

YARRAVEL AND SKILLION NATURE RESERVES
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

February 2004

This plan of management was adopted by the Minister for the Environment on 5 February 2004.

For additional information or enquiries on Yarravel and Skillion Nature Reserves or on this plan of management, contact the NPWS Mid North Coast Regional Office at 152 Horton Street, Port Macquarie NSW 2440 or by phone on (02) 6586-8300.

NSW National Parks and Wildlife Service

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FOREWORD

Yarravel and Skillion Nature Reserves are located on the mid north coast of NSW, approximately 12-15 km west of Kempsey. The reserves were formerly State Forests.

The vegetation of the reserves is mostly sclerophyll forest, dominated by a range of eucalypts. One threatened plant species has been recorded within the reserves and a further two threatened species, recorded nearby, are likely to occur. Seven other regionally significant species have been recorded in the reserves. Twelve threatened animal species have been recorded in or near the reserves, and a further 5 are likely to occur.

There are no recreation facilities in Yarravel or Skillion Nature Reserves and no history of their use for recreation.

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 a reserve will be managed in the years ahead.

A draft plan of management for Yarravel and Skillion Nature Reserves was placed on public exhibition for three months 2nd August until 28th October 2002. The exhibition of the plan of management attracted 5 submissions which raised 11 issues. All submissions received were carefully considered before adopting this plan of management.

This plan of management aims conserve the biodiversity and maintain ecosystem functions within Yarravel and Skillion Nature Reserves. Any places, objects, features or landscapes found to be of cultural value will be conserved. Fire management strategies will be prepared for the reserves as a high priority.

This plan of management establishes the scheme of operations for Yarravel and Skillion Nature Reserves. In accordance with section 76 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

Bob Debus
Minister for the Environment

1. NATURE RESERVES IN NEW SOUTH WALES

1.1 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 *Threatened Species Conservation Act 1995* (TSC Act), and the policies of the NSW National Parks and Wildlife Service (NPWS). The policies arise from the legislative background, the NPWS corporate goals 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* (EP&A Act) requires the assessment and mitigation of environmental impacts of any works proposed in this plan.

As well as the areas dedicated as Yarravel and Skillion Nature Reserves, this plan of management includes several ministerial roads, which are vested in the Minister for the Environment on behalf of the Crown for the purposes of Part 11 of the NPW Act. These roads are not dedicated as part of the nature reserves. They were created by section 7 of the *Forestry and National Parks Estate Act 1998* to ensure that the access arrangements that existed immediately before the reserves' creation (primarily for timber hauling and private property access) could continue, even if they were for purposes that did not meet the objectives of the NPW Act. The management of these roads is subject to the NPW Regulations and the requirements of the EP&A Act.

1.2 MANAGEMENT OBJECTIVES

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, 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. YARRAVEL AND SKILLION NATURE RESERVES

Because of their proximity and similar management issues, Yarravel and Skillion Nature Reserves (hereafter referred to as “the reserves”) are considered together for planning purposes.

This plan applies both to the land currently reserved as Yarravel or Skillion Nature Reserves and to any future additions. Once a plan has been adopted by the Minister it must be implemented, and no operations may be undertaken except in accordance with the plan. If management strategies or works are proposed for Yarravel or Skillion Nature Reserves or for any additions that are not consistent with this plan, an amendment to the plan will be required.

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Yarravel and Skillion Nature Reserves are located on the mid north coast of NSW, situated 12-15 km west of Kempsey (see map).

Skillion Nature Reserve, which covers 691 ha in three separate sections, is located between Armidale Road, Taylors Arm Road and Deep Creek. It was created in 1999 as part of the outcomes of the Forest Agreement for Lower North East NSW. The name Skillion was derived from Mt Skillion, which occurs adjacent to the southern section of the reserve and which was named for its ramping shape.

All sections of the reserves were formerly State Forests. Skillion Nature Reserve is comprised of all of the former Mt Skillion State Forest, as well as parts of Old Station and Collombatti State Forests, providing the sections of the reserve with their respective names. Yarravel Nature Reserve was formerly the major portion of Skillion Flat State Forest (see reserve map).

