



Environment,
Climate Change & Water
National Parks & Wildlife Service



Wee Jasper Nature Reserve

Plan of Management



**WEE JASPER NATURE RESERVE
PLAN OF MANAGEMENT**

NSW National Parks and Wildlife Service

Part of the Department of Environment, Climate Change and Water

May 2010

This plan of management was adopted by the Minister for Climate Change and the Environment on 18th May 2010.

Acknowledgments

The NPWS acknowledges that this nature reserve lies within the traditional country of the Wiradjuri people.

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

Cover photograph by David Baxter, NPWS.

For additional information or any inquiries about this reserve or this plan of management, contact the NPWS Queanbeyan Area Office at 6 Rutledge St Queanbeyan NSW 2620 or by telephone on (02) 6299 2929.

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ISBN 978 1 74232 799 0

DECC 2010/492

FOREWORD

Wee Jasper Nature Reserve covers an area of 632.4 hectares south-west of Yass on the Southern Tablelands of NSW.

The reserve conserves four distinct forest ecosystems, and over 60 native fauna species. Six threatened species have been located in or near the reserve. A recent addition to the reserve contains Church Cave, an important maternity site for the threatened bent-wing bat.

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A plan of management is a legal document that outlines how an area will be managed in the years ahead.

A draft plan of management for Wee Jasper Nature Reserve was placed on public exhibition from 11 January until 25 April 2008. The submissions received were carefully considered before adopting the plan.

This plan contains a number of actions to achieve the State Plan priority to “Protect our native vegetation, biodiversity, land, rivers and coastal waterways”, including flora and fauna surveys and the control of introduced plant and animal species which are impacting on habitat values.

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

A handwritten signature in black ink, appearing to read 'Frank Sartor', with a long horizontal stroke extending to the right.

Frank Sartor MP
Minister for Climate Change and the Environment

1. WEE JASPER NATURE RESERVE

1.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Wee Jasper Nature Reserve (referred to as “the reserve” in this plan) is located in the Southern Tablelands of NSW, approximately 27 kilometres south west of Yass. The reserve is located on the western side of the Wee Jasper valley above the confluence of the Goodradigbee and Murrumbidgee Rivers. The Goodradigbee River flows through the Wee Jasper valley and this section of the river forms part of the upper reaches of the Burrinjuck Dam. The nearby Burrinjuck, Oak Creek and Black Andrew Nature Reserves are also located in the catchment of Burrinjuck dam.

The reserve covers 632.4 hectares of the western slopes of the Wee Jasper valley. It was gazetted in 3 stages. The first, comprising 426.2 hectares, was gazetted in 1979. The second portion, of 204.8 hectares which was gazetted in 1986, extended the reserve south to Wee Jasper Creek.

On 31st July 2009 an area of 1.7 hectares was added to the reserve as a result of a land exchange with Yass Valley Council. A section of the reserve that was being encroached on by the Council waste transfer station was exchanged for an area of land located on the Wee Jasper karst system which contains Church Cave, a small cave some 130 metres long with high scientific significance.

Wee Jasper Nature Reserve takes its name from the surrounding district and shares it with Mount Wee Jasper, the village of Wee Jasper, and Wee Jasper Creek, as well as the 1:25000 map sheet that covers the area.

The reserve is located in a largely rural area, administered by Yass Valley City Council, the Murrumbidgee Catchment Management Authority and the South East Livestock Health and Pest Authority. The reserve is within the area of the Tumut-Brungle Local Aboriginal Land Council.

1.2 LANDSCAPE

Natural and cultural heritage and on-going use are strongly inter-related and together form the landscape of an area. Much of the Australian environment has been influenced by past Aboriginal and non-Aboriginal land use practices, and the activities of modern day Australians continue to influence bushland through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

Wee Jasper Nature Reserve protects areas of remnant native open forest in a highly disturbed and fragmented landscape. A number of significant flora and fauna species are known to exist within and around the reserve.

The reserve includes a small but important area of limestone karst, and forms part of a catchment that includes the caves and karst environments of the Wee Jasper Valley.

The geology, landform, climate and plant and animal communities of the area, plus its location, have determined how it has been used by humans. The broader landscape was used by Aboriginal people for its food resources.

