NSW NATIONAL PARKS & WILDLIFE SERVICE

# Coolbaggie Nature Reserve

## Plan of Management


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**This plan of management was adopted by the Minister for the Environment on 19 December 2019.**

**Acknowledgments**

Coolbaggie Nature Reserve is in the traditional Country of the Tubba-Gah Wiradjuri People.

This plan of management was prepared by staff of the NSW National Parks and Wildlife Service (NPWS).

NPWS would like to thank those people who took the time to make a submission on the draft version of this plan that was exhibited in 2017.

For additional information or any inquiries about this park or this plan of management, contact the NPWS office at 74 River Street, Dubbo NSW 2830; or by telephone on (02) 6841 7100.

**Front cover image**: Coolbaggie Nature Reserve/DPIE.

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Environment, Energy and Science
Department of Planning, Industry and Environment
4 Parramatta Square, 12 Darcy St, Parramatta 2150
Locked Bag 5022, Parramatta, NSW, 2124
Phone: +61 2 9995 5000 (switchboard)
Phone: 1300 361 967 (Environment, Energy and Science enquiries)
TTY users: phone 133 677, then ask for 1300 361 967
Speak and listen users: phone 1300 555 727, then ask for 1300 361 967
Email: info@environment.nsw.gov.au
Website: www.environment.nsw.gov.au

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# Contents



TABLES:

