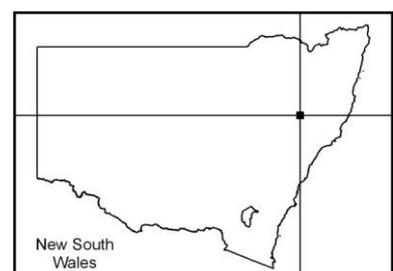




Plan of Management



Wallabadah Nature Reserve



Wallabadah Nature Reserve Plan of Management

NSW National Parks and Wildlife Service

March 2013

This plan of management was adopted by the Minister for the Environment on the 12th March 2013

Acknowledgements

The NPWS acknowledges that Wallabadah Nature Reserve is in the traditional country of the Gamilaraay Aboriginal people.

This plan of management was prepared by staff of the Hunter Region of the NSW National Parks and Wildlife Service (NPWS), part of the Office of Environment and Heritage, Department of Premier and Cabinet.

Cover photo by Catherine Watt, NPWS.

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Published by:
Office of Environment and Heritage NSW
59–61 Goulburn Street
PO Box A290
Sydney South 1232

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ISBN 978 1 74359 028 7

OEH 2013/0173

Printed on recycled paper

FOREWORD

Wallabadah Nature Reserve is situated 50 kilometres north east of Scone and covers an area of 1,132 hectares. It was first reserved in 1971 as a fauna reserve.

Wallabadah Nature Reserve contains a large area of old growth forest and woodland as well as poorly reserved River Oak Riparian Forest and Gum-Box Dry Open Forest vegetation communities. It also contains habitat for a range of species, including eight threatened animal species, and the headwaters of creek systems which form part of the Namoi River catchment.

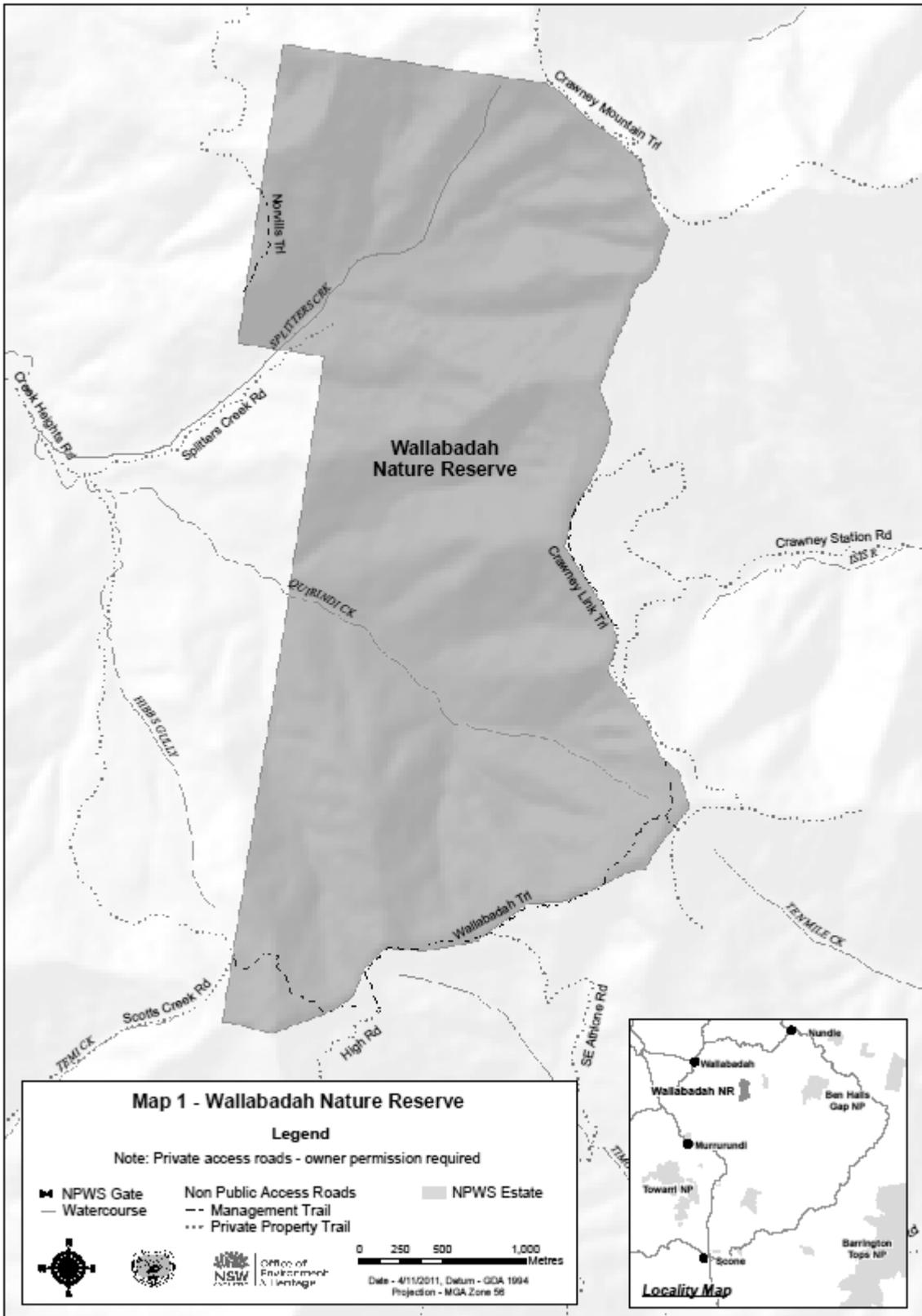
The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A draft plan of management for Wallabadah Nature Reserve was placed on public exhibition from 27 January until 30 April 2012. The submissions received were carefully considered before adopting this plan.

The plan contains a number of actions to achieve the NSW 2021 goal to protect our natural environment, including strategies to assist the recovery of threatened species and ecological communities, to assist revegetation of previously grazed areas, to protect water quality, to control weeds and pest animals, and to manage fire.

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



Robyn Parker MP
Minister for the Environment



1. LOCATION, GAZETTAL AND REGIONAL CONTEXT

Wallabadah Nature Reserve (referred to as “the reserve” in this plan) is located about 17 kilometres south east of Wallabadah and 50 kilometres north east of Scone on the western fall of the Liverpool Range (see Map 1). The reserve forms the headwaters of Quirindi Creek, at the top of the Murray-Darling basin. The eastern and southern boundaries lie on the watershed between the Namoi and Hunter catchments on top of the Liverpool Range.