The reserve is in close proximity to a number of natural landscape features, such as the junction of the Murrumbidgee and Goodradigbee Rivers, the limestone outcropping known as Cathedral Rock, and caves associated with the limestone in the area, which are of significance to the local Aboriginal community. The Wee Jasper valley has significant social values associated with its location between the Aboriginal Mission at Brungle and the Aboriginal Reserves at Yass, and the access afforded along the valley into the high country of the Brindabella and Snowy Mountains.

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). Section 72AA of the NPW Act lists the matters to be considered in the preparation of a plan of management. The policies arise from the legislative background and internationally accepted principles of park management. They relate to nature conservation, Aboriginal and historic heritage conservation, recreation, commercial use, research and communication.

Other legislation, international agreements and charters may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) requires the assessment and mitigation of the environmental impacts of any works proposed in this plan. The International Union for the Conservation of Nature and Natural Resources (IUCN) *Guidelines for Cave and Karst Protection 1997* is also relevant to the management of the reserve due to its karst and position in the catchment.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, no operations may be undertaken within the park except in accordance with the plan. The plan will also apply to any future additions to Wee Jasper Nature Reserve, including the land acquired but not yet gazetted. Where management strategies or works are proposed for Wee Jasper Nature Reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

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

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

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

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

2.3 MANAGEMENT DIRECTIONS

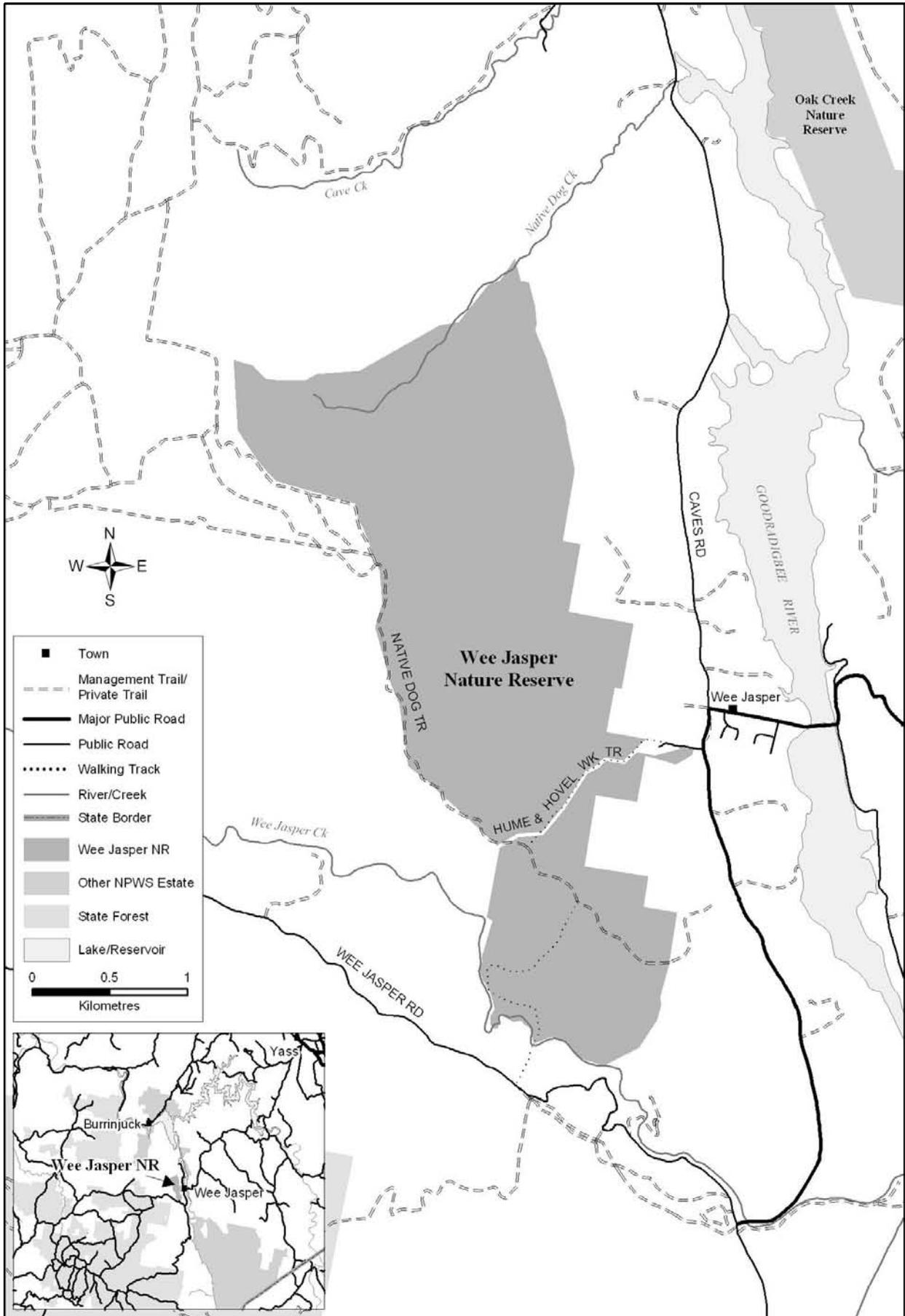
Management of Wee Jasper Nature Reserve will focus on maintaining and enhancing the diversity of the dry sclerophyll forest communities that occur on the South West Slopes and are conserved in the reserve.

