

GAMILAROI NATURE RESERVE
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service

January 2004

This plan of management was adopted by the Minister for the Environment on 19 January 2004.

Cover photograph of Ooline vegetation in Gamilaroi Nature Reserve by Julie Pownall, NPWS.

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FOREWORD

Gamilaroi Nature Reserve is situated within the north-west slopes and plains region of NSW, in the Brigalow Belt South Bioregion. The Nature Reserve lies 7km south of the town Terry Hie Hie. This is an area of great spiritual significance to the Aboriginal community, as it is related to the area known as the Great Ancestral Bora of Biamme, the most important of all Bora Grounds of the Kamilaroi people.

Gamilaroi Nature Reserve protects the plant community Ooline, of which *Cadellia pentastylis* is the dominant structural component. This species is also of considerable biogeographic interest as it is believed to be a relic of the extensive rainforest vegetation that once covered much of Australia. Ooline is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act, 1995*. The Reserve also contains one threatened fauna species.

The *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 the area will be managed in the years ahead. A Plan of Management may be prepared for a single reserve or a combined plan may be prepared for a number of reserves. Once a plan has been adopted, no operations may be undertaken within the Nature Reserve except in accordance with the plan.

A draft Plan of Management for Gamilaroi Nature Reserve was placed on public exhibition for three months from September 2002 until February 2003. Three submissions were received in response to the public exhibition. The plan has been amended to reflect the comments received.

This Plan of Management establishes the scheme of operations for Gamilaroi Nature Reserve. In accordance with Section 76 of the *National Parks and Wildlife Act 1974* this plan 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*, the National Parks and Wildlife Regulation, the *Threatened Species Conservation Act 1995* and the policies of the National Parks and Wildlife Service (NPWS). Section 72AA of the National Parks and Wildlife 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.

A plan of management is a statutory document under the National Parks and Wildlife Act. Once the Minister has adopted a plan, no operations may be undertaken within Gamilaroi Nature Reserve except in accordance with the plan. The plan will also apply to any future additions to the reserve. Where management strategies or works are proposed for the reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

1.2 MANAGEMENT OBJECTIVES

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

Under 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. GAMILAROI NATURE RESERVE

2.1 LOCATION, GAZETTAL AND REGIONAL SETTING

Gamilaroi Nature Reserve is located seven kilometres south of Terry Hie Hie in the Moree Plains Shire. Gazetted on the April 27 1994, the nature reserve is 113.5 hectares and is named after the Aboriginal nation of the region.

The Gamilaroi Nature Reserve was sectioned off the adjacent Travelling Stock Reserves to the west, north and north-east. Other adjacent landuse includes cropping and grazing.

2.2 NATURAL AND CULTURAL HERITAGE

Landform, Geology and Soils

Located within the Brigalow Belt South Bioregion, the reserve is situated on a low rise at approximately 340m ASL. The main rock type of the area is a re-crystallised quartzite-ferruginous sandstone (Benson 1993) and soils are reddish sandy-clay.

Native Plants

The vegetation of the reserve is predominantly Ooline Community (approximately 70%) and woodland variously dominated by *Eucalyptus pilligaensis*, *E. melanophloia*, *Callitris glaucophylla*, and *Geijera parviflora*.

Ooline is the name used for both the plant species *Cadellia pentastylis* and the plant community in which *Cadellia pentastylis* is the dominant structural component. Consistent with the draft recovery plan for Ooline (NPWS, unpublished), *Cadellia pentastylis* will be used when referring to the plant species and Ooline Community will be used in reference to the plant community.

Cadellia pentastylis, also known as Scrub Myrtle, is a unique and rare species. It has a unique taxonomic lineage as it is a monotypic species in the taxonomically distinct Surianaceae family which is currently thought to comprise 5 genera with only eight species in total (NPWS, in prep.). The species is also of considerable biogeographic interest as it is believed to be a relic of the extensive rainforest vegetation that covered much of Australia in the past (Benson1993).

Cadellia pentastylis has a restricted range within the Brigalow Belt Bioregions (North and South) and is known from only nine locations in New South Wales (NSW) and a further 25 locations in Queensland (NPWS, in prep.). Both the numbers of individuals and the range of the species have been reduced by clearing for agricultural purposes such that the species is now listed as vulnerable to extinction on both the NSW *Threatened Species Conservation Act* (1995), the federal *Environment Protection and Biodiversity Conservation Act* (1999), and the *Queensland Nature Conservation Act* (1992).

