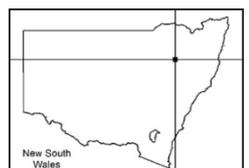




NSW NATIONAL PARKS & WILDLIFE SERVICE

Boonalla Aboriginal Area Community Conservation Area Zone 2

Plan of Management



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This plan of management was prepared by the staff of NSW National Parks and Wildlife Service (NPWS), part of DPIE, and with the involvement of members of the Aboriginal Consultative Group.

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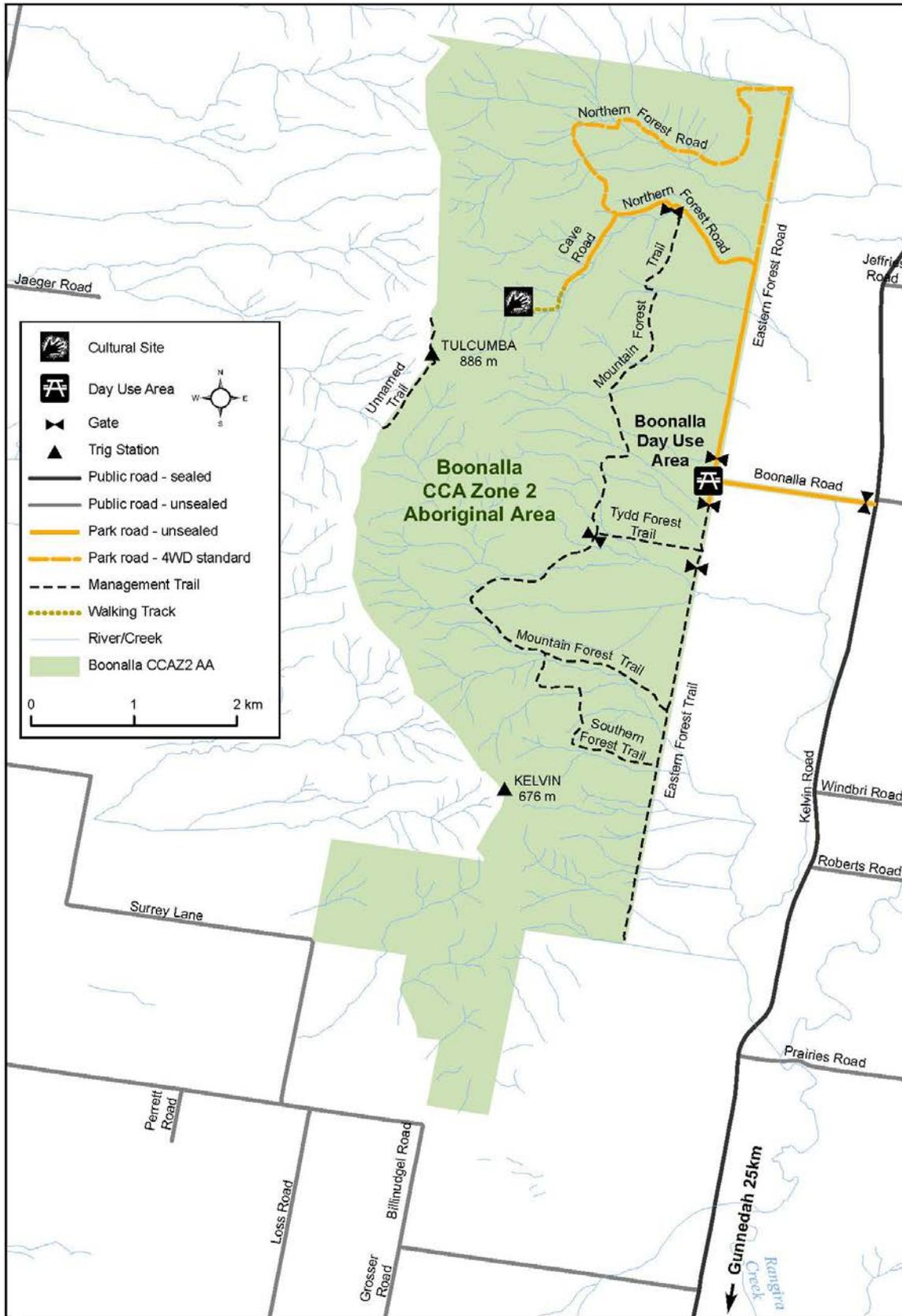


Figure 1 Boonalla Aboriginal Area

Yammandi-Ga Boonalla Murri Dhuwan – Welcome to Boonalla Aboriginal Area

This is Gamilaroi country, the homeland of our ancestors who have lived, worked and cared for this place since time immemorial.

Boonalla is a very special place, a sacred place. It is part of who we are, we share a connection with this land, a spiritual link forged in creation time, we deeply care for it and we wish to protect it, the spirit and the life forms that are part of it.

This is a place where we can get back to Country, an important part of a continuing journey of growth and relearning for our people, when we care for this land we care for our ancestors and spirit (Country) and our knowledge, wisdom and understanding of Country grows.

Today Boonalla is somewhere where all people can come together, to learn, rediscover and to reflect – we want to share with everyone this special place, the story of our people, our ancestors and our culture.

1. Introduction

1.1 Location, reservation and regional setting

Features	Description
Location	Boonalla Community Conservation Area Zone 2 – Aboriginal Area (also referred to as ‘the park’ in this plan) is located approximately 20 kilometres north of Gunnedah, on the north-west slopes of the New England Tableland in north-east New South Wales. It can be accessed from Boonalla Road, off Kelvin Road, approximately five kilometres north of Kelvin township.
Area	Boonalla Aboriginal Area encompasses 2310 hectares.
Reservation date	<p>The park was originally reserved in December 2005 under the <i>Brigalow and Nandewar Community Conservation Area Act 2005</i> (BNCCA Act) as Kelvin Community Conservation Area Zone 2 – Aboriginal Area. At this time, it was also reserved as an Aboriginal Area under the <i>National Parks and Wildlife Act 1974</i>. Boonalla is part of the Gomeroi Nation and Country for the Gamilaroi Aboriginal People. After consultation with the Gunnedah Aboriginal community in 2010, the park was renamed Boonalla Aboriginal Area. <i>Boonalla</i> is the Gamilaroi name for the mountain range where the park is situated.</p> <p>In January 2011, an addition of 43.3 hectares was made to the south-west of the park, with the reservation in this area restricted to a depth of 100 metres below the surface of the land.</p>
Previous tenure	The majority of Boonalla Aboriginal Area was formerly Kelvin State Forest. The forest was managed for commercial cypress pine and hardwood (e.g. ironbark) production, and grazing was permitted. The 2011 addition was formerly Crown land reserved for public recreation, and grazing was permitted under a former permissive occupancy that was surrendered in 2015. Boonalla Road, as shown on Figure 1, was acquired under Part 11 of the NPW Act in 2018.
Regional context	
Biogeographic region	<p>Boonalla Aboriginal Area forms part of a chain of parks stretching the length of the Brigalow Belt South and Nandewar bioregions. These bioregions are characterised by significant land clearing, and before 2005 less than 3% of these bioregions were within conservation reserves (Thackway & Cresswell 1995). Most of the park lies within the Peel subregion of the Nandewar Bioregion, and the extreme south of the park extends into the Liverpool Plains subregion of the Brigalow Belt South Bioregion (ERIN 2012). However, while these subregions bisect the park, it is likely that the higher elevations of the park conform more to the Peel subregion and the lower reaches conform to the Liverpool Plains subregion.</p> <p>The park helps form a significant stepping-stone to other nearby habitat patches within what is an otherwise highly modified landscape (Hunter 2008). It is in the Sydney-Gunnedah Basin, which extends from Bellata to the Liverpool Range.</p>
Surrounding land use	Boonalla Aboriginal Area is surrounded by private properties used for mining, grazing and cropping. To the east, the land has been heavily cleared for cropping and grazing enterprises. The range country extends north of the park into private property that is currently used for grazing sheep. To the west of the park is a rugged natural area that forms part of the area owned by Whitehaven Coal.
Other authorities	The park is located within the areas of the Red Chief Local Aboriginal Land Council, North West Local Land Services, Gunnedah Shire Council and the former Namoi Community Conservation Advisory Committee.

1.2 Statement of significance

Boonalla Aboriginal Area is significant because of its natural and cultural values.

Aboriginal site values

More than 100 Aboriginal sites have been recorded within the park, including artefact scatters, scarred trees and stone arrangements, as well as wild resources such as bush food plants. Boonalla Cave has a rich repository of artefacts, animal bones and charcoal providing evidence of Aboriginal occupation of the area for over 4000 years (OzArk 2012).

Aboriginal cultural values

Boonalla Aboriginal Area forms part of a continuing journey of growth and learning for the Gamilaroi Aboriginal People and forms an important part of their cultural landscape including connections between people, land and spirit (Country).

Joint management values

Boonalla Aboriginal Area is managed by the NSW National Parks and Wildlife Service (NPWS) in cooperation with the Boonalla Aboriginal Area Joint Management Committee under a memorandum of understanding. This is the second cooperative management arrangement between NPWS and the Gunnedah Aboriginal community, with the other involving management of parts of the Pilliga reserves.

