



# Jerilderie Nature Reserve

# Plan of Management



# JERILDERIE 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 18 <sup>th</sup> May 2010.
For additional information or enquiries on Jerilderie Nature Reserve or this plan, contact the NPWS Western Rivers Region, Griffith Area office at 200 Yambil Street Griffith, or by phone on (02) 6966 8100.
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#### **FOREWORD**

Jerilderie Nature Reserve covers an area of 36.92 hectares and is located 500 metres west of the township of Jerilderie in the NSW Riverina.

Jerilderie Nature Reserve contains a rare grassland vegetation community and at least three threatened plants. It was established in 2002 to protect the nationally endangered plant red Swainson pea (also known as the red Darling pea). It also conserves other grassland species.

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 Jerilderie Nature Reserve was placed on public exhibition from 29<sup>th</sup> August until 1<sup>st</sup> December 2008. The submissions received were carefully considered before adopting this plan.

The plan contains actions to achieve the State Plan priority to "Protect our native vegetation, biodiversity, land, rivers and coastal waterways", including maintaining the reserve free of introduced plants and animals to conserve the threatened grassland species.

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

Frank Sartor MP

Minister for Climate Change and the Environment

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#### 1 LOCATION, GAZETTAL AND REGIONAL SETTING

Jerilderie Nature Reserve covers an area of 36.92 hectares and is located 500 metres west of Jerilderie township, off the Conargo Road (see map, page 2). It was established to protect the nationally endangered plant red Swainson pea (also known as red Darling pea) *Swainsona plagiotropus*.

In September 1991 the NSW National Parks and Wildlife Service (NPWS) employed a consultant to prepare a recovery plan for red Swainson pea. Twenty two sites containing the plant were discovered around Jerilderie, a town of 900 people which is located in the Riverina. The location is considered one of the key grassland sites in the Riverina (Benson et al 1997).

During the development of Jerilderie Shire Council's Draft Local Environment Plan, Council was informed of the presence of red Swainson pea on a 60 hectare block of land purchased by Council which was intended for subdivision into 2 hectare blocks.

A large part of this block (Lot 431, DP 1013379 of County Urana, Parish Jerilderie South) was subsequently purchased by NPWS and gazetted as Jerilderie Nature Reserve on 24 April 2002.

Immediately surrounding Jerilderie Nature Reserve are open paddocks, with some light industrial structures nearby. Jerilderie township is in close proximity, about half a kilometre to the east. It is within the geographical area of the Murray Catchment Management Authority and Cummeragunja Local Aboriginal Land Council.

#### 2 MANAGEMENT CONTEXT

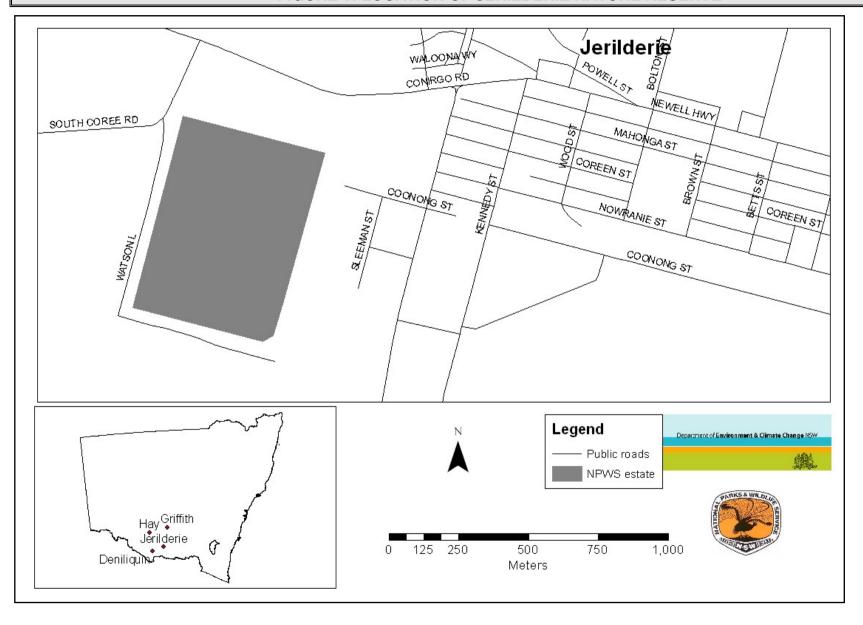
#### 2.1 LEGISLATIVE AND POLICY FRAMEWORK