The original section of Yarravel Nature Reserve was dedicated in 1969, with recent major additions reserved in 1999. The reserve lies north east of Armidale Road and is 318 ha.

The reserves are part of the Kempsey low hills that border the Collombatti Range, which is the watershed between the Macleay and Nambucca catchments. Together they form part of an important fauna corridor between the valley floor of the Macleay River and the Collombatti Range which, through private property, state forests, Ngambaa Nature Reserve and New England National Park, forms an unbroken vegetated corridor to the New England tablelands. Much of the adjoining private lands are well timbered, despite their long history of grazing and timber harvesting.

The reserves are within the Kempsey Local Government area.

2.2 LANDSCAPE CONTEXT

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 the environment through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

Both Aboriginal and non-Aboriginal people place cultural values on natural areas, including aesthetic, social, spiritual, recreational and other values. Cultural values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people. This plan of management aims to conserve both natural and cultural values. For reasons of clarity and document usefulness natural and cultural heritage, non-human threats and on-going use are dealt with individually, but their inter-relationships are recognised.

2.3 NATURAL AND CULTURAL HERITAGE VALUES

Landform, geology and soils

The reserves comprise gentle slopes and low hills. The altitudinal range in Yarravel Nature Reserve is minimal, between 50 m and 80 m. Altitudes in Skillion Nature Reserve range from 25 m to 170 m. The reserves have significant scenic value, as they protect the forested low hills viewed from Kempsey, Willawarrin and Armidale Road.

The geology of the reserves is ancient sedimentary rocks of greywacke, siltstone, mudstone and conglomerate, which date from the Lower Permian (about 260 million years ago).

Five soil landscapes have been identified in the reserves (Atkinson 1999). Soils are of low to fair fertility and prone to erosion. In particular, the soil type found in the majority of Yarravel Nature Reserve and parts of the southern and eastern sections of Skillion Nature Reserve, is of low wet strength, high sodicity, high dispersion and low permeability. These characteristics allow rapid removal of soil particles as very finely suspended material in low velocity water flows.

Catchment values

Yarravel Nature Reserve is drained by four upper ephemeral streams, which run into Christmas Creek, a tributary of Collombatti Creek which enters the lower Macleay River at Clybucca. The water in Christmas Creek is used for watering stock on downstream properties.

Several minor creeks, which also run into Christmas Creek, drain Skillion Nature Reserve to the east. To the west, the reserve drains into Deep Creek, which runs into the Macleay River above Turners Flat Bridge. This is above the water intake for the domestic water supply for the town of Kempsey.

Native plants

The vegetation of the reserves is mostly sclerophyll forest, dominated by a range of eucalypts including spotted gum (*Corymbia variegata*), grey gum (*Eucalyptus propinqua*), grey ironbark (*E. siderophloia*), forest red gum (*E. tereticornis*), tallowwood (*E. microcorys*) and pink bloodwood (*C. intermedia*). Three separate dry sclerophyll forest communities have been mapped (Kendall & Kendall 1997, 2000), with the spotted gum forest being most widespread in the reserves. This forest occupies the majority of the upper and mid slope locations in the reserves and typically has a grassy or sparse shrubby understorey dominated by heath species. In addition, restricted areas with deep soils along the major creek lines support a wet sclerophyll forest, dominated by flooded gum (*E. grandis*), tallowwood and grey gum, with a rainforest understorey. There are small areas of forest red gum communities in the Old Station section of Skillion Nature Reserve.

One threatened plant species has been recorded within the reserves and a further two threatened species, recorded nearby, are likely to occur. Seven other regionally significant species have been recorded in the reserves. Refer to table 1.

Table 1. Significant plant species known or expected to occur in the reserves.