The reserve was proclaimed on 25 June 1971 under the *Fauna Protection Act 1948* and covers 1,132 hectares. It was reserved for the purpose of protection and care of fauna, the propagation of fauna and the promotion of the study of fauna. Other factors supporting the initial reservation were the presumed periglacial origins of the soils in the higher parts of the reserve and the botanical value and quality of the vegetation as habitat for wildlife (Wasson, 1970).

The reserve was formerly Crown land which was dedicated in 1926 as Wallabadah State Forest. Wallabadah is the European name for the district. It is understood that the Kamilaroi people called the area ‘Thalabuburi’ (The Australian Science and Technology Heritage Centre, 2004). The first recorded European use is the name of Wallabadah Station dating back to the 1830s. There is rock suitable for grinding stone axes in the area and it has been suggested that Wallabadah as the station name was based on the Aboriginal word for “stone” (The Australian Science and Technology Heritage Centre, 2004; Geographical Names Board of New South Wales, 2010; McCarthy, 1963).

The reserve lies across the junction of the Nandewar Bioregion (in the north) and NSW North Coast Bioregion (in the south) (Thackway and Cresswell, 1995). It is part of a chain of reserves that lie along the Liverpool Range of the Great Dividing Range, from Coolah Tops National Park in the west, to Ben Halls Gap National Park in the east. It is one of the few reserves on the northern or western fall of the Liverpool Range.

The main land use in the surrounding area is grazing of domestic stock, predominantly cattle and sheep.

The reserve is within the geographical area of the Liverpool Plains Shire Council, the Namoi Catchment Management Authority, and the Nungaroo Local Aboriginal Land Council. The reserve is part of the Gomeroi People Native Title Claim (NC11/6).

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of nature reserves in NSW is in the context of the legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act), the NPW Regulation, *Threatened Species Conservation Act 1995* (TSC Act), and the policies of the National Parks and Wildlife Service (NPWS).

Other legislation, strategies and international agreements may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* (EPA Act) may require assessment of environmental impact of works proposed in this plan. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) may apply in relation to actions that impact on matters of National Environmental Significance, such as migratory and threatened species listed under that Act.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken within Wallabadah Nature Reserve except in accordance with the plan. This plan will also apply to any future additions to Wallabadah Nature Reserve. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

2.2 MANAGEMENT PURPOSES AND PRINCIPLES

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 the provision of recreation as a management principle.

2.3 STATEMENT OF SIGNIFICANCE

Wallabadah Nature Reserve is considered to be of significance for:

Biological values:

- The reserve contains a large area of old growth forest and woodland which provides habitat for a range of species including eight threatened animal species.
- The reserve contains the poorly reserved River Oak Riparian Forest and Gum-Box Dry Open Forest vegetation communities.
- It is on the boundary of the Nandewar and NSW North Coast bioregions and contains vegetation communities near to their limits of distribution that have limited conservation locally or regionally.

Landscape/catchment values:

- The reserve is situated on the Great Dividing Range and protects the headwaters of creek systems which form part of the Namoi River catchment.
- It is one of the few reserves on the inland fall of the Liverpool Range, draining into the Murray-Darling basin.

Aboriginal Heritage:

- The reserve has cultural significance to the Aboriginal community.

2.4 SPECIFIC MANAGEMENT DIRECTIONS

In addition to the general principles for the management of nature reserves (refer section 2.2), management of the reserve will focus on:

- the protection of the significant vegetation communities which provide habitat for a number of threatened fauna species;
- undertaking weed and feral animal control; and
- implementing the reserve fire management strategy.

3. VALUES

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, various aspects of natural heritage, cultural heritage, threats and on-going use are dealt with individually, but their inter-relationships are recognised.

3.1 GEOLOGY, LANDSCAPE AND HYDROLOGY

Wallabadah Nature Reserve lies on the Liverpool Range at the top of the Murray-Darling basin within the Namoi Catchment. The reserve contains the headwaters of Quirindi Creek, and the eastern and southern boundaries of the reserve separate the Namoi and Hunter catchments.

The steep topography and terraced landscape of the reserve is typical of the Liverpool Range. More than half the reserve has a slope gradient over 18 degrees. Elevation ranges from 1,000-1,400 metres above sea level along the narrow, undulating 'spine' which forms the eastern and southern boundaries of the reserve, to just over 700 metres on the western boundary. Quirindi Creek and its tributaries fall steeply through the reserve. The reserve is also a source of recharge into groundwater systems (Namoi Catchment Management Authority, 2009a).

Liverpool Range Volcanics comprising basaltic lavas and shallow intrusives (tuff and scoria), bole (basaltic soil) and interbedded clastic sediments of Early Tertiary age (Manser, 1968) form bedrock throughout most of the reserve. Older, folded metasedimentary rocks of the Tamworth Belt occur along the western margin of the reserve. Deeply weathered, bleached shales and fine sandstone are exposed near Quirindi Creek and are probably typical of this margin. These are overlain by the Liverpool Range Volcanics (Brownlow, 2011). The most common rock types are alkali olivine basalt and sodic basanite (a strongly sodic, basalt-like rock), as well as their coarser grained equivalents (Manser, 1968; Brownlow, 2011). A more detailed description of the geology of the reserve is contained in Brownlow (2011).

Rich, dark, basaltic soils occur on the flats along the lower reaches of these streams (Brownlow, 2011). One of the reasons for the area being reserved was the presumed periglacial origins of the soils in the higher parts of the reserve (Wasson, 1970), however the assumptions used to draw this conclusion have subsequently been questioned (Wasson, 1979).

Based on the steep terrain and nature of the soils, there is potential for widespread gully erosion in most of the reserve, including the higher elevation sections, and localised gully erosion in a small area along Quirindi Creek (Namoi Catchment Management Authority, 2009b). There is also potential for widespread sheet erosion across the reserve (Namoi Catchment Management Authority, 2009c).

The main threat to soils is extreme rainfall events, especially if they occur immediately after an intense bushfire that removes vegetation cover providing protection to the soil. Soil disturbance by construction works and feral animals can also initiate erosion. Any major soil erosion may also lead to water quality issues in the catchment.