Biological values

There are 15 threatened animal species recorded in the park: 10 birds; four mammals; and one reptile. Of particular note is the use of Boonalla Cave as a maternity roost by eastern cave bats, one of the few known roosts in New South Wales.

Two of the park's vegetation communities, White Box – Narrow-leaved Ironbark Woodland and Semi-evergreen Vine Thicket, are listed as threatened ecological communities at both a state and national level.

2. Management context

2.1 Legislative and policy framework

The management of community conservation areas in New South Wales is in the context of the legislative and policy framework of the NPWS, primarily the National Parks and Wildlife Act and Regulation, the Community Conservation Area Agreement developed under the Brigalow and Nandewar Community Conservation Area Act, the *Biodiversity Conservation Act 2016* 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 NSW *Heritage Act 1977* may apply to the excavation of known archaeological sites or sites with potential to contain historical archaeological relics. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may apply in relation to actions that impact matters of national environmental significance, such as migratory and threatened species listed under that Act.

A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken within Boonalla Aboriginal Area except in accordance with the plan. This plan will also apply to any future additions to the park. 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

Community conservation areas

Community conservation areas are established under the Brigalow and Nandewar Community Conservation Area Act. This Act provides for four dedicated management zones of which zones 1, 2 and 3 relate to land reserved under the National Parks and Wildlife Act as a national park, Aboriginal area or a state conservation area, respectively. Land in zones 1, 2 and 3 are managed consistently with the relevant management principles set out in the National Parks and Wildlife Act. Zone 4 lands relate to land within state forests.

Zone 2 Aboriginal areas

Zone 2 community conservation areas are reserved as Aboriginal areas under the National Parks and Wildlife Act to protect and conserve areas associated with a person, event or historical theme; or containing a building, place, feature or landscape of natural or cultural significance to Aboriginal people; or of importance in improving public understanding of Aboriginal culture and its development and transitions.

Under section 30K of the National Parks and Wildlife Act, Zone 2 community conservation areas are therefore managed to:

- conserve natural values, buildings, places, objects, features and landscapes of cultural value to Aboriginal people in accordance with the cultural values of the Aboriginal people to whose heritage the buildings, places, objects, features or landscapes belong
- conserve natural and other cultural values
- allow use of the Aboriginal area by Aboriginal people for cultural purposes

- promote public appreciation and understanding of the area's natural and cultural values and significance where appropriate
- provide for appropriate research and monitoring, in accordance with the cultural values of the Aboriginal people.

Zone 2 community conservation areas are places that have been identified as having special significance to Aboriginal people. The primary purpose of Aboriginal areas is the conservation of Aboriginal heritage.

Aboriginal joint management

The park is jointly managed by NPWS and the Boonalla Aboriginal Area Joint Management Committee, which was first established in 2009. The committee was formalised through the adoption of a memorandum of understanding on 23 August 2011 that was renewed on 21 November 2014.

As traditional custodians of the land, Aboriginal people have a unique role to care for and manage Country. This role overlaps with NPWS's legislative responsibilities to manage land for conservation. Partnerships recognise and capitalise on these mutual interests and responsibilities, including recognising that:

- All parks are part of Aboriginal people's Country and are places where Aboriginal people can care for their Country and access their Country and its resources. Given the history of dispossession in New South Wales, public lands and parks play an important role in the maintenance of Aboriginal culture and connection to Country. Meaningful engagement with Aboriginal communities on the management and use of parks is essential to ensure their needs in relation to their Country are met.
- Aboriginal communities obtain cultural, social and economic benefits through being involved in park management.
- Access to land managed by NPWS provides particular opportunities for Aboriginal people to sustain spiritual and cultural activities.
- Working in partnership, NPWS and the Aboriginal community are better able to protect and interpret cultural heritage and to apply Aboriginal knowledge to land management and the conservation of cultural and natural values.
- Visitors to parks have an enriched experience through interaction with Aboriginal people and an understanding of Aboriginal cultural values.

The Aboriginal joint management committee is made up of five to nine local Aboriginal community representatives who are able to demonstrate knowledge of local Aboriginal culture and Country, a connection with the local Aboriginal community (including membership or involvement with local Aboriginal organisations), and an ability to work cooperatively with others to achieve positive outcomes.

The Boonalla Memorandum of Understanding aims to allow greater opportunity for access to the park and involvement in its management. It provides an avenue for sustained, proactive and meaningful input from the joint management committee into the management of the park and formally acknowledges NPWS's commitment to working in partnership with the joint management committee in the park's management.

2.3 Specific management directions

In addition to the general principles for the management of Aboriginal areas (see Section 2.2), the management of the park will focus on conserving and maintaining its Aboriginal heritage values, protecting its significant vegetation communities and threatened species, and encouraging the use of the park for educational purposes.

Major principles to achieve these objectives are:

- protecting sites, places and landscapes of cultural significance in cooperation with the local Aboriginal community
- providing opportunities for the Aboriginal community to connect with Country, including maintaining traditional practices and sites
- providing opportunities for low-key, self-reliant, nature-based recreation
- encouraging the use of the park for educational and research purposes
- managing fire for the protection of life and property and the maintenance of natural and cultural values
- controlling weeds and pest animal species to minimise their impact on park values
- protecting and, where necessary, restoring natural vegetation.

3. Values

This plan aims to conserve both the natural and cultural values of the park. The location, landforms, 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 Aboriginal heritage

The park lies within the traditional Country of the Gomeroi Nation and the Aboriginal people of the Gunnedah area, the Gamilaroi People. This community has an ongoing association and connection to the lands within the park and beyond. As one of only very few traditional areas accessible to Aboriginal people, the park is an important part of the cultural landscape.

The park falls within the Red Chief Local Aboriginal Land Council area. In addition to Red Chief Local Aboriginal Land Council, three other Aboriginal groups are also well established in Gunnedah: Gunida Gunyah, Winangara-Li and Min Min Aboriginal corporations.

Several sites of cultural significance were identified as part of the Brigalow Belt South Western Regional Assessment surveys. More comprehensive site surveys have been conducted since that time by members of the local Gunnedah Aboriginal community in 2007, 2009 and 2010. A range of artefacts have been found, including scarred trees and artefact scatters. Wild resources such as bush food plants and materials for making tools, utensils and weapons are also present. More than 100 sites are recorded in NPWS databases.

In addition to these cultural site surveys, two archaeological excavations were conducted in the park at Boonalla Cave in 2010 and 2012. The excavations recorded over 500 artefacts along with samples of animal bones and charcoal. Carbon dating of the samples revealed them to be more than 4000 years old. Some of the artefacts recorded include modified flakes (including chisel-point flakes known as *burins*), backed blades, core tools (such as choppers, cleavers and hand axes) and scrapers.

In 2013 another site of interest was assessed. This site was discovered in 2009 when a firefighting team was deployed on top of Tulcumba Range in the park as part of a wildfire suppression strategy. The site is an arrangement of stones that appear to be pointing towards the east, below a large rock outcrop, on the edge of the ridge. Although the feature presents as a mystery, 'it is possible that it was a burial place for a particular important person' or 'it was associated with the worship of the sky god *Baiami* (also known as *Daramulan*)' (High Ground Consulting 2013).

While the NSW Government has legal responsibility for the protection of Aboriginal sites and places, NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. The park provides the local Aboriginal community with an opportunity to get back onto Country, pass on important cultural information to their children and train young people in land management skills.

The Boonalla Aboriginal Area Joint Management Committee provides opportunities for Aboriginal community members to have a say in how the park is managed while still maintaining access to this important area for everyone.

The committee has achieved many positive outcomes for the park and the local Aboriginal community. These include:

- renaming Kelvin Aboriginal Area as Boonalla Aboriginal Area in 2010 in recognition of the Gamilaroi name for the mountain range where the park is situated
- employing two Aboriginal field officers in Gunnedah
- running a training course for Aboriginal tour guides
- undertaking two archaeological cave digs and identifying over 40 new Aboriginal cultural sites within the park
- repatriating cultural material onto Country
- developing visitor facilities, including a visitor use area with toilet, picnic and barbecue facilities, and upgrading Boonalla Cave Walking Track, including steps, handrail, interpretive signs, directional signage and seating (see Section 3.6)
- holding a visitor facilities opening event for neighbours, stakeholders and community representatives.

Future activities include teaching about and using wild food resources and the cultural use of plants. Aboriginal people used many different plants for food, medicine and toolmaking. One plant that occurs in the area that is known for such uses is the grass tree (*Xanthorrhoea* sp.). The sap of the grass tree can be used as an adhesive for toolmaking, the stems can be used for a spear or fire drill to start fires, and the flowers can be prepared for consumption. Cultural use of wild resources, such as medicinal plants and bush tucker, is supported by NPWS. To ensure activities are sustainable, wild harvesting is subject to NPWS policies and licensing.

Issues

- There are potential impacts to cultural sites from fire, illegal activities such as unauthorised vehicle access, theft and vandalism, as well as the use of machinery during infrastructure development or wildfire suppression activities.
- The Boonalla Aboriginal Area Joint Management Committee has been particularly concerned about the risk of vandalism to cultural sites.
- There will be requests for repatriation of appropriate remains to Boonalla Aboriginal Area at the designated burial site.
- The Aboriginal Joint Management committee has a desire to use resources within the park for cultural purposes.

