Office of Environment & Heritage
NSW National Parks & Wildlife Service

Draft Plan of Management

Oolambeyan National Park

Acknowledgments

NPWS acknowledges that Oolambeyan National Park is in the traditional country of the Wiradjuri people.

This plan of management was prepared by staff of the Mid West Area, Western Rivers Region of the NSW National Parks and Wildlife Service (NPWS), part of the Office of Environment and Heritage, with valuable assistance from members of the Oolambeyan National Park Biodiversity Working Group.

FRONT COVER: Oolambeyan National Park, grassland habitat of the plains-wanderer. September 2009.

Photo: David Parker/NPWS

For additional information or any inquiries about this park or this plan of management, contact the NPWS Griffith Area Office at 200 Yambil St, PO Box 1049, Griffith NSW 2680 or by telephone on 02 6966 8100.

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

ISBN 978 1 74293 969 8

OEH 2012/1004

Printed on recycled paper

Oolambeyan National Park
Draft Plan of Management

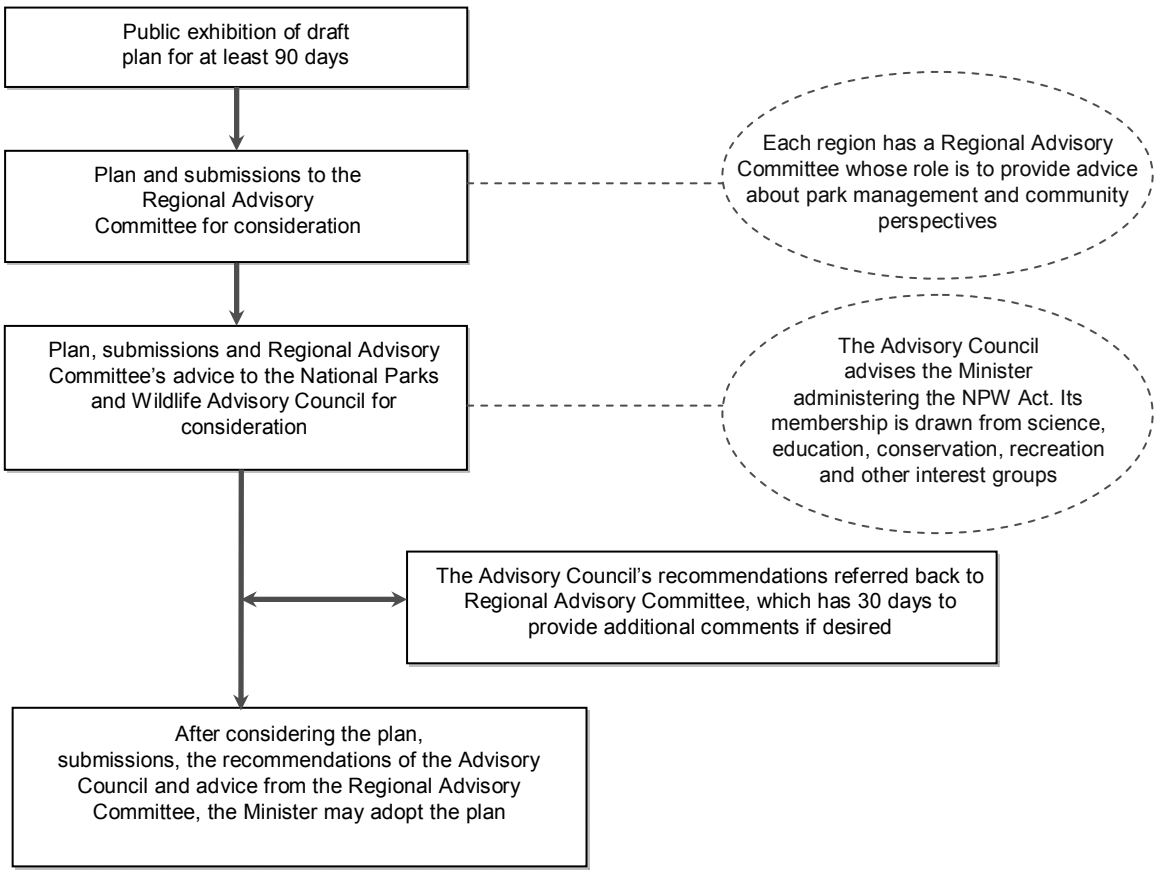
NSW National Parks and Wildlife Service

December, 2012

INVITATION TO COMMENT

The *National Parks and Wildlife Act 1974* (NPW Act) requires that a plan of management be prepared that outlines how an area will be managed by the NSW National Parks and Wildlife Service (NPWS).