3.2 NATIVE PLANTS

Five vegetation communities have been identified in a detailed survey of the reserve (Peake, 1999). These are:

Disturbed pasture (approximately 2% of the reserve) - previously cleared and grazed by domestic stock. This community occurs along Quirindi Creek and Splitters Creek and their tributaries, and a cleared knob south of Quirindi Creek. The dominant species is snow grass (*Poa sieberiana*), with other common species being wire grass (*Aristida ramosa*), slender bamboo grass (*Austrostipa verticillata*), wallaby grass (*Danthonia linkii* var. *fulva*) and kidney weed (*Dichondra repens*), as well as various herbs, vines, and sedges. This community contains a high proportion of introduced species.

River Oak Riparian Forest (less than 1% of the reserve) – grows in alluvium on permanent creeks. Dominated by river oak (*Casuarina cunninghamiana* ssp. *cunninghamiana*), with other occasional trees including rough-barked apple (*Angophora floribunda*), yellow box (*Eucalyptus melliodora*) and narrow-leaved peppermint (*E. radiata* ssp. *sejuncta*). Hairy pittosporum (*Pittosporum revolutum*), is occasionally present in low numbers. A shrub layer dominated by tree violet (*Hymenanthera dentata*) covers 20-50% of this community. Most of the ground surface is dominated by a dense cover of snow grass, couch (*Cynodon dactylon*), forest hedgehog grass (*Echinopogon ovatus*), kidney weed, as well as various ferns, herbs, forbs and vines.

This community is poorly reserved, as it typically occurs in lower elevations on agricultural land of reasonable quality and thus has been largely cleared. Blackberry (*Rubus fruticosus* agg.) infests some of this community within the reserve.

Stringybark Sheltered Open Forest (62% of the reserve) – occurs on sheltered, moisture-rich slopes and gullies, mainly in the northern half of the reserve and typically on south-facing slopes. Dominant species are red stringybark (*E. macrorhyncha*), Blakely's red gum (*E. blakelyi*) and rough-barked apple, with occasional occurrences of silver-top stringybark (*E. laevopinea*), messmate stringybark (*E. obliqua*) and mountain gum (*E. dalrympleana* ssp. *dalrympleana*). There is a sparse shrub layer, and dense groundcover in most places dominated by snow grass.

Snow Gum Exposed Open Forest (3% of the reserve) - restricted to high elevation, exposed sites along the top of the Liverpool Range, with a total area of just over 40 hectares within the reserve. Snow gum (*E. pauciflora*) is generally the dominant species, but Blakely's red gum often forms a canopy-dominant. Red stringybark and

bundy (*E. goniocalyx*) are occasionally present. Dense groundcover, usually less than one metre in height, covers between 40% and 80% of the community. Typical species include snow grass, forest hedgehog grass, wallaby grass, as well as a range of herbs, forbs and twiners and a number of introduced species.

This vegetation community is relatively well reserved locally and at a regional scale. The community is quite narrow and linear in shape (15 metres to almost 200 metres wide, mostly about 80 metres), making it susceptible to the effects of invading weeds.

Gum-Box Dry Open Forest (32% of the reserve) occurs on exposed, dry slopes and is the most widespread community within the reserve, covering most of the drier, more exposed, western slopes and ridges. It is dominated by white box (*E. albens*) and Blakely's red gum, but red stringybark and rough-barked apple are also co-dominant canopy species in places. Other occasional canopy species are narrow-leaved peppermint and yellow box, particularly near gullies.

This community is poorly reserved, as it typically occurs in lower elevations on agricultural land of reasonable quality and thus has been largely cleared.

No threatened plant species or Rare or Threatened Australian Plants (ROTAPs) (Briggs and Leigh, 1996) have been recorded in the reserve, however there are a number of regionally significant species. These species were identified using the methodology used during the Comprehensive Regional Assessment (CRA) process (NPWS, 2004). These species are listed in Table 1.

Table 1. Regionally significant plant species recorded in Wallabadah Nature Reserve

Common name	Scientific Name	Conservation significance	Survey
Stiff Flat-sedge	<i>Cyperus vaginatus</i>	CRA expert panel categorised as Threatened: rare (<5 localities but widespread)	Western Regional Assessment (WRA) (NPWS, 2004)
a speedwell	<i>Veronica sobolifera</i>	Regionally significant: rare, bioregional endemic	Peake (1999)
Bundy	<i>Eucalyptus nortonii</i>	Regionally significant: disjunct, edge of range	WRA (NPWS, 2004)
White Elderberry	<i>Sambucus gaudichaudiana</i>	Regionally significant: rare	WRA (NPWS, 2004)
Cotton Fireweed	<i>Senecio quadridentatus</i>	Regionally significant: rare	WRA (NPWS, 2004)
a daisy	<i>Solenogyne gunnii</i>	Regionally significant: rare	WRA (NPWS, 2004)
Western Silver Wattle	<i>Acacia decora</i>	Regionally significant: rare	Peake (2003)

NPWS (2004) provided a range of management strategies for significant plant species identified, including those species likely to occur in the reserve. It recommended flagging the locations of these species in the field to limit the impact of potentially damaging activities. Targeted surveys have been recommended for *Cyperus vaginatus*. It has also been recommended that weed control be targeted in the vicinity of known populations of significant species (NPWS, 2004).

If threatened species, populations or communities are found within the reserve, they will be managed in accordance with the State-wide Threatened Species Priorities Action Statement (PAS) and any relevant recovery plans.

The area surrounding Wallabadah Nature Reserve has been extensively cleared. The main threats facing vegetation in the reserve are single large fire events that could threaten the viability of local populations due to the lack of connectivity with other areas of natural vegetation. A range of weeds and feral animals represent threats to native vegetation as outlined in section 4.1.

3.3 NATIVE ANIMALS

The reserve has been identified as part of a Key Habitat of the Southern Ranges of the Nandewar bioregion and it forms part of a regional corridor along the Liverpool Range. The reserve provides excellent arboreal mammal habitat due to the abundance of old, hollowed eucalypts throughout the reserve.

To date, sixty nine bird species, sixteen native mammals including four bat species, and thirteen reptile species have been recorded in the reserve, eight of which are listed under the TSC Act and EPBC Act (see Table 2).