Jerilderie Nature Reserve is managed under a legislative and policy framework primarily the *National Parks and Wildlife Act 1974* (NPW Act), the National Parks and Wildlife Regulation, the *Threatened Species Conservation Act 1995* (TSC Act) and the policies of the National Parks and Wildlife Service (NPWS). Section 72A 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* may require the assessment and mitigation of the environmental impacts of works proposed in this plan. The Commonwealth *Environment Protection and* Biodiversity Conservation *Act 1999* also applies in relation to actions that may impact on those threatened species listed under that Act.

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 Jerilderie Nature Reserve except in accordance with the plan. This plan will also apply to any future additions to Jerilderie Nature Reserve. Where management strategies or works are proposed for the nature reserve or any additions that are not consistent with the plan, an amendment to the plan will be required.

### FIGURE 1: LOCATION OF JERILDERIE NATURE RESERVE



#### 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, 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 the provision of opportunities for visitor use.

#### 2.3 MANAGEMENT OBJECTIVES

The primary objective in managing Jerilderie Nature Reserve will be to conserve and, if possible, expand the population of red Swainson pea present on the reserve.

A secondary objective will be to conserve the other threatened plants present, including turnip copperburr *Sclerolaena napiformis* and Murray Swainson pea (also known as slender Darling pea) *Swainsona murrayana*, as well as the other grassland species.

#### **3 JERILDERIE NATURE RESERVE**

#### 3.1 NATURAL VALUES

#### Landform, Geology and Soils

The terrain is part of the Murray Basin and is a level plain comprised of a light brown/red soil and clay loam. The only notable feature is a dam that was constructed in the centre of the reserve prior to acquisition. The dam retains water after rain, but dries out quickly in hot weather. There are no watercourses, roads or management trails in the reserve.

#### **Native Plants**

The reserve contains a diverse sample of Riverine *Enteropogon-Stipa* grassland. This community occurred extensively on the South-Western Plains prior to European settlement. Remnant patches are now rare (Benson et al. 1997). The community has been nominated for listing as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The Jerilderie Nature Reserve grassland includes three nationally threatened species: turnip copperburr *Sclerolaena napiformis;* red Swainson-pea (also known as red Darling pea) *Swainsona plagiotropis;* and Murray Swainson-pea (also known as slender Darling pea), *Swainsona murrayana.* 

The reserve is one of only 22 confirmed red Swainson pea sites in NSW, all of which are found in the Jerilderie-Urana area. In 1991 surveys by McDougall, Appleby and Barlow (2003) recorded 20,000 plants of *S. plagiotropis* in the vicinity of what was to become the nature reserve. Prior to their work the entire national population had been estimated at just 2,000 plants. The Jerilderie area is now recognised as the stronghold of the species, containing 80% of the total known population of the species.

Turnip copperburr is a saltbush that is listed as endangered under the NSW *Threatened Species Conservation Act 1995*, while both red Swainson-pea and Murray Swainson-pea are listed as vulnerable under the NSW *Threatened Species Conservation Act 1995* as well as the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

*Swainsona* species are small plants which can resprout from a persistent rootstock. By this means they can survive long dry periods lasting a number of years before suitable conditions return. Growth and flowering are stimulated by moisture.

Other significant species in the reserve include yellow-tongued daisy *Brachycome chrysoglossa*; long eryngium *Eryngium plantagineum*; woolly buttons *Leptorhychos panaetiodes*; bottle fissue-weed *Maireana excavata*; and yam daisy or murnong *Microseris lanceolata*. All of these are indicators of good quality grassland (Scarlett et. al. 1992). There are also at least three regenerating boree trees (*Acacia pendula*) in the reserve and two in the paddock outside the reserve to the north. This could mean that the area was once a Myall grassy woodland, which is now an endangered ecological community.

Swainsona species and other forbs prefer grassland maintained in a fairly open condition. Heavy growth of grass over a number of years may suppress those species and jeopardise their viability. In drought years, lack of moisture may assist in keeping the grassland open. However, dense growth following periods of rain may require more active management. Ideally, biomass should not exceed 5–7 tonnes per hectare (J. Briggs, Dept. of Environment and Climate Change, pers. comm. 2008). Options that could be considered to reduce excessive biomass are burning, grazing and/or slashing.