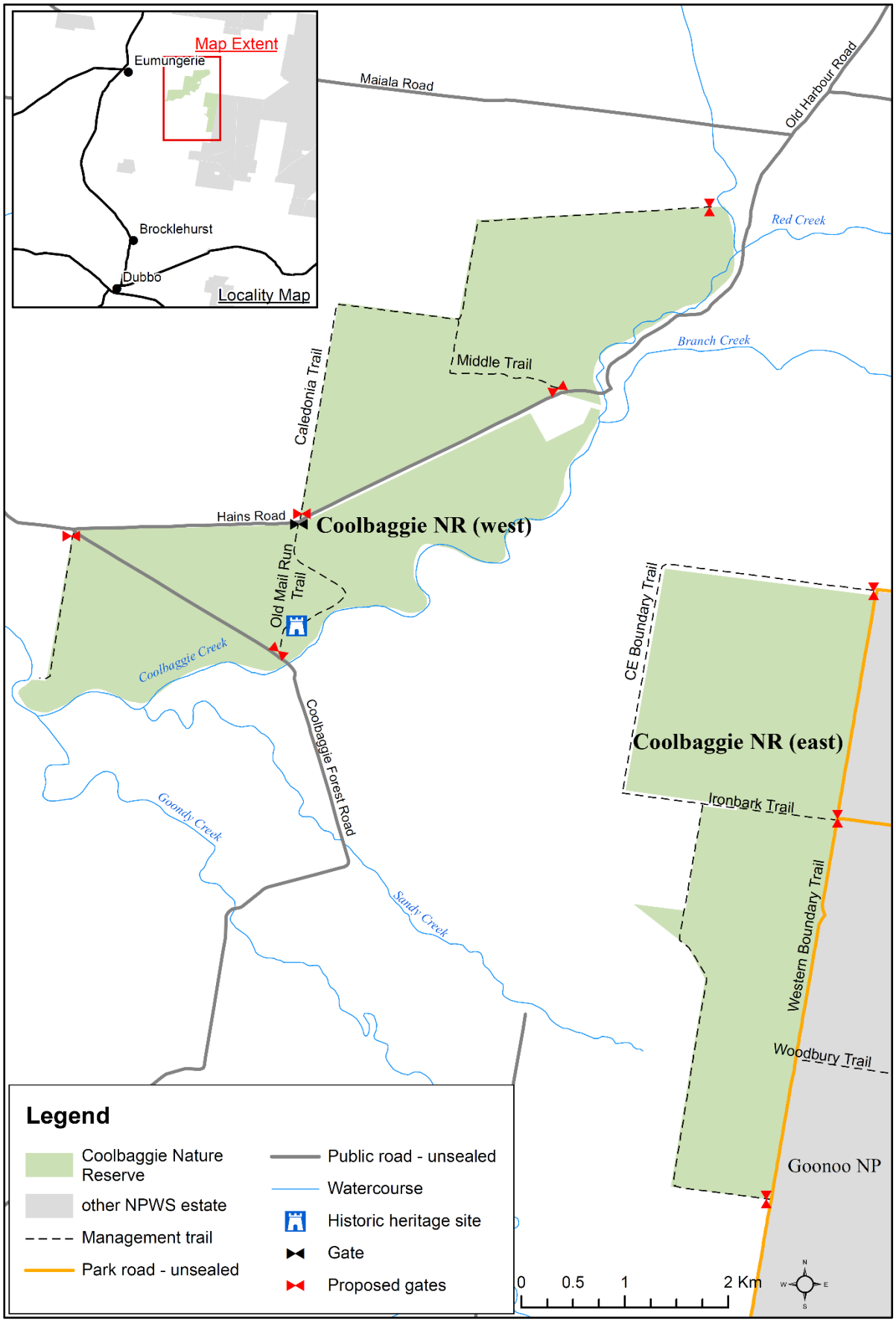


**Figure 1: Coolbaggie Nature Reserve**

# 1. Introduction

## 1.1 Location, reservation and regional context

| Features | Description |
|---|---|
| Location | Coolbaggie Nature Reserve (referred to as 'the reserve' in this plan) is located 30 kilometres north-east of Dubbo in Central West NSW. It is in two sections, separated by 1.5 kilometres of cleared grazing and cropping country. The western section (Coolbaggie West) is bisected by Hains Road and Coolbaggie Forest Road, and is bounded to the east by Coolbaggie Creek. The eastern section (Coolbaggie East) is adjacent to the western boundary of Goonoo National Park. Western Boundary Trail is within Goonoo National Park (see Figure 1). |
| Area | The total size of the reserve is 1775 hectares. Coolbaggie West is 1042 hectares and Coolbaggie East is 733 hectares. |
| Reservation date | Originally reserved in 1963. Portions of land were added to the reserve until 1980. |
| Previous tenure | The lands that now form the reserve are part of the traditional Country of the Tubba-Gah Wiradjuri People.<br><br>Early settlers to the Dubbo area incorporated the lands into large pastoral runs. Coolbaggie East was part of the Dewar Ridges Pastoral Run and Coolbaggie West was part of the Old Harbour Pastoral Run.<br><br>The land that now makes up Coolbaggie East was dedicated as a part of Goonoo State Forest. This section of Goonoo State Forest was progressively reserved as Coolbaggie Nature Reserve between 1963 and 1980.<br><br>Between 1917 and 1949 the land that now makes up Coolbaggie West was progressively reserved as Coolbaggie South and Coolbaggie North state forests. Coolbaggie North and South state forests were reserved as an addition to Coolbaggie Nature Reserve in 1970. |
| **Regional context** | |
| Biogeographic region | The reserve is located in the Pilliga subregion of the Brigalow Belt South Bioregion (Thackway & Cresswell 1995). It is one of a group of reserves known locally as the Goonoo Forest that together form a significant remnant forest of 72,000 hectares. Other reserves in this group include Breelong National Park (6900 hectares), Goonoo National Park (9000 hectares) and Goonoo State Conservation Area (54,000 hectares). |
| Surrounding land use | The reserve adjoins Goonoo National Park on its eastern boundary. The other land surrounding the reserve, including the land between the two sections, is a mix of grazing and intensive agricultural land. |
| Other authorities | The reserve is located within the administration areas of Dubbo Local Aboriginal Land Council, Central West Local Land Services and Dubbo Regional Council. |

## 1.2 Statement of significance

Coolbaggie Nature Reserve is significant because of the following values:

### Biological values

Over 88 native animal species have been recorded in the reserve including four threatened species: glossy black-cockatoo, speckled warbler, little lorikeet and malleefowl. The reserve has a small and locally rare population of the yellow-plumed honeyeater, which is at the north-east edge of its range in Australia.

Ten vegetation communities have been identified in the reserve, including two mallee communities that are rare in the Dubbo area, and two communities that may form part of the following endangered ecological communities listed under the *Biodiversity Conservation Act 2016*:

- Fuzzy Box Woodland on Alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions.
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions.

The reserve also contains two threatened plant species: *Homoranthus darwinioides* (a small shrub) and *Tylophora linearis* (a vine).

### Aboriginal heritage values

Due to its prominence in the landscape, it is likely that Coolbaggie Creek was a focus for Aboriginal occupation in the Dubbo area. There are recorded Aboriginal sites in the reserve including artefact scatters, modified trees and a burial. The burial is a repatriation undertaken by the Wiradjuri People after ancestral remains were returned to their care. It is highly likely that other sites, not yet recorded, are located in the reserve.

### Shared cultural heritage values

Remnants of previous agricultural and forestry activities are located throughout the reserve. The most important of these is Coolbaggie Creek Bridge, a timber beam bridge (ruin) adjacent to a tributary of Coolbaggie Creek. The bridge is of local historic significance due to its rarity and condition. Nearby, an old ground tank, tank stands and posts are evidence of a stock watering yard that existed beside the bridge.

# 2. Management context

## 2.1 Legislative and policy framework

The management of nature reserves in New South Wales is in the context of the legislative and policy framework of the NSW National Parks and Wildlife Service (NPWS), primarily the *National Parks and Wildlife Act 1974* and Regulation, the Biodiversity Conservation Act and NPWS policies.

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

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

## 2.2 Management purposes and principles

### Nature reserves

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

Under section 30J of the Act, nature reserves are managed to:

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

The primary purpose of nature reserves is to conserve nature. Nature reserves differ from national parks in that they do not have the provision of visitor use as a management purpose or principle.

# 3. Values

This plan aims to conserve both the natural and cultural values of the reserve. The location, landforms and plant and animal communities of an area have determined how it has been used and valued by Aboriginal and non-Aboriginal people. These values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. To make this plan clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use are dealt with individually, although these features are interrelated.

## 3.1 Geology, landscape and hydrology

The geology of most of the reserve is associated with the Surat Basin, also known as the Great Australian Artesian Basin. The dominant lithology is known as the Cretaceous Keelindi Beds. It is a sandstone of varying grades, from fine to coarse-grained, poorly to well-sorted and consisting of quartzose, pebbly or conglomerate sediments, interbedded with shale, siltstone and coal. The area along Coolbaggie Creek consists of Quaternary alluviums.

The soils across the reserve are largely comprised of earthy sands of the Goonoo Soil Landscape (Murphy & Lawrie 1998). The fragile nature of the soils means they are highly dispersible and susceptible to erosion (Murphy & Lawrie 1998). This is apparent along Coolbaggie Creek (and its tributaries) where there are significant areas of erosion. Tracks and trails are susceptible to erosion, particularly if they are not maintained regularly.

The southern end of Coolbaggie East drains into Goondy Creek, which then drains into Coolbaggie Creek. The remainder of the reserve drains directly into Coolbaggie Creek. Coolbaggie Creek flows to the south-west where it enters the Macquarie River approximately 25 kilometres downstream of Dubbo.

The elevation of the reserve is low, with the highest point at approximately 345 metres above sea level and the lowest point at approximately 315 metres. The topography is generally flat to undulating.

### Issues

- Sheet and gully erosion occurs as a result of high intensity or high-volume rainfall, damaging management trails and catchment values.

### Desired outcomes

- Erosion, sediment displacement and management trail degradation are minimised.

### Management response

3.1.1 Minimise soil disturbance and undertake remedial action where runoff is eroding gullies, displacing sediment or degrading management trails.

## 3.2 Native plants

Coolbaggie Nature Reserve is home to at least 107 native plant species. Two of these species, *Homoranthus darwinioides* and *Tylophora linearis*, are listed as vulnerable under the Biodiversity Conservation Act. Under the Environment Protection and Biodiversity Conservation Act, *Homoranthus darwinioides* is listed as vulnerable and *Tylophora linearis* is listed as endangered.

A comprehensive plant survey has not been undertaken in the reserve, so information on vegetation communities relies on mapping undertaken as a part of the Western Regional Assessment (Beckers & Binns 2000) and the NSW vegetation classification and assessment project undertaken by Benson et al. (2010).

Ten vegetation communities have been identified in the reserve (Benson et al. 2010). Six of these communities are relatively common in the Dubbo area and are well-represented (20–50% of pre-European range) in conservation reserves. The most common communities are ironbark forests and woodlands dominated by white cypress pine (*Callitris glaucophylla*) and black cypress pine (*C. endlicheri*) with narrow-leaved ironbark (*Eucalyptus crebra*), blue-leaved ironbark (*E. nubila*), bulloak (*Allocasuarina luehmannii*) and Dwyer's red gum (*E. dwyeri*), and a rich array of shrub species (Benson et al. 2010). The less common open forest dominated by mugga ironbark (*E. sideroxylon*) occurs in several locations.