Within the reserve these are:

- apple box/Norton's box moist grass forest;
- brittle gum/ broad leaved peppermint forest;
- Norton's box forest; and
- river oak forest.

Management will also focus on protecting the reserve's karst environments, in particular Church Cave and its use as a bat maternity site, and maintaining and enhancing water quality and catchment values within the reserve.

MAP: RESERVE MAP



3. VALUES OF THE RESERVE

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

3.1 LANDFORM, GEOLOGY AND SOILS

The reserve is located on the western side of the Wee Jasper valley. The valley is relatively deeply incised with the valley walls rising very steeply from the valley floor to a maximum elevation of 800m in the reserve. The reserve consists of steep east-facing valley slopes and alluvial flats along Wee Jasper Creek and Native Dog Creek.

The underlying geology of the entire reserve is from the Devonian period and is made up of limestone, shale, siltstone and tuff. Hatchery Creek conglomerate underlies the western side of the Wee Jasper Valley, north of the Wee Jasper Creek. Within the reserve the soils only attain a moderate depth on the limited alluvial flats and drainage lines.

The reserve forms part of the catchment for the Wee Jasper cave and karst system. The limestone seam that contains the cave system extends underneath the northern corner of the reserve and along the eastern boundary.

3.2 NATIVE PLANTS

The South West Slopes bio-region of New South Wales is one of the most highly disturbed and altered landscapes in NSW (Gibbons & Boak, 2002). Given the history of clearing, burning, cropping and grazing in the region, all remaining areas of intact remnant native vegetation are now considered significant when compared to pre-1750 vegetative coverage.

Wee Jasper Nature Reserve conserves 4 distinct forest ecosystems (see Table 1). These range from a very small stand of river she-oak *Casuarina cunninghamiana* forest along Wee Jasper Creek, through to brittle gum *Eucalyptus mannifera* and broad-leaved peppermint *E. dives* forest that dominate the eastern slopes of the reserve. The sheltered south-eastern aspects of the deep gullies support apple box *E. bridgesiana* – Norton's box *E. nortonii* moist forest, with scattered red box *E. polyanthemos*. The westerly aspects of the same folds are timbered by Norton's box – poa grass forest that includes long-leaved box *E. goniocalyx*, white gum *E. rossii* and red stringybark *E. macrorhyncha*.

Soil quality and landform determine the distribution of these communities across the reserve. For example, the better alluvial soils along the creek lines support stands of

river she-oak, while the Norton's box is found on the poorer skeletal soils of the western slopes.

The reserve is important due to its high diversity of native vegetation and low infestations of exotic species.

Table 1: Forest Ecosystems found in Wee Jasper Nature reserve

Description	Lithology and Soils	Environmental Niches
Apple box/Norton's box moist grass forest	Moderate loams derived from granite	On south eastern facing slopes in the southern portion of the reserve
Brittle gum/broad-leaved peppermint poa grass forest	Shallow soils on Devonian metasediments	Moderately exposed eastern slopes
Norton's box poa grass forest	Shallow soils on Devonian metasediments	Western slopes, predominantly in the southern portion of the reserve.
River she-oak forest	Alluvium in third order streams	Along Wee Jasper Creek to the south of the reserve.