Recorded in Reserves

Common name	Scientific name	Significance
donkey orchid	<i>Diuris sp</i>	Endangered*
budda pea	<i>Aeschynomene indica</i>	Disjunct population
sedge	<i>Cyperus laevis</i>	Regionally uncommon
orangebark	<i>Maytenus bilocularis</i>	Near southern limit of distribution
narrow-leaved geebung	<i>Persoonia linearis</i>	Northern limit of distribution
wild cow pea	<i>Vigna vexillata</i>	Regionally uncommon
red mahogany	<i>Eucalyptus resinifera</i> subsp. <i>hemilampra</i>	Near southern limit of distribution
Nambucca ironbark	<i>Eucalyptus fusiformis</i>	Southern limit of distribution

Likely to Occur in Reserves

Common name	Scientific name	Significance
boronia	<i>Boronia chartacea</i>	Rare
black silkpod	<i>Parsonsia dorrigoensis</i>	Vulnerable* #
milk vine	<i>Marsdenia longiloba</i>	Vulnerable*

* listed on Schedule 2 of the TSC Act

also listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Native animals

Fauna surveys have been conducted in Yarravel Nature Reserve and in the Mt Skillion section of Skillion Nature Reserve (NPWS 1999). The reserves (excepting the original part of Yarravel Nature Reserve and the forest red gum areas) were heavily logged when the area was State Forest and managed for timber production. As a result, there are very few old trees with nesting hollows. Despite the scarcity of hollow trees, however, there is a diversity of animals found, many of which depend on hollows for nesting or roosting. Some are nomadic or have large home ranges,

indicating the importance of the reserves as part of an existing corridor of native vegetation.

Table 2 lists those species detected in surveys, and those for which the reserves provide suitable habitat as identified by models developed as part of the comprehensive regional assessment (CRA) process.

Table 2: Threatened species known or expected to occur in the reserves

Recorded in or near the reserves

Common name	Scientific name	Significance
Mammals		
koala	<i>Phascolarctos cinereus</i>	Vulnerable ^r
squirrel glider	<i>Petaurus norfolcensis</i>	Vulnerable
little bent-wing bat	<i>Miniopterus australis</i>	Vulnerable ^r
brush-tail phascogale	<i>Phascogale tapoatafa</i>	Vulnerable ^{N r}
spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable ^{^N r}
rufous bettong	<i>Aepyrymnus rufescens</i>	Vulnerable ^{N r}
Birds		
masked owl	<i>Tyto novaehollandiae</i>	Vulnerable ^r
powerful owl	<i>Ninox strenua</i>	Vulnerable ^r
square-tailed kite	<i>Lophoictinia isura</i>	Vulnerable ^r
glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable ^N
bush stone-curlew	<i>Burhinus grillarius</i>	Endangered ^{N r}
Amphibians		
giant barred frog	<i>Mixophyes iteratus</i>	Endangered ^{#N r}

Expected to occur in the reserves

Common name	Scientific name	Significance
Mammals		
yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable ^r
large bent-wing bat	<i>Miniopterus schreibersii</i>	Vulnerable ^r
yellow-bellied sheath-tailed bat	<i>Saccolaimus flaviventris</i>	Vulnerable ^r
greater broad-nosed bat	<i>Scoteanax rueppelli</i>	Vulnerable ^r
Birds		
barking owl	<i>Ninox connivens</i>	Vulnerable ^r

N recorded near the reserves.

r recovery plan in preparation.

also listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

^ also listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

NPWS is required by the TSC Act to prepare and implement recovery plans for all listed threatened plant and animal species. These are progressively being prepared and will be used to guide management of threatened species in the reserves.

Aboriginal heritage

There has been one isolated Aboriginal stone artifact scatter recorded within Yarravel Nature Reserve.

The reserves are within the Dunghutti tribal area and the area of the Kempsey Local Aboriginal Land Council.

Non-Aboriginal heritage

Despite their proximity to Armidale Road, the only evidence of early European activity in the reserves is small disused sawmill sites throughout Yarravel Nature Reserve and the Old Station section of Skillion Nature Reserve. Little remains of these sawmills other than a few scattered timber off-cuts. There are no registered historic places within the nature reserves.

Recreation

There are no recreation facilities in the reserves and no history of their use for recreation. Due to their relatively small area, their dispersible soils and their significance for conservation, the reserves are unsuitable for many recreation activities. Other nearby sites provide more suitable opportunities for recreation activities such as horse riding, driving, camping and picnicking.