Major creek lines contain riparian red gum forest dominated by Blakely's red gum (*E. blakelyi*) and rough-barked apple (*Angophora floribunda*) with small areas of sedgeland. On deep sands, the forests grade into broombush (*Melaleuca uncinata*) shrubland (Benson et al. 2010).

A green mallee (*E. viridis*) community is the largest of the less common vegetation types in the reserve. This community contains shrubs such as *Dodonaea viscosa* subsp. *cuneata* (a hop-bush) and *Acacia hakeoides* (a wattle). This community is not threatened, although it is restricted in extent (Benson et al. 2010). A rarer vegetation community, occurring on sandy soils in the reserve, is dominated by white mallee (*E. dumosa*) with green mallee, Dwyer's red gum and black cypress pine (Benson et al. 2010). The population in the reserve and adjacent Goonoo National Park represents the easternmost extent of white mallee in New South Wales. Less than 15% of the pre-European distribution of this community is conserved in the Central West of New South Wales, and the population in the Coolbaggie Nature Reserve represents 75% of this conserved total (Benson et al. 2010). Illegal cutting of mallee stems has occurred in the reserve and in nearby Goonoo National Park, and is a potential threat to these rare and restricted mallee communities.

Two threatened ecological communities are potentially represented in the reserve. These are:

- Fuzzy Box Woodland on Alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions Endangered Ecological Community (NSW SC 2004).
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions Endangered Ecological Community (NSW SC 2007).

Both communities are threatened by land clearing and are poorly represented in conservation reserves, with less than 3% of the pre-European extent currently conserved. Both communities are listed as endangered under the Biodiversity Conservation Act, and the Inland Grey Box community is also listed as endangered under the Environment Protection and Biodiversity Conservation Act. There is a lack of knowledge regarding the presence,

location and extent of these communities in the reserve. A definitive map of each of these threatened ecological communities is required for the reserve.

Strategies for the recovery of threatened species, populations and ecological communities have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017). These actions are currently prioritised and implemented through the *Saving our Species* program which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years (OEH 2013b). Individual recovery plans may need to be prepared for threatened species listed under the Environment Protection and Biodiversity Conservation Act.

Under the *Saving our Species* program all threatened species in New South Wales have been allocated to one of six management streams depending on their distribution, ecology, security and what is known about them. The threatened plants recorded in the reserve, *Homoranthus darwinioides* and *Tylophora linearis,* have both been assigned to the 'keep-watch' species management stream as most of the records or populations occur within the public reserve system where current management is sufficient to ensure their long-term security. Any change in the status of these species (e.g. decline in abundance or emergence of a significant threat) will trigger a shift to another management stream and the development of a conservation project which will be prioritised for implementation.

A number of statewide conservation actions have been identified for these species and relevant actions to be undertaken within the reserve are listed in Table 1. Some of the threats that may impact these plants in the reserve include inappropriate disturbance regimes, for example from track maintenance activities or fires, however, there is a lack of knowledge regarding their response to these disturbances. Localised extinction from large, unplanned events such as wildfires is also a threat to small populations.

The *Biodiversity Conservation Program* continues to guide management of threatened ecological communities, and relevant actions for the two endangered ecological communities which potentially occur in the reserve are listed in Table 1.

**Table 1. *Biodiversity Conservation Program* actions for threatened plants and potential ecological communities in the reserve**

| Species or community | SoS management stream | Management actions |
|---|---|---|
| *Tylophora linearis* | Keep-watch | Protect all known sites immediately from any type of disturbance (e.g. fire) until such time as its conservation status is fully known and recovery actions are better developed. |
| *Tylophora linearis* and *Homoranthus darwinioides* | Keep-watch | Implement sympathetic habitat management within the reserve and ensure consideration of the species' ecology and habitat in all forms of management planning. |

| Species or community | SoS management stream | Management actions |
|---|---|---|
| Fuzzy Box EEC and Inland Grey Box EEC | n/a | Control weeds and pest animals in the EECs.<br>Survey and map the extent of the EECs in the reserve and assess their condition.<br>Incorporate any operational guidelines and specific prescriptions identified for the EECs into the reserve fire management strategy.<br>Liaise with the Grassy Box Conservation Management Network to assist in assessing the condition and determining any further management actions for the communities.<br>Monitor the condition of the EECs annually to determine effects of management actions.<br>Prevent illegal firewood collection through park patrols, surveillance and visitor education. |

EEC: endangered ecological community.
SoS: *Saving our Species* program.

### Issues

- The potential threatened ecological communities in the reserve have not been adequately identified and their current extent and condition are unknown.
- There is a lack of knowledge about the disturbance response of the threatened species and communities present in the reserve. Firewood collection, weed and pest animal invasion and inappropriate fire regimes may impact these species and communities.
- The populations of threatened plant species in the reserve are small. There is potential for localised extinction of these species from large, unplanned events such as wildfires.
- Mallee communities have been damaged by the illegal cutting of mallee stems.

### Desired outcomes

- Any threatened ecological communities in the reserve are identified and mapped.
- The habitat and populations of significant and threatened plants and communities are protected and maintained.
- Negative impacts on threatened species and communities are minimised.
- The responses of threatened plants and ecological communities to disturbances are better understood and are incorporated into park management and planning.

### Management response

3.2.1 Implement relevant actions in the *Biodiversity Conservation Program* and recovery plans for threatened plants, populations and communities in the reserve.

3.2.2 Identify, map and assess the condition of threatened ecological communities in the reserve.

3.2.3 Implement strategies to prevent illegal cutting of mallee stems in the reserve.

3.2.4 Encourage and support research into the responses of threatened plant communities to various disturbance regimes, and incorporate any new knowledge into park management and planning.

## 3.3 Native animals

A comprehensive native animal survey has not been undertaken in the reserve, however, there are records of 88 native animal species including 77 birds, seven reptiles, three mammals and one amphibian. It is highly likely that more species occur in the reserve.

Four species listed as threatened under the Biodiversity Conservation Act are known to occur in the reserve, including the malleefowl (*Leipoa ocellata*) which is listed as endangered; and the glossy black-cockatoo (*Calyptorhynchus lathami*), speckled warbler (*Chthonicola sagittata*) and little lorikeet (*Glossopsitta pusilla*) which are listed as vulnerable. The malleefowl is also listed nationally under the Environment Protection and Biodiversity Conservation Act (see Table 2).