Source: EcoGIS 2004

Box-gum woodlands are very important for providing habitat for a variety of native fauna, particularly threatened, rare or declining woodland species such as gliders, parrots, owls and bats. The combination of grazing, fire and other land uses has reduced the grassy ground cover component of this community in the area. Remnant White box-gum woodland is found in areas of the reserve, this community is listed as endangered under the NSW *Threatened Species Conservation Act 1995* (TSC Act).

The reserve protects the habitat of several threatened flora species, including Yass daisy *Ammobium craspedioides*, which is listed as vulnerable under the TSC Act, and Wee Jasper grevillea *Grevillea iaspicula* and formbe peppercress *Lepidium pseudopapillosum*, both listed as endangered under the TSC Act. The rare Australian anchor plant *Discaria pubescens* also exists within the reserve (Briggs & Leigh 1996). Limestone brittle-moss *Orthotrichum cupulatum* has been recorded on limestone in proximity to the reserve. A conservation overview commissioned by the Australian Department of Environment and Water Resources has described this moss as rare with a very restricted range (Scott *et al* 1997).

A Priorities Action Statement (PAS) has been prepared that identifies strategies and actions to promote the recovery of threatened plant species, populations and ecological communities and manage key threatening processes. In addition, more detailed recovery plans may be prepared for threatened species or communities. A recovery plan has been prepared for formbe peppercress (NPWS, 2001).

3.3 NATIVE ANIMALS

A limited fauna survey has been undertaken in this reserve identifying over 60 species. Six species listed as vulnerable under the TSC Act have been identified in or near the reserve, and the reserve contains potential habitat for a number of other threatened

species. Church Cave, which is now included in the reserve, is one of only six known maternity sites for the threatened eastern bent-wing bat *Miniopterus schreibersii oceanensis*.

Threatened fauna that have been identified nearby, and may occur in the reserve, include the brown tree creeper *Climacteris picumnus*, diamond firetail *Stagonopleura guttata*, hooded robin *Melanodryas cucullata*, regent honey eater *Xanthomyza phrygia* and powerful owl *Ninox strenua*.

The reserve also provides potential habitat for the squirrel glider *Petaurus norfolcensis*, brush-tailed phascogale *Phascogale tapoatafa* and nectivorous bird species associated with box communities such as the painted honeyeater *Grantiella picta* and swift parrot *Lathamus discolor*.

Wee Jasper Creek is a permanent watercourse and some of the eastern creek lines flowing out the reserve hold water at all times except during periods of drought. These creeks may provide habitat for the threatened booroolong frog *Litoria booroolongensis*.

The Priorities Action Statement identifies strategies and actions to promote the recovery of threatened animal species, populations and ecological communities and manage key threatening processes and recovery plans may be prepared for threatened fauna species. A draft recovery plan has been prepared for the large forest owls, including the powerful owl (DEC, 2005).

3.4 ABORIGINAL HERITAGE

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

The reserve is within an area once occupied by the Wiradjuri people. The area of the Tumut-Brungle Local Aboriginal Land Council encompasses the reserve.

NPWS has carried out limited surveys for Aboriginal sites along the Native Dog Trail in the reserve during trail maintenance. These surveys have not revealed any artefacts or sites. There are a number of sites recorded near the reserve and there are anecdotal accounts of sites along the western escarpment of the Wee Jasper valley.

Consultation with local Aboriginal communities has identified strong links with the Wee Jasper valley. Natural landscape features in the area are of significance to the local Aboriginal community. Since European settlement these links relate to family having been employed in the valley as Aboriginal trackers, boundary riders, station hands, and to undertake land clearing for property owners in keeping with the policies of that time. The Wee Jasper valley is also located on the route between Brungle and the Yass Mission, and there was regular movement of people between the two locations. The displacement of the Aboriginal peoples and the culture of assimilation have led to the loss of much knowledge about specific sites and their significance.

3.5 HISTORIC HERITAGE

A desktop survey for European cultural heritage by Dearling (2003) did not identify any historic heritage items or features in the reserve and none have been found by staff to date. Past European land uses of this area were for grazing and timber gathering. The land has been managed since European settlement under a various number of leases and permissive occupancies.