2.4 THREATS TO THE RESERVES' VALUES

Fire

Detailed wildfire histories of the area are held by State Forests of NSW and extend back several decades prior to gazettal of the reserves. These records indicate that relatively frequent wildfires have occurred in the reserves over an extended period of time. This frequency is likely to result from the proximity of the reserves to the Armidale Road, the fragmented nature of the tenure and the fire prone vegetation type dominant in the reserves.

There are reports of major fire events that have occasionally burned all of the reserves' area and the intervening private lands. Recent fire history includes: a small fire in Yarravel Nature Reserve in 1997/98; a small fire in the Mt Skillion section of Skillion Nature Reserve in 2000/01; and a fire which burnt 25% of the Collombatti section of Skillion Nature Reserve in 2001/02. It is possible that the reserves are subjected to fire at a greater frequency than that necessary to maintain native biodiversity and that fire frequency may be degrading the plant and animal communities in the reserves.

Introduced species

Introduced species within the reserves are of concern because they have the potential to have detrimental effects on ecological values and can spread to neighbouring land. Pest animals known to occur in the reserves include the fox (*Vulpes vulpes*), wild dog (*Canis familiaris*), house mouse (*Mus musculus*) and the black rat (*Rattus rattus*). Feral cats (*Felis catus*) are known to occur on surrounding lands (RLPB 1998). Given the small size of the reserves, dingoes (*Canis lupus dingo*) are not expected to occur in the reserves. Predation by foxes on native animals, is listed as a key threatening process under the TSC Act and is considered

a significant problem in the Mid North Coast Region, particularly in relation to the bush stone curlew and rufous bettong.

Although weeds currently represent a minor management problem in the reserves, four species are of concern. Refer to table 3.

Table 3. Weed species of concern

Common name	Scientific name	Location	Required action
groundsel bush ^{NW}	<i>Baccharis halmifolia</i>	In the disused quarry adjacent to Yarravel Nature Reserve	Encourage the RTA to control, aiming at eradication
coral tree	<i>Erythrina x sykesii</i>	Escaped from garden refuse dumped in the disused quarry adjacent to Yarravel Nature Reserve	Encourage the RTA to control, aiming at eradication
camphor laurel	<i>Cinnamomum camphora</i>	Found in several locations	Monitoring and targeted control
lantana ¹	<i>Lantana camara</i>	Widespread through reserves	Targeted control

^{NW} Declared noxious weed

¹ Red-flowering lantana is a noxious weed; however, this variety has not been noted in the reserves.

Modification of surrounding lands

The reserves are relatively small and geographically isolated, but are currently linked by naturally vegetated private and public lands. In particular, the travelling stock reserve (TSR) along Jocks Crossing Road adds to the habitat values of the reserves because it contains many large hollow-bearing trees. It is important that the natural vegetation between and beyond the reserves is retained to maintain many of the reserves' conservation values, especially their value as a corridor for native animals with large home ranges.

The large Moonebah quarry, operated by Kempsey Shire Council, is within an inholding adjacent to the southeastern boundary of Yarravel Nature Reserve (see map). A second disused quarry is located west of Heatherglenn Road and north of Armidale Road and is a potential source of weed invasion (refer table 3).

Access and non-NPWS uses

The Armidale Road, which is the main access to the upper Macleay, forms the western boundary to the Mount Skillion section of Skillion Nature Reserve and Yarravel Nature Reserve. Three roads through the reserves are graveled ministerial roads. Lauts Road, linking Jocks Crossing Road and Armidale Road through the Mt Skillion section of Skillion Nature Reserve, provides access to a gravel quarry located outside the reserve on Jocks Crossing Road. The construction and use of this road was previously approved by State Forests of NSW (SFNSW) as it provided improved safety of trucks accessing Armidale Road. Heatherglenn Road provides access to private property to the north of Yarravel Nature Reserve.