Desired outcomes

- Significant Aboriginal places and values are identified and protected, and impacts on Aboriginal values are minimised.
- Aboriginal people are involved in management of the park, in particular the Aboriginal cultural values of the park.
- Understanding of the cultural values of the park is improved.
- The aspirations of the local Gamilaroi People are supported through the Boonalla Aboriginal Area Joint Management Committee, and they are provided opportunities to access Country and conduct activities with cultural purposes in the park.
- The designated burial site is made available for future appropriate repatriations after consultation with the Boonalla Aboriginal Area Joint Management Committee.
- Opportunities for the transfer of existing cultural knowledge and the ongoing development of a living culture are provided.

Management response

- 3.1.1 Continue to consult and involve the Boonalla Aboriginal Area Joint Management Committee in the management of their Country, including the management of Aboriginal sites and places and cultural and natural values.
- 3.1.2 In consultation with the Boonalla Aboriginal Area Joint Management Committee, provide opportunities such as culture camps, field days and other activities designed to allow the celebration, sharing and development of cultural knowledge within the community.
- 3.1.3 Undertake a cultural assessment prior to all works with the potential to impact Aboriginal sites or values.
- 3.1.4 Encourage further research into the Aboriginal values of the park in cooperation with the Boonalla Aboriginal Area Joint Management Committee.
- 3.1.5 Facilitate repatriation requests in accordance with NPWS policy. Ensure any reburial sites are maintained and that all management activities within this area are conducted in consultation with the Boonalla Aboriginal Area Joint Management Committee.
- 3.1.6 Permit camping and the use of wood fires for the purposes of cultural renewal or education with consent from NPWS and agreement of the Boonalla Aboriginal Area Joint Management Committee.
- 3.1.7 Use of cultural resources is permissible within the park but must be approved in accordance with the provisions of the National Parks and Wildlife Act.

3.2 Geology, landscape and hydrology

Most of the park comprises the eastern slopes of a rocky ridgeline, known as the Tulcumba Range. This range extends along a north–south alignment towards Mount Kaputar. The park contains natural slopes in excess of 45 degrees and rises from 360 metres to 885 metres above sea level. It lies approximately midway between the Nandewar Range to the north and the Melville Range to the south-east and includes the highest peak in the Gunnedah Shire. There is an upper catchment of ephemeral creeks, with a small number of pools along the bottom of the ridge, however, water is not permanent and can only be found during heavy rain events or continuously wet conditions.

The geology of the park is predominantly composed of carboniferous metasediments of the Tamworth Fold Belt, mostly in the form of conglomerates with subordinate pebbly sandstone. A portion of Cenozoic alluvium of sand, silt, clay and gravel runs along the eastern boundary of the park (Tadros 1995). The soils in the park are generally shallow loams with a small deposit of yellow and red texture-contrast soils in the north-east of the park (Hunter 2008).

Situated in the northern half of the Tamworth Fold Belt and on the fringe of the Gunnedah Basin, the park lies within a landscape currently associated with high levels of mineral prospecting and a high number of proposed and active extractive developments for coal and natural gas.

Central to the cultural significance of the park is a large cave, known as Boonalla Cave. In 2010 the Boonalla Aboriginal Area Joint Management Committee, in partnership with NPWS, commissioned a research project to identify its geological history. The host rocks of the cave are interlayer welded ignimbrites and softer air fall tuffs. Both rock types are of volcanic origin (Maher 2010).

The cave was formed in the late Permian to early Triassic age (about 250 million years ago) during a period of extensive thrust-related folding that is manifested in the Tulcumba Range (Maher 2010). It was not formed through the presence of water and water erosion, but rather

the cave is a product of a roof collapse. The current stability of the cave roof is not known. According to Maher (2010), further roof collapse should be expected. Access will therefore need to be managed in line with NPWS policies regarding cave access and workplace and visitor safety.

Despite the cave's origin being unrelated to karst processes, a small stalactite has been discovered at the rear of the cave. This feature would form at such a slow rate that destruction would mean its complete loss with no expectation of regeneration over a period of several decades (Maher 2010).

The park is situated between the tropical and temperate climatic zones. In summer, synoptic highs dominate the climate, bringing warm dry weather. There are also regular synoptic lows, bringing cooler temperatures and rain events, possibly due to the elevation of the park. The highest rainfalls recorded at Gunnedah (the closest meteorological weather station) occur during spring and summer with an average annual rainfall of 620 millimetres (BOM 2012).

Issues

- Sheet and gully erosion occur as a result of high intensity or high volume rainfall events, damaging park roads, management trails and catchment values.
- The small stalactite in Boonalla Cave is sensitive to human interference and impacts are irreversible. The eastern cave bat (*Vespadelus troughtoni*), which roosts in the cave, is also highly sensitive to disturbance (see Section 3.4).
- The stability of Boonalla Cave is not known, and roof collapse may pose a threat to visitors to the site.

Desired outcomes

- Landscape and catchment values are protected.
- Erosion, sediment displacement and road and trail degradation are minimised.
- The Boonalla Cave stalactite continues to serve as a point of interest and research.
- Visitor safety at Boonalla Cave is ensured.

Management response

- 3.2.1 Encourage research into the natural values of the park to inform future management.
- 3.2.2 Undertake remedial action where runoff is causing gully erosion, sediment displacement, or degradation of park roads or management trails.
- 3.2.3 Install signage at Boonalla Cave instructing visitors not to proceed beyond the mouth of the cave. If unauthorised access beyond the mouth of the cave is identified, assessment and implementation of further management strategies preventing access by visitors will be undertaken.

3.3 Native plants

The park lies within the North West Slopes botanical district. Typical of this area, lands to the east, west and south of the park have been extensively cleared, creating fragmented habitats with limited connectivity. As a result, the significance of the park as remnant habitat and a wildlife corridor is increased (NPWS 2002).

Under its previous management as state forest, plant communities over the majority of the park were modified by grazing and selective logging. The 2011 addition in the south-west section of the park was grazed under licence at the time of its reservation. While the woodlands of the park retain a good diversity of species and most assemblages are in reasonable condition, the absence of mature cypress and ironbark trees is apparent, and this may have impacted the type of native animals that use the park as habitat and the population size of those that still occur (see Section 3.4).

A comprehensive native plant survey of the park was undertaken in 2008, with 235 plant species identified representing 63 families and 160 genera (Hunter 2008). Much of the park is characterised by white cypress pine (*Callitris glaucophylla*), narrow-leaved ironbark (*Eucalyptus crebra*), wilga (*Geijera parviflora*) and white box (*E. albens*) (OEH 2017c). The understorey contains a variety of herbs and grasses, particularly Australian stonecrop (*Crassula sieberiana*), wild onion (*Bulbine semibarbata*), spear grass (*Aristida vagans*), weeping grass (*Microlaena stipoides*) and climbing saltbush (*Einadia nutans*). Where present, the shrub layer is most commonly cough bush (*Cassinia laevis*).

No threatened plant species are currently known to occur in the park, although suitable habitat exists for tree ooline (*Cadellia pentastylis*), which is nationally vulnerable, and finger panic grass (*Digitaria porrecta*), which is endangered in New South Wales.

Six plant communities have been identified in the park, two of which are of conservation significance (see Table 1). Strategies for the recovery of threatened species, populations and ecological communities have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017a). 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, and recovery plans were previously prepared for some species listed in New South Wales to consider management needs in more detail. To date, recovery plans have been prepared for two nationally listed communities: White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland; and Semi-evergreen Vine Ticket in the Brigalow Belt South and Nandewar Bioregions.

The management of threats to the plant communities of conservation significance is outlined in Table 2.

Vegetation survey plots have been recorded and marked in the field throughout the park to establish permanent monitoring sites.

Table 1 Plant communities within the park

Plant community	Area (%)	Location	Conservation status
White Box – Narrow-leaved Ironbark Woodland	75%	Starting from the flats on the eastern boundary to the rolling hills leading up to the base of the ridge in the west.	Less shrubby areas would be recognised as endangered under the BC Act ¹ , and critically endangered under the EPBC Act ²
White Pine – Narrow-leaved Ironbark Woodland	17% 3% 2%	On top of the ridge and at mid slopes at a higher altitude. Rocky outcrops. Found scattered throughout the park at higher altitudes.	–
Narrow-leaved Ironbark – Rough-barked Apple Woodland	2%	Found scattered throughout the park in protected open depressions.	–
Semi-evergreen Vine Thicket	1%	Occurs in small patches, most commonly at the head of gullies with distribution restricted by micro-habitat and possibly by historical fire. The best known example in the park is located adjacent to Boonalla Cave.	Endangered under both BC Act and EPBC Act ³

Source: Hunter (2008).