Burning has the advantage of not only reducing biomass, but also assisting with *Swainsona* seed germination. However, fire can be difficult to control in grassland and the presence of Jerilderie town nearby, including a hospital in close proximity to the reserve, would require this option be exercised with care. Controlled burning should be at irregular intervals and over patches of the reserve only (J. Benson, Dept. of Environment and Climate Change, pers. comm. 2008). The reserve should be protected from unscheduled burning.

Although not generally permitted in a nature reserve, occasional grazing by sheep to maintain an open structure was considered. However, this is not a preferred option since although there is a dam in the reserve it is not a reliable water source as it dries out quickly; grazing would need to be light and intermittent, not continuous, and should not occur in the spring (J. Benson pers. comm.); and the Priorities Action Statement advises against grazing during wet periods to avoid plugging and soil disturbance (www.threatenedspecies.environment.nsw.gov.au/tsprofile).

Slashing would create mulch that would have to be removed or it would choke smaller native species. This is not a practical option.

Permanent monitoring plots are required to gather data about the response of *Swainsona* and the grass cover to management activities and external influences, such as climate.

A full list of the flora of Jerilderie Nature Reserve is in the Appendix to this plan.

#### **Native Animals**

Fourteen fauna species (13 birds and 1 frog) have been recorded on the reserve, although very limited surveys have been undertaken. Species recorded are typical of open habitats, such as brown songlarks *Cinclorhamphus cruralis*, pipits *Anthus novaeseelandiae* and kestrels *Falco cenchroides*, or associated with the dam (wood ducks *Chenonetta jubata* and eastern sign-bearing froglets *Crinia parinsignifera*).

Small mammals and reptiles typical of grassland habitats, such as the fat-tailed dunnart *Sminthopsis crassicaudata* and the hooded scaly-foot *Pygopus schraderi*, could be expected to occur on the reserve. Macropods, such as Eastern grey kangaroos *Macropus giganteous*, occasionally pass through the reserve. No threatened animal species have been recorded to date in the reserve.

#### 3.2 CULTURAL VALUES

#### **Aboriginal Heritage**

Jerilderie Nature Reserve lies within the traditional country of the Wiradjuri people and is within the boundaries of the Cummeragunja Local Aboriginal Land Council. The reserve is not currently known to have particular Aboriginal cultural values and no evidence of the Aboriginal significance or of Aboriginal occupation or activity has been found there.

#### **Historic Heritage**

The nature reserve is part of a portion of 60 hectares of land purchased by Jerilderie Shire Council in 1991 for the purpose of sub-division and development. A portion of the land was later purchased by NPWS and became a nature reserve in 2002.

There are no structures on the land other than a 3,000 cubic metre dam (ground tank), boundary fencing and two exclosures built by Jerilderie Shire before acquisition by NPWS, one in the north-east corner and one on the eastern boundary.

Given the excellent condition of the grassland it is unlikely that the land was used for any purpose other than grazing prior to purchase by the Council.

There are no sites of historic heritage in the reserve.

#### 3.3 USE OF THE AREA

There is minimal recreational use of the reserve as it occurs as an empty paddock within a landscape of paddocks, and no increase in use is intended or expected in the future. There are no walking tracks or management trails in the reserve. General interpretation of the significance of the reserve to grassland conservation is appropriate. However, providing interpretation that specifically identifies threatened plants should be avoided as this runs the risk of drawing unwelcome attention to them. This could result in the plants being trampled by curious visitors or even targeted by pickers and vandals. Therefore public access to the reserve will not be encouraged and no walking tracks will be provided. Any interpretation of the grassland should be placed at the boundary of the reserve, so that it can be read without entering the reserve.

