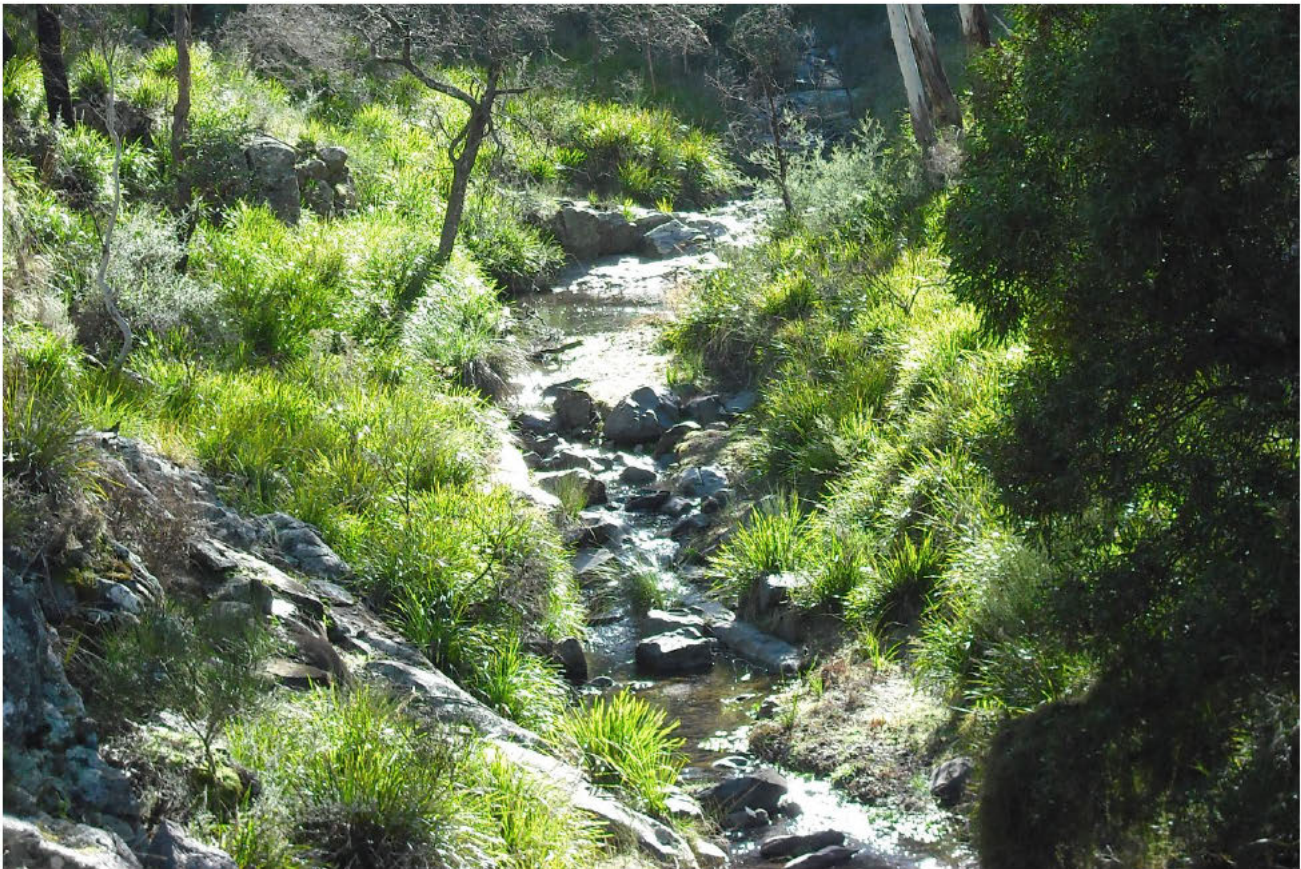




Plan of Management



Eusdale Nature Reserve

EUSDALE NATURE RESERVE

PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

September 2012

This plan of management was adopted by the Minister for the Environment on 13 September 2012

Acknowledgments

The NPWS acknowledges that these lands are in the traditional country of the Wiradyuri people.

This plan of management is based on a draft plan prepared by the staff of the Western Rivers Region of the NSW National Parks and Wildlife Service (NPWS), part of the Office of Environment and Heritage, Department of Premier and Cabinet.

Valuable information and comments that assisted with the compilation of the draft plan were also provided by the Western Rivers Region Advisory Committee, park neighbours, members of the Tarana and Fish River Development Group Inc, the Frappell family, descendants of the Reakes family and staff from Forests NSW (Macquarie Region).

FRONT COVER: Eusdale Creek. Photo by Gavin Newton/NPWS.

For additional information or any inquiries about these lands or this plan of management contact the Macquarie Area Office, National Parks and Wildlife Service, Level 2, 203-209 Russell Street BATHURST NSW 2795 or by telephone on (02) 6332 7640.

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FOREWORD

Eusdale Nature Reserve is located 30 kilometres south-east of Bathurst in the Central Tablelands of NSW and covers 1,238 hectares. There is an adjoining area of 642 hectares that is vested in the Minister for the Environment pending its reservation. This plan of management covers both Eusdale Nature Reserve and the adjoining land which is yet to be reserved.

Eusdale Nature Reserve was acquired as a direct result of broad community support for conservation of the area. Eusdale Nature Reserve and adjoining land form an important part of the catchment area for the Macquarie River. The majority of the vegetation is dry open woodland, however they also contain sub-alpine (montane) woodland vegetation, which is poorly represented in the Central Tablelands. A total of 168 native plant species have been recorded. Four threatened animal species have been recorded in the reserves: the powerful owl, gang gang cockatoo, Booroolong frog and purple (Bathurst) copper butterfly.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A draft plan of management for Eusdale Nature Reserve was placed on public exhibition from 12 February to 24 May 2010. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the NSW 2021 goal to protect our natural environment, including monitoring of water quality, implementing measures to promote the recovery of threatened species, undertaking targeted fauna and flora surveys for threatened species, revegetating previously grazed areas, controlling introduced plants and animals, and fire management.