Notes:

- ¹ Corresponding community name under the Biodiversity Conservation Act is White Box – Yellow Box – Blakely's Red Gum Woodland.
- ² Equivalent community name under the Environment Protection and Biodiversity Conservation Act is White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland.
- ³ Community name under Biodiversity Conservation Act is Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions, and under Environment Protection and Biodiversity Conservation Act is Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

Table 2 Management of threatened ecological communities

Community name	Threat	Action
White Box – Yellow Box – Blakely's Red Gum Woodland (Grassy Box Gum Woodland)	Lack of formal identification	Identify and map potential areas
	Weed invasion	Target priority weeds for control ensuring minimum disturbance
	Inappropriate fire regimes	Adopt a precautionary approach to fire management within remnants
Semi-evergreen Vine Thicket	Weed invasion	Target priority weeds for control in areas where community is known to occur
	Vertebrate pests	Undertake pest animal control measures
	Fire	Exclude hazard reduction burns

Issues

- The park has been selectively logged in the past and little old-growth vegetation remains, impacting on the available habitat for some animals such as those that rely on hollow-bearing trees (see Section 3.4).
- Areas to the east, west and south of the park have been extensively cleared, which has resulted in fragmentation of habitat (see Section 4.4).
- The park provides an important wildlife corridor and habitat linkage between the Brigalow Belt South and Nandewar bioregions (see Section 3.4).
- Semi-evergreen Vine Thicket is susceptible to damage from fire (see Section 4.2).
- The condition and extent of Box–Gum Woodlands are highly susceptible to changes in ground storey through impacts such as weed invasion (see Section 4.1).

Desired outcomes

- Significant plant communities are conserved.
- The integrity of habitat within the park is maintained and, where possible, habitats are linked to adjacent areas of vegetation.
- Negative impacts on ecological communities are minimised.
- Structural diversity and habitat values are restored in degraded areas.
- Knowledge of the threatened ecological communities in the park is increased.

Management response

- 3.3.1 Implement relevant strategies in line with the *Biodiversity Conservation Program* for threatened ecological communities present in the park, and for any threatened plant species or populations should they be found.
- 3.3.2 Restore structural diversity to woodland ecosystems and preserve old-growth elements by managing fire and supplementing natural regeneration with weed control, site preparation and revegetation programs where necessary.
- 3.3.3 Investigate the presence of threatened plant species where suitable habitat is identified, including tree ooline and finger panic grass.
- 3.3.4 Map the threatened ecological communities in the park.

3.4 Native animals

The park protects a representative sample of native animals of the Nandewar and Brigalow Belt South bioregions, providing habitat for a range of species. The park acts as a linkage or stepping-stone for mobile species, such as woodland birds and medium to large mammals, to areas such as Mount Kaputar National Park to the north and the Pilliga parks to the west.

Due to its relatively large size, the park forms a significant stepping-stone to other remnant patches of vegetation within the landscape such as Dowe, Somerton and Hobden Hill national parks, Wondoba and Leard state conservation areas and Melville Range Nature Reserve. Each of these lie within 50 kilometres of the park. Larger parks close by include Mount Kaputar National Park and Pilliga Nature Reserve.

Two systematic native animal surveys have been conducted within the park, with numerous incidental sightings adding to knowledge of the area's native animals. A total of 123 species of native animals are known to occur within the park, including 81 birds, 20 mammals, 17 reptiles and five amphibians. Of these, 15 species are classed as threatened (see Table 3).

There is, however, an absence of small ground-dwelling native mammals in the park, which is cause for concern, although this is a common situation across much of western New South Wales (Lunney 2001).

Threatened species within the park fall mainly into three groups:

- those dependent on large, intact remnants that contain hollow-bearing trees (e.g. masked owl and barking owl)
- the 'declining woodland birds', which depend on relatively large, intact areas of heterogeneous woodland (e.g. brown treecreeper, varied sittella, speckled warbler and hooded robin)
- those with specialist habitat requirements such as the eastern cave bat and koala.

Table 3 Threatened animal species recorded within the park

Common name	Scientific name	BC Act	EPBC Act
Reptiles			
Border thick-tailed gecko	<i>Uvidicolus sphyrurus</i>	Vulnerable	Vulnerable
Birds			
Barking owl	<i>Ninox connivens</i>	Vulnerable	–
Brown treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	Vulnerable	–
Diamond firetail	<i>Stagonopleura guttata</i>	Vulnerable	–
Grey-crowned babbler	<i>Pomatostomus temporalis temporalis</i>	Vulnerable	–
Hooded robin	<i>Melanodryas cucullata cucullata</i>	Vulnerable	–
Masked owl	<i>Tyto novaehollandiae</i>	Vulnerable ¹	–
Regent honeyeater ²	<i>Anthochaera phrygia</i>	Critically endangered	Critically endangered
Speckled warbler	<i>Chthonicola sagittata</i>	Vulnerable	–
Turquoise parrot	<i>Neophema pulchella</i>	Vulnerable	–
Varied sittella	<i>Daphoenositta chrysoptera</i>	Vulnerable	–
Mammals			
Eastern cave bat	<i>Vespadelus troughtoni</i>	Vulnerable	–
Koala	<i>Phascolarctos cinereus</i>	Vulnerable ¹	Vulnerable
Large-eared pied bat	<i>Chalinolobus dwyeri</i>	Vulnerable	Vulnerable
Spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable	Endangered

¹ Species known to occur in an area immediately adjacent to the park, and park provides suitable habitat.

² Recovery plan prepared for species under Biodiversity Conservation Act.

As for plants, strategies for the recovery of threatened animal species and populations have been set out in a statewide *Biodiversity Conservation Program* (OEH 2017a) and are currently prioritised and implemented through the *Saving our Species* program. Individual recovery plans may also be prepared for threatened species to consider management needs in more detail. Those species for which recovery plans have been prepared are indicated in Table 3.

Due to the good health of the woodland communities in the park, an increase in old-growth and hollow-bearing trees is anticipated to occur naturally over time due to the removal of forestry operations, firewood collection and grazing. The maintenance of shrub, grass and litter components of the woodlands is also a key management consideration in maintaining populations of declining woodlands birds. Fire management is an important component of habitat management (see Section 4.2).

The eastern cave bat maternity roost in Boonalla Cave is one of only a few known maternity caves for this species in the State. This site requires special protection as disturbance of roosting bats, particularly during torpor, may lead to the bats expending limited energy reserves to the point of exhaustion and possibly death. In contrast, koalas require little specific management intervention, however, the presence of tiger pear (*Opuntia aurantiaca*) poses a direct threat to the koalas through injury. As such, control of tiger pear is a priority (see Section 4.1).

The ability of the park to support apex predators such as the barking owl, masked owl and spotted-tailed quoll is indicative of both the quality and significance of this park. However, there are no recent reports for the barking owl and spotted-tailed quoll, hence surveys for these two species are considered a priority. Confirmation of the continuing presence of the border thick-tailed gecko (discovered in the park in 2000) and the regent honeyeater (recorded south-west of the park in 1998) is also desirable.

Issues

The threatened animals found in the park are currently threatened by the following:

- a lack of hollow-bearing trees and logs that provide shelter, nest sites and food resources, due to previous land uses or illegal activities such as felling trees and collecting fallen timber for firewood (see Section 4.5)
- the presence of introduced plant species, particularly tiger pear, which can cause injury to wildlife, most notably koalas (see Section 4.1)
- the presence of foxes (*Vulpes vulpes*), goats (*Capra hircus*), pigs (*Sus scrofa*) and cats (*Felis catus*) (see Section 4.1)
- disturbance to roosting eastern cave bats in Boonalla Cave which, when considered in conjunction with the risk to visitor safety (see Section 3.2), increases the importance of ensuring that unauthorised access to the cave does not occur
- inappropriate fire regimes, which can impact habitat and influence the distribution and abundance of animals in the park (see Section 4.2)
- there are no recent records for apex native predators, such as the spotted-tailed quoll and barking owl.

Desired outcomes

- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened animals are protected and maintained.
- Structural diversity and habitat values are restored in degraded areas.

Management response

- 3.4.1 Implement relevant strategies in line with the *Biodiversity Conservation Program* for threatened species and populations present in the park.
- 3.4.2 Conduct or encourage fauna surveys targeting threatened species, in particular apex predators such as spotted-tail quoll and barking owl.

- 3.4.3 If unauthorised access to the cave is identified, consider further strategies to prevent access by visitors but continue to accommodate the movement requirements of bats.

3.5 Shared cultural heritage

History has taken place across the landscape. This includes the history of the first Australians – Aboriginal people – and our shared history since European settlement. 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 NSW parks and reserves.

Heritage places and landscapes are made up of living stories as well as connections to the past. They may include natural resources, objects, customs and traditions that individuals and communities have inherited and wish to conserve for current and future generations.

The park includes part of the former Burburgate and Tulcumba pastoral runs, which were established in the 1830s. Stock was grazed in the forest for many years from about 1840 by Mr John Larnach, possibly the first European squatter in the area. In 1848 the first lease of Crown land was granted. The lease was for 71,600 acres (28,975 hectares) and was known as Tulcumba Station. The area was later declared a state forest and by 1920 became known as Kelvin State Forest. Timber harvesting, mainly for cypress pine and ironbark, was the dominant land use from the 1920s until 2005, although rough grazing continued.

Evidence of past land use in the park includes log dump areas, tree stumps, loading ramps, a dam and a network of old logging trails and snigging tracks. An old timber rail fence is located in the middle of the park, on the western side of Mountain Forest Road. The remaining structure is at least 50 metres long and heads in an east–west direction. It is believed the fence is over 100 years old and was located across the boundary of the former Tulcumba and Burburgate pastoral runs. Construction of these types of fences declined after the rabbit plague of the 1890s and the fence is one of only two such fences recorded in New South Wales (High Ground Consulting 2013).