The procedures for the exhibition and adoption of plans of management are specified under Part 5 of the NPW Act and involve the following stages:



This draft plan has been developed with input from local community members and key stakeholders and is now being placed on public exhibition for comment. Members of the public, whether as individuals or as members of community interest groups, are invited to comment in writing on this plan of management.

The draft plan is on exhibition until Monday 29th April, 2013.

Submissions can be made by:

i) Writing to The Ranger, Oolambeyan National Park, PO Box 1049 GRIFFITH NSW 2680, or
ii) Submitting comments on-line at www.environment.nsw.gov.au.

To make consideration of your submission as effective as possible it would help us if you:

- Identify the section heading and number to which your comment relates; and
- Briefly explain the reason for your comment and, if appropriate, suggest other ways to address the issue.

All submissions received by NPWS are a matter of public record and are available for inspection upon request. Your comments on this draft plan may contain information that is defined as "personal information" under the NSW *Privacy and Personal Information Protection Act 1998*. The submission of personal information with your comments is voluntary.

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1. LOCATION, GAZETTAL AND REGIONAL CONTEXT

Oolambeyan National Park is 21,851 hectares in size and is located in the Western Riverina region of New South Wales, 600 kilometres west of Sydney. The nearest towns are Carrathool approximately 35 kilometres to the north, and Hay approximately 85 kilometres to the northwest (refer Map 1).

The former pastoral station "Oolambeyan" was purchased in October 2001 with joint State and Commonwealth funding and was gazetted on 25 October 2002 for the primary purposes of contributing to the comprehensiveness of the National Reserve System within the IBRA Riverina Bioregion by:

- protecting the full diversity of ecosystems and natural and cultural features not currently represented in the existing reserve system; and
- protecting critical habitat for the nationally threatened plains-wanderer (*Pedionomus torquatus*).

The Riverina Bioregion is one of the least protected bioregions in the state and is characterised by intensive irrigated cropping for rice, cotton, wheat and other grains, as well as supporting sheep and cattle grazing. At the time of gazettal only 0.6 percent of the bioregion was represented in conservation reserves, and native grasslands, the characteristic ecosystem and key habitat area for the plains-wanderer, were unrepresented. As at 2012, the area protected in conservation reserves in the Riverina Bioregion stands at 3.42 percent.

Oolambeyan National Park (also referred to as 'the park' in this plan) has affinities with other reserves in western NSW through their shared pastoral history, including Willandra National Park, Mungo National Park and Yanga National Park.

The park lies on the border between Murrumbidgee and Hay Shires and is within the geographical area of the Murrumbidgee Catchment Management Authority and the Griffith Local Aboriginal Land Council.

The park is within the traditional and contemporary country of the Wiradjuri people and its name is believed to be based on the Wiradjuri word *Wulambiyan*. *Wulam* means "to call or give voice to", and *biyan* can be past tense or "always and continuous". Hence it can be interpreted as "have always been calling", the "voice of the wind calling in the trees" or the "song of the wind passing through the trees". This is linked to the story that the voice of Dharramulan, one of Biamie's sons, was put into the trees from which comes the sound of the bull roarer (Steve Meredith, pers comm. in NPWS 2003).

2. MANAGEMENT CONTEXT

2.1 LEGISLATIVE AND POLICY FRAMEWORK

The management of Oolambeyan National Park in NSW is in the context of a legislative and policy framework, primarily the *National Parks and Wildlife Act 1974* (NPW Act) and Regulation, the *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 in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to Oolambeyan National Park. 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

National parks are reserved under the NPW Act to protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features or landscapes or phenomena that provide opportunities for public appreciation, inspiration and sustainable visitor or tourist use and enjoyment.

Under the Act (section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes;
- conserve places, objects, features and landscapes of cultural value;
- protect the ecological integrity of one or more ecosystems for present and future generations;
- promote public appreciation and understanding of the park's natural and cultural values;
- provide for sustainable visitor or tourist use and enjoyment that is compatible with conservation of natural and cultural values;
- provide for sustainable use (including adaptive reuse) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values; and
- provide for appropriate research and monitoring.