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



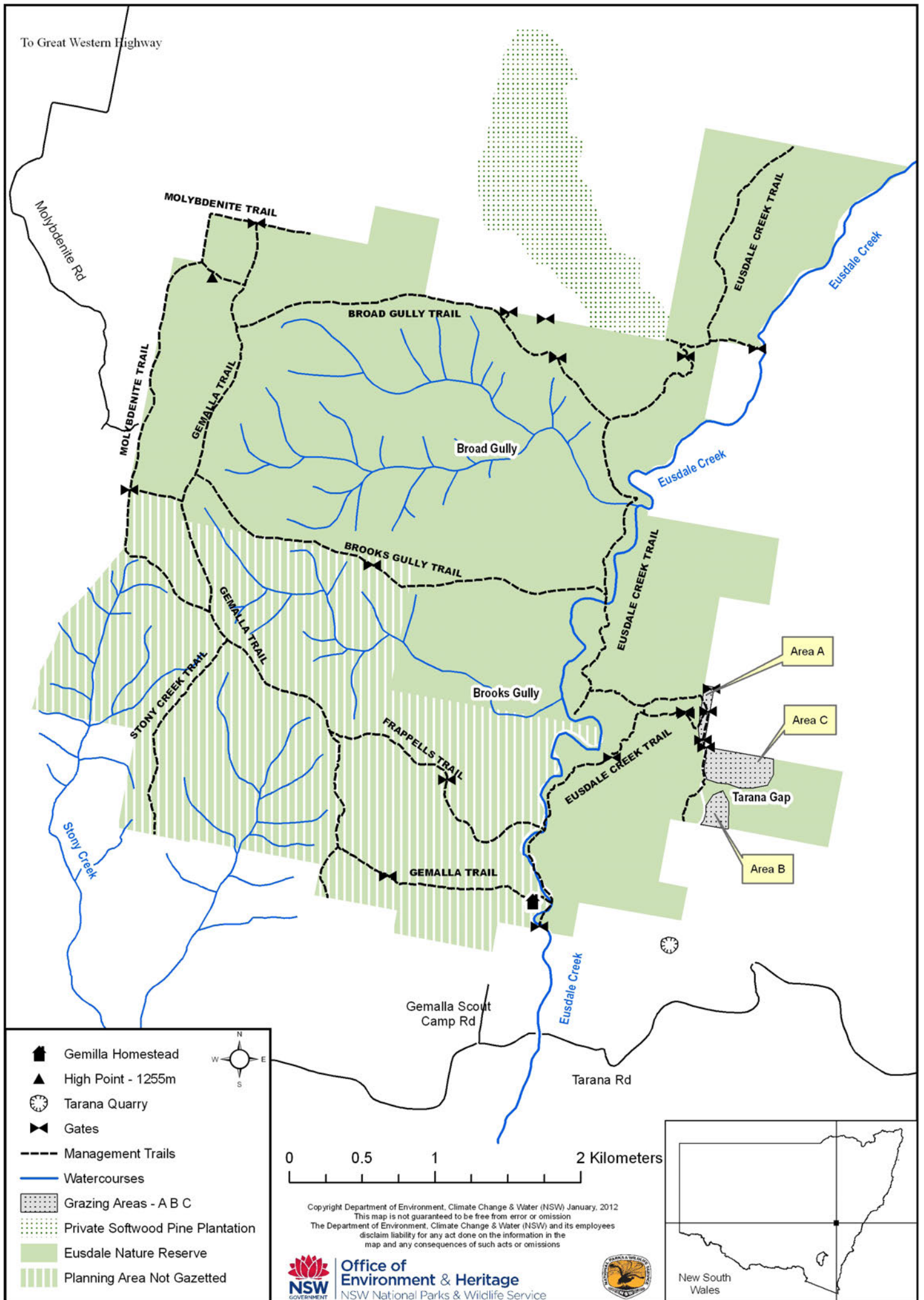
Robyn Parker MP
Minister for the Environment

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Map of the Reserves

Facing page 1



To Great Western Highway

Molybdenite Rd

MOLYBDENITE TRAIL

BROAD GULLY TRAIL

EUSDALE CREEK TRAIL

Eusdale Creek

MOLYBDENITE TRAIL

GEMALLA TRAIL

Broad Gully

Eusdale Creek

BROOKS GULLY TRAIL

EUSDALE CREEK TRAIL

Area A

Brooks Gully

Area C

Tarana Gap

STONY CREEK TRAIL

GEMALLA TRAIL

FRAPPELLS TRAIL

EUSDALE CREEK TRAIL

Area B

Stony Creek

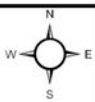
GEMALLA TRAIL

Gemalla Scout Camp Rd

Eusdale Creek

Tarana Rd

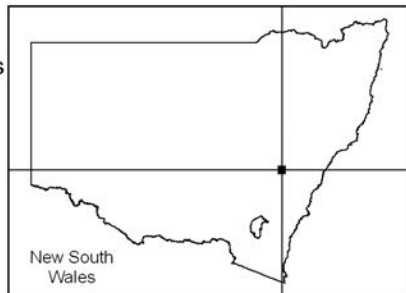
- Gemilla Homestead
- High Point - 1255m
- Tarana Quarry
- Gates
- Management Trails
- Watercourses
- Grazing Areas - A B C
- Private Softwood Pine Plantation
- Eusdale Nature Reserve
- Planning Area Not Gazetted



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Office of Environment & Heritage
 NSW National Parks & Wildlife Service



New South Wales

1. LOCATION, GAZETTAL AND REGIONAL SETTING

Eusdale Nature Reserve is located 30 kilometres south-east of Bathurst in the Central Tablelands. It was gazetted on 17 November 2006 and covers 1,238 hectares. This plan of management also covers an adjoining area of 642 hectares that is vested in the Minister for the Environment under Part 11 of the NPW Act. Eusdale Nature Reserve and the adjoining lands vested in the Minister are referred to in this plan as the “Reserves” (refer to Map).

The Reserves, which originally formed part of Sunny Corner State Forest (No 806) – Extensions 17 and 26, were compulsorily acquired from Forests NSW under the *Land Acquisition (Just Terms Compensation) Act 1991*. The area was referred to as Frappell’s Block, after the landowners from whom the then Forestry Commission had purchased the land.

As part of a broader landscape approach for the conservation of biodiversity, the NPWS had maintained an interest in acquiring Frappell’s Block since at least 1993. The conservation values of Frappell’s Block were considered important in providing a crucial linkage with other nearby protected areas such as Wambool Nature Reserve (5 kilometres west of the Reserves), Winburndale Nature Reserve (8 kilometres to the north) and Evans Crown Nature Reserve (5 kilometres to the east).

The process by which Frappell’s Block was eventually acquired by the NPWS was a direct result of broad community support for the establishment of the Reserves. The acquisition stemmed from a development proposal by the Rail Infrastructure Corporation to reopen a nearby ballast quarry at Gemalla, locally known as the Tarana Quarry. This resulted in the establishment of the Tarana and Fish River Development Group (TFRDG) Inc, which consisted of local community members opposed to the quarry re-development. The TFRDG wanted a permanent arrangement to protect and preserve the surrounding area and investigated several options. One option was to rezone part of Sunny Corner State Forest as a Flora Reserve (the original preferred option), while the other option was to establish a nature reserve.