Other items that have been assessed for historical significance include remains of a post and rail fence from 1894, a marked survey tree blazed as part of land surveys undertaken between 1906 and 1910, Tulcumba Trigonometric Station established between 1913 and 1923, and a pit most likely associated with more recent forestry activities.

Just outside the park on a neighbouring property are at least three old graves. Only one is legible: 'Ursula Sands, 1 year old, died 1909'. Further research into the history of these graves may provide additional information regarding the previous use of the park and surrounding lands.

Issues

- Currently, there is little documentation regarding the historic cultural values or historic use of the park. Other heritage sites may be revealed through further surveys.
- Conservation management actions may need to be identified and implemented to prevent deterioration of any significant historic cultural values.

Desired outcomes

- Negative impacts on historic heritage values are minimised.
- Understanding of the historic cultural values of the park is improved.
- Significant historic features are appropriately conserved and managed.

Management response

- 3.5.1 Record and assess historic sites and manage them in accordance with their assessed level of significance.
- 3.5.2 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact historic sites and places.
- 3.5.3 Encourage further research into the historic heritage values and early European settlement of the park.
- 3.5.4 Facilitate the documentation of oral histories to define contemporary Aboriginal connections.

3.6 Visitor use

NPWS parks and reserves provide a range of opportunities for recreation and tourism including opportunities for relaxation and renewal as well as appropriate active pursuits. Visitor opportunities provided in the natural and undeveloped settings afforded by the parks system are mostly those at the low-key end of the spectrum. NPWS aims to ensure that visitors enjoy their experience and appreciate the parks while park values are conserved and protected.

The park is located approximately 20 kilometres north-west of Gunnedah and lies within the New England North West Tourism Region. The population of the Gunnedah Shire has increased steadily by approximately 5% since 2008 and was around 12,600 people in 2012 (ABS 2014). The park provides opportunities for visitation in a natural setting. The area is well known for its high diversity of woodland birds, bringing in birdwatching groups from as far away as Sydney, but overall the park receives very little visitation.

Suitable recreational uses of the park are self-reliant, nature-based activities such as bushwalking, birdwatching, picnicking, nature appreciation and cycling.

Visitor access

The park is accessible via Boonalla Road off Kelvin Road, 20 kilometres north of Gunnedah. The road to the park and to Boonalla Day Use Area is suitable for two-wheel-drive vehicles during dry weather. Some roads beyond this point may only be suitable for four-wheel-drive vehicles, depending on conditions. All roads are inaccessible after significant rain.

Within the park, vehicle use has been traditionally associated with vandalism and other unauthorised activities that impact park values. In 2009 a vehicle-proof gate was installed and locked at the entrance to the park to reduce the high level of illegal activities that were occurring, such as firewood collection, pig hunting, vandalism and bird trapping (see Section 4.5). The Boonalla Aboriginal Area Joint Management Committee was particularly concerned about the risk of vandalism to cultural sites and wanted to undertake a number of cultural site surveys to build knowledge of the assets located in the park and determine the risk of vandalism, prior to reopening the park to vehicles.

After reviewing the results of these surveys, the Boonalla Aboriginal Area Joint Management Committee and NPWS agree that vehicles will be permitted to use the park roads north of the Boonalla Day Use Area, which includes Northern Forest Road, Eastern Forest Road and Cave Road (see Figure 1). The main purpose of this vehicle access is to provide opportunities for a wider section of the community to access the Boonalla Cave. However, use of these roads will be monitored and if there is unacceptable use then a controlled access arrangement will be implemented (hence the gate on Eastern Forest Road to the north of the day use area, Figure 1).

Visitor facilities and use

The Boonalla Day Use Area has been developed in the eastern side of the park, on Eastern Forest Road. The facilities provided include an information shelter, a shelter with a gas barbecue and tables, a toilet, rainwater tank and car park for general visitor use as well as a fire ring for approved cultural activities only. The fire ring is lidded and closed when not being used for cultural activities.

These facilities were established in consultation with the Boonalla Aboriginal Area Joint Management Committee with the intent of providing opportunities to share local Aboriginal culture with visitors. It is hoped that sharing cultural information in such a scenic setting will develop respect and appreciation of Aboriginal cultural values. This, in turn, will assist in the protection of natural and cultural heritage, promote support for conservation and increase the enjoyment and satisfaction of visitors.

Opportunities for visitor use of the park will be concentrated in the northern half of the park, focusing on the Boonalla Day Use Area and Boonalla Cave Walk (see below). It is anticipated that visitation will remain relatively low.

Bushwalking, cycling and horse riding

In addition to the park roads and management trails, the Boonalla Cave Walking Track provides visitors with a great bushwalking opportunity. This short walking track allows visitors to experience an extensive cave located just below an escarpment in the north of the park (see Figure 1). The cave holds a strong connection to the local Gamilaroi People, having been occupied for at least 4000 years. The return journey is approximately 850 metres from the car park, with a steep rocky incline to some spectacular views over the park and neighbouring lands. Due to the risk of roof collapse and disturbance of the threatened eastern cave bat, visitors will not be permitted to proceed beyond the cave mouth (see Sections 3.2 and 3.4).

Cycling is permitted on park roads and designated management trails where it will not degrade natural or cultural heritage values; namely Tydd Forest Trail and the section of Mountain Forest Trail north of its intersection with Tydd Forest Trail (see Figure 1). These trails are appropriate for cycling because they have suitable visibility, width, surface condition and gradient and are not considered likely to impact sites of significance. The trails are also maintained for management purposes and there is minimal likelihood of conflicts with other trail users.

The cycling and walking opportunities provided on park roads (i.e. north of the park entrance gate), total over 15 kilometres. The flatter areas are on Eastern Forest Road, past the visitor facilities and up to the northern boundary, and are suitable for less experienced riders and families. A more challenging experience is on the longer and steeper Northern Forest Road and Cave Road (see Figure 1).

The park has little history of horse riding and the Boonalla Aboriginal Area Joint Management Committee has requested that this activity is not permitted in Boonalla Aboriginal Area.

Camping

Camping in the park for cultural purposes or education will be allowed by consent. Opportunities for camping (and cabin accommodation) in a natural setting are available to the north of the park at Mount Kaputar National Park. To the east, approximately 20 kilometres from the park, is Lake Keepit Holiday and Recreation Park, which also provides for camping, boating, fishing and other water-related recreational activities.

Group activities

Group activities can provide opportunities for people who would not otherwise be able to experience the park and can promote environmental and cultural understanding and support for conservation. Large groups can, however, have an environmental impact and can restrict opportunities for independent visitors.

The park has been used as a training area for Gunnedah students studying Indigenous land management as part of a cultural site survey conducted in 2008. The Aboriginal community has a strong desire to use this area for future educational purposes and to encourage secondary and primary field classes to be conducted in the park. The presence of two threatened ecological communities, a maternity roost site for eastern cave bats and artefact sites dating to greater than 4000 years have high value for educational and research purposes.

Communication with neighbours, community groups and other agencies regarding the values of the park and proposed conservation programs will help raise public awareness of the importance of the park and encourage cooperation regarding park management programs.

Non-commercial, large-scale organised group activities may require consent under the National Parks and Wildlife Regulation. Organised group activities for competitions and activities of a commercial nature require licensing under the National Parks and Wildlife Act or Regulation. All activities must be consistent with the park's management principles and be compatible with the park's natural and cultural heritage values. Applications will be assessed in accordance with relevant NPWS policies and procedures.

Issues

- Community use of the park will increase support for the park, however, this use must be balanced with any potential impacts on cultural heritage and biological values and neighbours.
- There are continuing issues with illegal or otherwise inappropriate activities occurring in the park (see Section 4.5).

Desired outcomes

- Community understanding and appreciation of the conservation values of the park minimises unauthorised activities and maximises conservation outcomes.
- Visitor use is appropriate and ecologically sustainable.
- Visitor opportunities encourage appreciation and awareness of the park's values and their conservation.
- Visitor opportunities allow for increased accessibility, visitor safety and amenity while protecting fragile environments.

Management response

- 3.6.1 Maintain the Boonalla Cave Walk track to Australian Standard Grade 4 (Australian Standards 2001).
- 3.6.2 Install interpretive, directional and regulatory signage within the park, with the highest priority being regulatory signage at Boonalla Cave.
- 3.6.3 Maintain the Boonalla Day Use Area. No camping or wood fires are permitted, except for cultural purposes and with consent from NPWS and the Boonalla Aboriginal Area Joint Management Committee. No additional facilities will be constructed.

- 3.6.4 Public vehicle access will be permitted on park roads north of the entrance gate (see Figure 1). Use of the park roads will be monitored, and a controlled access arrangement implemented if needed.
- 3.6.5 Cycling is permitted on all park roads and Tydd Forest Trail and the northern section of Mountain Forest Trail (from its intersection with Tydd Forest Trail). The impacts of cycling will be monitored and areas showing signs of unacceptable damage may be permanently or temporarily closed to cycling.
- 3.6.6 Horse riding is not permitted in the park.