Ooline Community is defined as a forest community with *Cadellia pentastylis* as the dominant or co-dominant species (Scientific Committee 1998). Other canopy species in the Ooline community on Gamilaroi Nature Reserve include *E. pilligaensis* (Pilliga Box), *E. melanophloia* (Silver-leaved Ironbark), and *Callitris glaucophylla* (White Cypress). Common understorey species include *Carissa ovata*, *Geijera parviflora* (Wilga), *Notelea microcarpa* (Mock Olive), *Eremophila mitchellii* (Budda), *Capparis mitchellii* (Native Orange), *Capparis lasiantha* (Nepine), *Acacia* spp. and *Casuarina cristata* (Belah).

Ooline (*Cadellia pentastylis*) Community in the Nandewar and Brigalow Belt South Bioregion is listed as an Endangered Ecological Community under the NSW *Threatened Species Conservation Act* (1995).

Threats to the vulnerable *Cadellia pentastylis* species and the endangered Ooline community include clearing, genetic decline, fire, weed invasion, browsing by feral goats and stand disturbance by pigs (NPWS in prep.).

Native Animals

The reserve provides habitat for a diversity of birds, reptiles and mammals. The thickety structure of sections of the Ooline community provides valuable shelter and habitat for a variety of small birds including thornbills, wrens and pardalotes. Macropod species present include the Eastern Grey Kangaroo, Red-necked Wallabies, and Swamp Wallabies. Other mammals recorded include the Common Dunnart and the Common Brushtail Possum. Reptiles present include the Lace Monitor and a variety of geckos and lizards.

Threatened fauna on the reserve includes the Grey-crowned Babbler (eastern subspecies) *Pomatostomus temporalis temporalis*, listed as Vulnerable on the NSW *Threatened Species Conservation Act* (1995). Threats to the species include clearance and fragmentation of habitat, habitat degradation as a result of weed invasion and grazing by stock, isolation of populations, increased abundance of competitors such as Noisy Miners, and nest predators such as the Pied Currawong and the Australian Raven (Scientific Committee 2001).

Cultural Heritage

The reserve is within the area inhabited by the Kamilaroi Aboriginal nation and is within the area administered by the Moree Local Aboriginal Lands Council. The reserve is just six kilometres away from Terry Hie Hie, an area of great spiritual significance related to the area known as the Great Ancestral Bora of Biamme, the most important of all Bora Grounds to the Kamilaroi people. Carved trees once found throughout the area reflected other important elements of Kamilaroi spiritual association.

The reserve was sectioned off an existing Travelling Stock Route and had been used for grazing since the TSR was notified in 1898. There are no known historic features on the reserve.