The primary purpose of national parks is to conserve nature and cultural heritage. Opportunities are provided for appropriate visitor use in a manner that does not damage conservation values.

2.3 STATEMENT OF SIGNIFICANCE

Oolambeyan National Park is considered to be of significance for the following:

Biological values

- within the area known to be the stronghold for the nationally threatened plains-wanderer and one of only a handful of reserves throughout Australia which contains extensive native grasslands known to provide primary habitat for this species;
- two endangered ecological communities (EECs). One community, referred to in this plan as Weeping Myall Woodland, is listed under the TSC Act as Myall Woodlands in the Darling

Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South West Slopes Bioregion, and listed under the EPBC Act as Weeping Myall Woodland. The second is commonly referred to as Sandhill Pine Woodland and is listed under the NSW TSC Act as Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes Bioregions.

- two threatened plant species and nine threatened animal species listed under the TSC Act; one threatened plant species, the slender Darling pea (*Swainsona murrayana*) and two threatened animal species, namely the plains-wanderer and superb parrot (*Polytelis swainsonii*) are also nationally listed under the EPBC Act; and
- ephemeral wetlands of canegrass (*Eragrostis* spp.) and nitre goosefoot (*Chenopodium nitrariaceum*) which are very poorly reserved in NSW.

Landscape values

- expansive horizons of the Hay Plains which are one of the flattest tracts of land in the world with a difference in elevation of only 17 metres between the lowest and highest points;
- a sample of riverine plain geomorphological features of Quaternary age such as prior streams, ancestral rivers, sand dunes and level alluvial plains.

Cultural heritage values

- a diversity of Aboriginal sites and places, including campsites, hearths and stone artefacts; and
- an example of a former merino stud property of the western Riverina, including a homestead, shearing shed and associated infrastructure.

2.4 SPECIFIC MANAGEMENT DIRECTIONS

In addition to the general principles for the management of national parks (refer section 2.2), the following specific management directions apply to the management of Oolambeyan National Park:

- maintain and enhance habitat for the plains-wanderer through an adaptive management approach which allows for controlled grazing of the reserve by sheep;
- undertake research that contributes to the conservation and recovery of the plains-wanderer;
- continue to undertake predator control for the protection of the plains-wanderer in accordance with the Fox Threat Abatement Plan;
- maintain and enhance the condition of endangered and regionally significant vegetation communities;
- protect Aboriginal cultural values on the reserve including the conservation of cultural heritage sites in consultation with the Wiradjuri community; and
- maintain and conserve heritage values of the buildings in the homestead, shearing, hay shed and ram shed complexes in accordance with their assessed heritage significance.

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, LANDFORM AND HYDROLOGY

The topography of the park and surrounding land is generally flat, although landforms include open plains, prior and ancestral streamlines, swamps and gently undulating sand ridges. Across the park and the surrounding plains, the low relief and predominantly clay-rich soils have given rise to numerous swamps and slowly draining linear depressions. A network of depressions fans out into the southern parts of the park, running from the northeast. Inundation of these areas is infrequent but can persist for extended periods of time. The natural hydrology has been altered by the construction of channels and irrigation infrastructure across the eastern half of the park.

The park lies on three broad geomorphic types of the Riverine Plains (Butler et. al.1973). The most common of these is alluvial plains with channels, found primarily in the southern part of the park. These channel features can show broad or narrow depositional patterns, and carry or hold water during wet seasons and floods. Prior streams (old creek beds) have the ability to flow after heavy rainfall. Alluvial plains with scalds typify northern parts of the park, but again contain stream traces showing varied depositional patterns. The third geomorphic type is source-bordering dunes. These sand hills and rises are associated with major stream traces, the sandy material being redistributed from the streams to form rises.

Soil types found on the park range from hard scalded red loams, to grey cracking clay, red orange sand rises and black/brown floodplain alluviums (Roberts & Roberts 2001). Some of these soils, particularly the sand rises, are fragile and easily eroded, particularly after disturbance such as the construction of infrastructure, and the driving of vehicles off trails. Prolonged drought and the action of wind can exacerbate these impacts.

Overgrazing by both native and introduced animals can contribute to erosion where pressure on forage and habitual tracking by animals reduces vegetation cover to bare ground. Sheep grazing in this location over the last 150 years has proven beneficial for the plains-wanderer by maintaining suitable habitat in the native grasslands. Therefore sheep grazing will be allowed to continue on the park under a strategic program designed to avoid overgrazing and other adverse impacts (refer Section 3.3). During poor seasonal conditions, sheep grazing will not be allowed.