3.7 Interpretation of park values

Information provision assists the protection of natural and cultural heritage, promotes support for conservation, and increases the enjoyment and satisfaction of visitors. There is a strong desire by the Boonalla Aboriginal Joint Management Committee to host events such as culture camps, field days and other activities designed to allow the celebration, sharing and development of cultural knowledge within the community. Currently, options are being considered for guided interpretation of the site during periods of peak visitation or for special interest groups focusing on Aboriginal culture, ecological and geological themes.

NPWS will also facilitate, where appropriate, school and community groups accessing the park and support educational use of the natural and cultural values of the park.

NPWS intends to upgrade the interpretation signage at the Boonalla Cave entrance to create broader awareness of the significance of the site.

Issues

- Potential exists for further interpretation of the park's values.
- Community use of the park will increase support for the park, however, this use must be balanced with any potential impacts on cultural heritage and biological values and neighbours.
- There are continuing issues with illegal or otherwise inappropriate activities occurring in the park (see Section 4.5).

Desired outcomes

- A range of visitor experiences is available that complements opportunities available off-park.
- Visitors are aware of and appreciate the park's values.
- Group activities enhance visitors' understanding and appreciation of the natural and cultural heritage values of the park.
- Aboriginal culture and values are promoted and opportunities for Aboriginal people to access Country are provided.

Management response

- 3.7.1 Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.
- 3.7.2 Support educational use of the park by schools, community groups and individuals.

4. Threats

4.1 Pests

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

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

NPWS prepares regional pest management strategies that 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 3.3 and 3.4).

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. Pest species recorded in the park are listed in Table 4.

Table 4 Weeds and pest animals recorded within the park

Common name	Scientific name	Distribution and impact on park values
Weeds		
Prickly pear	<i>Opuntia monacantha</i> ¹	Scattered infestation throughout the park. Plants are long-lived, can persist for several decades and restrict access for recreation, management, and movement by native plants, particularly smaller shrubs and ground cover. Plants are known to colonise bare ground in Semi-evergreen Vine Thicket.
Tiger pear	<i>Opuntia aurantiaca</i> ¹	Scattered infestation throughout the park. Widely dispersed by stock, native animals and flood water. Known invader of lowland grassland and grassy woodland, including White Box – Yellow Box – Blakely’s Red Gum Woodland threatened ecological community.
Velvet tree pear	<i>Opuntia tomentosa</i> ¹	Isolated infestation restricted to a small geographic area of the park. Plants are known to colonise bare ground in Semi-evergreen Vine Thicket.
Pest animals		
European red fox	<i>Vulpes vulpes</i> ^{2,3,4}	Widespread populations throughout the park. Predation of native fauna, particularly small- to medium-sized ground-dwelling and semi-arboreal mammals, and ground-nesting birds. Note: predation

Common name	Scientific name	Distribution and impact on park values
		by the red fox may contribute to the absence of small mammals in native animal surveys.
Pig	<i>Sus scrofa</i> ^{2,3,4}	Isolated populations restricted to a small geographic area of the park. Soil disturbance to habitats and increased erosion; reduced water quality in creeks and pools; predators of native birds, reptiles (i.e. border thick-tailed gecko), frogs and soil invertebrates. They also compete with native animals for food resources and transmit disease.
Cat	<i>Felis catus</i> ^{2,4}	Scattered populations throughout the park. Predation of small mammals and birds, reptiles (i.e. border thick-tailed gecko), amphibians and invertebrates.
Goat	<i>Capra hircus</i> ^{2,4}	Scattered populations throughout the park. Habitat degradation; decreased soil stability and subsequent erosion; competition with native animals for food, water and shelter. Known impacts on the border thick-tailed gecko and the large-eared pied bat.

Notes:

- ¹ State-level priority weeds (North West LLS 2017).
- ² Key threatening process under Environment Protection and Biodiversity Conservation Act.
- ³ Declared pest under the Local Land Services Act 2013.
- ⁴ Key threatening process under the Biodiversity Conservation Act.

The *Biosecurity Act 2015* and regulations provide specific legal requirements for the prevention, eradication or containment of state-level priority weeds. These requirements apply equally to both public and privately owned land. A regional strategic weed management plan prepared under the Biosecurity Act identifies those pest plants that are being prioritised for management action, investment and compliance effort within the North West Local Land Services (North West LLS 2017). These priorities will be implemented via the relevant NPWS regional pest management strategy.

Weeds

The invasive nature of weeds, their widespread occurrence in the broader landscape and the fact they compete with native species requires their continued monitoring and management. Although weeds are found generally throughout the park, the main weed infestations tend to be associated with areas that have been previously cleared and grazed or areas maintained for access (see Table 4).

A number of generalist weed species occur in the majority of vegetation communities. Weed species may compete with native vegetation for resources, alter vegetation community structure, provide refuge for pest animals, restrict access for recreation and management purposes, and may restrict the movement of native animals. Tiger pear, for example, can have significant negative impacts on animal populations, including the koala, as the spines penetrate flesh, hindering movement and decreasing the ability of individuals to evade predators or climb trees to access available food sources.

Feral pigs

The impact of feral pigs on conservation values is substantial because they forage, wallow and dig in wetland areas, and cause major disturbance and damage to soils, roots, sensitive ground plants and wetland environments. Areas disturbed by feral pigs are at risk from subsequent weed invasion and soil erosion. Feral pigs are declared pests in New South Wales. They impact a number of native species through predation or aggressive competition. They are also a potential host of exotic diseases.

Predation, habitat degradation, competition and disease transmission by feral pigs is listed as a key threatening process under both the Biodiversity Conservation Act and the Environment Protection and Biodiversity Conservation Act (NSW SC 2004b; TSSC 2001b). A threat abatement plan has been prepared under the Environment Protection and Biodiversity Conservation Act, which sets out a national framework to guide coordinated actions to address this threatening process (DEH 2005).

Feral pigs impact farming operations by eating newborn lambs, reducing crop yields, damaging fences, fouling water sources and competing with stock for feed. The most critical factors affecting their distribution are the need for daily water and dense shelter. Provided these requirements are met, the density of populations largely depends on the availability of preferred foods.

Pig populations within the park are influenced by seasonal conditions. In wet periods they can be quite active and widespread, and in dry times impacts are less evident. A camera placed at the cave entrance for some months at the end of 2010 picked up regular visits by pigs. As the area around the cave is regarded as Semi-evergreen Vine Thicket threatened ecological community, such regular activity over time may pose a threat to the community's structural diversity through disturbance of soil and roots and trampling of sensitive ground plants.

Feral pig control in the park is opportunistic, favouring cooperative baiting programs when numbers are high and resources are available. Where possible, control programs are coordinated and implemented in collaboration with neighbours, the relevant local land management agency and other agencies. Aerial shooting, ground shooting, baiting and/or trapping may be used.

Feral goats

The impact of feral goats on conservation values is substantial because they graze native plants, compete with native animals for shelter, spread weeds, trample vegetation and damage Aboriginal heritage sites. The congregation of goats in favoured locations can result in erosion and impacts on amenity.

Competition and habitat degradation by feral goats has been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2004a). Competition and land degradation by feral goats is also listed as a key threatening process under the Environment Protection and Biodiversity Conservation Act (DoE 2009) and a threat abatement plan has been prepared (DEWHA 2008).

Feral goat control is identified as an activity to assist the survival of the border thick-tailed gecko (OEH 2017b). Because of factors such as remoteness, limited accessibility due to steep terrain and abundance of natural (though ephemeral) watering points, the most efficient and effective means of feral goat control is aerial culling. However, trapping, ground shooting and mustering can also be used. Control is undertaken with the aim of minimising the impact of feral goats on natural and cultural values across the park and neighbouring properties.

Red foxes

Foxes suppress native animal populations, particularly medium-sized mammals, ground-nesting birds and freshwater turtles. They have also been implicated in the spread of a number of weed species such as blackberry (*Rubus fruticosus* agg.). Because 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, see OEH 2011b) with the primary objective of establishing long-term control programs to protect priority threatened animal species and populations. Foxes are being controlled at priority sites across New South Wales to protect biodiversity.

Although the park is not identified as a priority site in the Fox TAP, fox control is undertaken to protect the significant values of the park such as the border thick-tailed gecko. This involves implementing two to three control programs a year between March and September, targeting foxes during the peak dispersal period (autumn), when nutritional stresses are greatest (winter) and when common non-target species such as goannas are least active (OEH 2012).

Fox control programs are implemented in conjunction with local groups and, to protect neighbouring livestock, will be timed to coincide with cooperative efforts. Where possible, control programs will be coordinated and implemented in collaboration with neighbours, the relevant local land management agency and other agencies. In addition, control programs will be implemented using a variety of bait types and a combination of control techniques including baiting and ground shooting (OEH 2012).

Cats

Feral cats are found in nearly all habitats across Australia. They are known to have impacts on native species in modified, fragmented environments such as previously logged areas, and where alternative prey such as rabbits or mice fluctuate in abundance. This has contributed to the disappearance of many ground-dwelling birds, small mammals, reptiles and amphibians.

Management programs for feral cats are difficult due to the lack of effective and humane broadscale control techniques and the presence of domestic cats in many locations. Predation by feral cats is listed as a key threatening process under the Environment Protection and Biodiversity Conservation Act (DoE 2009) and the Biodiversity Conservation Act (NSW SC 2000c). The distribution of cats and their true ecological impact on the park is unknown. Generally speaking, feral cats are shy of traps, don't take buried baits, shy of humans and mostly nocturnal, making the implementation of control programs more difficult than other invasive species. Control techniques are therefore mainly opportunistic when targeting other pest species through aerial or ground shooting programs.