To the west of the Reserves lies cleared pastoral and agricultural land of the Bathurst Plains, primarily used for grazing and cropping. To the east of the Reserves lie Mount Tarana and the Tarana Ridge which are large areas of remnant vegetation. Adjacent to the northern boundary is *Clonturkle*, an ecotourism operation based around nature conservation management principles, as well as a private softwood pine plantation. Further to the north lie the villages of Yetholme and Kirkconnell, as well as Sunny Corner State Forest which consists of both native vegetation and planted radiata pine. To the south lies the Fish River and the predominantly cleared pastoral and agricultural land of the Tarana and O’Connell valleys, used primarily for grazing and limited cropping. The Fish River receives water from creeks in the Reserves and joins the Macquarie River further west.

The Reserves occur within the South Eastern Highlands Bioregion and are located within the boundary of the Central West Catchment Management Authority, Bathurst Regional Council local government area, State electorate of Bathurst, and the Bathurst Local Aboriginal Land Council.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of the Reserves is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the National Parks and Wildlife Regulation, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS).

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) may require the assessment and mitigation of the environmental impacts of works proposed in this plan. The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) also applies in relation to actions that may impact on threatened species listed under that Act.

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

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

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 (Section 30J) nature reserves are managed to:

- conserve biodiversity, maintain ecosystem function, 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.

Part 11 lands are managed in accordance with the NPW Act with Section 72AA(7) of the Act making provision for these lands to apply within a plan of management. Part 11 lands are subject to certain provisions of other legislation that do not apply to reserved lands, such as planning instruments under the EPA Act whereby development consent may be required from the local council.

In the longer term it is envisaged that the Part 11 lands will be added to Eusdale Nature Reserve, and therefore as far as possible these lands will be managed as a nature reserve. However, as the Department of Trade and Investment, Regional Infrastructure and Service (Minerals and Energy) has identified that there are mining and exploration interests in relation to these lands, they may be reserved in the interim as a state conservation area before being added to the existing nature reserve. Other uses not normally permitted in areas reserved under the NPW Act,

such as mineral exploration and mining, are permitted in state conservation areas provided regard is given to the conservation of the natural and cultural values of the area.

2.3 STATEMENT OF SIGNIFICANCE

The Reserves are considered to be of significance for their:

- Landscape/Catchment Values:
The Reserves form an important part of the catchment area for the Macquarie River;
- Biological Values:
The Reserves contain a number of animal species that have been listed as threatened under the TSC Act, as well as a number of plant species that are considered to be of regionally high conservation significance;
- Community Values:
There was overwhelming community and political support for the State Forest to be reserved as a nature reserve under the custodianship and management of the NPWS.

2.4 SPECIFIC MANAGEMENT DIRECTIONS

Management of the Reserves will focus on protection of significant plant and animal communities, protection of Aboriginal heritage, and encouragement of appropriate use of the Reserves.

Major strategies to achieve these objectives will be:

- Conservation of remnant native vegetation communities that are regionally significant because they are inadequately represented in the Central Tablelands, especially the sub-alpine (montane) vegetation and Brown Barrel *Eucalyptus fastigata* populations;
- Conservation of animal species listed as threatened as well as those plants listed as a Rare or Threatened Australian Plant (ROTAP);
- Conservation of habitat for the endangered Purple (Bathurst) Copper Butterfly *Paralucia spinifera* in accordance with the approved recovery plan for this species;
- Identification and management of the Aboriginal heritage of the Reserves in consultation with local Aboriginal communities;
- Assessment of the significance of historic heritage items located in the Reserves;
- Encouragement of opportunities for scientific research and educational studies, and of appropriate use of the Reserves through controls on illegal access and the issuing of consents for appropriate group activities.

3. VALUES

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

3.1 GEOLOGY, LANDSCAPE AND HYDROLOGY

The Reserves consist of a landscape of rolling to steep hills and mountains that range in elevation from 780 metres along the southern boundary adjacent Eusdale Creek to its highest point of 1255 metres along the western boundary. There are several peaks located throughout the Reserves that attain a height of well over 1000 metres and rock outcrops are common. Slopes range from 6–30% with the majority being between 20–25%.

The Reserves are composed of three main geological groupings that all exert various controls over the development of the landscape and vegetation types that are present:

- Most of the area is comprised of sedimentary siltstones, sandstones, and mudstones there were predominately laid down in a marine environment in the late Devonian period 365 million years ago (Gibbons Creek Sandstones);
- A small area in the north eastern corner of the Reserve contains a coarse granite that is Carboniferous in age (320 million years old);
- The area around Mount Tennyson contains a complex mix of folded and faulted Devonian aged geology predominated by volcanic lava, tuff and rhyolite rocks but also include sandstones, slates and shales.

The majority of the soils are derived from the Devonian parent geology and are dominated by shallow sediment soils from the Lambie soil landscape group, which consist of sandstone, conglomerate and red and green shale based soils.

These soils are generally very shallow and often poorly developed, with limited topsoil (6–20cm in depth) and a variable pH range (4.5–6.5). Shallow skeletal soils occur on crests and upper slopes, while red and yellow podzolic soils occur on the mid and lower slopes.

The remainder of the reserve consists of a combination of soil groups, with the most prevalent being Red Earth soils from the Turonfels soil landscape group, consisting of sandstones, shales and siltstones, as well as Terra Rossa Soils from the Limekilns soil landscape group which consist of limestone, shale and siltstone derived soils.

Several creeks occur within the Reserves, including Eusdale Creek, Broad Gully, Brooks Gully and Stony Creek. All the creeks and streams drain to the south, firstly

reaching the Fish River and then eventually reaching the Macquarie River further to the west. Eusdale Creek is generally a source of permanent water while, the remaining water courses and associated unnamed tributaries are at best considered as ephemeral, even though many are maintained by spring fed aquifers. The relatively small and steep catchments of Broad Gully and Brooks Gully frequently receive localised heavy rainfall which often results in the scouring of embankments and the erosion of creek crossings along Eusdale Creek Trail.

3.2 NATIVE PLANTS

A total of 202 plants species have been recorded in or within close proximity to the Reserves, of which 168 are native species (NPWS, Atlas of NSW Wildlife). Two species are listed as rare or threatened (ROTAP) species, the perennial herb *Geranium graniticola* and the Australian Anchor Plant *Discaria pubsecens*, while the Silver Banksia *Banksia marginata* is considered to be of high conservation significance given its isolated and restricted distribution both within the Reserves and within the Bathurst region.