**Table 2. Threatened animals recorded in the reserve**

| Common name | Scientific name | BC Act status | EPBC Act status |
|---|---|---|---|
| Glossy black-cockatoo | *Calyptorhynchus lathami* | Vulnerable | – |
| Little lorikeet | *Glossopsitta pusilla* | Vulnerable | – |
| Malleefowl | *Leipoa ocellate* | Endangered | Vulnerable |
| Speckled warbler | *Chthonicola sagittate* | Vulnerable | – |

BC Act: Biodiversity Conservation Act.
EPBC Act: Environment Protection and Biodiversity Conservation Act.

The malleefowl population in the Goonoo Forest (including Coolbaggie Nature Reserve) is the easternmost population in New South Wales and is spatially isolated from other malleefowl populations. It is particularly vulnerable to local extinction due to the small local population size, threats to nesting, foraging and refuge habitat and its isolation in the landscape. In particular, malleefowl breeding is easily disrupted by fire and the effects can be long lasting. Breeding birds and chicks are also very vulnerable to predation by red foxes (*Vulpes vulpes*). The Goonoo Forest, in particular NPWS parks and reserves, have been a priority for the NSW fox threat abatement plan (OEH 2011) since 2001. A comprehensive fox control and malleefowl monitoring program is in place to reduce predation by foxes, and to monitor the breeding success of the local malleefowl population (OEH 2012a, 2012b).

A locally rare honeyeater species is present in the reserve. The yellow-plumed honeyeater (*Ptilotula ornatus*) is a medium-sized honeyeater with a distinctive yellow neck plume. It is found in mallee and open woodlands of southern Australia from south-west Western Australia to central NSW, and it nests in mallee eucalypts and small shrubs. The species is known to be under significant decline in the Western Australian wheat belt, where it was previously regarded as the most common honeyeater species, due to habitat loss and fragmentation.

The population of these honeyeaters in the reserve is the most north-easterly breeding population in Australia and is considered by local birdwatchers and naturalists to be possibly at high risk of extinction. The Coolbaggie population appears to be geographically isolated from the nearest populations and heavily reliant on flowering mallee species in the reserve

rather than adjacent open woodland areas. Until more is known, this species warrants protection and further study to determine its habitat requirements and appropriate management for its continued existence in the reserve.

As for native plants, strategies for the recovery of threatened animal species and populations have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017). These actions are currently prioritised and implemented through the *Saving our Species* program which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years (OEH 2013b). Individual recovery plans may need to be prepared for threatened species listed under the Environment Protection and Biodiversity Conservation Act.

The little lorikeet and speckled warbler have been assigned to the landscape-managed species management stream under the *Saving our Species* program, while the glossy black-cockatoo is a site-managed species and the malleefowl has been assigned as an iconic species (OEH 2013b). A national recovery plan for the malleefowl aims to secure the existing populations across the range of the species and considers the management needs of this species in more detail. Relevant actions from the *Biodiversity Conservation Program* for the four threatened species currently known from the reserve are listed in Table 3.

**Table 3. *Biodiversity Conservation Program* actions for threatened animals in the reserve**

| Species | SoS management stream | Management actions |
|---|---|---|
| Glossy black-cockatoo | Site-managed | Reduce the impact of burning to retain diverse understorey species and in particular to permit the regeneration of she-oaks (*Allocasuarina* and *Casuarina* species).<br>Protect existing and future hollow-bearing trees for nest sites.<br>Retain and protect areas containing she-oaks.<br>Provide input to local fire management plans to ensure appropriate management of habitat. |
| Little lorikeet | Landscape-managed | Avoid burning woodland with old-growth and hollow-bearing trees.<br>Reduce the abundance of feral honeybees (*Apis mellifera*) and limit the exploitation of nectar by domestic bees where resources are spatially or temporally sparse (e.g. in years of drought).<br>Document nest sites and ensure their protection.<br>Implement sympathetic habitat management in reserves where the species occurs. |
| Malleefowl | Iconic | Undertake fox control at the Goonoo priority site, which includes Coolbaggie Nature Reserve.<br>Measure the response of malleefowl and fox populations to fox control at the Goonoo priority site.<br>Retain fallen logs, ground debris and leaf litter.<br>Retain understorey shrubs and allow them to complete their life cycle.<br>Implement an appropriate fire regime so as to not burn all habitat and food resources within a locality at one time and to promote natural succession of plant species. |

| Species | SoS management stream | Management actions |
|---|---|---|
| Speckled warbler | Landscape-managed | Control foxes and feral cats (*Felis catus*) in the reserve.<br>Retain dead timber on the ground and prevent illegal firewood collection in the reserve.<br>Implement sympathetic habitat management in reserves where the species occurs. |

SoS: *Saving our Species* program.

### Issues

- No comprehensive native animal survey has been conducted in the reserve.
- There is limited knowledge about the distribution of threatened and rare native animal species in the reserve.
- There is potential for predation by foxes and feral cats to impact native animal populations.
- The collection of ground timber and felling of (hollow-bearing) trees for firewood damages animal habitat.
- There is potential for fires to:
  - reduce the abundance and recovery of she-oaks, the primary food source for glossy black-cockatoos
  - destroy nest trees
  - modify ground habitat for both malleefowl and speckled warblers through the removal of litter (used in nest construction), fallen timber and food sources (especially seeds — malleefowl mounds are not usually constructed in an area within 15 to 20 years after a fire and it may be 40 years or more before maximum densities are attained).

### Desired outcomes

- The habitat and populations of significant and threatened animal species are protected and maintained.
- Negative impacts on threatened species are minimised.
- The distribution of threatened and rare animals is better understood and incorporated into park management and planning.

### Management response

3.3.1 Implement relevant actions in the *Biodiversity Conservation Program* and recovery plans for threatened animal species and populations in the reserve.

3.3.2 Undertake a comprehensive native animal survey in the reserve.

3.3.3 Prevent firewood collection through regular park patrols, surveillance and visitor education.

3.3.4 Implement appropriate fire regimes to protect areas of long-unburnt vegetation for malleefowl and to retain the diversity of understorey species, promote natural succession of plant species and permit the regeneration of she-oaks.

