i>	Pallid Cuckoo
<i>Ninox boobook</i>	Southern Boobook
<i>Tyto alba</i>	Barn Owl
<i>Podargus strigoides</i>	Tawny Frogmouth
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar
<i>Hirundapus caudacutus</i>	White-throated Needletail
<i>Dacelo novaeguineae</i>	Laughing Kookaburra
<i>Todiramphus sanctus</i>	Sacred Kingfisher
<i>Merops ornatus</i>	Rainbow Bee-eater
<i>Eurystomus orientalis</i>	Dollarbird
<i>Menura novaehollandiae</i>	Superb Lyrebird
<i>Climacteris erythroptera</i>	Red-browed Treecreeper
<i>Climacteris picumnus</i>	Brown Treecreeper
<i>Cormobates leucophaeus</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 nana</i>	Yellow 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>Gerygone olivacea</i>	White-throated Gerygone
<i>Pycnoptilus floccosus</i>	Pilotbird
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler
<i>Sericornis frontalis</i>	White-browed Scrubwren

Smicronis brevirostris
Acanthorhynchus tenuirostris
Anthochaera carunculata

Weebill
Eastern Spinebill
Red Wattlebird

Appendix 1 (continued)

Scientific Name	Common Name
<i>Grantiella picta</i>	Painted Honeyeater
<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 citreogularis</i>	Little Friarbird
<i>Philemon corniculatus</i>	Noisy Friarbird
<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 goodenovii</i>	Red-capped Robin
<i>Petroica phoenicea</i>	Flame Robin
<i>Petroica rosea</i>	Rose Robin
<i>Cinclosoma punctatum</i>	Spotted Quail-thrush
<i>Psophodes olivaceus</i>	Eastern Whipbird
<i>Daphoenositta chrysoptera</i>	Varied Sittella
<i>Colluricincla harmonica</i>	Grey Shrike-thrush
<i>Falcunculus frontatus</i>	Eastern Shrike-tit
<i>Pachycephala olivacea</i>	Olive Whistler
<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>Oriolus sagittatus</i>	Olive-backed Oriole
<i>Artamus cyanopterus</i>	Dusky Woodswallow
<i>Cracticus nigrogularis</i>	Pied 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

Mirafra javanica
Anthus australis
Neochmia temporalis

Horsfield's Bushlark
Australian Pipit
Red-browed Finch