Issues

- Wind erosion, especially during drought years, can expose Aboriginal sites.
- Vehicles driving off designated trails create tracks that cause soil compaction, damage vegetation and accelerate erosion.
- Structures created within the predominantly flat topography can affect wind flows and hence erosion.
- Overgrazing by native and non-native animals contributes to soil erosion.

Desired Outcomes

- The landscape, geology and soils of the park continue to evolve naturally and the impacts of non-natural causes of erosion are minimised.
- Soils are stable, well-protected by ground cover and are able to take in water.

- Scenic values of the broad horizons are protected.

Management Response

3.1.1 All works will be designed and undertaken in a manner that minimises soil erosion.
3.1.2 Introduced species that accelerate soil erosion will be controlled (refer section 4.1).
3.1.3 The impacts of sheep grazing will be closely monitored so as to minimise soil erosion and vegetation impacts.
3.1.4 Movement of vehicles on the park will be restricted to existing trails, except where off-trail use is required for emergency management purposes.

3.2 NATIVE PLANTS

Oolambeyan National Park lies within the Riverina Bioregion and contains a range of vegetation communities typical of the western Riverine Plains (Keith 2004). It supports the full complement of vegetation communities and landscape types that characterise the central Hay Plains of the New South Wales Riverina (NPWS 2003). The ecosystems represented on the park are not well represented in the reserve system. Outside the reserve system they are commonly subject to agricultural management practices, leading to loss of integrity of the ecosystems. Temperate grassy ecosystems, which cover most of the park, are widely acknowledged as the most threatened ecosystems in Australia (McDougall and Kirkpatrick 1994).

The vegetation communities which occur in the park as described below are all of conservation significance due to low levels of reservation within the reserve system and ongoing impacts on remnant populations.

Riverine Plain Grasslands

The extensive areas of Riverine Plain Grassland occurring on the alluvial plains of the park are today one of the most extensive native grasslands in NSW. These sparse, treeless, lowland, grasslands are of high conservation significance as the preferred habitat for the nationally threatened plains-wanderer *(Pedionomus torquatus)* which has mostly been replaced in the Riverina and north-central Victoria by agricultural crops. Another listed species the slender Darling pea (*Swainsona murrayana)* is also recorded in these grasslands.

The composition of plant species in grasslands occupied by the plains-wanderer is very similar to that found in dense native grasslands that are not occupied by the species, which suggests that the structure of the grassland is of more importance than species composition in determining its suitability as habitat (Baker-Gabb 1987 cited in SEWPAC 2012). The habitat on the park has been mapped and is closely monitored to determine whether or not it is optimal for plains-wanderers or whether intervention is required. For example, after rainfall, tussock growth may be too dense for plains-wanderers or conversely, prolonged drought can cause grassland vegetation to become too sparse.

Research indicates that significant areas of these grasslands are derived from past clearing of Weeping Myall Woodland, also present in the park and a declared EEC under the EPBC and TSC Acts (refer to Riverine Plain Woodlands below) (Moore 1953). The grasslands are also likely to have expanded through the suppression of shrubland and woodland regrowth by the sustained grazing of stock. This has resulted in an increase in habitat for the plains-wanderer and other grassland species.

Two distinct grassland types occur across the park, their distribution largely determined by soil type. On the hard-setting red clay loams, vegetation is low open tussock grassland with an abundance of herbs. This is characterised by a sparse cover of perennial grasses, particularly speargrass (*Austrostipa scabra*) and white-top (*Rytidosperma caespitosum*) and less commonly brush wiregrass (*Aristida behriana*), hill wallaby grass (*Rytidosperma erianthum*) and windmill grass (*Chloris truncata*). Other perennial herbs and sub-shrubs include cottonbush (*Maireana aphylla*), slender-fruited saltbush (*Atriplex leptocarpa*), lambs tails (*Ptilotus exaltatus*), pussy-tails (*Ptilotus spathulatus*), yellow buttons (*Chrysocephalum apiculatum*), *Sida* spp. and caustic weed

(*Chamaesyce drummondii*). Annual forbs such as small white sunray (*Rhodanthe corymbiflora*) and *Hyalosperma glutinosum* are common on these soils.