3.3.5 Locate and document glossy black-cockatoo nest sites and malleefowl mounds and ensure their protection.

3.3.6 Encourage and support research into rare and threatened animals in the reserve and incorporate any new knowledge into park management and planning.

## 3.4 Aboriginal heritage

The reserve is within the Dubbo Local Aboriginal Land Council area and part of Country for the Tubba-Gah Wiradjuri People. The land, water, plants and animals 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, kinship systems and strengthening social bonds. Aboriginal heritage and connection to nature are inseparable and need to be managed in an integrated manner across the landscape.

Aboriginal sites are places with evidence of Aboriginal occupation or that are related to other aspects of Aboriginal culture. These sites are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. Around Dubbo, the most frequently occurring Aboriginal sites are open artefact scatters, culturally modified trees and grinding grooves. These can be found throughout the landscape, although the larger and more constantly occupied sites are likely to occur along permanent watercourses (such as Coolbaggie Creek). Evidence of less intense and sporadic occupation is seen along ridge tops or adjacent to temporary water sources (Koettig 1985; NPWS 2000).

In Coolbaggie Nature Reserve there are 15 recorded Aboriginal sites including 10 artefact scatters, four modified trees and one repatriation site. These sites are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. Due to its prominence in the landscape, it is likely that Coolbaggie Creek was a focus for Aboriginal occupation. The majority of the artefact scatters have been recorded along this creek, which is evidence of this.

Some ancestral remains have been returned to the Wiradjuri People and the remains have been reburied in the reserve.

One of the artefact scatter sites occurs in an area that has been subject to non-Aboriginal use for more than 80 years. The artefacts were found on the trail that leads to the historic Coolbaggie Creek Bridge. The cleared area surrounding this trail is also the site of an old historic ground tank, tank stands and stockyards. The area has been subject to long-term trampling from stock, vehicle use and wind and water erosion which is likely to have exposed artefacts. Continued use of the area by park visitors and illegal trail bike riders is likely to expose more artefacts and potentially damage them.

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

NPWS supports non-commercial cultural use of wild resources, such as medicinal plants and bush tucker, subject to NPWS policies and licensing.

**Issues**

- Artefacts could be further exposed at the historic site near Coolbaggie Creek Bridge and along the banks of creeks due to significant erosion caused by trail bikes and other vehicles.
- Firewood collection and fire are potential threats to culturally modified trees in the reserve.
- An opportunity exists to engage the local Aboriginal community in the management of the cultural heritage of the reserve, including identifying and recording sites.

**Desired outcomes**

- Significant Aboriginal places and values are identified and protected.
- Aboriginal people are involved in managing the Aboriginal cultural values of the reserve.
- Impacts on Aboriginal heritage values are minimised.
- Understanding of the cultural values of the reserve is improved.

**Management response**

3.4.1 Continue to consult and involve the Dubbo Local Aboriginal Land Council and other relevant Aboriginal community organisations and custodial families in the management of their Country, including management of Aboriginal sites and places, and cultural and natural values.

3.4.2 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact Aboriginal sites or values.

3.4.3 Restrict vehicular access to the Coolbaggie Creek Bridge historic site and along creek lines where possible.

3.4.4 Monitor the burial site and ensure protective measures are maintained.

3.4.5 Provide opportunities for Aboriginal people to access Country, to maintain, renew or develop cultural practices and associations.

3.4.6 Permit cultural resource use where this is in accordance with legislation and NPWS policy.

## 3.5 Shared cultural heritage

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

The first non-Aboriginal people in the Coolbaggie area were the party of John Oxley who passed the future site of Dubbo in 1818. Commercial timber-getting began in the region around the 1870s and a sawmill was operating in the Coolbaggie area by 1880 (Christison 2010). A review of parish maps shows the lands that now form Coolbaggie Nature Reserve have a complex tenure history. The reserve was once a part of the Old Harbour, and Dewar Ridge pastoral runs before these runs were resumed for more intensive settlement around 1900.

Following the break-up of the pastoral runs, the lands that make up Coolbaggie East were notified as a Crown reserve 'Pending construction of a Tramway' before being notified as Forest Reserve No. 34219 on 12 April 1902. By 1919, the forest reserve had been broken up into homestead farms of approximately 900 acres (364 hectares). The land was then progressively reserved as part of Goonoo State Forest through the 1950s and 1960s.

Parts of Coolbaggie West were first notified as Forest Reserve No. 34220 on 12 April 1902. In 1917, the forest reserve became Coolbaggie North and Coolbaggie South state forests. A further extension to Coolbaggie South State Forest was added in 1949 and other minor additions and extensions were added up until 1970. The formation of Coolbaggie Nature Reserve is complex, with multiple portions added to the reserve over the 17-year period between 1963 and 1980. Coolbaggie North and Coolbaggie South state forests were gazetted in 1970 to become Coolbaggie Nature Reserve (West), while sections of Goonoo State Forest were gazetted progressively in 1963, 1972 and 1980 to become Coolbaggie Nature Reserve (East).

Within the reserve there are few remnants of historic heritage. Coolbaggie East has a number of timber and wire fences that possibly date from the homestead farm period (c. 1919) but little other evidence of past forestry and pastoral activity remains. Coolbaggie West has the remains of timber and wire fences, historic trails (more than 50 years old) and several small rubbish dumps associated with the forestry industry. A ground tank, tank stand and bore from the early 1930s, in what was then Coolbaggie South State Forest, has been recorded and assessed as locally significant in Coolbaggie West.

The most important historic heritage feature in the reserve is the Coolbaggie Creek Bridge, a timber beam bridge (ruin) adjacent to a tributary of Coolbaggie Creek in Coolbaggie West (see Figure 1). This bridge has been assessed and determined to be of local historic significance due to its rarity (Christison 2010). A conservation management strategy has been prepared to determine the most appropriate management for the bridge (Christison 2010). Management will focus on conserving the existing fabric for as long as possible through the following actions:

- regular assessments of the structure
- repair as required using appropriate techniques and materials
- removal of flood debris as required.

### Issues

- The historic fabric of the reserve is scattered and some sites may not have been identified and recorded.
- The historic Coolbaggie Creek Bridge is currently under threat from erosion and from damage and a build-up of debris from significant floods.

### Desired outcomes

- Negative impacts on historic heritage values are minimised.
- Historic heritage is appropriately conserved and managed.