Table 2. Threatened animal species recorded in Wallabadah Nature Reserve

Common name	Scientific name	Legal Status *
Varied Sittella	<i>Daphoenositta chrysoptera</i>	Vulnerable *
Little Lorikeet	<i>Glossopsitta pusilla</i>	Vulnerable *
Swift Parrot	<i>Lathamus discolor</i>	Endangered * #
Hooded Robin	<i>Melanodryas cucullata</i>	Vulnerable *^
Powerful Owl	<i>Ninox strenua</i>	Vulnerable *
Yellow-bellied Glider	<i>Petaurus australis</i>	Vulnerable *
Scarlet Robin	<i>Petroica boodang</i>	Vulnerable *
Masked Owl	<i>Tyto novaehollandiae</i>	Vulnerable *

* Status under TSC Act

Denotes species also listed as nationally threatened under the EPBC Act.

^ Recorded by Burrell (2001)

Large forest owls are particularly scarce on the western slopes and Wallabadah Nature Reserve provides a very important habitat.

In addition to the threatened species, the reserve is known habitat for six regionally significant fauna species: the Greater Glider (*Petauroides volans*), Musk Lorikeet (*Glossopsitta concinna*), Peregrine Falcon (*Falco peregrinus*), Red-browed Treecreeper (*Climacteris erythroptera*), Brown Antechinus (*Antechinus stuartii*) and Common Wombat (*Vombatus ursinus*) (NPWS, 2004).

As well as these recorded species the reserve contains suitable habitat for a number of other threatened species that occur within 10 kilometres of the reserve and which may occur within the reserve. These are the Glossy Black-cockatoo (*Calyptorhynchus lathami*), Spotted-tailed Quoll (*Dasyurus maculatus*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*), Squirrel Glider (*Petaurus norfolcensis*), Greater Broad-nosed Bat (*Scoteanax rueppellii*), and the Diamond Firetail (*Stagonopleura guttata*). Suitable habitat is also present for the Hastings River Mouse (*Pseudomys oralis*).

Recovery Plans and Priorities Action Statements prepared under the TSC Act identify recovery actions and priorities for threatened species within NSW. Priorities Action Statements and Recovery Plans will be used to guide management of threatened species in the reserve. Recovery plans have been approved for the Powerful Owl, Masked Owl and Yellow-bellied Glider.

The main threats facing fauna are a single large fire event that could threaten the viability of local populations due to the lack of connectivity with other areas of natural bush for habitat. A range of feral animals represent threats to native fauna as outlined in section 4.1.

3.4 ABORIGINAL HERITAGE

The reserve lies within the traditional country of the Gamilaraay Aboriginal people. Aboriginal communities have an association and connection to the land. The land, water, plants and animals 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.

Aboriginal sites are places with evidence of Aboriginal occupation or that are in some other way significant to Aboriginal culture. They are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. Although many Aboriginal people and their camps were in the general area of the reserve until the 1860s (Bilton, 1990), and a number of sites are known within twenty kilometres of the reserve, no Aboriginal sites have been recorded in the reserve.

While the NSW Government has a legal responsibility for the protection of Aboriginal sites and places under the NPW Act, it acknowledges the right of Aboriginal people to make decisions about their own heritage. It is therefore policy that Aboriginal communities be consulted and involved in the management of Aboriginal sites, places and related issues and the promotion and presentation of Aboriginal culture

and history. The reserve is located in the Nungaroo Local Aboriginal Land Council area and is part of the Gomeroi People Native Title Claim (NC11/6).

3.5 HISTORIC HERITAGE

Cultural heritage comprises places and items that may have historic, scientific, aesthetic and social significance to present and future generations. The NPWS conserves the significant heritage features located in NSW parks and reserves.

The Liverpool Range was crossed in the 1820s by British explorers, and squatters followed soon after. A number of large pastoral runs were then established, including Wallabadah Station in 1835, on leased Crown Land (Durant and Croker, 1992). Wallabadah Station included what is now the Nature Reserve (Department of Crown Lands, n.d.). Cattle, horses and later sheep were grazed in the area.

The Liverpool Range was crossed in the 1820s by British explorers, and squatters followed soon after. A number of large pastoral runs were then established, including Wallabadah Station in 1835, on leased Crown Land. Cattle, horses and later sheep were grazed in the area (Durrant and Croker, 1992).

In 1878, an area of 10,400 acres (4,212 hectares) on the Liverpool Range was dedicated as Crawney Forest Reserve No 1266. Sections of this were progressively revoked until by 1906, only 2,798 acres remained. In the late 1880s a trial plot of at least 48 Red Cedar trees (*Toona ciliata*) was planted in what is now the reserve. Maintenance activities were suspended after the mid-1890s as it was considered that the trees were not doing well (Department of Crown Lands, 1894), and by 1965 only two cedars remained and these were considered to be very poor samples (Schubert, 1965). In 1889, permission was granted to the lessee of 'Wallabadah Run' to ringbark "useless timber" (Department of Crown Lands, 1889) to provide more grazing land. It is possible that some of the area ringbarked is now in the reserve.

The area that is now nature reserve was dedicated as Wallabadah State Forest No 797 on 9 April 1926. Parts of this Forest were also known as Dingo State Forest and Crawney State Forest (Walker, 1965). The widely scattered harvestable timber, coupled with the steep nature of the terrain and distance to a sawmill meant that it was uneconomic to harvest (Hammond, 1965). This led to the revocation of the State Forest on 23 April 1971 and its subsequent gazettal as Wallabadah Nature Reserve on 25 June 1971.

In 1978 Wallabadah Nature Reserve was listed on the Register of the National Estate as it represented a significant forest remnant on Liverpool Range basalt that had otherwise been extensively cleared. The Register of the National Estate is now the Australian Heritage database.

No built items of potential historic heritage have been identified in the reserve although it is likely that relics of its pastoral history remain. If any item is found, it will be assessed to determine its historic significance and managed accordingly.

3.6 VISITOR USE, EDUCATION AND RESEARCH

There is limited public access to the reserve as the roads which lead to the boundary of the reserve traverse private property. Given the steep terrain in the reserve and the lack of legal public access, no facilities are provided.

Limited formal research has been undertaken in the reserve, however due to its location near the limits of distribution of many species and near bioregional boundaries there is scope for a range of research topics. The main difficulties associated with research are with physical access due to the terrain, and weather making access tracks impassable sometimes for long periods. Specific topics for research could include:

- Research into the existence and extent, if any, of periglacial soils.
- Investigating the effects of fire on Yellow-bellied Glider habitat and populations and identifying appropriate fire regimes which is identified as a medium priority for research in the Recovery Plan for the Yellow-bellied Glider (NPWS, 2003).
- Targeted surveys for Stiff Flat-sedge (*Cyperus vaginatus*) (NPWS, 2004).
- Aboriginal heritage values.