Four disused quarries occur within the reserves (see map). These have been worked out and are revegetating with native species. There is the risk of weeds

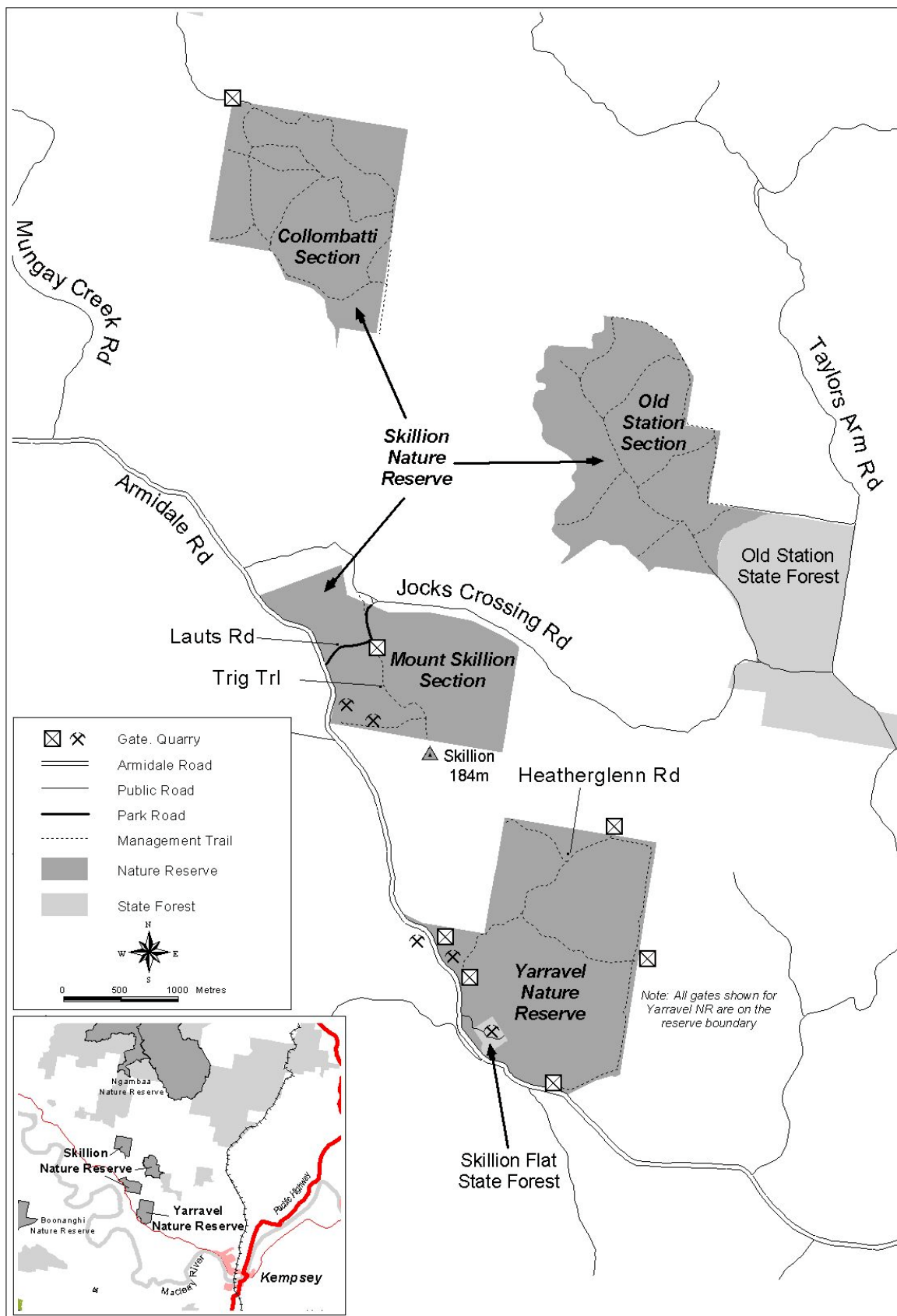
spreading from the quarries and establishing within the reserves. The quarry within Yarravel Nature Reserve adjacent to Heatherglenn Road is used for illegal rubbish dumping and is easily accessed from Armidale Road. NPWS will undertake a survey of the south-western boundary of Yarravel Nature Reserve, including the two quarries located in this region of the reserve.