### Management response

3.5.1 Record any newly identified historic sites, assess their significance and manage accordingly.

3.5.2 Undertake a cultural assessment prior to all works with the potential to impact historic sites and places.

3.5.3 Implement the conservation management strategy for Coolbaggie Creek Bridge.

## 3.6 Visitor use

NPWS parks provide a range of visitor opportunities. NPWS aims to ensure that visitors enjoy, experience and appreciate the parks at the same time as conserving and protecting park values.

The reserve generally experiences low levels of visitation. There are no visitor facilities provided and current visitation is centred on low-impact, self-reliant, nature-based recreation such as bushwalking and birdwatching. The reserve provides these opportunities in a natural setting that includes a diverse array of plants and animals in the Central West of New South Wales.

Coolbaggie Forest Road and Hains Road are public roads that provide access for visitors to Coolbaggie West. Hains Road lies within a Crown reserve that is not part of the park, while Coolbaggie Forest Road overlays the park. Public access to Coolbaggie East is through Goonoo National Park via Western Boundary Trail, an unsealed park road which runs along the eastern edge of the reserve but which is within the national park. All internal management trails are for management or other authorised purposes only and are not open to public vehicle access. See Figure 1.

The primary purpose of the reserve is to conserve nature. To ensure this objective is met, visitation to the reserve needs to be carefully managed to avoid negative impacts to the reserve's natural and cultural values. The existing low-key, nature-based, daytime visitation is considered appropriate and ecologically sustainable. No visitor facilities or additional visitor opportunities will be provided. Overnight camping and campfires are not permitted in the reserve.

Horse riding may be undertaken on the two public roads (Hains Road and Coolbaggie Forest Road) but not elsewhere in the reserve. Horse riding is permitted in adjacent Goonoo National Park, including along Western Boundary Trail. Walking and cycling on management trails is considered appropriate as use is likely to be low key and trail surfaces should not be impacted by low levels of use. If impacts are observed, access for activities may be changed or stopped.

Other areas managed by NPWS, other authorities and private operators in the region provide opportunities for a range of recreational activities. These include self-guided driving, picnicking, cycling, horse riding and bush camping in Goonoo National Park and State Conservation Area; camping in Breelong National Park; and various opportunities along the Macquarie River in Dubbo Regional Council reserves.

### Issues

- Park values are being degraded by inappropriate recreational uses.

### Desired outcomes

- Visitor use of the reserve is appropriate and ecologically sustainable.
- Negative impacts of visitors on park values are minimised.

### Management response

3.6.1 No visitor facilities will be provided in the reserve.

3.6.2 Allow access for walkers and cyclists on management trails.

3.6.3 Allow public use of management trails by vehicles under consent where use is associated with activities that will benefit the reserve, such as research, education or survey.

3.6.4 Recreational horse riding, overnight camping and campfires are not permitted in the reserve, although horse riding may occur on Hains Road and Coolbaggie Forest Road.

# 4. Threats

## 4.1 Weeds and pest animals

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

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

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

NPWS prepares regional pest management strategies which identify the operations and control actions undertaken by NPWS to meet the priorities from regional strategic pest and weed management plans. This also includes other important programs such as the *Biodiversity Conservation Program* (see Sections 3.2 and 3.3).

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

**Table 4. Significant pest species recorded in Coolbaggie Nature Reserve**

| Common name | Scientific name | Comment |
|---|---|---|
| **Weeds** | | |
| Century plant | *Agave americana* | Small isolated population on the side of Coolbaggie Forest Road in Coolbaggie West. |
| Prickly pear | *Opuntia* spp. [1] | Scattered infestation throughout the reserve.<br>Plants are long-lived, can persist for several decades and restrict access for management and regeneration of native plants, particularly smaller shrubs and ground cover. |
| **Pest animals** | | |
| European red fox | *Vulpes vulpes* [2, 3, 4] | Widespread throughout the reserve.<br>Predation of native animals, particularly small to medium-sized ground-dwelling and semi-arboreal mammals and ground-nesting birds, including malleefowl and speckled warblers. |

[1] Regional priority weed (LLS 2017).

[2] Key threatening process under the Biodiversity Conservation Act and Commonwealth Environment Protection and Biodiversity Conservation Act.

[3] Threat abatement plan endorsed for this species.

[4] Regional priority pest animal (LLS 2018) and declared pest under the *Local Land Services Act 2013*.

Other pest animals such as goats (*Capra hircus*) and rabbits (*Oryctolagus cuniculus*), and weeds such as Patterson's curse (*Echium plantagineum*) are occasionally found in isolated infestations, but impacts on reserve values have been minimal.

### Red fox

Red foxes suppress native animal populations, particularly medium-sized mammals and ground-nesting birds. Foxes occur in the reserve and surrounding area and numbers are generally higher closer to the edge of the reserve as they tend to use the forest as refuge and forage out into the surrounding agricultural lands. Native species most likely to be impacted in the reserve include the threatened malleefowl and speckled warbler, but also small mammals such as the yellow-footed antechinus (*Antechinus flavipes*). As foxes are known to prey on domestic stock, including lambs and poultry, the European red fox is a declared pest throughout New South Wales under the *Local Land Services Act 2013*.

Predation by the European red fox is a key threatening process under the Biodiversity Conservation Act (NSW SC 1998) and Environment Protection and Biodiversity Conservation Act (DoE 2009). The *NSW Threat Abatement Plan for Predation by the Red Fox* (Fox TAP) was initiated in 2001 and revised in 2010 (OEH 2011) with the primary objective of establishing long-term control programs to protect priority threatened native animal species and populations. Foxes are being controlled at priority sites across New South Wales to protect biodiversity.

Coolbaggie Nature Reserve is included in the Fox TAP program for the Goonoo site (which began in 2001) to control foxes for the protection of malleefowl. Fox control and monitoring is

undertaken in accordance with the site plan under the Fox TAP (OEH 2012a). The fox control program at the Goonoo site is one of the largest in New South Wales and the program is regularly refined. Remote cameras are used to monitor fox and threatened species population responses (OEH 2012a).

**Issues**

- Park values are being degraded or lost due to impacts from pest species.
- Prickly pear and century plant populations are increasing.

**Desired outcomes**

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

**Management response**

4.1.1 Manage weeds and pest species as outlined in pest management strategies relevant to the reserve. Priority will be given to foxes.