Desired outcomes

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of weeds and pest animals on park values are minimised.
- Pest control programs are undertaken where appropriate in consultation with neighbours, preferably as part of coordinated group efforts.

Management response

- 4.1.1 Minimise impacts of pest species on native plants and animals, in particular where threatened species are impacted.
- 4.1.2 Implement control programs as outlined in pest management strategies relevant to the park.
- 4.1.3 Participate in cooperative weed and pest control programs with park neighbours, the relevant local land management agencies and local council.
- 4.1.4 Develop a method to deter goats from entering the cave.

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 use of fire as a management tool within the park is important in providing for the protection of life and property and for biodiversity conservation. Fire regimes will seek to create a spatial and temporal mosaic of burnt and unburnt areas within each of the vegetation communities, as guided by best available information. Wherever possible, old-growth trees containing hollows and logs on the ground will be protected from fire as they are used for habitat by many native animals.

Aboriginal people are known to have been in the area that is now the park for at least 4000 years. Traditional fire practices of the Gamilaroi People are not well understood, however it is likely that current burning regimes differ significantly from traditional burning practices. The effect of this on plant and animal communities is unknown. More recently, local people have advised that fires within the park have been rare and nobody can remember a fire for nearly 100 years prior to a fire started by lightning strike in November 2009.

This fire, after initially being confined to a small area on private property, spread into the park. Direct attack was used to contain it, however, severe weather conditions caused spotting, requiring a broader containment strategy involving back-burning. In total, 2400 hectares were burnt, of which approximately 1250 hectares were within the park, comprising 54% of the park.

The subsequent mosaic patchwork of burnt and unburnt country created by fire, followed by saturating rains has seen a rapid response of regrowth and colonisation of species.

A number of threatened species, habitats and plant communities within the park have been identified as being at risk from inappropriate fire regimes. The threatened Semi-evergreen Vine Thicket, in particular, should be excluded from prescribed burning activities. Fire can also contribute to the loss of hollow-bearing trees and removal of dead wood and dead trees, which has also been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2003). Hence, fire should also be carefully managed to limit its impacts on these features.

Fire frequencies consistent with the maintenance of existing species can be defined by community-based fire interval guidelines. These guidelines only address fire frequency.

Variability in all aspects of the fire regime (frequency, intensity, season and extent) is important for maintaining greatest species diversity.

White Box – Ironbark Woodlands make up most of the vegetation in the park, from the eastern boundary to the base of the escarpment. This vegetation community has a low to moderate overall fuel hazard. It is anticipated the potential rate of spread would be low to moderate. Up the escarpment and on top of the ridge is mostly made up of White Cypress Pine – Ironbark Woodlands, with scattered areas of rocky outcrops and valley forests. In general, the overall fuel hazard is low, although the steep terrain and geology have a large influence. Going down the slope, fire spread will be slow. However, in severe weather conditions uphill runs and spotting may occur, as seen in the 2009 wildfire event (OEH 2011a).

A fire management strategy that defines the fire management approach for the park has been prepared (OEH 2011a). The *Boonalla Aboriginal Area Fire Management Strategy* outlines the recent fire history of the park, key assets within and adjoining the park including sites of natural and cultural heritage value, fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the vegetation communities of the park.

NPWS maintains cooperative arrangements with the Rural Fire Service and is actively involved with the Liverpool Plains Bush Fire Management Committee. Cooperative arrangements include fire planning, fuel management and information sharing.

Assets that are at risk of damage from fire and fire suppression works in the park include park infrastructure such as the visitor use area, boundary fences and interpretive signage. Cultural heritage sites such as the historic wooden fence and various Aboriginal artefacts are also sensitive to fire. Sites such as stone artefacts, scarred trees and tools can be threatened directly by fire and through the construction of fire trails and use of machinery such as dozers, tractors, motor vehicles and hand tools.

Issues

- Threatened ecological communities require different fire management than other communities and are not separately mapped or identified in fire management strategies. Semi-evergreen Vine Thicket requires fire exclusion with a preferred fire interval adjacent to its locality only once in every seven years. Box–Gum Woodlands, on the other hand, can benefit from higher frequency fires at lower intensity than currently identified within thresholds.
- Park infrastructure and cultural heritage sites in the park are vulnerable to fire.
- Neighbouring assets are vulnerable to fire.
- Fire is essential to the survival of some species and inappropriate fire regimes can lead to the loss of particular plant and animal species.

Desired outcomes

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

Management response

- 4.2.1 Implement the fire management strategy for the park, including the management of wildfire, and the maintenance of fire breaks, park roads, management trails and water points.
- 4.2.2 Continue to be involved in the local bush fire management committee and maintain cooperative arrangements with local Rural Fire Service brigades and fire control officers, other fire authorities and surrounding landowners in regard to fuel management and fire suppression.
- 4.2.3 Manage the park to protect biodiversity and cultural heritage sites in accordance with identified fire regimes and thresholds. This includes, where possible, excluding fire from Semi-evergreen Vine Thicket.
- 4.2.4 Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.

4.3 Climate change

Human-induced climate change is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000a) and the associated loss of habitat is listed under the Environment Protection and Biodiversity Conservation Act (TSSC 2001a). Projections of changes to the climate of New England North West Region to the year 2050 include a hotter climate, more frequent and intense bushfires and more rain in winter (DECCW 2010). Boonalla Aboriginal Area is located within an area of New South Wales where projected temperatures will be 2.2°C hotter by 2070 (OEH 2014).

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 2020–2039 are described as ‘near future’ (or as 2030); and projections for 2060–2079 are described as ‘far future’ (or as 2070). The snapshot shown in Table 5 is for the New England North West Region (OEH 2014).

Table 5 New England North West 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 1.9–2.7°C
Minimum temperatures are projected to increase in the near future by 0.5–1.0 °C	Minimum temperatures are projected to increase in the far future by 1.6–2.7°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 over most of the region in winter	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	Severe fire weather days are projected to increase in summer and spring

Source: OEH 2014.

The projected increases in temperature, number of hot days and severe fire weather days (OEH 2014) are likely to influence bushfire frequency and intensity across the New England North West Region and result in an earlier start to the bushfire season (DECCW 2010).

Climate change may significantly affect biodiversity by changing the size of populations and the distribution of species and altering the geographical extent and species composition of habitats and ecosystems. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

The potential impact of climate change on the park is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from introduced animals.

NPWS will continue to manage threats to park values from climate change in a collaborative way with other land managers and with park neighbours. Furthermore, programs to reduce the pressures arising from other threats, such as invasive species, bushfires and pollution, will also help reduce the severity of the effects of climate change.

Desired outcomes

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

Management response

- 4.3.1 Continue existing fire, pest and weed management programs to better enable particular ecosystems in the park to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.

4.4 Isolation and fragmentation

The area surrounding the park has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat (Cunningham et al. 1992; Keith 2004). The park is relatively isolated and subject to edge effects, making it more vulnerable to disturbances.

Cooperative arrangements with neighbours are important for the management of access, fire, weeds and pest animals. Additionally, long-term conservation of biodiversity depends on the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands.

Desired outcome

- The negative impacts of isolation and fragmentation are minimised.

Management response

- 4.4.1 Maintain cooperative arrangements with nearby landholders regarding access, fire and pest species management.

4.5 Inappropriate visitor activities

Visitation to the park needs to be carefully managed because visitors can negatively impact the natural and cultural values of the park and disturb neighbouring landholders. The nature and severity of potential visitor impacts depend on the type, frequency and interaction of activities, visitor numbers and behaviour, site capacity and durability and the sensitivity of the site's natural and cultural values.

In the past, visitor use of the park has been associated with damage to park values and this prompted the installation of the locked gate at the entry to the park in 2009. Before locking the gate, surveillance cameras had shown a significant number of vehicles entering the park, with most involved in inappropriate activities such as firewood collection, tree felling, pig hunting, vandalism and rubbish dumping. There have been reports and evidence of unauthorised shooting within the park.

There is extensive graffiti damage to Boonalla Cave. The cave is therefore monitored by NPWS staff and controlled access may be implemented if further damage occurs (see Section 3.6).

Collecting firewood can result in the loss of woody debris and fallen logs, reducing or eliminating the availability of this material as habitat. The removal of woody debris, dead wood and dead trees has been identified as having a significant negative impact on habitat availability and ecosystem functioning and is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2003).

Desired outcomes

- Negative impacts of visitors and unauthorised activities on park values are minimised.

Management response

- 4.5.1 Address unauthorised activities by using day-to-day enforcement and regulatory signage where appropriate.
- 4.5.2 Use security cameras as required to monitor activity in the park.
- 4.5.3 Document the existing graffiti inside the cave and remove it where possible, subject to relevant approvals.

5. Management operations and other uses

5.1 Management facilities and operations

As described in Section 3.6, the park roads (available for public vehicle use) are either two-wheel drive or four-wheel drive and are in the northern part of the park. Trails in the southern half of the park are management trails (see Figure 1). Use of management trails is restricted to NPWS vehicles for purposes such as fire and pest management, and to other users authorised by NPWS. Cycling is only permitted on designated management trails, but all trails may be used for bushwalking (see Section 3.6).