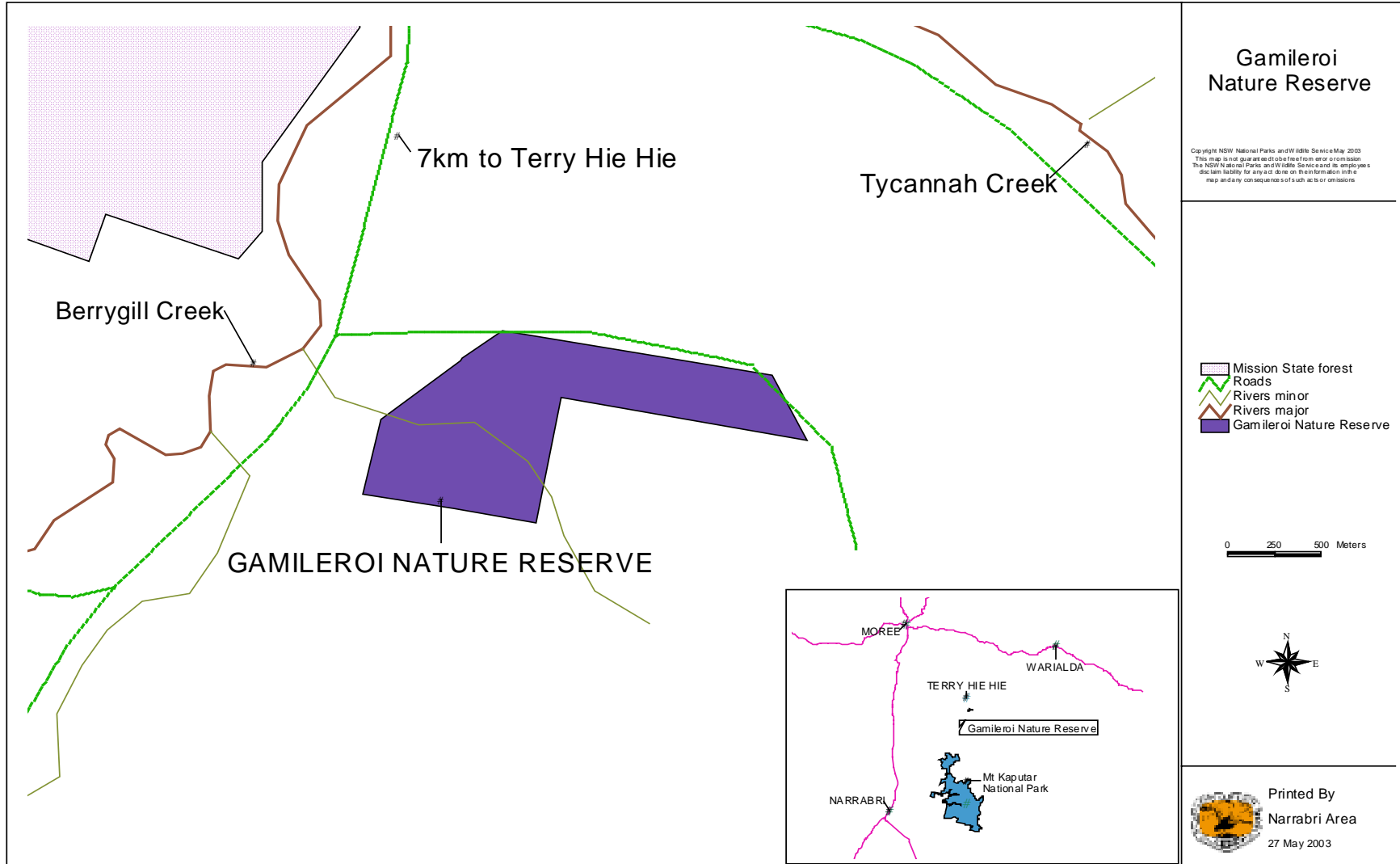
References

Benson, J. 1993, *The Biology and Management of Ooline (Cadellia pentastylis) in NSW*, NSW National Parks and Wildlife Service, Hurstville.

National Parks and Wildlife Service, undated, Ooline Recovery Plan, in preparation.

Scientific Committee, 1998, Final Determination, made by the Scientific Committee established by the Threatened Species Conservation Act, to list the *Cadellia pentastylis* (Ooline) Community in the Nandewar and Brigalow Belt South IBRA regions as an Endangered Ecological Community on Part 3 of Schedule 1 of the *Threatened Species Conservation Act* (1995).

Scientific Committee, 2001, Final Determination, made by the Scientific Committee established by the Threatened Species Conservation Act, to list the Grey-crowned Babbler (eastern subspecies) *Pomatostomus temporalis temporalis* on Schedule 2 of the *Threatened Species Conservation Act* (1995).



3. MANAGEMENT ISSUES AND STRATEGIES

Priority assigned to proposed activities: **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.

Current Situation	Desired Outcomes	Strategies	Priority
<p>Soil and water conservation</p> <p>Both sheet and gully erosion are active in sections of the reserve.</p>	<p>Soil erosion is minimised</p>	<p>Undertake all works in a manner that minimises erosion.</p> <p>Monitor erosion in the reserve and take action if needed to arrest the erosion.</p>	<p>High</p> <p>Low</p>
<p>Native plant and animal conservation</p> <p>Genetic decline is a potential threat to the vulnerable <i>Cadellia pentastylis</i> species and the endangered Ooline community (NPWS in prep.). Genetic diversity of <i>Cadellia pentastylis</i> within Gamilaroi NR is unknown, the species regenerates vegetatively and some populations may be clonal.</p> <p>Successional state and population dynamics of the Ooline community within Gamilaroi NR is unknown</p> <p>Threatened fauna on the reserve includes the Grey-crowned Babbler (eastern subspecies) (section 2.2)</p>	<p>All native plant and animal species and communities are conserved</p>	<p>Monitor the Ooline community and <i>Cadellia pentastylis</i> on the reserve through the use of vegetation mapping, photo-monitoring and plot data.</p> <p>Encourage further research into the ecology and management of <i>Cadellia pentastylis</i> including genetic variation on the reserve.</p> <p>Implement measures included in recovery plans for threatened species and the endangered ecological community.</p> <p>Encourage protection of Ooline communities on adjoining properties e.g. through Voluntary Conservation Agreements.</p>	<p>Medium</p> <p>Medium</p> <p>High</p> <p>Medium</p>