The majority of the Reserves contain Dry Open Woodland communities, typical of the Central Tablelands, dominated by the Inland Scribbly Gum *E. rossii*, Long-leaved Box *E. goniocalyx* and Brittle Gum *E. mannifera* which occur on often exposed (north–west) facing slopes on shallow soils. This community is associated with typical dry sclerophyll shrub species including Daphne Heath *Brachyloma daphnoides*, Pink Five Corners *Styphelia triflora*, Box-leaved Wattle *Acacia buxifolia* and Nodding Blue Lily *Stypandra glauca*.

The Reserves are significant on both a Regional and State level because they also contain sub-alpine (montane) woodland vegetation, which is poorly represented in the Central Tablelands. This association, which occurs only on the higher elevated areas along the western boundary, includes White Sally *Eucalyptus pauciflora*, Broad-leaved Peppermint *E. dives* and Mountain Gum *E. dalrympleana*, often with an understorey of Snow Grass *Poa sieberiana*.

The Reserves have been subject to the selective removal of Mountain Gum and Brown Barrel *E. fastigata* by Forests NSW when part of Sunny Corner State Forest. Remnant populations of these species remain within higher elevation moist forest gullies, as does Ribbon Gum *E. viminalis*. Ferns and several Lomandra species, including the Spiny headed Mat Rush *Lomandra longifolia*, which also occur along the watercourses in these gullies.

Although Mountain Gum, Ribbon Gum and Blackwood *Acacia melanoxylon* tend to dominate areas along Eusdale Creek, this creek system has been heavily infested with weed species as a consequence of clearing and grazing, resulting in a decline in the diversity of native species. Weeds have also infested previously grazed areas along the eastern boundary of the Reserves, where small populations of Yellow Box *E. melliodora* and Apple Box *E. bridgesiana* remain.

Disturbance resulting in the spread of weeds (Section 4.1), inappropriate fire regimes (Section 4.3), and isolation from other areas of vegetation (Section 4.4), are threats to the viability of native plant species.

3.3 NATIVE ANIMALS

A total of 130 animal species have been recorded in and near the Reserves (Atlas of NSW Wildlife). Of the 121 native species there were 88 species of birds; 12 mammals; 14 reptiles; 6 amphibians; and 1 invertebrate. Four species are listed under the TSC Act, see Table 1.

Table 1 Threatened native animal species recorded in the Reserves

Common name	Scientific name	Status*
Powerful Owl	<i>Ninox strenua</i>	Vulnerable
Gang Gang Cockatoo	<i>Callocephalon fimbriatum</i>	Vulnerable
Booroolong Frog	<i>Litoria booroolongensis</i>	Endangered
Purple (Bathurst) Copper Butterfly	<i>Paralucia spinifera</i>	Endangered

* status under the TSC Act 1995

The Purple Copper Butterfly, which has been recorded in the Reserves, is of special interest as it is one of the rarest butterflies in Australia. This species is endemic to NSW and principally depends upon an intricate symbiotic relationship with the plant Native Blackthorn *Bursaria lasiophylla* and an ant *Anonchomyrma itinerans* for its survival. A Recovery Plan has been prepared for the Butterfly which recommends stabilising the population through the prevention of threatening processes and then aims to increase the site population through habitat management. The Booroolong Frog was recorded in an area adjacent to the eastern boundary of the nature reserve, and surveys are required to determine whether it is present in the Reserves.

The moist gullies in the Reserves provide suitable habitat for several arboreal species, including the Greater Glider *Petauroides volans*, the Sugar Glider *Petaurus breviceps* and the Common Ringtail Possum *Pseudocheirus peregrinus*. Other native species frequently observed within the Reserves include the Common Wombat *Vombatus ursinus*, the Swamp Wallaby *Wallabia bicolor* and the Eastern Grey Kangaroo *Macropus giganteus*. The Platypus *Ornithorhynchus anatinus* and the Water Rat *Hydromys chrysogaster* have been observed in the nearby Fish River.

Inappropriate fire regimes (Section 4.3), lack of vegetation connectivity with other areas of natural bush (Section 4.4) particularly with potential impacts of climate change (Section 4.5), are a threat to habitat for native species.

3.4 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.

The Reserves are within traditional Wiradyuri country, and the names of several localities are likely to be of Aboriginal origin. The word “Gemalla” is understood to have been derived from the Aboriginal word *Gemmalung* meaning fish or platypus while the word “Tarana” relates to “fishing” or “the river” (Bill Allen pers com).

Three Aboriginal sites have been recorded on the Reserves and two sites have been recorded in an area adjacent to the nature reserve. These consist of two modified (scarred) trees and three isolated artefact finds.

To date most Aboriginal sites found in the Reserves have been opportunistically located and not recorded as part of any formal survey, so there are potentially more sites within the Reserves.

The key threats to Aboriginal heritage values are fire (Section 4.3) and uncontrolled visitor use (Section 3.6) as well as erosion of existing trails.

3.5 HISTORIC HERITAGE

The Reserves were first occupied by Albert and Florence Reakes and their five children in around 1907, after they moved from their property near Narromine in 1901–1902 during the great drought. They built a house (known as “Glen Eden”) of wattle and daub and positioned it adjacent to Eusdale Creek. The nearby creek flats were used for growing vegetables and crops and a number of fruit trees were established around the house. Dairy cows and chickens provided the household with eggs, meat, milk and cream, and they also managed to raise sheep and a few cattle. The Reakes continued to live at Gemalla until 1936 (Hayden M (2007)).

A second house, Gemalla Cottage, was built between 1915 and 1916 on a hill to the south-east of the main homestead for their daughter Mabel and her husband Jack Edmonds. This cottage was later used by another daughter Ida and her husband. Although the cottage was still standing in the 1960s, it is now a ruin, with bricks, timber and corrugated iron from the walls, foundations and the roof all that remain.

In the 1980s the children, grandchildren and great grand children of Albert and Florence Reakes, held a reunion at the Gemalla homestead. Since this time family members have continued to maintain an ongoing association with the area by arranging an annual visit to the site.

Between 1936 and 1962 there were several different owners or lessees of the land including James Watling, William Clark, WR and BE Johnson and RG Williams. A William (Bill) Smith was known to have resided on the property before it was purchased by Wiseman Frappell in 1962. John and Glenyce Frappell came to live at “Glen Eden” during autumn 1962. By this time the Gemalla Homestead and Gemalla Cottage were both covered with blackberries. The majority of the area adjacent to the creek was also infested with blackberries and the Frappells’ spent a considerable amount of time spraying these weeds. (It is worth noting that English Broom and St John’s Wort were not present at this time.) The Frappells arranged for power to be connected to the property (at a cost of £600, which was rather expensive at the time), undertook renovations to the house, grew tomatoes (that were sold to Edgells for canning) and ran steers and wethers over the property.