3.6 RECREATION VALUES

The reserve attracts only a small number of visitors, around 300 – 400 a year. These include walkers on the Hume and Hovell Walking Track which passes through the reserve, and day visits from nearby camp grounds which are managed by the Wee Jasper Trust. Data obtained from a traffic counter on the Hume and Hovell walking track indicates that up to 200 walkers use the section of the track within the reserve each year.

3.7 RESEARCH

Following the fires in 2003, fuel and vegetation monitoring sites have been established in the reserve. The information gained from on going monitoring will inform future management decisions.

Research undertaken in Church Cave into the breeding and migratory patterns of the threatened eastern bent-wing bat has yielded valuable information on their conservation status (Houshold & Dyring 1989).

4. THREATS TO RESERVE VALUES

4.1 SOIL EROSION AND WATER QUALITY

Karst environments, such as those found in the reserve and nearby areas, are sensitive to pollutants that can be rapidly transported by water and air through subterranean drainage systems. Management is required to ensure natural hydrological processes and water quality is maintained within these environments and the broader karst catchment.

4.2 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the *Threatened Species Conservation Act 1995*. Projections of future changes in climate for NSW include higher temperatures, elevated CO₂, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporation. These changes are likely to lead to greater intensity, duration and frequency of fires, more severe droughts and increased regional flooding.

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical

extent of habitats and ecosystems. 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 is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from weeds and feral animals. Programs to reduce pressures arising from such threats will help reduce the severity of the effects of climate change.

4.3 INTRODUCED PLANTS

An introduced plant species is defined in this plan as any plant species not endemic to the reserve. Introduced plants within the reserve and on adjoining land are of concern because they have the potential to have detrimental effects on ecological values and can spread to and from neighbouring land. The *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands. The NPWS also has a priority to control environmental weeds (not necessarily declared noxious) which threaten natural habitats.

The NPWS South West Slopes Region Pest Management Strategy (2004) identifies priority pest species and programs for action. Control programs have been undertaken in the reserve since gazettal to control Paterson's curse *Echium plantagineum*, St. John's wort *Hypericum perforatum*, sweet briar *Rosa rubiginosa* and blackberry *Rubus fruticosus*, all of which are listed as noxious in the control area of Southern Slopes County Council. Other introduced species such as serrated tussock *Nassella trichotoma*, scotch thistle *Onopordum acanthium* and viper's bugloss *Echium vulgare* exist in the reserve in low numbers. Control programs for these species are implemented as needed in line with the Regional Pest Management Strategy.

Pine plantations to the west of the reserve, and those being developed to the south, are a source for invasion of pine wildings *Pinus radiata* along these boundaries. While the number of pine wildings in the reserve is moderate at present they are considered a high priority species because of the potential for rapid spread, the high level of resources required for removal of mature trees and the impacts this species has on the environment. Control programs for this species are prioritised according to the Regional Pest Management Strategy.

Woody weeds, particularly blackberry, which are present at the entrance to Church Cave, can impact on bat populations by obstructing natural flight paths. Karst invertebrates are sensitive to herbicide, which can quickly move through limestone into subterranean habitats. Consequently the use of herbicide in karst environments should be avoided or restricted to chemicals suitable for aquatic and riparian zones. This needs to be taken into account when planning weed control programs in the karst environment.

4.4 INTRODUCED ANIMALS

An introduced animal species is defined in this plan as any animal species not native to the reserve. Introduced animals may impact upon native fauna populations through predation or competition for food or shelter. Introduced animals in the reserve include

goats, dogs, foxes, rabbits and cats. All introduced species are managed in accordance with the actions listed in the Regional Pest Management Strategy.

Due to the small size of the reserve, the control of pest animals is best achieved through cooperative programs with neighbours. NPWS involvement in these programs will be given a priority as any cooperative programs in this area will complement the existing cooperative wild dog and fox control programs in the Brindabella and Wee Jasper valleys and in Burrinjuck Nature Reserve.

Fumigation and poisoning of rabbits along the Wee Jasper Creek has been undertaken, with good success on the reserve. For effective long-term control, cooperative control work with adjoining landholders will be required.

There have been reports from reserve neighbours of increasing numbers of feral goats occurring along the escarpment to the west of the Goodradigbee River. NPWS will support any cooperative control programs to control goats.

4.5 FIRE MANAGEMENT

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 TSC Act.