4. ISSUES

4.1 WEEDS AND PEST ANIMALS

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

The Draft Hunter Region Regional Pest Management Strategy 2012-15 (OEH 2011 in prep) identifies pest species distribution across the Region and details priorities for control (including actions listed in the PAS and Threat Abatement Plans (TAPs) prepared under the TSC Act).

The overriding objective of the Draft Hunter Region Regional Pest Management Strategy is to minimise adverse impacts of introduced species on biodiversity and other reserve and community values whilst complying with legislative responsibilities. NPWS prioritises its control programs to focus on those areas where the impacts are likely to be greatest.

Wallabadah Nature Reserve has high fertility soils and includes previously cleared areas which make it susceptible to various weed species. Its steep terrain provides suitable habitat for feral goats (*Capra hircus*) and deer (*Dama dama*, *Cervus elaphus*). The Snow Gum Exposed Open Forest vegetation community is very narrow and occurs adjacent to agricultural land and is therefore very susceptible to invasion by agricultural weeds.

The Hunter Region Regional Pest Management Strategy identifies ten pest species as occurring in the reserve. High priority pest species are listed below (Table 3).

Table 3: Weed and Pest Animals Recorded in the Wallabadah Nature Reserve

Common Name	Scientific Name	Comment
Weeds		
Blackberry *	<i>Rubus fruticosus</i> agg.	<ul style="list-style-type: none"> ▪ isolated populations restricted to a small geographic area along creeklines and near the western boundary in formerly cleared areas ▪ impedes access ▪ provides habitat suitable for introduced species
Black Thistle / Spear Thistle	<i>Cirsium vulgare</i>	<ul style="list-style-type: none"> ▪ scattered populations throughout the reserve ▪ competes with native species during regeneration
Sweet Briar #	<i>Rosa rubiginosa</i>	<ul style="list-style-type: none"> • isolated populations restricted to a small geographic area of the reserve • provides habitat suitable for introduced species • impedes access
Prickly Pear #	<i>Opuntia stricta</i>	<ul style="list-style-type: none"> • isolated individuals scattered throughout the reserve
Tiger Pear #	<i>O. aurantiaca</i>	<ul style="list-style-type: none"> • dense patches can form an impenetrable barrier and provide harbour for introduced species • the large sharp spines and barbed bristles readily penetrate skin causing severe irritation

Pest Animals		
Pig = >	<i>Sus scrofa</i>	<ul style="list-style-type: none"> ▪ isolated populations restricted to a small geographic area of the reserve ▪ pigs forage, wallow and root in wetland areas, and cause major disturbance and damage to soils, roots, sensitive ground flora and wetland environments ▪ areas disturbed by feral pigs are at risk from subsequent weed invasion and soil erosion ▪ potential vector for weeds and livestock diseases
Goat = >	<i>Capra hircus</i>	<ul style="list-style-type: none"> ▪ scattered populations throughout the reserve ▪ grazing and browsing has significant impacts on native vegetation and can lead to changes in species composition as more palatable species are eaten and removed, as well as changes in vegetation structure ▪ grazing can lead to a decrease in overall cover and an increase in bare ground which, combined with trampling and soil surface damage caused by their hooves, may result in significant increases in soil erosion ▪ habitat changes affect native fauna, which may also be impacted by feral goats through competition for food and shelter ▪ cause damage to Aboriginal heritage sites ▪ potential vector for weeds and livestock diseases
Fallow Deer	<i>Dama dama</i>	<ul style="list-style-type: none"> ▪ scattered populations throughout the reserve ▪ destroy native plants through trampling, grazing and ring barking small trees, foul watercourses, causing soil erosion ▪ potential vector for weeds and livestock diseases
Red Deer =	<i>Cervus elaphus</i>	<ul style="list-style-type: none"> ▪ potential vector for weeds and livestock diseases
Wild Dog = ~	<i>Canis lupus familiaris</i>	<ul style="list-style-type: none"> ▪ established scattered population throughout the reserve ▪ can cause substantial losses to livestock enterprises, especially sheep grazing operations ▪ impact on native species appears to be greatest on large mammals, such as kangaroos and swamp wallabies and large ground-dwelling birds ▪ may have negative impacts on some threatened species such as koalas ▪ potential vector for weeds
Fox = ^	<i>Vulpes vulpes</i>	<ul style="list-style-type: none"> ▪ established scattered population throughout the reserve ▪ the fox has a devastating impact on native fauna, particularly among small to medium-sized (450-5000g) ground-dwelling and semi arboreal mammals, ground-nesting birds and freshwater turtles ▪ significant predators of domestic stock including lambs and poultry; with the potential to reduce lambing rates significantly ▪ potential vector for weeds
Cat =>	<i>Felis catus</i>	<ul style="list-style-type: none"> ▪ possible scattered populations throughout the reserve ▪ implicated as one of the causes in the decline of native species ▪ act as a reservoir for infectious diseases such as toxoplasmosis and sarcosporidiosis which can be transmitted to native fauna, domestic stock and humans ▪ potential vector for weeds

- * Declared Weed of National Significance
- # Declared “noxious” under the *Noxious Weed Act 1993*
- ~ Declared “pest” under the *Rural Lands Protection Act 1989*
- = Key threatening process under TSC Act – symbols too similar
- > Key threatening process under Commonwealth EPBC Act
- ^ Threat Abatement Plan endorsed for this species

Competition and habitat degradation by Feral Goats has been listed as a key threatening process under the TSC Act. 'Competition and land degradation by Feral Goats' is also listed as a key threatening process under the EPBC Act.

Predation, habitat degradation, competition and disease transmission by Feral Pigs is listed as a key threatening process under the TSC Act.

Wild dogs, including dingoes, are a declared pest under the *Rural Lands Protection Act 1998* (RLP Act) due to their impacts on livestock. NPWS therefore has a statutory obligation to control wild dogs on its estate. The dingo, however is also considered to be part of the native fauna of NSW, and certain areas of public land that provide high quality dingo habitat have been listed as dingo management areas in Schedule 2 of the Wild Dog Control Order made under the RLP Act. Wallabadah Nature Reserve is Schedule 1 land and therefore subject to the standard obligations under the Wild Dog Control Order.

Blackberry spraying is done regularly and although the population reduces, it is ongoing due to seeds being deposited by birds.