In 1964 the Forestry Commission purchased the property under the *Public Works Act 1912* and gazetted it as part of Sunny Corner State Forest No 806 (extension No 17). An area of land to the south-west of Frappell's Block, owned by David and John Munro, was acquired in 1970 and added to the state forest as extension No 26.

In 1968 the Forestry Commission leased the homestead and a surrounding area (4ha) to the NSW Scout Association for use as the "Gemalla" Scout Camp. During their period of occupation the Scout association installed a railway carriage for use as a vehicular and pedestrian bridge for crossing Eusdale Creek, constructed a stone altar and seating area to conduct religious services and undertook a number of renovations to the homestead during their lease period. The lease area has not been utilised for several years and has now become overgrown while the homestead building is currently in a very poor and dilapidated condition.

There is evidence that some limited speculative mining occurred within the Reserves, especially south along Stony Creek near the Mines Loop Trail and along Eusdale Creek. Given the prominence of mining in the surrounding areas it is likely that more mining-related sites are present within the Reserves.

Five historic sites have been recorded on the Reserves and consist of a boundary marker tree, modified tree, bottle dump, cottage site and homestead precinct. To date all historic sites have been opportunistically located and given that they have not been recorded as part of any formal survey, there are potentially more sites within the Reserves to be found.

3.6 VISITOR USE, EDUCATION AND RESEARCH

Access to the Reserves from Bathurst is via the Great Western Highway at Yetholme and then south along Molybdenite Road. There are no public roads or visitor facilities within the Reserves and there is limited public use and access.

The Scout Association of NSW (Golden West Region) previously used the Gemalla Homestead precinct as a scout camp for the purposes of conducting scouting related activities, however in recent years no scouting activities have occurred.

Most activities occur along the management trail network or adjacent to Eusdale Creek with local bushwalkers and bushwalking clubs, such as the Central West Bushwalking Club, using the Reserves. Cycling occasionally occurs on management trails, as well as some bush camping. Eusdale Creek contains both the introduced Brown and Rainbow Trout and has been historically used in a low key and passive manner by recreational fishers. Fishing in NSW is managed by the Department of Primary Industries (Fisheries).

Solid wood fires will only be permitted with written consent to ensure that fires are sited in an acceptable location, not left unattended at any time, and are satisfactorily extinguished upon departure to reduce any likelihood of a fire escape.

There is no known demand for horse riding from either a current or historical perspective and this activity will not be permitted within the Reserves.

Given the diversity of arboreal nocturnal animals, the Reserves have been used for occasional night time fauna spotlighting activities by local and international visitors (Conservation Volunteers Australia) and other educational groups (local schools).

The low level of recreational use of the Reserves can be attributed to several factors including the limited public access and proximity to other reserves such as Evans Crown, Wambool and Winburndale Nature Reserves and other parks with established visitor facilities such as the Blue Mountains and Kanangra Boyd National Parks.

4. ISSUES

4.1 WEEDS

A weed is defined in this plan as any plant species not native to the Reserves. 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.

Although there have been 34 species of introduced plants recorded within the Reserves, only a small number of these are of major concern including Blackberry *Rubus fruticosus*, English Broom *Cytisus scoparius*, St Johns Wort *Hypericum perforatum*, Serrated Tussock *Nassella trichotoma* and Willow *Salix babylonica*. The invasive nature of these noxious weeds, their widespread occurrence in the landscape and the fact that they compete with native species, requires their continued management and suppression.

Although weeds are generally found throughout the Reserves, the main weed infestations tend to be associated with areas that have been previously cleared and grazed or used for mining or access. These locations tend to be adjacent Eusdale Creek, along various management trails and along the eastern, southern and western boundaries of the Reserves.

A number of weeds are widespread throughout the landscape outside of the reserve. To effectively control these weeds it will be necessary to establish and implement extensive and comprehensive cooperative weed management programs (using both herbicides and biological control measures) with adjoining neighbours, stakeholders and local authorities. To date weed control in the Reserves has focused on noxious weeds located along eastern, southern and western boundaries and adjacent management trails as well as along Eusdale Creek.

4.2 PEST ANIMALS

A pest animal is defined in this plan as any animal species not native to the Reserves. Pest animals within the Reserves and on adjoining land are of concern because they have the potential to have detrimental effects on native animal communities through competition for resources, predation, disturbance and transmission of diseases. Pest animals can also impact on native vegetation and have the potential to have an adverse economic impact on neighbouring properties.

Nine species of introduced animals have been recorded in the Reserves, consisting of four mammals (Pig, Goat, Fox and Rabbit), four species of birds (House Sparrow, Common Starling, Eurasian Blackbird, and European Goldfinch) and one fish (Redfin Perch).

Although feral pigs do not appear to be having any significant impact on the Reserves at present, it is expected that the control of Blackberry and English Broom (recognised as suitable pig habitat) will help to substantially reduce the potential for future increase in pig population and impacts. This is based on similar evidence for Winburndale Nature Reserve, where a control program that removed "harbours" used

by pigs for shelter and breeding resulted in a dramatic decline of pig numbers within this reserve.

The Reserves have now been included in the Regional Pest Management Strategy with an annual aerial culling program commencing in September 2007. In addition a feral pig management program was established in March 2009.

At this stage there has been no operational or management need to implement programs to control other introduced pest animal species.

4.3 FIRE

The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage.

Fire is a natural feature of many environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities. High frequency fires have been listed as a key threatening process under the TSC Act.

Mapping and detailed fire records have only been kept since the 1970s, and as a result there is limited information regarding fire history for the reserve. Prior to acquisition of the Reserves, Forests NSW (State Forests) conducted two hazard reduction programs, in April 1985 and again in May 2004, with the largest burn area being 449 hectares.

Since the acquisition of the Reserves in November 2006 there has only been one wildfire, in October 2007. This fire started off the Reserves and burnt approximately 380 hectares on the Reserves. The only other recorded wildfire was along the southern boundary on adjoining private property in April 2005 and this burnt an area of 11 hectares.

Given the altitude of the area it is likely the Reserves receive numerous lightning strikes during the fire season. The combination of terrain, topography and vegetation structure, which is generally accompanied by precipitation, helps to ensure that the incidence of wildfire caused by lightning remains low. However, the impacts from climate change will most likely alter this situation over time.

A separate (map based) Fire Management Strategy, has been prepared for the Reserves and identifies appropriate fire regimes to maximise biodiversity and provide strategic fire advantage for adjoining lands as well as the protection of on reserve assets and cultural features. The strategy also identifies fire control advantages such as management trails and water supply points.