On the grey and brown self-mulching clay soils, the vegetation structure can be described as low open tussock grassland, where the most common perennial is plains grass (*Austrostipa aristiglumis*). Other common grasses include curly windmill grass (*Enteropogen acicularis*) and native millet (*Panicum decompositum*). Also present as a smaller component of the community are the exotic rye grass (*Lolium rigidum*) and wild oats (*Avena fatua*) (refer section 4.1). A variety of forbs such as Broughton pea (*Swainsona procumbens*), rough burr-daisy (*Calotis scabiosifolia* subsp. *scabiosifolia*) and bluebells *(Wahlenbergia* sp.) may be found within the inter-tussock spaces.

Two hundred and fifty-eight hectares of this vegetation community was cleared for irrigated cropping. This area has not been used for 10 years and shows signs of recolonisation by native species (Michelle Ballestrin, pers obs. 2010).

Riverine Chenopod Shrublands
Extensive treeless chenopod shrublands are found across the southern areas of the park on flat alluvial plains, dry swamps and creeklines. These shrublands have an open cover of chenopod shrubs dominated by cottonbush (*Maireana aphylla*). Grazing has led to a substantial decline in saltbushes (*Atriplex* spp.) within these shrublands due to their palatability. These species are sensitive to even moderate levels of grazing due partly to a slow rate of shoot production and the fact that there are both male and female plants. Cottonbush has persisted because of its unpalatable nature.

Inland Floodplain Shrublands and Swamps
These dense or open shrublands, occasionally growing up to two metres tall, are found in the network of floodplain clay-rich soils and slowly draining linear depressions. They have a mixed perennial and ephemeral ground cover of sedges, grasses and forbs. Wiry lignum (*Muehlenbeckia florulenta*) and nitre goosefoot (*Chenopodium nitrariaceum*) are characteristic species of the Inland Floodplain Shrublands and provide important habitat for many native animals. Examples of this community can be found along the Eurolie Creek, Eurolie Anabranch and Gundaline Creek. Flooding of these areas is restricted due to the regulation of river flows on the Murrumbidgee River, and is now greatly reliant on heavy rainfall events.

The Inland Floodplain Swamps on the park appear as simple depressions throughout most of the year, however these communities respond rapidly with the growth of small sedges and other aquatic water plants after heavy rainfall events.

Inland Floodplain Woodlands
On the park these communities are found on heavy alluvial clays predominately across the northern parts of the park (i.e. Bromiumbong Swamp) and may be periodically, but briefly inundated. The canopy of these woodlands is dominated by black box (*Eucalyptus largiflorens*), while associated perennial plant species include native willow (*Acacia salicina*), nitre goosefoot and creeping saltbush (*Atriplex semibaccata*). The ground layer is typically scattered with grasses such as windmill grass (*Chloris truncata*) and herbs including climbing saltbush (*Einadia nutans*) and pale beauty-heads (*Calocephalus sonderi*).

Riverine Plain Woodlands
The Riverine Plain Woodlands on Oolambeyan National Park are dominated by weeping myall (*Acacia pendula*) known locally as boree. They are classified as the EEC Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions under the TSC Act and as the Weeping Myall Woodlands EEC under the EPBC Act.

Occurring on lighter red-brown earths and heavy clay soils, the structure, composition and distribution of the community varies and has been reduced to a small proportion of their original

range from past clearing, firewood collection and overgrazing. Moore (1953) argued that these woodlands have lost their understorey chenopods, and as a result of these practices large areas of Riverine Plain Woodlands became Riverine Plain Grasslands, which still retain much of the native ground flora but lack most of the woody shrub components. Miljee (*Acacia oswaldii*), thorny saltbush (*Rhagodia spinecens*) and spring-pod cassia (*Senna artemisioides* ssp. *circinnata*) are occasional associated species, while other stands contain an open to continuous groundcover of grasses and herbs.

Grey mistletoe *(Amyema quandang* subsp. *quandang*) is a common stem parasite of boree. This species is an important food source for many woodland birds including the threatened painted honeyeater (*Grantiella picta*) and superb parrot (*Polytelis swainsonii*).