For many years ground baiting using 1080 poison has been undertaken for control of wild dogs and foxes, however this is restricted by steep terrain which reduces access. More recently the reserve has been included in the aerial baiting programme which has allowed baits to be more closely aligned with dog pathways not accessible on the ground. This programme is co-ordinated by the Central North Livestock Health and Pest Authority (LHPA) in collaboration with New England and Mid Coast LHPAs.

The Masked Owl is susceptible to secondary poisoning by sodium fluoroacetate (1080) which is used in wild dog and fox baiting (Department of Environment and Conservation (NSW), 2006). A Conservation Risk Assessment for baiting with 1080 has been prepared to ensure no harm to threatened species, including the Masked Owl (Department of Environment, Climate Change and Water NSW, Northern Branch, 2009).

Aerial control of pigs, goats and deer is conducted regularly within, and around the margins of the reserve, with the permission of neighbours. Where resources allow co-ordinated programmes are undertaken with the LHPAs across the wider landscape.

4.2 FIRE

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.

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.

No fires have occurred in the reserve recently, however landscape-wide dry lightning storms occur regularly and start fires. A number of fires have occurred around the reserve and could have burnt into the reserve had they not been contained.

Most of the reserve is forest with a sparse shrub layer and grassy understorey. The box and stringybark type trees can carry fire into the canopy and cause spot fires, especially as much of the reserve is steep land with slopes greater than 18 degrees. It is difficult to construct containment lines in this terrain and in certain conditions fire can be intense. The reserve is vulnerable to being burnt by a single large fire event. The Riparian River Oak Forest is sensitive to fire and could be impacted in drought times if there was a large fire event.

A separate (map-based) fire management strategy has been prepared for Wallabadah Nature Reserve (Department of Environment and Climate Change NSW, 2009). The fire management strategy outlines the recent fire history of the reserve, key assets within and adjoining the reserve including sites of natural and cultural heritage value, fire management zones, and fire control advantages such as management trails and water supply points. Hazard reduction programs, ecological burning proposals and fire trail works are submitted annually to the Liverpool Range Bush Fire Management Committee.

4.3 ISOLATION AND FRAGMENTATION

The area surrounding Wallabadah Nature Reserve has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Long term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. Nearby vegetated areas contribute to the habitat values of the reserve and provide ecological corridors to other vegetated areas. Maintaining the integrity of the remaining habitat within the reserve and, where possible, linking this to adjacent areas of vegetation to facilitate wildlife corridors is important in ensuring long term viability of the reserve's biological values.

On a broader national context, the Great Eastern Ranges conservation corridor extends for 2,800 kilometres from the Australian Alps north of Melbourne, Victoria to the Atherton Tablelands to the west and north of Cairns in far north Queensland. The Great Eastern Ranges Initiative has been established to strengthen conservation management and connectivity of natural lands to mitigate the impacts of climate change, and other threats. Wallabadah Nature Reserve lies on this corridor. The Namoi Catchment Management Authority has identified a north-south connection corridor from the Liverpool Range to Kaputar as part of the proposed Western

Woodlands Way, which meets the Liverpool Range in the vicinity of Wallabadah Nature Reserve (Namoi Catchment Management Authority, 2008).

4.4 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the TSC Act. Projections of future changes in climate for NSW include higher temperatures, increasing sea levels and water temperatures, elevated carbon dioxide, more intense but possibly reduced annual average rainfall, increased temperature extremes and higher evaporative demand. These changes are likely to lead to greater intensity and frequency of fires, more severe droughts, reduced river runoff and water availability, regional flooding, increased erosion and ocean acidification.

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. 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 feral animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates.

Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires, pollution and urban expansion, will help reduce the severity of the effects of climate change.

4.5 INFRASTRUCTURE

A number of trails access the reserve across private property. Trails also run along sections of the boundary, crossing between private property and the reserve according to terrain. There are limited trails within the reserve due to the steep terrain.

The quality and extent of boundary fencing varies, but is not uniformly stock-proof around the whole reserve. Some boundary marking and trail signage exists.

5. REFERENCES

- Bilton, G. (1990) *Draft Wallabadah Nature Reserve information pamphlet*. (unpublished report to Upper Hunter District NPWS)
- Briggs, J.D. & Leigh, J.H. (1996) *Rare or Threatened Australian Plants*. Revised edition. CSIRO, Melbourne.
- Brownlow, J. (2011) *Geology of Wallabadah Nature Reserve*. Unpublished report to Upper Hunter Area NPWS.
- Burrell, P. (2001) *Biodiversity audit Wallabadah Nature Reserve 23-04-01 – 27-04-01*. (unpublished report to Upper Hunter Area NPWS)
- Department of Crown Lands (1894) *Miscellaneous noting 94-2031*, Timber Res. No.1266 File.
- Department of Crown Lands, (1889) *Miscellaneous noting 89/1086*, Timber Res. No. 1266 File.
- Department of Environment and Climate Change NSW, (2007) *Hunter Region Pest Management Strategy 2008-2011*. DECC, Sydney, NSW.
- Department of Environment and Climate Change NSW (2009) *Hunter Region Crawney Pass National Park and Wallabadah Nature Reserve Fire Management Strategy (Type 2) 2009*. DECC, Nelson Bay, NSW.
- Department of Environment, Climate Change and Water NSW, Northern Branch (2009) *Conservation Risk Assessment Aerial Baiting Programs (with sodium fluoroacetate 1080) for Wild Dog Control in Northern Branch Reserves 2010-2014*.
- Department of Environment and Conservation (NSW), (2006), *NSW Recovery plan for the large forest owls: Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*) and Masked Owl (*Tyto novaehollandiae*)* DEC, Sydney.
- Durrant, D. (ed) & Croker, R. (1992) *The story of Wallabadah and its immediate district*. Quirindi and District Historical Society, Quirindi.
- Geographical Names Board of New South Wales (2010). www.gnb.nsw.gov.au/name_search/extract?id=SXqwWyUIMa.
- Hammond, R. (1965) *Letter to The Secretary, Forestry Commission*. (Unpublished document of Forestry Commission of New South Wales)
- Manser, W. (1968) *Geological Map of New England, 1:100 000 Series*, Wingen, University of New England Press.
- McCarthy, F.D. (1963) *New South Wales Aboriginal place names and euphonious words, and their meanings*. Australian Museum, Sydney.