<p>Cultural heritage</p> <p>Cultural heritage values of the reserve require further investigation</p>	<p>Cultural features are conserved and managed in accordance with their significance</p>	<p>Consult and involve the Moree Local Aboriginal Land Council in all aspects of management of the reserve's Aboriginal sites, places and values.</p> <p>Instigate site surveys and prepare management strategies for Aboriginal sites in the reserve in conjunction with the Moree Local Aboriginal Lands Council.</p> <p>Precede all work by a survey for cultural features.</p>	<p>High</p> <p>Medium</p> <p>High</p>
<p>Appropriate use and understanding</p> <p>The reserves provide opportunities for education regarding nature conservation and cultural heritage.</p> <p>Promotion of community understanding and appreciation of the conservation values of the reserve will be important for minimising damaging activities and maximising conservation outcomes.</p> <p>As the reserve is relatively small and contains both an Endangered Ecological Community and a number of threatened species, any use of the reserve will be carefully managed and monitored to avoid impacts.</p>	<p>The local community is aware of the significance of the area and of management programs.</p> <p>Visitor use is ecologically sustainable.</p>	<p>Promote an awareness of the conservation value of the nature reserves through liaison with the local community and provision of appropriate information.</p> <p>Maintain contact with neighbours and the community regarding management activities within the reserves.</p> <p>Permit educational and special interest visits subject to prior consent from NPWS (with limits on numbers and frequency of visits and other conditions to minimise impacts).</p> <p>Monitor levels and impacts of use.</p> <p>No visitor facilities will be constructed as the reserve is of such limited size and further fragmentation is to be avoided. Visitor access to be on foot only. No camping or fires will be permitted.</p>	<p>Medium</p> <p>High</p> <p>Medium</p> <p>Low</p>

<p>Research</p> <p>Scientific study is needed to improve understanding of the natural and cultural heritage of the reserves, the processes that affect them and the requirements for management of particular species.</p> <p>Priority topics:</p> <ul style="list-style-type: none"> • Ecology and management of <i>Cadellia pentastylis</i> and the Ooline community including population dynamics and regeneration mechanisms of the plants in the community and the likely impacts of fire on the various species in the community. 	<p>Research enhances the management information base and has minimal environmental impact.</p>	<p>Undertake and encourage research to improve knowledge and management of natural and cultural heritage.</p> <p>Prepare a prospectus to encourage and guide research by educational organisations into areas where further information will inform management of the reserves.</p>	<p>Medium</p> <p>Low</p>
<p>Fire management</p> <p>Fire is uncommon in or adjacent to <i>Cadellia pentastylis</i> stands.</p> <p>Fire is identified as a threat to the Ooline community</p> <p>Further study of the community response to fire is required</p> <p>Fire and associated suppression strategies could damage boundary fences and threaten neighbouring land</p>	<p>Persons and property 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 or fire suppression activities.</p>	<p>Prepare fire management guidelines for the reserves that detail life, property and natural and cultural resource protection strategies.</p> <p>Participate in district Bush Fire Management Committees. Maintain coordination and cooperation with Rural Fire Service brigades, Fire Control Officers and neighbours with regard to fuel management and fire suppression.</p> <p>Encourage further research into the ecological effects of fire in the Ooline community.</p>	<p>High</p> <p>High</p> <p>Medium</p>

Current Situation	Desired Outcomes	Strategies	Priority
<p>Introduced species</p> <p>Weed invasion, browsing by feral goats and stand disturbance by pigs are recognised as threats to the Ooline community (NPWS in prep.)</p> <p>Current programmes in the reserve include spraying of Galvanised burr and Prickly pear and baiting of pigs in conjunction with the Moree RLPB</p>	<p>The impact of introduced species on native species and neighbouring lands is minimised</p>	<p>Continue and expand programs to control, and where possible eradicate, introduced plant and animal species as per the Narrabri Area Pest Species Management Strategy in cooperation with neighbours where appropriate</p> <p>Survey for and map the location of weed species both on reserves and adjacent to reserves to maximise efficiency of control measures.</p> <p>Monitor for new weed infestations especially noxious weeds, identified weed threats and environmental weeds. Treat any outbreaks based on established priorities.</p>	<p>High</p> <p>High</p> <p>High</p>
<p>Management operations</p> <p>Access for weed control and other management is limited as only one trail exists through the reserve. Currently management operations are undertaken on quad bikes or on foot.</p> <p>Boundary fencing condition is variable, sections require maintenance and replacement.</p>	<p>Management facilities adequately serve management needs and have acceptable impact.</p>	<p>Maintain the trail through the reserve as a management trail and gate to prevent unauthorised access.</p> <p>Determine management access requirements having regard to pest species management, fire control and the protection of threatened species and the endangered ecological community.</p> <p>Establish and maintain management routes where necessary based on the above assessment.</p> <p>Erect and maintain appropriate boundary fencing in line with NPWS policy.</p>	<p>High</p> <p>Medium</p> <p>Medium</p> <p>High</p>