Riverine Sandhill Woodlands
Large areas of remnant white cypress pine (*Callitris glaucophylla*) woodlands occur on the extensive sandy ridges, aeolian fans and source bordering dunes at Oolambeyan National Park. They are classified as the EEC Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes Bioregions under the TSC Act, and are a marked contrast to the low relief of the surrounding chenopod shrublands and grasslands. The sandhill woodlands have a prominent and diverse complement of shrubs, which may be present as scattered individuals or in dense groves. Associated species include belah (*Allocasuarina cristata*), rosewood (*Alectryon oleifolius*), hooked needlewood (*Hakea tephrosperma*), wilga (*Geijera parvifolia*), northern sandalwood (*Santalum lanceolatum*), miljee and butterbush (*Pittosporum phylliraeoides*).

The structure of the Sandhill Pine Woodlands has been greatly altered since European occupation. Cypress pine provided a valuable source of timber for shearing sheds, fence posts and the building of homesteads, outstations and other associated buildings. A history of heavy grazing by domestic livestock and rabbits has impacted the native ground flora which is today dominated by annual and biennial exotics.

Regeneration of many tree, shrub and forb species such as cypress pine, rosewood, hooked needlewood, emubush (*Eremophila longifolia*), hop bushes (*Dodonaea* spp.), punty bush (S*enna* spp.) and wattles (*Acacia* sp.) is also affected by grazing by introduced herbivores (John Brickhill pers. comm.). In places there is natural regeneration and suckering of hopbush, needlewood and rosewood following the removal of stock after acquisition.

Threatened Plant Species
Two threatened plant species have been found on Oolambeyan National Park, the vulnerable slender Darling pea and the endangered austral pillwort (*Pilularia novae-hollandiae*). Strategies for the recovery of threatened species, populations and ecological communities have been set out in a state-wide Threatened Species Priorities Action Statement (PAS). Individual recovery plans may also be prepared for threatened species to consider management needs in more detail.

Exotic Plantings
There are numerous exotic trees planted in avenues and as shade trees around a number of buildings. Vegetation around the homestead, shearing and ram shed complexes is managed with consideration for cultural landscape values (refer section 3.5). Vegetation within the remainder of the park is managed for natural values.

Issues
- Maintaining the structure of the native grasslands is essential to meeting the preferred habitat needs of the plains-wanderer.
- Regrowth of areas of Weeping Myall Woodland within grassland may impact upon the extent of potential habitat for the plains-wanderer.
- Overgrazing by stock and rabbits has had an adverse impact on the structure and composition of the EEC woodland communities.

Desired Outcomes

- The extent and condition of available plains-wanderer habitat is optimised.
- The full range of native plant species and communities found in the park is protected and conserved, particularly significant and restricted species and communities.
- Structural diversity and habitat values of EEC woodland communities are conserved, and restored where they have been subject to past disturbance.
- Knowledge of vegetation communities and significant flora is added to.

Management Response

3.2.1 Monitor the vegetation structure of the native grasslands to determine whether intervention is required to maintain it in optimal condition for plains-wanderer habitat.

3.2.2 Promote natural regeneration of woodland and grassland areas through management of grazing and continued control of rabbits.

3.2.3 Monitor the condition of Weeping Myall Woodland and Sandhill Pine Woodland EEC vegetation and implement rehabilitation measures as needed.

3.2.4 Implement priority action statements and recovery plans (where developed) for threatened plant species and communities on the park.

3.3 NATIVE ANIMALS

The park is an important local refuge for a diverse range of animal species in a region subject to agricultural practices. The habitats on Oolambeyan National Park support a range of bird, reptile and mammal species. To date 180 species of fauna have been identified on the park, including 150 species of bird, 13 species of mammal (including bats), 17 reptiles and six amphibian species. Nine of these species have been identified as threatened species under the TSC Act (refer Table 1), whilst two species – the superb parrot and the plains-wanderer are also listed as vulnerable under the EPBC Act. Strategies for the recovery of threatened species, populations and ecological communities have been set out in a state-wide Threatened Species Priorities Action Statement (PAS). Individual recovery plans may also be prepared for threatened species to consider management needs in more detail.

Table 1. Threatened animal species recorded at Oolambeyan National Park.