4.1.2 Implement fox control programs in accordance with the Fox TAP site plan – Goonoo.

4.1.3 Monitor prickly pear infestations and treat any increase or reinfestation with appropriate methods.

4.1.4 Assess the century plant infestation and undertake works to remove the plants from the reserve if necessary.

## 4.2 Fire

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

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, and high frequency fires have been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000b).

The fire history in the reserve has been well documented since around 1990 but there is little information before this date.

Fire in the reserve is managed in accordance with the fire management strategy which defines the fire management approach for the reserve (OEH 2016) and is updated periodically. The strategy outlines the recent fire history of the reserve, key assets within and adjoining the reserve, including sites of natural and cultural heritage value, fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the reserve's vegetation communities.

Values that are at risk of damage from fire and fire suppression works include:

- Park infrastructure such as boundary fences and signage.

- Threatened species, due to fire changing the vegetation structure, loss of nest trees, hollows and ground timber and a reduced abundance of food species such as she-oaks.
- Potentially occurring threatened ecological communities.
- Heritage sites such as the historic timber beam bridge, tank stand and bore, and various Aboriginal artefacts. Sites such as stone artefacts, modified trees and tools can be threatened directly by fire and through the construction of fire trails and use of machinery such as dozers, motor vehicles and hand tools for fire suppression activities.

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

**Issues**

- Threatened ecological communities may require different fire management regimes from other ecological communities in the reserve.
- Modification of ground habitat by hazard reduction or fire suppression activities may impact ground-dwelling threatened species, that is, malleefowl and speckled warblers.
- Fire in the reserve could damage or destroy park infrastructure or historic heritage.
- Fire could spread into or out of the reserve.

**Desired outcomes**

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

**Management response**

4.2.1 Implement the fire management strategy for the Coolbaggie Nature Reserve and update as required.

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

4.2.3 Suppress unplanned fires in the reserve in accordance with the fire management strategy.

4.2.4 Manage the reserve to protect biodiversity in accordance with the identified fire regimes in the fire management strategy, with a particular focus on providing a mosaic of vegetation age classes to support threatened species populations.

4.2.5 Implement appropriate fire regimes for threatened ecological communities in the reserve.

4.2.6 Rehabilitate areas disturbed by fire suppression operations as soon as practical after a fire.

## 4.3 Climate change

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

The latest information on projected changes to climate are from the NSW and ACT Regional Climate Modelling (NARClim) project (OEH 2014). The climate projections for 2020–39 are described as 'near future', and projections for 2060–79 are described as 'far future'. The snapshot shown in Table 6 is for the Central West and Orana Region which includes Coolbaggie Nature Reserve (OEH 2014).

**Table 6: Central West and Orana Region climate change snapshot**

| **Projected temperature changes** | |
|---|---|
| Maximum temperatures are projected to **increase** in the near future by 0.4–1.0°C | Maximum temperatures are projected to **increase** in the far future by 1.8–2.7°C |
| Minimum temperatures are projected to **increase** in the near future by 0.5–0.9°C | Minimum temperatures are projected to **increase** in the far future by 1.5–2.6°C |
| The number of hot days (i.e. > 35°C) will **increase** | The number of cold nights (i.e. < 2°C) will **decrease** |
| **Projected rainfall changes** | |
| Rainfall is projected to **decrease** in spring | Rainfall is projected to **increase** in autumn |
| **Projected Forest Fire Danger Index changes** | |
| Average fire weather is projected to **increase** in summer, spring and winter | Number of days with severe fire weather is projected to **increase** in summer, spring and winter |

Source: OEH 2014.

There is projected to be an overall increase in minimum and maximum temperatures throughout the year, which in turn will cause an increase in evaporation and create drier conditions across most of the region. The projected increases in temperature, number of hot days and severe fire weather days are likely to influence bushfire frequency and intensity across the region and result in an earlier start to the bushfire season (DECCW 2010a).

Spring rainfall is expected to decline and an increase in autumn rainfall is projected, with storms with heavy downpours likely to become more frequent. Drier soil moisture conditions are likely, especially in winter. Reduced vegetation cover, caused by poorer growing conditions, is likely to leave many soils vulnerable to increased erosion and this risk is likely to be exacerbated by heavy downpours during more frequent and intense storms (OEH 2014; DECCW 2010a).

Hotter and drier conditions are likely to alter biodiversity and ecosystem processes across all ecosystems. Effects are likely to be most intense where existing pressures are exacerbated, such as in small, isolated and fragmented habitats, like Coolbaggie Nature Reserve.

Climate change may significantly affect biodiversity by changing the size of populations 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 and pollution, will help reduce the severity of the effects of climate change.

**Desired outcomes**

- The effects of climate change on natural systems are minimised.
- The impacts of climate change on the reserve's threatened species and ecological communities are minimised.

**Management response**

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

# 5. Management operations and other uses

## 5.1 Management facilities and operations

### Access

NPWS is in the process of reviewing access arrangements within the reserve. An access strategy has been developed as part of a statewide review of excess Crown lands and will clarify ownership of certain road corridors. The strategy will also seek to provide access to Coolbaggie East from Coolbaggie Forest Road for management purposes.

All management trails in the reserve are for management or other authorised purposes only (see Figure 1). Frequent illegal use of these trails, particularly in Coolbaggie West, has accelerated erosion on the trails. Gates (as indicated in Figure 1) may be required to effectively control unauthorised access.

### Signage

Since 2010, park signage has been progressively replaced to bring it in line with the signage strategy (DECCW 2010b). New park entry signs are required to finalise this process. Additional regulatory signs are also required to assist with the management of illegal activity.

### Boundary fencing

A number of park boundary fences have been replaced since 2006 and an ongoing program of boundary fence replacement is being undertaken as resources permit.

There are two boundary fence alignment issues, one associated with Coolbaggie East and one with Coolbaggie West. These issues need to be investigated and resolved with the relevant park neighbours.

### Illegal uses

The reserve has been used for the illegal collection of firewood, cutting of mallee stems, rubbish dumping and trail bike riding (including off-trail), all of which have contributed to the degradation of its natural values.

### Desired outcomes

- Soil erosion in the reserve is minimised.
- Infrastructure is maintained and replaced as required.
- Boundary fences align with the surveyed boundary, wherever possible.
- Impacts of illegal activities on park values are minimised.