There are currently 17 designated fire (management) trails within the reserve which equates to approximately 32 kilometres of management trails. All these trails require regular maintenance to maintain them to a suitable standard for management and fire fighting purposes. The majority of the fire trail network is in a reasonable condition, however, there are a number fire trails that require more regular annual maintenance due to their steep grades or inclusion of creek crossings.

The Reserves fall within the Chifley Zone Bush Fire Management Committee (CZBFMC). A NPWS representative attends the CZBFMC and is also an Executive member of this committee. Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the CZBFMC. Where possible, staff attend local RFS brigade annual general meetings, as well as regular brigade meetings when invited.

4.4 ISOLATION AND FRAGMENTATION

The area surrounding the Reserves has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region (Goldney and Bowie 1990). Long term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands.

Nearby vegetated areas contribute to the habitat values of the reserve and provide ecological corridors to other vegetated areas. Maintaining the integrity of the remaining habitat within the reserve and, where possible, linking this to adjacent areas of vegetation to facilitate wildlife corridors is important in ensuring long term viability of the reserve's biological values.

One such remnant is *Clonturkle*, a neighbouring property that adjoins the northern boundary of the Reserves, which protects an area considered to have significant conservation and biodiversity values. Both the previous and current owners of this property have continued to maintain a focus on nature conservation within this landscape for more than 100 years.

4.5 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for NSW include higher temperatures, increasing sea levels and water temperatures, 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, and increased erosion.

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 and pressure from feral animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires, past land use, altered water regimes, inappropriate recreation, pollution and urban expansion, will help reduce the severity of the effects of climate change.

5. MANAGEMENT OPERATIONS AND OTHER USES

There are no public access roads within the Reserves, but there is a network of trails that are used for access purposes to assist with the day to day management and operation of the Reserves. A number of these management trails are currently used by landholders to gain access to neighbouring lands. Any use of management trails must be in accordance with the NPW Act and formally licensed.

In 1967 State Forests issued an Occupation Permit over an area of 48 hectares in the area surrounding Tarana Gap and at the time agreed to the clearing of approximately 16 hectares of land for pasture improvement. In 1972 the Occupation Permit was replaced with a 15 year Forest Lease for grazing. Clearing did not occur until early 1979 and some of the cleared land has now been fenced into the adjoining freehold lands. In 1988 the area subject to grazing was increased to 82 hectares and a new Occupation Permit was issued. However, by 1990 the area set aside for grazing was substantially decreased in size to only 19 hectares. The permit was terminated by Forests NSW in November 2006 following establishment of the Reserves.

Following acquisition of the nature reserve, the area that had previously formed part of the Occupation Permit for grazing was divided into three sections known as Areas A, B and C (see Map). Following a number of discussions with the previous Permit holder it was agreed that grazing was to be excluded from Area A and that Area B was to be fenced and all stock removed. Grazing was allowed to continue to be allowed in Area C pending an assessment of options for the area.

A 3.9 kilometre polythene water supply pipeline was placed within Sunny Corner State Forest in 1988 to deliver gravity feed spring water from Brooks Gully (located within the Reserves) to an adjoining private property for stock and domestic purposes, and in 1989 State Forests issued an Occupation Permit over the waterline route. The permit has now expired and the pipe was burnt in a bushfire.

There is an existing Exploration Licence (EL) over the Part 11 lands. The EL 7272 was granted by the Department of Industry and Investment NSW for the extraction of Group 1 metallic minerals. This Group includes minerals such as molybdenite, gold and copper. Molybdenum is often associated with garnet and rhenium deposits and is used in the production of stainless steel. The EL 7272 was relinquished in January 2011 (Peel Exploration Limited, 2011).

6. IMPLEMENTATION

Priorities

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.

Ongoing is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.

6.1 On-Park Ecological Conservation

Current Situation	Desired Outcomes	Management Response	Priority
<p>Eusdale Creek is a permanent creek and is fed by numerous springs within the Reserves. Nearby rural residential development may impact on the quality of water entering the creek and ultimately the health of the water flows through the Reserves.</p> <p>Large volumes of water are known to flow down Brooks Gully and Broad Gully during localised storms, resulting in creek crossings being washed away or becoming impassable. These heavy flows tend to scour the banks of Eusdale Creek.</p>	<p>The quality of water remains healthy.</p> <p>Limit erosion and stream bank subsidence</p>	<p>6.1.1 Test and monitor water quality on an regular basis and establish permanent water sampling sites.</p> <p>6.1.2 Implement soil erosion measures to limit bank scouring.</p>	<p>Low</p> <p>Low</p>

6.1 On-Park Ecological Conservation - continued

Current Situation	Desired Outcomes	Management Response	Priority
<p>There are a number of existing management trails within the Reserves that have steep and rocky sections which are prone to sheet and rill erosion and scour during heavy storms.</p>	<p>Management trails are well maintained and erosion and sedimentation measures are implemented to limit the scouring of trails</p>	<p>6.1.3 Check trails after high rainfall events and undertake trail maintenance as necessary in accordance with best practice sedimentation and erosion control guidelines</p>	High
<p>A number of threatened flora and fauna, as well as regionally significant species have been recorded in and near the Reserves. Limited data is available on these populations and future surveys may find other threatened species.</p>	<p>Native plant and animal species and communities, especially threatened, regionally significant and inadequately conserved populations are protected.</p>	<p>6.1.4 Conduct targeted fauna and flora surveys to confirm the presence/absence of threatened species including the endangered Booroolong Frog and the ROTAP listed Australian Anchor Plant and the distribution and abundance of regionally significant species.</p>	Medium
<p>The Endangered Purple (Bathurst) Copper Butterfly has been recorded from the Reserves, however, limited knowledge exists as to the actual extent of these populations.</p>	<p>Knowledge of the distribution and abundance of the Copper Butterfly and other threatened species within the Reserves is improved.</p>	<p>6.1.5 Manage threatened species, populations and communities found in the Reserves in accordance with the relevant species recovery plan and priority action statements.</p> <p>6.1.6 Continue to undertake annual site assessments to monitor the distribution and abundance of butterfly populations.</p> <p>6.1.7 Implement measures included in the approved recovery plan for the Purple (Bathurst) Copper Butterfly,</p>	High

6.1 On-Park Ecological Conservation - continued

Current Situation	Desired Outcomes	Management Response	Priority
<p>Prior to gazettal, the nature reserve was subject to regular grazing, especially along Eusdale Creek and along the eastern boundary.</p>	<p>Restore biodiversity and habitat values of previously grazed areas.</p>	<p>6.1.8 Monitor weed invasion in previously grazed areas and implement a control program as necessary.</p> <p>6.1.9 Monitor the restoration of previously grazed areas and implement a tree planting or other suitable revegetation program as necessary.</p>	<p>Ongoing</p> <p>Ongoing</p>