# 4. IMPLEMENTATION TABLE

Current Situation	Desired Outcomes	Strategies	Priority
Soil and Water Conservation			
There is no unnatural erosion in the reserve.	The reserve remains free of unnatural erosion.	The reserve will be monitored for unnatural erosion and remedial action taken where necessary.	High
A large dam is located in the centre of the reserve. The dam is not creating any management issues and it may be useful for fire fighting.	The dam is retained.	No action will be taken to damage the dam. However, the dam will not be actively maintained unless it is later found to be required for management purposes, such as fire fighting.	High
Native Plant and Animal Conservation			
The reserve contains a rare grassland vegetation community and at least three threatened plants.	The population of Red Darling pea is at least maintained and, if possible, increased.	Broad scale herbicide will not be used in the reserve.	High
Red Darling pea and Murray Swainson pea and other forbs prefer grassland vegetation	The native grassland will be maintained in good condition.	Mechanical soil disturbance will not be undertaken in the reserve.	High
maintained in a fairly open state. Turnip copperburr also prefers grassland areas.	maniamos in geod concinent	Quadrats and photo points at existing monitoring sites will be monitored annually to check <i>Swainsona</i> numbers	High
A number of <i>Swainsona</i> monitoring sites have been established.		and the condition of the grassland and records maintained.	
Maintenance of the native grassland will provide habitat for those animals dependent on this vegetation community.		Fire may be used as a management tool to encourage healthy grassland.	High

<b>Current Situation</b>	Desired Outcomes	Strategies	Priority
Introduced Species			
No introduced vertebrate pest species are known to exist in the reserve.	The reserve remains free of vertebrate pests.	<ul> <li>Vertebrate pests will be excluded where possible from and eliminated if found in the reserve in accordance with the Regional Pest Management Strategy.</li> </ul>	High
The grassland is in good condition with relatively few introduced plants. No noxious weeds occur in the reserve.	The reserve remains free of noxious weeds.	Any noxious weeds will be treated in accordance with the Regional Pest Management Strategy. Control measures will be put in place to ensure no impact on endangered plants.	High
Cultural Heritage			
There is no evidence of either European or Aboriginal cultural heritage on the reserve.	Any items of cultural heritage located on the reserve will be protected.	The Cummeragunja Local Aboriginal Land Council will be consulted prior to undertaking any works that could affect potential Aboriginal sites.	High

Current Situation	Desired Outcomes	Strategies	Priority
Fire Management  Fire may be a useful management tool to maintain the health of the grassland, reduce biomass and encourage the growth of Swainsona.  Controlled burning is not required for asset protection purposes.	Healthy grassland and increased numbers of <i>Swainsona</i> .  Life, property and natural and cultural values are protected from wildfire	<ul> <li>Burning to reduce biomass may be used where biomass exceeds 5–7 tonnes per hectare.</li> <li>No more than 25% of the reserve will be burnt in any calendar year.</li> <li>The response of <i>Swainsona</i> to a burning event will be monitored and assessed before any further burning is conducted.</li> <li>Wildfires will be contained and suppressed in conjunction with neighbours and fire authorities.</li> </ul>	High High High
Management Operations			
Management facilities consist of fences. These are in good order.  There are no management trails in the reserve.	Fences are maintained in good condition to exclude livestock.  No trails will be constructed	<ul> <li>The fences will be inspected at least annually and maintained in good order.</li> <li>Vehicular access to the reserve will be permitted for essential authorised management purposes only.</li> </ul>	High High

Current Situation	Desired Outcomes	Strategies	Priority
Visitor Use			
Visitation to the reserve is minimal. There are no walking tracks in the reserve.	Visitors will not be encouraged to enter the reserve.	Reserve identification signs will be maintained.	High
There are no visitor facilities and no	No structures are erected on the reserve other than signs.	Walking tracks will not be constructed.	High
interpretation provided on the reserve. Interpretive signs about grassland conservation may be provided in future. Reserve identification signs are provided on the boundaries		Public entry on foot for low-impact walking is permitted	Low
		Public use of the reserve will not be promoted.	High
		Bicycles and jogging are not permitted.	High
		Buildings, temporary structures such as marquees/tents, and barbeques will not be permitted on the reserve.	High
		<ul> <li>Any on-site interpretation provided will be located so that visitors do not have to enter the reserve to read it and will be of a general nature, not specifically identify plants present in the reserve.</li> </ul>	High

### **Key to priorities**

**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.

#### 5 REFERENCES

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#### APPENDIX: PLANT LIST

Acacia pendula

Alternanthera denticulate Arctotheca calendula Asperula conferta

Austrodanthonia caespitose Austrodanthonia setacea Austrostipa nodosa Avena barbata