Common name	Scientific name	TSC Act Status	EPBC Act Status
Australian bustard	*Ardeotis australis*	Endangered	
Plains-wanderer	*Pedionomus torquatus*	Endangered	Vulnerable
Superb parrot	*Polytelis swainsonii*	Vulnerable	Vulnerable
Grey-crowned babbler	*Pomatostomus temporalis*	Vulnerable	
Painted honeyeater	*Grantiella picta*	Vulnerable	
White-fronted chat	*Epthianura albifrons*	Vulnerable	
Little eagle	*Hieraaetus morphnoides*	Vulnerable	
Spotted harrier	*Circus assimilis*	Vulnerable	
Diamond firetail	*Stagonopleura guttata*	Vulnerable	
*Rainbow bee-eater	*Merops ornatus*		Migratory

Source: *DECC Atlas of NSW Wildlife, August 2012.*

* Listed under the EPBC Act list of migratory species provided for under the Japan-Australia Migratory Birds Agreement (JAMBA).

Over half the bird species found on park are dependent upon the woodland habitats of the sandhills, homestead area and grasslands. These include the spiny-cheeked honeyeater (*Acanthagenys brevirostris*), blue bonnet (*Northiella haematogaster*), grey-crowned babbler, striped honeyeater (*Plectorhyncha lanceolata*) and apostlebird (*Struthidea cinerea*). Emus (*Dromaius novaehollandiae*) and the Australian pipit (*Anthus australis*) are commonly observed throughout the grasslands. The park has high conservation values in protecting a range of bird species that have declined including the brown songlark (*Cincloramphus cruralis*), Australian pipit (*Anthus australis*) and banded lapwing (*Vanellus tricolor*) (Barrett et. al. 2003). Other species visit

the park seasonally, such as the pallid cuckoo (*Cuculus pallidus*), or when mistletoe is flowering, such as the painted honeyeater. Species whose numbers fluctuate depending on season include crimson chats (*Epthianura tricolor*), rainbow bee-eaters (*Merops ornatus*) and budgerigars (*Melopsittacus undulatus*). Also of note is the abundance of raptors present on the park, most notably the wedge-tailed eagles (*Aquila audax*) which build their nests in white cypress pine trees across the park. Other raptor species observed include the brown falcon (*Falco berigora*), black-shouldered kite (*Elanus axillaris*) and black kite (*Milvus migrans*).

Mammals recorded on park include the red kangaroo (*Macropus rufus*), eastern grey kangaroo (*Macropus giganteus*), western grey kangaroo (*Macropus fuliginosus*), Gould's wattled bat (*Chalinolobus gouldii*), little forest bat (*Vespadelus vulturnus*), lesser long-eared bat (*Nyctophilus geoffroyi*) and common brushtail possum (*Trichosurus vulpecula*). Dams and water points in and adjoining the park provide a permanent supply of water for the kangaroos and other species. It is not known to what degree this contributes to total grazing pressure.

The most commonly seen reptiles and amphibians on the park include the eastern brown snake (*Pseudonaja textilis*), shingle-back lizard (*Tiliqua rugosa*), lace monitor (*Varanus varius*), eastern hooded scaly-foot (*Pygopus schraderi*), giant banjo frog (*Limnodynastes interioris*) and painted burrowing frog (*Neobatrachus sudelli*).

Plains-wanderer conservation and management

Over the past 20 years or so, most records of the nationally threatened plains-wanderer have been from the Western Riverina region (Baker-Gabb 1990a, 2002 cited in SEWPAC 2012). Acquisition of Oolambeyan National Park fulfils a key objective of the draft Plains-wanderer Recovery Plan (DECC 2008), namely to purchase a grassland reserve in this region to assist in the species' recovery. Key threats to the survival of plains-wanderers are replacement of native grassland with introduced pastures and crops, and overgrazing. Loss of habitat is continuing (NPWS 2001, Webster 2000) and the species is likely to be declining (Garnett et. al. 2010).

The park contains primary and secondary plains-wanderer habitat. Primary habitat is defined as being suitable for plains-wanderers all year round and typically in grasslands which comprise 50 percent bare ground, 10 percent fallen litter and the remaining 40 percent made up of herbs and grasses. Primary habitat covers approximately 3,200 hectares or 14.5 percent of the park with the largest patches occurring in the northern third of the park. There is an equal area of secondary habitat. Secondary habitat is typically denser than primary habitat and unsuitable, and is typically used by plains-wanderers during drought when primary habitat can become too sparse for the birds. Plains-wanderer populations depend on a combination of climatic conditions and habitat management regimes. Oolambeyan National Park is considered to play a significant role as a drought refuge for the Riverina plains-wanderer population.