6.2 Cultural Heritage

Current Situation	Desired Outcomes	Management Response	Priority
<p>Limited knowledge is available regarding the traditional use of the Reserves and Aboriginal sites and values. The recorded sites include modified (scarred) trees and scattered artefact sites.</p>	<p>Aboriginal features and values are identified and protected.</p> <p>Aboriginal people are involved in management of the Aboriginal cultural values in the Reserves.</p>	<p>6.2.1 Undertake a targeted (stratified) cultural heritage survey and heritage assessment in association with the local Aboriginal communities.</p> <p>6.2.2 Consult and involve the Bathurst Local Aboriginal Land Council, the Wiradyuri Elders group and other relevant Aboriginal community organisations in the management of the reserve.</p>	<p>Medium</p> <p>High</p>
<p>Five historic sites have been recorded for the Reserves. Three sites, the Gemalla "Glen Eden" house, the Gemalla cottage ruins and a bottle dump, are related to the residential use and occupation of the Reserves.</p> <p>The two remaining sites consist of marked survey trees (one for boundary delineation and the other marking a mining boundary lease area). Other sites relevant to past use of the area may be present in the Reserves.</p>	<p>Historic features and values are identified and conserved.</p> <p>Improved understanding of the significance of cultural landscapes in the Reserves.</p>	<p>6.2.3 All historic mining sites will be recorded, made safe (if necessary) and left in situ. No active management of these sites will occur.</p> <p>6.2.4 All known survey (portion marker/boundary) trees will be located if possible, recorded, included on fire maps as historic sites, and their condition assessed every three years.</p> <p>6.2.5 Further research into the Aboriginal and historic heritage values of the Reserves will be encouraged.</p>	<p>Medium</p> <p>Medium</p> <p>Low</p>

6.2 Cultural Heritage - continued

Current Situation	Desired Outcomes	Management Response	Priority
<p>The Gemalla (Glen Eden) house precinct is a reminder of past occupation and use of the area. The residence has long been abandoned and is subject to itinerant occupation and related vandalism.</p> <p>A Statement of Heritage Impact prepared for the Gemalla house determined that the building should be removed.</p>	<p>Structures are managed in accordance with their historic value, risk management and operational costs.</p>	<p>6.2.6 Remove the Gemalla house.</p> <p>6.2.7 Manage the Gemalla Cottage as a ruins.</p> <p>6.2.8 Retain the bridge crossing (railway carriage) subject to a risk assessment, as a pedestrian only access footbridge and upgrade as necessary to comply with NPWS park facility standards.</p>	<p>High</p> <p>Low</p> <p>High</p>

6.3 Visitor Use and Services

Current Situation	Desired Outcomes	Strategies	Priority
<p>The Reserves are used on a limited basis by bush walkers. To a lesser extent bush camping, fishing and mountain biking occur. Most activities occur along the management trail network or adjacent Eusdale Creek. There are no roads or visitor facilities within the Reserves.</p>	<p>No designated or formalised walking tracks or visitor facilities will be provided.</p>	<p>6.3.1 Bushwalking will continue to be permitted throughout the Reserves.</p> <p>6.3.2 Cycling will be permitted on management trails but not off trails.</p> <p>6.3.3 Bush (remote based) camping will continue to be permitted.</p> <p>6.3.4 The use of wood (solid fuel) fires will be prohibited throughout the Reserves unless written consent has been obtained from the local Area office.</p> <p>6.3.5 Horse riding will not be permitted in the Reserves.</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>
<p>The Scout Association of NSW – Golden West Region have been associated with Gemalla since 1968. Their Occupation Permit was terminated by Forests NSW in November 2006 and the area has not been used for scouting activities since this time.</p>	<p>Allow use of the site by the Golden West Region of the NSW Scout Association.</p>	<p>6.3.6 A consent with suitable terms and conditions will be issued to the Scout Association on an 'as needs' basis for the use of the Gemalla area for appropriate and permissible activities, according to the Memorandum of Understanding between NPWS and Scout Association of New South Wales.</p>	<p>Low</p>
<p>Given the important conservation and biodiversity value of the Reserves it is important that these values are not diminished through inappropriate recreational activities.</p>	<p>Improved community awareness of the Reserves' values.</p>	<p>6.3.7 Gate and lock management trails to prevent unauthorised vehicle access.</p> <p>6.3.8 Conduct regular inspections and patrols of the Reserves to ensure compliance.</p> <p>6.3.9 Promote a better community understanding and appreciation of the Reserves' conservation values through media articles and attending community meetings.</p>	<p>High</p> <p>Medium</p> <p>Medium</p>

6.4 Community Programs and Education

Current Situation	Desired Outcomes	Management Response	Priority
<p>There are currently 18 adjoining neighbours on the Neighbour Data Base for the Reserves.</p>	<p>Build and maintain a strong relationship with adjoining neighbours.</p>	<p>6.4.1 Continue to maintain regular contact with neighbours through correspondence, telephone contact and property visits to advise them of relevant management programs occurring within the Reserves.</p>	High
<p>Further research will improve understanding of the Reserves' natural and cultural heritage, the processes that affect them and the requirements for management of particular species.</p>	<p>Broaden the information data base of the Reserves.</p>	<p>6.4.2 Undertake and encourage research to improve knowledge and management of natural and cultural heritage with priority areas for research being the Purple (Bathurst) Copper Butterfly, other threatened plants and animals as well as pest and fire management activities (including post burn monitoring of communities following ecological burns).</p>	Low
<p>The Reserves are occasionally used for educational and interpretive activities.</p>	<p>Improved community understanding of the natural environment and the values of the Reserves.</p>	<p>6.4.3 Encourage visitation to the Reserves for educational studies and nature related purposes by distributing information on the Reserves to local schools and other educational organisations, and community groups.</p>	Low
<p><i>Clonturkle</i>, an adjoining property, has been actively contributing to the protection of conservation values within the upper tributaries and catchment of Eusdale Creek for more than 100 years.</p>	<p>Conservation of adjoining lands is encouraged.</p>	<p>6.4.4 Encourage and support <i>Clonturkle's</i> ongoing conservation initiatives.</p>	Low