Brachyscome angustifolia Brachyscome chrysoglossa

Bulbine bulbosa
Burchardia umbellate
Calocephalus citreus
Calocephalus sonderi
Calotis scabiosifolia
Centaurium tenuiflorum
Centaurium spicatum
Centipeda cunninghamii
Chamaesyce drummondii

Chenopodium desertorum ssp. Virosum

Chrysocephala apiculata Chrysocephalum apiculatum Convolvulus erubescens

Cortula binnata
Danthonia caespitosa
Danthonia duttoniana
Danthonia setacea
Dichopogon fimbriatus
Echium plantagineum
Elaeocharis acuta
Enchylaena tomentose
Enteropogon acicularis
Eragrostis australasica
Erodium botrys

Eryngium plantagineum Eryngium rostratum

Euphorbia drummondii Goodenai fasciscularis Goodenia pinnatifida

Goodenia pusilliflora Gynandriris setifolia Helichyrsum rutiolepis Hyalosperma semisterile Hypochoeris glabra

Hypochoeris radicata Hypoxis glabella Juncus radula

Leiocarpa panaetioides Leptorhynchos panaetiodes Leptorhynchos squamatus Leptorhynchos tenuifolius Leucochrysum molle

Linum marginale Lolium rigidum Lythrum hyssopifolia Maireana decalvans Boree

Lesser Joyweed Capeweed

Common Woodruff Common Wallaby-grass Bristly Wallaby-grass Knotty Spear-grass Slender Oat Stiff Daisy

Yellow-tongue Daisy Yellow Bulbine-Iily

Milkmaids

Lemon Beauty-heads Pale Beauty-heads Rough Burr-daisy

Spike Centaury Old Man Weed Flat Spurge Frosted Goosefoot

Common Everlasting Australian Bindweed

Common Wallaby Grass Brown-back Wallaby Grass Bristly Wallaby Grass Nodding Chocolate-lily Paterson's Curse Common Spike-rush Ruby Saltbush Curly Windmill Grass Cane Grass

Broadleaf Filaree Long Eryngium

Caustic Weed Silky Goodenia Cut Leaf Goodenia Small-leaf Goodenia

Thread Iris Pale Everlasting Orange Sunray Smooth Cat's Ear

Cat's Ear Tiny Star Hoary Rush Wiry Buttons

Scaly Buttons Wiry Buttons Soft Sunray Wild Flax

Wimmera Ryegrass Hyssop Loosestrife Common Bluebush Maireana excavata Maireana pentagona Microseris lanceolata Mueblepheckia cuppir

Muehlenbeckia cunninghamii Myriocephalus rhizocephalus

Oxalis perennans Plantago cunninghamii Plantago gaudichaudii

Podolepis jaceoides
Ptilotus erubescens
Ptilotus exaltatus
Pycnosurus globosus

Ranunculus pentandrus Rapistrum rugosum Rhodanthe corymbiflora Romulea minutiflora

Romulea minuti Romulea rosea Rumex brownii

Ranunculus pentandrus Schoenus apogon Sclerolaena muricata Sclerolaena napiformis Sclerolaena stelligera Sida rhombifolia Sonchus asper Sonchus oleraceus

Spergularia rubra Stipa scabra ssp. Falcate

Stipa nodosa

Swainsona murrayana Swainsona sericea Swainsona plagiotropis Swainsona procumbens Taraxacum officinale Triptilodiscus pygmaeus

Vulpia bromoides Vulpia myuros Wurmbea dioica Bottle Bluebush Slender Bluebush Murnong; Yam Daisy

Lignum Woolly-heads

Grassland Wood-sorrel

Narrow Plantain Copperwire Daisy

Lamb-tails

Inland Buttercup

Paper Sunray Small-flower Onion Grass Onion Grass Swamp Dock Smooth Buttercup Common Bog Rush Black Roly-poly

Paddy's Lucerne
Spiny Sow Thistle
Common Sow Thistle
Red Sandspurry
Slender Spear-grass
Tall Spear-grass
Murray Swainson-pea
Swainson-pea
Red Swainson-pea
Broughton Pea
Common Dandelion
Common Sunray
Squirreltail fescus

**Turnip Copperburr** 

Common Early Nancy

Rat Tail Fescue