Namoi Catchment Management Authority (2009a) Land Management Units in the Namoi Catchment.

http://www.namoi.cma.nsw.gov.au/namoi_cma_lmu_map_2009.pdf

Namoi Catchment Management Authority (2009b) Gully Erosion in the Namoi Catchment. http://www.namoi.cma.nsw.gov.au/gully_erosion_web_map.pdf

Namoi Catchment Management Authority (2009c) Sheet Erosion in the Namoi Catchment. http://www.namoi.cma.nsw.gov.au/sheet_erosion_web_map.pdf

Namoi Catchment Management Authority (2008) *Namoi conservation strategy information for natural resource managers*. http://www.namoi.cma.nsw.gov.au/ncs_information_for_managers_final.pdf

NPWS, (2004) *Upper Hunter National Parks Conservation Data Assessment*.

NPWS, (2003) *Recovery Plan for the Yellow-bellied Glider (Petaurus australis)*. NSW National Parks and Wildlife Service, Hurstville.

OEH (2011). Draft Hunter Region Regional Pest Management Strategy Part B 2012-2015 (in prep). Office of Environment and Heritage, Sydney NSW.

Peake, T. (1999) *The Flora and Vegetation Communities of Wallabadah Nature Reserve*. (unpublished report to Upper Hunter District NPWS, Muswellbrook)

Schubert, H. A. (1965) *Memo to District Forester, Glen Innes; reference HAS:JL 245*. (Unpublished document of Forestry Commission of New South Wales)

Thackway R & Cresswell I (Eds) 1995, *An interim Biogeographic Regionalisation for Australia: A Framework for Establishing the National System of Reserves, version 4.0*, Australian Nature Conservation Agency, Canberra.

The Australian Science and Technology Heritage Centre (2004) Unlocking Regional Memory Pastoral Station entry - Wallabadah Station (c. 1835 -) (www.nswera.net.au/biogs/UNE0490b.htm)

Walker, A.H. (1965) *Letter to the District Forester, Glen Innes, ref 107 JHG:LC*. (Unpublished document of Forestry Commission of New South Wales)

Wasson, R.J. (1970) Report of an investigation of the proposed Wallabadah Nature Reserve. (unpublished report to National Parks and Wildlife Service).

Wasson, R.J. (1979) The identification of relict periglacial slope mantles. *Australian Quaternary Newsletter*, 26 – 34, 1979.

6. IMPLEMENTATION

Current Situation	Desired Outcomes	Management Response	Priority*
<p>6.1 On-Park Ecological Conservation</p> <p>The reserve contains habitat and potential habitat for a number of threatened plant and animal species. It also contains vegetation communities not well conserved.</p> <p>The Priorities Action Statement (PAS) and recovery plans contain strategies to promote the recovery of threatened species, populations and ecological communities. The CRA process also made a number of recommendations to protect species.</p> <p>Fire, weeds and pests are the major threats to the reserve.</p> <p>Steep terrain and soils with high erosion potential.</p> <p>Climate change has been identified as a key threatening process under the TSC Act.</p> <p>There is uncertainty about the possible periglacial origins of the soils within the reserve.</p>	<p>Native plant and animal species and communities are conserved.</p> <p>Negative impacts on regionally significant and threatened taxa are stable or diminishing.</p> <p>Structural diversity and habitat values are restored in areas subject to past disturbance.</p> <p>Landscape and catchment values are protected.</p> <p>The effects of climate change on natural systems are reduced.</p>	<p>6.1.1 Implement relevant strategies in the PAS or recovery plans for threatened species, populations and ecological communities.</p> <p>6.1.2 Develop and implement a program for monitoring vegetation recovery of previously grazed areas. Implement strategies as necessary to assist revegetation.</p> <p>6.1.3 Mark the locations of significant plant species in the field so they can be protected from damage.</p> <p>6.1.4 Work with Namoi Catchment Management Authority to implement the Namoi Catchment Action Plan and protect water quality.</p> <p>6.1.5 Continue existing fire, pest and weed management programs to increase the reserve's ability to cope with future disturbances, including climate change.</p> <p>6.1.6 Encourage research into the geomorphology and geology of the reserve.</p>	<p>Medium / Ongoing</p> <p>Low</p> <p>Medium</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p> <p>Low</p>

<p>6.2 Cultural Heritage</p> <p>Knowledge about Aboriginal and European cultural heritage values within the reserve is limited.</p> <p>The reserve is part of a landscape associated with the Gamilaraay Aboriginal people. There are no recorded Aboriginal sites in the reserve; however no systematic survey has been undertaken. A number of Aboriginal sites have been recorded within 5-20 kilometres of the reserve.</p> <p>The reserve has a history of grazing, some clearing and possibly some limited harvesting of timber. There may be some surviving trees from plantings undertaken by Forestry in the 1880s.</p>	<p>Cultural heritage sites are identified, conserved, recorded and managed, and negative impacts are stable of diminishing.</p> <p>Aboriginal heritage values of the reserve are managed in partnership with the Aboriginal community.</p> <p>Community awareness of the cultural heritage value of the reserve is increased.</p>	<p>6.2.1 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact on Aboriginal or historic sites and places.</p> <p>6.2.2 Encourage further research into the Aboriginal heritage values of the reserve with the Nungaroo LALC, the Gomerioi Native Title Applicant and other relevant Aboriginal community organisations. Consult with the LALC, the Gomerioi Native Title Applicant and other relevant Aboriginal people about the management of any Aboriginal sites, places or values.</p> <p>6.2.3 Record historical artefacts, assess for heritage value to guide future management.</p> <p>6.2.4 Conduct a survey for Forestry Red Cedar plantings, interpret and protect as far as possible from fire if still alive.</p> <p>6.2.5 Pursue opportunities to involve and employ Gomerioi and other Aboriginal people in reserve management.</p>	<p>High</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p>
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<p>6.3 Visitor Use and Services</p> <p>There is limited public access to the reserve as the roads which lead to the boundary of the reserve cross private property. As a consequence, public access is restricted to walkers and prior permission must be obtained from landholders to cross private property.</p> <p>Given the steep terrain in the reserve and the lack of legal public access no formal facilities are provided.</p>	<p>Visitor use is appropriate and ecologically sustainable.</p> <p>Negative impacts of visitors on reserve values are stable or diminishing.</p>	<p>6.3.1 Organised group visits of more than five people will require consent, which will be based on prevailing conditions and potential impacts, and permission must be obtained from relevant landholders.</p>	<p>Low / Ongoing</p>
<p>6.4 Community Programs and Education</p> <p>Community awareness of the reserve's values is limited.</p> <p>An interpretive shelter is located at Willow Tree on the New England Highway (approximately 35 kilometres from the reserve) displaying general information about Hunter Region reserves and native flora and fauna.</p> <p>The area surrounding the reserve has been extensively cleared.</p> <p>The reserve forms part of the Great Eastern Ranges conservation corridor.</p>	<p>The local community is aware of the significance of the reserve and of reserve management programs.</p> <p>Key habitats and corridors on adjoining land are protected and enhanced.</p>	<p>6.4.1 Liaise with neighbours to encourage the retention and appropriate management of key habitats and corridors adjacent to the reserve and to explain and encourage involvement with management operations.</p> <p>6.4.2 Include material about the reserve in the Willow Tree NPWS interpretive display.</p> <p>6.4.3 Support NPWS representative on the Steering Committee for the Great Eastern Ranges conservation initiative.</p>	<p>Low / Ongoing</p> <p>Low</p> <p>Medium / Ongoing</p>
<p>6.5 Weeds and Pest Animals</p> <p>Significant weed species present include Blackberry and Sweet Briar.</p>	<p>Pest plants and animals are</p>	<p>6.5.1 Manage introduced species in accordance with the Hunter Region Regional Pest Management</p>	<p>High, Ongoing</p>