### Management response

5.1.1 Implement the access strategy for the reserve.

5.1.2 Install gates on management trails in the reserve to prevent unauthorised vehicle access.

5.1.3 Monitor management trail condition and undertake maintenance as required.

5.1.4 Maintain park signage, including replacement as required.

5.1.5 Replace boundary fencing, in cooperation with neighbouring landholders, when resources permit.

5.1.6 Investigate and resolve boundary fence alignment issues.

5.1.7 Install appropriate regulatory signage and undertake regular patrols and surveillance to minimise illegal and unauthorised activities.

# 6. Implementation

This plan of management establishes a scheme of operations for Coolbaggie Nature Reserve.

Activities identified in the plan are listed in Table 7. Relative priorities are allocated against each activity as follows:

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

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

**Table 7: List of management responses**

| Plan ref. | Management response | Priority |
|---|---|---|
| **3.1 Geology, landscape and hydrology** | | |
| 3.1.1 | Minimise soil disturbance and undertake remedial action where runoff is eroding gullies, displacing sediment or degrading management trails. | Medium |
| **3.2 Native plants** | | |
| 3.2.1 | Implement relevant actions in the *Biodiversity Conservation Program* and recovery plans for threatened plants, populations and communities in the reserve. | Ongoing |
| 3.2.2 | Identify, map and assess the condition of threatened ecological communities in the reserve. | High |
| 3.2.3 | Implement strategies to prevent illegal cutting of mallee stems in the reserve. | Ongoing |
| 3.2.4 | Encourage and support research into the responses of threatened plant communities to various disturbance regimes, and incorporate any new knowledge into park management and planning. | Medium |
| **3.3 Native animals** | | |
| 3.3.1 | Implement relevant actions in the *Biodiversity Conservation Program* and recovery plans for threatened animal species and populations in the reserve. | Ongoing |
| 3.3.2 | Undertake a comprehensive native animal survey in the reserve. | Medium |
| 3.3.3 | Prevent firewood collection through regular park patrols, surveillance and visitor education. | Ongoing |

| Plan ref. | Management response | Priority |
|---|---|---|
| 3.3.4 | Implement appropriate fire regimes to protect areas of long-unburnt vegetation for malleefowl and to retain the diversity of understorey species, promote natural succession of plant species and permit the regeneration of she-oaks. | Ongoing |
| 3.3.5 | Locate and document glossy black-cockatoo nest sites and malleefowl mounds and ensure their protection. | Medium |
| 3.3.6 | Encourage and support research into rare and threatened animals in the reserve and incorporate any new knowledge into park management and planning. | Ongoing |
| **3.4 Aboriginal heritage** | | |
| 3.4.1 | Continue to consult and involve the Dubbo Local Aboriginal Land Council and other relevant Aboriginal community organisations and custodial families in the management of their Country, including management of Aboriginal sites and places, and cultural and natural values. | Ongoing |
| 3.4.2 | Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact Aboriginal sites or values. | Ongoing |
| 3.4.3 | Restrict vehicular access to the Coolbaggie Creek Bridge historic site and along creek lines where possible. | High |
| 3.4.4 | Monitor the burial site and ensure protective measures are maintained. | Ongoing |
| 3.4.5 | Provide opportunities for Aboriginal people to access Country, to maintain, renew or develop cultural practices and associations. | Ongoing |
| 3.4.6 | Permit cultural resource use where this is in accordance with legislation and NPWS policy. | Ongoing |
| **3.5 Shared cultural heritage** | | |
| 3.5.1 | Record any newly identified historic sites, assess their significance and manage accordingly. | Ongoing |
| 3.5.2 | Undertake a cultural assessment prior to all works with the potential to impact historic sites and places. | Ongoing |
| 3.5.3 | Implement the conservation management strategy for the Coolbaggie Creek Bridge. | Ongoing |
| **3.6 Visitor use** | | |
| 3.6.1 | No visitor facilities will be provided in the reserve. | Ongoing |
| 3.6.2 | Allow access for walkers and cyclists on management trails. | Ongoing |
| 3.6.3 | Allow public use of management trails by vehicles under consent where use is associated with activities that will benefit the reserve, such as research, education or survey. | Ongoing |
| 3.6.4 | Recreational horse riding, overnight camping and campfires are not permitted in the reserve, although horse riding may occur on Hains Road and Coolbaggie Forest Road. | Ongoing |
| **4.1 Pests** | | |

| Plan ref. | Management response | Priority |
|---|---|---|
| 4.1.1 | Manage weeds and pest species as outlined in pest management strategies relevant to the reserve. Priority will be given to foxes. | Ongoing |
| 4.1.2 | Implement fox control programs in accordance with the Fox TAP site plan – Goonoo. | Ongoing |
| 4.1.3 | Monitor prickly pear infestations and treat any increase or reinfestation with appropriate methods. | Ongoing |
| 4.1.4 | Assess the century plant infestation and undertake works to remove the plants from the reserve if necessary. | Medium |
| **4.2 Fire** | | |
| 4.2.1 | Implement the fire management strategy for the Coolbaggie Nature Reserve and update as required. | Ongoing |
| 4.2.2 | Continue to be involved in the Orana Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression. | Ongoing |
| 4.2.3 | Suppress unplanned fires in the reserve in accordance with the fire management strategy. | Ongoing |
| 4.2.4 | Manage the reserve to protect biodiversity in accordance with the identified fire regimes in the fire management strategy, with a particular focus on providing a mosaic of vegetation age classes to support threatened species populations. | Ongoing |
| 4.2.5 | Implement appropriate fire regimes for threatened ecological communities in the reserve. | Ongoing |
| 4.2.6 | Rehabilitate areas disturbed by fire suppression operations as soon as practical after a fire. | Ongoing |
| **4.3 Climate change** | | |
| 4.3.1 | Continue existing fire, pest and weed management programs to increase the reserve's ability to cope with future disturbances, including climate change. | Ongoing |
| **5.1 Management facilities and operations** | | |
| 5.1.1 | Implement the access strategy for the reserve. | Low |
| 5.1.2 | Install gates on management trails in the reserve to prevent unauthorised vehicle access. | High |
| 5.1.2 | Monitor management trail condition and undertake maintenance as required. | Ongoing |
| 5.1.3 | Maintain park signage, including replacement as required. | High |
| 5.1.4 | Replace boundary fencing, in cooperation with neighbouring landholders, when resources permit. | Medium |
| 5.1.5 | Investigate and resolve the boundary fence alignment issues. | Medium |
| 5.1.6 | Install appropriate regulatory signage and undertake regular patrols and surveillance to minimise illegal and unauthorised activities. | Ongoing |

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