6.5 Weeds and Pest Animals

Current Situation	Desired Outcomes	Management Response	Priority
<p>Large infestations of introduced plants occur along Eusdale Creek and within areas previously cleared for grazing, especially along the eastern boundary of the nature reserve. Smaller infestations occur in the head waters of catchments along the western boundary or in areas previously subject to mining or cleared for access. All infestations have a significant impact on the conservation values of the Reserves.</p>	<p>Minimise the impact of introduced plant species on native species in the Reserves and neighbouring lands.</p>	<p>6.5.1 Control and where possible eradicate introduced plant species in accordance with the Regional Pest Management Strategy. Priority will be given to the control of English Broom, Blackberry, Serrated Tussock, Willows and St Johns Wort.</p> <p>6.5.2 Seek the cooperation of other authorities and neighbours in implementing weed and pest animal control programs for biodiversity outcomes.</p>	<p>Ongoing</p> <p>High</p>
<p>Several introduced animals occur in the Reserves including goats, pigs, foxes and rabbits.</p>	<p>Reduced impacts from introduced animals on the Reserve's values and native animal populations.</p>	<p>6.5.3 Control introduced animal species with priority given to the control of goats by continuing aerial culling programs.</p> <p>6.5.4 Control (baiting/poisoning) programs will be conducted for other species, including foxes, pigs and rabbits, on an opportunistic as needed basis.</p>	<p>Ongoing</p> <p>Low</p>

6.7 Infrastructure, Maintenance and Operations

Current Situation	Desired Outcomes	Management Response	Priority
<p>A number of management trails exist (see Reserves Map) which provide access for purposes such as fire management, pest control and other park management activities.</p> <p>There are number of dormant trails within the Reserves that could be utilised or extended to assist with the day to day management of the Reserves.</p>	<p>Management trails are maintained in a suitable condition for management purposes only.</p>	<p>6.7.1 Continue to maintain the existing network of management trails in line with fire management policies and management requirements.</p> <p>6.7.2 Ensure any reopened trails are maintained as part of the management trail network.</p>	<p>High</p> <p>Medium</p>
<p>Some trails are utilised by unauthorised vehicles to access the reserve for illegal activities.</p>	<p>Illegal access and activity is minimised while safe and effective access for authorised vehicles is enabled.</p>	<p>6.7.3 Monitor the Reserves, maintain and where necessary install gates, fences and signs in accordance with NPWS standards and policy to identify reserve boundaries, regulations and management trails at key locations, to prevent unauthorised access and inappropriate activities.</p>	<p>High</p>
<p>Neighbouring landholders regularly approach the NPWS to assist with the replacement of fences along common boundaries.</p>	<p>Domestic stock do not enter the reserve.</p>	<p>6.7.4 Continue to process boundary fencing applications on a case by case basis in line with other Regional fencing priorities. All requests for boundary fencing will be dealt with under the NPWS boundary fencing policy.</p>	<p>Low</p>

6.7 Infrastructure, Maintenance and Operations – continued

Current Situation	Desired Outcomes	Management Response	Priority
<p>Although public access will remain limited to the western boundary, access through private property along the northern and southern boundaries of the Reserves would improve accessibility for NPWS management of the Reserves.</p>	<p>Additional management access routes into the Reserves are established and formalised.</p>	<p>6.7.5 Investigate management only access routes into the Reserves and where appropriate seek to negotiate access agreements or easements with neighbours.</p>	High
<p>A polythene water pipeline previously traversed the Reserves. The Occupation Permit has expired and the pipeline has been burnt. The water pipeline will not be replaced as taking water from Brooks Gully impacts on the ecology and habitat values of this area.</p>	<p>The polythene water line and its infrastructure are removed.</p>	<p>6.7.6 Close and revegetate the track used to access the pipeline.</p>	Medium
<p>Grazing and clearing in the Tarana Gap area occurred under previous Occupation Permits licensed by Forest NSW. Grazing has already been removed from Areas A and B but Area C has continued to be grazed pending further assessment of options for the area.</p>	<p>Grazing does not occur on the Reserves.</p>	<p>6.7.7 Fence the northern and western boundaries of Area C and the southern boundary of Area B to exclude grazing, and revegetate these areas.</p>	Medium
<p>Stock movements between paddocks on the adjoining landholder's property currently utilise a fenced stock laneway on the Reserves because the existing management trail and cadastral lane are too steep and there is no nearby alternative practical access. There is an existing cadastral road which is not aligned to the management trail or the stock laneway. Grazing, stock movement and vehicular access by the neighbouring landholder through Tarana Gap requires legal resolution.</p>	<p>Stock movements are excluded from the Reserves.</p>	<p>6.7.8 Issue a licence agreement for vehicular access along the management trail to provide vehicle access through Tarana Gap to the adjoining landowner in accordance with the NPWS Access to Inholdings Policy.</p> <p>6.7.9 Seek to have the reserved lane either aligned to the existing fenced cattle laneway or aligned to the existing management trail to provide legal access for the adjoining landowner to move stock through the Tarana Gap.</p>	Medium

7. REFERENCES

- Allen, W (Bill) (2007) - (pers. comm..) - Wiradyuri elder and traditional owner of country - Synonyms for contemporary place names based on Traditional Aboriginal (Wiradyuri) words
- CSIRO (2007) – Report – Climate Change in the Central West Catchment
- Department of Mineral Resources (1997) Geological Survey of NSW Geology Map - *Australian 1:100,000 Geological Series – Bathurst NSW*
- Department of Mineral Resources (1997) Geological Survey of NSW Geology Map - *Australian 1:100,000 Geological Series – Oberon NSW*
- Department of Mineral Resources (1988) Geological Survey of NSW Geology Map - *Australian 1:250,000 Geological Series – Bathurst NSW*
- Department of Mineral Resources (1979) Geological Survey of NSW Metallogenic Map - *Australian 1:250,000 Geological Series – Bathurst*
- Frappell, JW and GN (2008) – (pers. comm.) – unpublished report – Recent History of Gemalla
- Forrest, K R (1963) *Vegetation Map for Eusdale Nature Reserve*, NSW Forestry Commission (H:O file 2/30/70106)
- Forests NSW (2007) Occupation Permits and Reservation History (file records)
- Goldney DC and Bowie IJS (1990) *Some management implications for the conservation of vegetation remnants and associated fauna in the central western region of NSW*. Proceedings for the Ecological Society of Australia 1990 – 16:427 – 440.
- Hayden, M (2007) *Why We Visit Gemalla Every Year* – unpublished paper on the Reakes family history (DECC Trim File 07/17898)
- McKay, J (2008) – (pers. comm.) - Italian POW
- National Parks Association of NSW (March 2005), *Sunny Corner State Forest (Frappells Block) Flora and Fauna Survey – 24 to 27 January 1997*, Sydney
- NSW National Parks and Wildlife Service – Western Rivers Region – Pest Management Strategy 2008 - 2011
- Peel Exploration Limited (2011) *Combined: Annual and Final Exploration Report on EL 7272 – Mt Tennyson East Project: Covering Period 20 January to 19 January 2011*.
- Soil Conservation Service of NSW (1989), Soil Landscape Series - *1:250,000 – Bathurst – Sheet S155-8, Bathurst*