A first order trigonometric survey marker is located on the summit of Mt Skillion, outside the Mount Skillion Section of Skillion Nature Reserve. The Surveyor General's Department (which is part of the Department of Information Technology and Management) requires ongoing access to this site through Skillion Nature Reserve via Lauts Road and Trig Trail and maintenance of lines of sight.

The reserves have an extensive network of dry weather access 4WD standard management trails which are required for access during fire management activities and pest species control, these may be gated to suit management requirements.

There are three bee sites located within the reserves one in each of Yarravel Nature reserve, the Mount Skillion section of Skillion Nature Reserve and one in the Old Station section of Skillion Nature reserve. The bee sites predate the gazettal of the reserves. The European honey bee can have adverse impacts on some native plants and animals (Paton, 1996). NPWS policy on bee keeping allows existing sites to continue but does not allow any new or additional sites. The existing apiary sites are limited in size and are maintained by mowing or slashing. Access to the sites is by Jocks Crossing Road, Heatherglenn Road and also via management trails on the Old Station section of Skillion Nature Reserve

RESERVE MAP



3. MANAGEMENT ISSUES AND STRATEGIES

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>There are no current erosion or water quality problems in the reserves. Given the erodable nature of the soil types, there is the potential for soil erosion to be a problem.</p>	<ul style="list-style-type: none"> The reserves' catchment values and the water quality and health of the reserves' streams are maintained. 	<ul style="list-style-type: none"> Design and undertake all works in a manner that minimises soil erosion. 	High
<p>Native plant and animal conservation</p> <p>Private lands and a TSR with reasonable forest cover currently connect the reserves.</p> <p>The reserves provide habitat for a number of threatened species, though tree hollows are scarce.</p>	<ul style="list-style-type: none"> The full range of native plant species found in the reserves is conserved. The habitat and populations of all native animal species are protected. Reserve neighbours support conservation of remaining areas of privately owned native vegetation near the reserves. 	<ul style="list-style-type: none"> Allow natural regeneration of past cleared and logged areas. Implement measures included in recovery plans and threat abatement plans for threatened plant and animal species as prepared. Close, and rehabilitate where necessary, all roads not required for management purposes or essential access to private lands, and not shown on the map. Liaise with neighbours, RLPB, Landcare, vegetation management committees and other land use authorities to encourage retention and, if possible, expansion of areas of native vegetation close to the reserves. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced species</p> <p>The NPWS Regional Pest Management Strategy (NPWS 2001a) provides guidelines for ongoing control of the pest animals and weeds in the reserves. A Threat Abatement Plan has been prepared under the TSC Act (NPWS 2001b) which recommends fox control in the reserves.</p> <p>Straying stock occasionally enter the reserves but are not considered a serious problem.</p> <p>Weed species, apart from lantana and camphor laurel, are limited to the old quarry adjacent to the reserve.</p>	<ul style="list-style-type: none"> The impact of introduced species on native biodiversity and neighbouring lands is minimised. 	<ul style="list-style-type: none"> Carry out fox control measures in accordance with the Fox Threat Abatement Plan, and in co-operation with SFNSW where appropriate in areas adjacent to State Forest. Encourage the RTA to control any outbreaks of groundsel bush and coral tree in the disused quarry adjacent to Yarravel Nature Reserve. Monitor the impacts and density of other pest species and implement control in accordance with the Regional Pest Management Strategy. Seek the cooperation of neighbours, the Kempsey Rural Lands Protection Board, Kempsey Shire Council, the Mid North Coast Weeds Advisory Council and other stakeholders in implementing weed and pest animal control programs. Encourage maintenance of effective fencing of boundaries with the TSR and grazing properties to prevent domestic stock from entering into the reserves. Undertake targeted control of lantana and camphor laurel. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Fire management</p> <p>Fire is a natural feature of the reserves' environment and is essential to the survival of some plant communities. Frequent or regular fire, however, can cause loss of particular plant and animal species and communities. Fire could also damage fences and threaten neighbouring land.</p> <p>The internal network of roads and trails, boundary fire trails and adjacent roads facilitate control of the reserves' fire regime to achieve a mosaic of burning patterns.</p>	<ul style="list-style-type: none"> • Fire regimes are appropriate for long-term maintenance of the reserves' plant and animal communities. • The potential for spread of bushfires on, from, or into the reserves is minimised. • Fire is applied in a mosaic pattern, resulting in a diversity of age classes and structures across the reserves. 	<ul style="list-style-type: none"> • Consult with SF NSW regarding fire history records for the reserves. • Prepare and implement fire management strategies for the reserves. • Continue to actively participate in the Kempsey Bush Fire Management Committee. Maintain close contact and cooperation with Council fire officers and volunteer bush fire brigades. • Encourage research into the ecological effects of fire in the reserves, particularly the fire response of significant plant species and the fire requirements of the communities. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Visitor use</p> <p>Although visitation is at a low level, it must be carefully managed since the reserves are relatively small and have significant conservation values.</p> <p>Promotion of the conservation values of the reserves is an important way of building community understanding and appreciation, and minimising damaging activities.</p>	<ul style="list-style-type: none"> • There is widespread community understanding and appreciation of the reserves' natural and cultural values. • There is sufficient signage to allow visitors to be aware of the land use. • That commercial activities do not impinge on the conservation values of the reserves. 	<ul style="list-style-type: none"> • Maintain the reserves for a low level of use with no visitor facilities. • Attend meetings with neighbours and community organisations to promote community understanding of the reserves' values and management strategies. • Allow only those commercial and group activities which are nature based and consistent with the appreciation of wildlife, natural environments and natural phenomena such as bird watching and nature study. • Permit only authorised vehicular access on management trails shown on the map. • Allow only fuel stove use in the reserves. • Prohibit camping and horse riding. • Permit organised educational visits, subject to limits on numbers and other conditions if necessary to minimise impacts. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Cultural heritage</p> <p>One isolated Aboriginal artefact has been recorded in the reserves.</p> <p>There are no known historic sites within the reserves apart from the sites of former sawmills.</p>	<ul style="list-style-type: none"> • Cultural features are appropriately conserved and managed. • The Aboriginal community is involved in the management of and research into their heritage and culture. 	<ul style="list-style-type: none"> • Encourage the participation of the Dunghutti Elders and the Kempsey Local Aboriginal Land Council in the management of Aboriginal heritage. • Ensure that any research involving Aboriginal heritage or culture is carried out in consultation with the Aboriginal community. Provide copies of any research findings on Aboriginal heritage to the Land Council. • Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact on sites or places of cultural significance. • Allow the remains of the old sawmill sites to revegetate through natural processes. 	<p>High</p> <p>High</p> <p>Medium</p> <p>Low</p>
<p>Research</p> <p>Scientific study is needed to improve understanding of the reserves' natural and cultural heritage, the processes that affect them and the requirements for management of particular species.</p> <p>Vegetation and vertebrate fauna surveys have been recently undertaken in sections of the reserves.</p>	<ul style="list-style-type: none"> • Research is undertaken that enhances the information base and assists management of the reserves. • Research causes minimal environmental damage. 	<ul style="list-style-type: none"> • Undertake fauna surveys in the Collombatti and Old Station sections of Skillion Nature Reserve. • Establish permanent transects for monitoring foxes and populations of rufous bettongs in accordance with the Fox Threat Abatement Plan. • Undertake and encourage other research projects aimed at providing information about the reserves' natural and cultural heritage in order to facilitate management. • Maintain and re-survey the permanent vegetation plots established by Kendall and Kendall (2000). 	<p>Medium</p> <p>Medium</p> <p>Low</p> <p>Low</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Management operations and non-NPWS uses</p> <p>For a number of years, gravel trucks have carted gravel from a quarry on Jocks Crossing Road through Skillion Nature Reserve,</p> <p>Access to private property through Yarravel Nature Reserve is required. Access to Mt Skillion Trig site for survey purposes is also required.</p> <p>The majority of roads within the reserve are for fire management and pest control purposes. There are no other management facilities.</p> <p>There are three apiary sites on the reserves, two of which could become a problem due to their proximity to roads available to the public.</p>	<ul style="list-style-type: none"> • Management facilities adequately serve management needs and have acceptable impact. • Non-NPWS uses of the reserves have minimal environmental impact. • That feral European honeybee colonies are removed from the reserves. • That bee sites do not pose a threat to the public. 	<ul style="list-style-type: none"> • Maintain Lauts, Heatherglenn Roads and Trig Trail to provide ongoing access to private lands and the Mount Skillion Trigonometrical station. • Gate Heatherglenn Road off Armidale Road to prevent public vehicle access. Liaise with the relevant land holder about access arrangements to ensure their continued access. • Review the need for ministerial roads with any changes to land tenure. • Negotiate a formal access agreement with the owner of the private quarry on Jocks Crossing Road for continued access and maintenance of Lauts Road. • Formally survey the south-western boundary of Yarravel Nature Reserve and amend the boundary record if necessary. • Erect and maintain locked gates at locations shown on the map and on other management trails as required to prevent unauthorised access. • Maintain the system of management trails for NPWS use (see map). Closure of existing management trails may occur, dependent upon a review of management needs resulting from the fire management strategies for the reserves (refer Fire Management). 	<p>High</p> <p>Medium</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>