Other than boundary fences and a number of gates (see Figure 1), there are no other management facilities in the park.

Public and management access to the park is from Kelvin Road, then via Boonalla Road (see Figure 1).

Issues

- A network of roads and trails exists to facilitate access for visitation and management activities.
- There is occasional unauthorised vehicle access to management trails in the park.
- Soil erosion is a minor issue in the park and generally associated with the road network and gully crossings. Erosion can cause localised damage to roads and trails during high rainfall events, displacing soils and creating a bogging hazard (see Section 3.2).

Desired outcomes

- Management facilities and operations adequately serve management needs and have minimal impact.

Management response

- 5.1.1 Undertake all works in a manner that minimises erosion and water pollution. Monitor road and trail network condition. Maintain all park roads and management trails as shown on Figure 1 to an appropriate standard and investigate and implement options for the installation of erosion mitigation measures along sections of roads which pose a risk to soil stability.

5.2 Non-NPWS uses/operations

Telecommunication facilities

Telecommunication facilities located at the top of the Tulcumba Range are not within the park. Parts of the access trail to the repeater tower lie within the park (see 'Unnamed Trail', Figure 1). However, access to the tower is maintained on an as-needs basis by the adjacent landholder. The track is unsuitable for public access. This infrastructure is routinely checked.

Stock incursions

Impacts from neighbouring lands include the straying of farm animals. These regularly stray into the park from neighbouring properties as a result of poor boundary fence condition. Boundary fences vary from new to non-existent depending upon terrain. These issues are managed cooperatively with park neighbours.

Issues

- Access through a small section of the park is required to access a radio transmission tower located on neighbouring land. There are no other practical alternative access trails.
- Grazing of areas by livestock may negatively impact natural and cultural values.
- Sections of the park boundary are not fenced to a stock-proof standard. This is difficult to achieve due to the solid rock formations along the northern and southern boundaries and along the western boundary that goes along the top of the range. A give and take alignment for the boundary fence may be appropriate.

Desired outcomes

- The impacts of grazing on the natural and cultural values of the park are minimised.
- Surrounding land use has minimal impact on park and ecosystem values.

Management response

- 5.2.1 Allow access to the Tulcumba Range radio transmission tower under an agreement with adjoining landholders.
- 5.2.2 Provide assistance to neighbours to construct and maintain stock-proof boundary fences in line with NPWS policy.

6. Implementation

This plan of management establishes a scheme of operations for the park. Implementation of this plan will be undertaken within the NPWS annual operations program.

Identified activities for implementation are listed in Table 6. Relative priorities are allocated against each activity as follows:

- **High priority** activities are imperative to achieve the 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 6 List of management responses

	Management response	Priority*
Aboriginal heritage		
3.1.1	Continue to consult and involve the Boonalla Aboriginal Area Joint Management Committee in the management of their Country, including the management of Aboriginal sites and places and cultural and natural values.	High
3.1.2	In consultation with the Boonalla Aboriginal Area Joint Management Committee, provide opportunities such as culture camps, field days and other activities designed to allow the celebration, sharing and development of cultural knowledge within the community.	Medium
3.1.3	Undertake a cultural assessment prior to all works with the potential to impact Aboriginal sites or values.	High
3.1.4	Encourage further research into the Aboriginal values of the park in cooperation with the Boonalla Aboriginal Area Joint Management Committee.	Medium
3.1.5	Facilitate repatriation requests in accordance with NPWS policy. Ensure any reburial sites are maintained and that all management activities within this area are conducted in consultation with the Boonalla Aboriginal Area Joint Management Committee.	Medium
3.1.6	Permit camping and the use of wood fires for the purposes of cultural renewal or education with consent from NPWS and agreement of the Boonalla Aboriginal Area Joint Management Committee.	Medium
3.1.7	Use of cultural resources is permissible within the park but must be approved in accordance with the provisions of the National Parks and Wildlife Act.	Medium
Geology		
3.2.1	Encourage research into the natural values of the park to inform future management.	High
3.2.2	Undertake remedial action where runoff is causing gully erosion, sediment displacement, or degradation of park roads or management trails.	High

Management response		Priority*
3.2.3	Install signage at Boonalla Cave instructing visitors not to proceed beyond the mouth of the cave. If unauthorised access beyond the mouth of the cave is identified, assessment and implementation of further management strategies preventing access by visitors will be undertaken.	High
Native plants		
3.3.1	Implement relevant strategies in line with the <i>Biodiversity Conservation Program</i> for threatened ecological communities present in the park, and for any threatened plant species or populations should they be found.	Ongoing
3.3.2	Restore structural diversity to woodland ecosystems and preserve old-growth elements by managing fire and supplementing natural regeneration with weed control, site preparation and revegetation programs where necessary.	High
3.3.3	Investigate the presence of threatened plant species where suitable habitat is identified, including tree ooline and finger panic grass.	Low
3.3.4	Map the threatened ecological communities in the park.	Medium
Native animals		
3.4.1	Implement relevant strategies in line with the <i>Biodiversity Conservation Program</i> for threatened species and populations present in the park.	Ongoing
3.4.2	Conduct or encourage fauna surveys targeting threatened species, in particular apex predators such as spotted-tail quoll and barking owl.	Medium
3.4.3	If unauthorised access to the cave is identified, consider further strategies to prevent access by visitors but continue to accommodate the movement requirements of bats.	High
Historic heritage		
3.5.1	Record and assess historic sites and manage them in accordance with their assessed level of significance.	Medium
3.5.2	Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact historic sites and places.	High
3.5.3	Encourage further research into the historic heritage values and early European settlement of the park.	Low
3.5.4	Facilitate the documentation of oral histories to define contemporary Aboriginal connections.	Low
Visitor use		
3.6.1	Maintain the Boonalla Cave Walk track to Australian Standard Grade 4 (Australian Standards 2001).	High
3.6.2	Install interpretive, directional and regulatory signage within the park, with the highest priority being regulatory signage at Boonalla Cave.	High
3.6.3	Maintain the Boonalla Day Use Area. No camping or wood fires are permitted, except for cultural purposes and with consent from NPWS and the Boonalla Aboriginal Area Joint Management Committee. No additional facilities will be constructed.	Medium
3.6.4	Public vehicle access will be permitted on park roads north of the entrance gate (see Figure 1). Use of the park roads will be monitored, and a controlled access arrangement implemented if needed.	Ongoing
3.6.5	Cycling is permitted on all park roads and Tydd Forest Trail and the northern section of Mountain Forest Trail (from its intersection with Tydd Forest Trail). The impacts of cycling will be monitored and areas showing signs of unacceptable damage may be permanently or temporarily closed to cycling.	Ongoing

Management response		Priority*
3.6.6	Horse riding is not permitted in the park.	Ongoing
Interpretation of park values		
3.7.1	Involve the local Aboriginal community in development of material and programs for interpretation of Aboriginal culture.	Medium
3.7.2	Support educational use of the park by schools, community groups and individuals.	Medium
Pests		
4.1.1	Minimise impacts of pest species on native plants and animals, in particular where threatened species are impacted.	Ongoing
4.1.2	Implement control programs as outlined in pest management strategies relevant to the park.	High
4.1.3	Participate in cooperative weed and pest control programs with park neighbours, the relevant local land management agencies and local council.	High
4.1.4	Develop a method to deter goats from entering the cave.	Medium
Fire		
4.2.1	Implement the fire management strategy for the park, including the management of wildfire, and the maintenance of fire breaks, park roads, management trails and water points.	High
4.2.2	Continue to be involved in the local bush fire management committee and maintain cooperative arrangements with local Rural Fire Service brigades and fire control officers, other fire authorities and surrounding landowners in regard to fuel management and fire suppression.	High
4.2.3	Manage the park to protect biodiversity and cultural heritage sites in accordance with identified fire regimes and thresholds. This includes, where possible, excluding fire from Semi-evergreen Vine Thicket.	High
4.2.4	Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.	Medium
Climate change		
4.3.1	Continue existing fire, pest and weed management programs to better enable particular ecosystems in the park to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.	High
Isolation and fragmentation		
4.4.1	Maintain cooperative arrangements with nearby landholders regarding access, fire and pest species management.	Ongoing
Inappropriate visitor activities		
4.5.1	Address unauthorised activities by using day-to-day enforcement and regulatory signage where appropriate.	High
4.5.2	Use security cameras as required to monitor activity in the park.	High
4.5.3	Document the existing graffiti inside the cave and remove it where possible, subject to relevant approvals.	High
Management operations		
5.1.1	Undertake all works in a manner that minimises erosion and water pollution. Monitor road and trail network condition. Maintain all park roads and management trails as shown on Figure 1 to an appropriate standard and	Medium

Management response		Priority*
investigate and implement options for the installation of erosion mitigation measures along sections of roads which pose a risk to soil stability.		
Non-NPWS uses/operations		
5.2.1	Allow access to the Tulcumba Range radio transmission tower under an agreement with adjoining landholders.	Ongoing
5.2.2	Provide assistance to neighbours to construct and maintain stock-proof boundary fences in line with NPWS policy.	Ongoing

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