The primary fire management objectives of the NPWS are to protect life and property and community assets from the adverse impacts of fire, whilst managing fire regimes to maintain and protect biodiversity and cultural heritage (NPWS, 2005). The NPWS uses a zoning system for bushfire management that is compatible with the zoning used by the Southern Tablelands Bush Fire Management Committee (BFMC) in its bushfire risk management plan.

A separate fire management strategy has been prepared for the reserve. Hazard reduction programs, which may include mechanical fuel reduction techniques, prescribed burning and fire trail works, consistent with the strategy, are submitted to the BFMC.

There has only been one recorded wildfire within the reserve in recent years. This occurred in 2003 and burnt through most of the northern section. Modelling of the fire thresholds for the white box grassy woodland indicates that another fire before 2018 is likely to lead to a loss of diversity within this area.

According to verbal accounts, there have been several prescribed burns applied within the reserve and adjacent area over the last 26 years. Most of these burns were carried out in the northern part of the reserve. This section of the reserve is forested by a brittle gum/broad-leaved peppermint community, which has an optimal fire frequency of between 25 and 100 years.

The immediate assets that are at risk from fire leaving the reserve include private agricultural grazing land and associated facilities such as fences. Private forested land runs along much of the eastern flank of the reserve. NPWS will consider cooperative proposals for fuel management burning in these areas. Church Cave and its maternity

bat colony could be severely impacted by fire and smoke, particularly during the spring-summer maternity season. All efforts should be made to ensure the area near Church Cave is protected from fire.

The only fire trail in the reserve is the Native Dog Trail; this trail is not open to the public. NPWS will maintain this trail to a secondary fire trail standard capable of carrying Category 7 fire fighting vehicles.

NPWS maintains cooperative arrangements with surrounding landowners, Rural Fire Service (RFS) brigades and local volunteer bush fire brigades, and is actively involved in the Southern Tablelands Zone Bush Fire Management Committee. Cooperative arrangements include approaches to fuel management, support for neighbours fire management efforts and information sharing.

4.6 ADJACENT USES

The Wee Jasper Caves, which are located near the reserve on both public and private land, have high conservation values due to their biodiversity and geodiversity and are popular for recreational caving.

There are a number of camping areas associated with the caves and the nearby river that are managed by the Wee Jasper Trust. The reserve is used for bushwalking by some of the public using these facilities.

Part of the Hume and Hovell Walking Track passes through the southern part of the reserve along a corridor that is excluded from the reserve. The track is managed by the NSW Department of Lands.

Yass Valley Council operates a garbage tip adjacent to the reserve and for some years a disturbed part of the reserve was used as an extension to the tip. This disturbed portion has been revoked from the nature reserve and transferred to the Council.

4.7 VISITOR IMPACTS

There are minimal impacts on the reserve from visitors, although occasional unauthorised vehicle access occurs along the Native Dog Trail.

Church Cave contains fungus spores that can cause Histoplasmosis, a lung condition that can be fatal to humans. Access to the cave is restricted, both to reduce the risk of people coming into contact with this fungus and to protect the threatened bat colony. All persons who seek to enter the cave require a permit. If a permit is granted, permit holders will be advised of the known risk of histoplasmosis infection and the need for all entrants to the cave to ensure that they have the appropriate protective equipment, and implement appropriate procedures, to prevent histoplasmosis infection.

At the present time Church Cave is not gated, and there is inadequate signage warning of the danger of entering the cave.

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Wee Jasper Nature Reserve Catchment Management Authority map numbers: 8627 4 S and 8627 4