<p>Various feral animal species are known to occur within the reserve, including wild dogs.</p> <p>Pest control programs are undertaken in accordance with the Hunter Region Regional Pest Management Strategy.</p>	<p>controlled and where possible eliminated.</p> <p>The impact of introduced species on native plants and animals is minimised.</p> <p>Pest control programs are undertaken where appropriate in consultation with neighbours.</p>	<p>Strategy.</p> <p>6.5.2 Survey the reserve to determine the presence and extent of weeds and pest animals. Monitor noxious and significant environmental weeds. Treat any new outbreaks where possible.</p> <p>6.5.3 Seek the cooperation of neighbours in implementing weed and pest animal control programs. Undertake control in cooperation with the Central North LHPA.</p> <p>6.5.4 Implement relevant sections of the Chilcotts Creek Wild Dog Plan.</p> <p>6.5.5 Target weed control efforts to the vicinity of known regionally significant species (see 3.2 Native Plants).</p>	<p>Low</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p> <p>Medium / Ongoing</p>
<p>6.6 Fire Management</p> <p>Fire is a natural feature of many environments but inappropriate fire regimes can lead to loss of particular plant and animal communities. High frequency fires have been listed as a key threatening process under the TSC Act.</p> <p>No assets, including cultural heritage, have been identified to be at risk within the reserve, however there may be remaining Red Cedar trees (see 6.2).</p> <p>The Riparian River Oak Forest vegetation community is sensitive to fire.</p> <p>NPWS participates in the Liverpool Range</p>	<p>Life, property and natural and cultural values are protected from fire.</p> <p>Fire regimes are appropriate for conservation of native plant and animal communities.</p> <p>Negative impacts of fire on natural and cultural heritage values are minimised.</p>	<p>6.6.1 Implement the Reserve Fire Management Strategy for the reserve. Manage the reserve to protect biodiversity in accordance with the fire regimes identified in the Reserve Fire Management Strategy.</p> <p>6.6.2 Continue to be involved in the Liverpool Range BFMC and maintain cooperative arrangements with local RFS brigades and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.</p> <p>6.6.3 Manage all unplanned fires in the reserve in accordance with NPWS fire management policies.</p> <p>6.6.5 Avoid the use of heavy machinery off tracks,</p>	<p>Medium / Ongoing</p> <p>Medium / Ongoing</p> <p>High / Ongoing</p> <p>High</p>

<p>Bush Fire Management Committee.</p> <p>A Fire Management Strategy has been prepared for the reserve. This zones the reserve as a Land Management Zone (LMZ) because it is not adjacent to built assets which would be exposed to a high level of bushfire risk and does not have a history of bushfire ignitions. Apart from the over-riding legislative objective of protecting life and property, the primary fire management objectives for a LMZ are to conserve biodiversity and protect cultural heritage.</p>	<p>The potential for spread of bushfires on, from, or into the reserve is minimised.</p>	<p>except where they can be constructed with minimal environmental impact.</p> <p>6.6.6 Rehabilitate areas disturbed by fire suppression operations as soon as practical after a fire.</p>	<p>High</p>
<p>6.7 Infrastructure and Maintenance</p> <p>Parts of the boundary are fenced to a stock-proof standard but sections are missing or dilapidated. Domestic stock occasionally stray into the reserve.</p> <p>About 4.5 kilometres of the western boundary has been surveyed and permanent posts installed at critical survey points, with line of sight points in between to progress boundary fence construction.</p> <p>There is no legal access to the reserve.</p> <p>A number of trails access the reserve across private property. Trails run along sections of the boundary, crossing between private property and the reserve according to terrain. There is approximately 4 kilometres of management trail on the reserve.</p>	<p>Management facilities and operations adequately serve management needs and have minimal impact.</p> <p>Infrastructure and assets are routinely maintained.</p>	<p>6.7.1 Encourage construction and maintenance of boundary fences to exclude stock from the reserve. Fencing assistance may be provided in accordance with NPWS policy.</p> <p>6.7.2 Negotiate legal access arrangements to the reserve with neighbouring property owners for management purposes.</p> <p>6.7.3 Maintain all management trails as shown on the map to a usable standard for management purposes.</p> <p>6.7.4 Install reserve signs at main access points to the reserve and sign post management trails.</p>	<p>Medium</p> <p>Medium</p> <p>Medium / Ongoing</p> <p>Medium</p>

<p>Signs have been erected on some of the reserve boundaries and on a number of trails. Additional signs are required.</p>			
<p>6.8 Inappropriate Uses</p> <p>There are occasional reports of illegal hunting on the reserve and adjoining private property.</p>	<p>Illegal hunting on the reserve ceases.</p>	<p>6.8.1 Encourage neighbours to report illegal hunting activity to NPWS.</p> <p>6.8.2 Install regulatory signage and undertake law enforcement as required.</p>	<p>Medium / Ongoing</p> <p>Medium / 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.

Ongoing is for activities that are undertaken on an annual basis or statements of management intent that will direct the management response if an issue that arises.