		<ul style="list-style-type: none"> • Seek the cooperation of Kempsey Shire Council and the RTA in the management of weeds and other issues associated with the quarries near the Armidale Road. 	Medium
		<ul style="list-style-type: none"> • Allow former quarry sites in the reserve to naturally revegetate and undertake targeted control of weed species (refer Introduced species). 	Medium
		<ul style="list-style-type: none"> • Investigate whether existing authorised apiary sites in the reserve need to be relocated due to unacceptable environmental impacts, user conflicts or park management program such as the closure or alteration of a road or trail. 	Medium
		<ul style="list-style-type: none"> • Permit apiarists to clear a minimal area of their existing sites for hives by mowing/slashing only. 	Medium
		<ul style="list-style-type: none"> • Monitor use of apiary sites. 	Medium
		<ul style="list-style-type: none"> • Eradicate any feral beehives that may have established in the reserve. 	Medium

High priority activities are those imperatives 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.

4. REFERENCES

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5. GLOSSARY

ACRONYMS

EP&A Act	NSW <i>Environmental Planning and Assessment Act</i> (1979)
GIS	Geographic Information System (an electronic database)
GPS	Global Positioning System
NPW Act	NSW <i>National Parks and Wildlife Act</i> (1974)
NPWS	NSW National Parks and Wildlife Service
TSC Act	NSW <i>Threatened Species Conservation Act</i> (1995)
RTA	Roads and Traffic Authority
SFNSW	State Forests of NSW
TSR	Travelling Stock Route

SELECTED DEFINITIONS

- Biodiversity** Biological diversity, namely the variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem.
- Cultural heritage** Encompasses past and present cultural associations of all people in Australia, including tradition, knowledge and customs. It can be tangible (i.e. have physical manifestations in the form of art, buildings etc.) or intangible (i.e. spiritual or social associations, songs, stories and cultural practices). Cultural significance includes values that are social, spiritual, aesthetic, historic and scientific. When natural resources acquire meaning for a particular group, they become cultural resources as well.
- Fauna** Any mammal, bird, reptile or amphibian. NPWS has responsibility for the conservation of fauna. Note this definition excludes fish or invertebrates.
- Fire Management** Includes all activity associated with the use and control of fire in bushland designed to achieve stated objectives for the protection of life and property, and the maintenance of wildlife communities.
- Introduced species** A species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities. Also known as exotic or alien species.
- Management trail** An access track, suitable for use by four-wheel drive vehicles, constructed and/ or maintained expressly for fire or other management purposes. Public vehicle access is not permitted to these trails.
- Ministerial roads** Road corridors through the park/ reserve which, although managed by NPWS, do not form part of the gazetted area of the park/ reserve. Typically the access to adjacent state forest or private land, these roads are vested in the name of the Minister for the Environment.
- Policy** A statement of attitude and courses of action, directed toward the attainment of NPWS corporate goals and/or objectives.
- Recovery plan** A document, prepared under the TSC Act, that identifies the actions to be taken to promote the recovery of a threatened species, or endangered population or ecological community.