6. MANAGEMENT STRATEGIES AND ACTIONS

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.1 Geology, soil and water conservation</p> <p>Soils in the reserve are skeletal, and prone to erosion when ground cover is disturbed.</p> <p>The reserve includes a small but important area of limestone karst, and forms part of a catchment that includes the caves and karst environments of the Wee Jasper Valley.</p> <p>All creeks and drainage lines in the reserve flow into the Wee Jasper Creek or the Goodradigbee River and then into Burrinjuck Dam.</p> <p>Changes to soil and water quality can result in undesirable impacts on karst systems.</p> <p>Erosion and weeds have previously impacted on the karst in the area of Church Cave, resulting in a loss of native vegetation cover.</p>	<p>Soil erosion is minimised.</p> <p>Water quality is maintained.</p> <p>Karst environments are protected and conserved.</p>	<p>6.1.1 Undertake all road works in a manner that minimises erosion and water pollution.</p> <p>6.1.2 Monitor any erosion resulting from fires in the reserve. Take remedial action if necessary.</p> <p>6.1.3 Work with neighbours and catchment management authorities to encourage conservation of karst environments in the vicinity of the reserve.</p> <p>6.1.4 Rehabilitate the area around Church Cave with flora species endemic to the area.</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Low</p> <p>Medium</p>
<p>6.2 Climate Change</p> <p>Climate change has been listed as a key threatening process under the <i>Threatened Species Conservation Act 1995</i>.</p> <p>The fragile nature of the karst environment means that climate change is likely to have greater impacts here.</p>	<p>The impacts of climate change on the reserve are better understood.</p>	<p>6.2.1 Encourage research into appropriate indicator species within the reserve to monitor the effects of climate change.</p>	<p>Low</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.3 Native plant and animal conservation</p> <p>There are four vegetation communities in the reserve, one of which (the grassy white box woodland, which is listed under the TSC Act) was severely burnt by a fire in 2003.</p> <p>Three flora species listed as vulnerable or endangered under the TSC Act have been recorded in the reserve.</p> <p>A limited fauna survey has been undertaken in this reserve, identifying over 60 species. Six species listed as vulnerable under the TSC Act have been identified in or near the reserve. The reserve contains potential habitat for other threatened species.</p> <p>Church Cave is one of only six known maternity sites for the threatened eastern bent-wing bat. The cave also includes rare karst invertebrates.</p>	<p>All native plant and animal species and communities are conserved.</p> <p>Structural diversity and habitat values are restored in areas subject to past disturbance.</p>	<p>6.3.1 Work with neighbours to erect, repair and, if necessary, replace boundary fences to exclude domestic stock from the reserve. Maintain fencing around populations of Wee Jasper Grevillea to ensure domestic stock are excluded.</p> <p>6.3.2 Work with neighbours and catchment management authorities to encourage conservation of remnant native vegetation in the vicinity of the reserve, particularly remnant areas of white box woodland.</p> <p>6.3.3 Implement the relevant actions listed in the Priorities Action Statement.</p> <p>6.3.4 Ensure the entrance to Church Cave is kept clear of any obstructions to bat access, especially blackberry and other woody weeds.</p> <p>6.3.5 Encourage the development of a Church Cave fauna protection strategy with emphasis on bats and cave invertebrates. Investigate the implementation of regular censuses of maternity colonies and other key roosts within the reserve.</p> <p>6.3.6 Undertake annual control of Blackberry and Sweet Briar at all affected Wee Jasper Grevillea sites.</p>	<p>High</p> <p>Low</p> <p>High</p> <p>High</p> <p>Medium</p> <p>High</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
		<p>6.3.7 Review the existing fire management strategy for Wee Jasper Nature Reserve to include the Church Cave eastern bent-wing bat site.</p> <p>6.3.8 Restrict access to the Church Cave eastern bent-wing bat maternity site using external gating and signage.</p>	<p>High</p> <p>High</p>
<p>6.4 Cultural heritage</p> <p>A desktop survey of European cultural heritage found no European heritage sites in the reserve.</p> <p>Aboriginal surveys have been limited to a preliminary survey prior to fire trail maintenance during which no sites were identified.</p> <p>The major threats to Aboriginal archaeological material in the reserve are:</p> <ul style="list-style-type: none"> • activities that impact on trails (including maintenance, vehicle movement, trail bike and 4WD use), and • human-induced erosion. <p>Consultation with the local Aboriginal community has identified a number of potential Aboriginal sites in the area both on and off the reserve. A number of Aboriginal sites have been identified outside the reserve by local community members.</p>	<p>Cultural features are conserved and managed in accordance with their significance.</p>	<p>6.4.1 Precede all ground disturbance work by a check for cultural features.</p> <p>6.4.2 Any works undertaken will incorporate appropriate conservation measures to mitigate impacts on cultural heritage.</p> <p>6.4.3 Consult and involve the Tumut-Brungle Local Aboriginal Land Council and other Aboriginal stakeholders in all aspects of management of Aboriginal sites, places and values, including the interpretation of Aboriginal sites and values.</p> <p>6.4.4 Encourage survey work to be undertaken to identify Aboriginal sites within the reserve.</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.6 Fire management</p> <p>Fire is a natural occurrence in the Australian environment. However, too frequent fire can cause the loss of particular plant and animal species and communities.</p> <p>A Type 2 Fire Management Strategy was completed in August 2006.</p> <p>The northern part of the reserve was burnt by wildfire in 2003.</p> <p>Native Dog Fire Trail is the only trail that crosses through the reserve.</p> <p>The reserve contains, and is adjacent to, a significant karst environment requiring special fire management.</p>	<p>Life and property as well as natural and cultural values are protected from bushfire.</p> <p>Fire regimes are appropriate for conservation of plant and animal communities.</p> <p>Cultural features are protected from damage by fire.</p> <p>Fire regimes are appropriate for karst conservation.</p>	<p>6.6.1 Continue to participate in the Southern Tablelands Zone Bush Fire Management Committee. Maintain coordination and cooperation with Rural Fire Service officers, local volunteer bush fire brigades and neighbours with regard to fuel management and fire suppression.</p> <p>6.6.2 Manage the nature reserve to protect biodiversity in accordance with the identified fire interval guidelines for vegetation communities.</p> <p>6.6.3 Maintain Native Dog Trail to a 4WD Cat 7 Fire Trail standard.</p> <p>6.6.4 Review and implement the Reserve Fire Management Strategy for Wee Jasper Nature Reserve. Include the following actions.</p> <ul style="list-style-type: none"> - Restrict the use of chemicals in karst areas to those that are known to be environmentally acceptable. - Establish an asset protection zone within a 20 metre radius of the Church Cave entrance. Minimise the occurrence of fire near the entrance to Church Cave from October to March to protect threatened eastern bent-wing bat. - The use of heavy machinery, particularly tracked vehicles, will be avoided where possible in karst areas. 	<p>High</p> <p>Medium</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.7 Recreational Opportunities</p> <p>No visitor facilities are provided in the reserve.</p> <p>The Hume and Hovell Walking Track passes through the reserve along a corridor that is excluded from the reserve.</p> <p>The Wee Jasper Trust manages a number of nearby camping grounds and associated facilities.</p> <p>There are no roads in the reserve. Illegal vehicular access occasionally occurs in the reserve.</p> <p>Church Cave is not gated, and there is one dilapidated sign warning of the danger of entering the cave.</p>	<p>Visitor use is appropriate and ecologically sustainable.</p> <p>Visitor use encourages appreciation of the reserve's values.</p> <p>The local community is aware of the significance of the area and of management programs.</p>	<p>6.7.1 Public vehicle access will not be allowed in the reserve.</p> <p>6.7.2 Gate and signpost Native Dog Trail to restrict unauthorised access, and inform visitors of authorised uses.</p> <p>6.7.3 Walking is permitted in the reserve. Cycling will be permitted on Native Dog Trail only. Camping and horse riding will not be permitted in the reserve.</p> <p>6.7.4 Monitor levels and impacts of use.</p> <p>6.7.5 Permit organised group visits, subject to limits on numbers and other conditions if necessary to minimise impacts. Groups of more than twenty will require consent from NPWS.</p> <p>6.7.6 Provide adequate signage warning of the dangers of histoplasmosis at Church Cave.</p>	<p>Ongoing</p> <p>High</p> <p>Ongoing</p> <p>Medium</p> <p>Ongoing</p> <p>High</p>
<p>6.8 Research</p> <p>Scientific study is needed to improve understanding of the management requirements of threatened species such as the eastern bent-wing bat.</p>	<p>Research enhances the information base and has minimal environmental impact.</p> <p>Public safety is maintained.</p>	<p>6.8.1 All researchers and other approved people who seek to enter Church Cave will be required to obtain a permit from NPWS and have the necessary qualifications and equipment.</p>	<p>Ongoing</p>

Current Situation	Desired Outcomes	Management Strategies / Actions	Priority
<p>6.9 Management Operations</p> <p>One management trail, Native Dog Trail, exists in the reserve.</p>	<p>Management facilities and operations adequately serve management needs and have minimal impact.</p>	<p>6.9.1 Maintain Native Dog Trail as a management trail as shown on the map.</p>	<p>Ongoing</p>

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

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

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