As indicated in Section 3.2, remaining plains-wanderer grassland habitat is largely a derived habitat, influenced by more than a century of grazing/pastoral management. Based on the evidence to date, sheep grazing is the most effective way of manipulating habitat for plains-wanderers. It is recognised therefore, that in order to maintain plains-wanderer habitat on park, and to prevent these areas of habitat from becoming unsuitable to the species, sheep grazing should be used as a key management tool. Controlled grazing by sheep is allowed periodically on parts of the park. It can only be carried out with NPWS consent and in accordance with the Grazing Management Strategy (NPWS 2006) and Plains-wanderer Habitat Management Guide (Parker & Oliver 2007). The strategy was developed in consultation with the Oolambeyan Biodiversity Working Group which is made up of conservation specialists, landholders and NPWS staff, and is reviewed on a regular basis.

Mustering of sheep during grazing operations on the park is normally carried out using vehicles however under some conditions, such as flooding and heavy rain, it may be necessary to use horses for mustering.

Ongoing monitoring is being undertaken to evaluate grazing management practices on the park and their effectiveness in meeting the habitat needs for plains-wanderers. At this stage it is not known whether there is an alternative means of managing habitat for the plains-wanderer apart from grazing. It is also not known what effects livestock grazing may be having on other natural and cultural values on the park.

Monitoring of the population of plains-wanderers on the park is carried out three times a year across four fixed monitoring grids. This information enables tracking of how the plains-wanderer population at Oolambeyan changes over time, and is part of a wider program which includes monitoring sites on other land tenures.

Issues

- Maintenance of plains-wanderer habitat needs to be balanced with conservation of Weeping Myall Woodland EEC vegetation.
- Total grazing pressures impact on native vegetation regeneration in woodland areas.
- Managing the park to support sheep even for short periods means that waterpoints and other suitable infrastructure for handling sheep must be maintained.
- Ongoing survey work is required to determine the status of native animals, particularly threatened species known or likely to occur on the park.

Desired Outcomes

- Habitat for the plains-wanderer on the park is maintained and enhanced.
- Native animals are protected and their habitats maintained, particularly threatened and other significant species populations.
- Knowledge of the full range of native animal species found on the park is added to.

Management Response

3.3.1 Implement relevant actions in the draft Plains-wanderer Recovery Plan through an adaptive management approach which allows for:
  - Ongoing monitoring of the plains-wanderer population;
  - Ongoing monitoring of habitat;
  - Controlled sheep grazing for habitat management; and
  - Investigation of grazing pressure by other species (native and introduced) on plains-wanderer habitat.

3.3.2 Continue monitoring of kangaroo numbers to establish an understanding of their population dynamics.

3.3.3 Implement relevant actions in priority action statements and recovery plans (where developed) for threatened animal species in addition to the plains-wanderer.

3.3.4 Horses will continue to be allowed for management use on park when conditions do not permit vehicle access and for emergency sheep mustering.

3.4 ABORIGINAL HERITAGE

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

Oolambeyan National Park is within the traditional country of the Wiradjuri people and the park offers potential for involvement by members of the Wiradjuri community. A preliminary site survey has indicated that areas of Oolambeyan National Park contain Aboriginal sites, including scar trees, ovens and stone artefacts (Meredith & Kilby 2003). The dune system is also considered highly likely to contain significant Aboriginal sites, based on previous archaeological surveys

conducted within the Riverina Bioregion. These may include burials, camp sites and scarred trees (NPWS 2000).

While the NPWS has legal responsibility for the protection of Aboriginal sites and places, it acknowledges the right of Aboriginal people to make decisions about their own heritage. NPWS policy encourages Aboriginal communities be consulted and involved in the management of Aboriginal sites, places, related issues and the promotion and presentation of Aboriginal culture and history.

Issues

- Aboriginal sites on the park may be at risk from inappropriate visitor use, management operations, erosion and vehicle traffic off roads.

Desired Outcomes

- Negative impacts on Aboriginal heritage are avoided or ameliorated.
- Aboriginal people are involved in management of Aboriginal cultural values in the park.
- Understanding of the Aboriginal cultural values of the park is added to.

Management Response

3.4.1 Undertake site surveys and research and manage Aboriginal heritage in consultation with the local Aboriginal community.

3.4.2 Ensure all sites are recorded in the Aboriginal Heritage Information Management System (AHIMS) and as far as possible protected from damage.

3.4.3 Do not publicise the location of Aboriginal sites and places except where the agreement of relevant Aboriginal community organisations has been obtained.

3.5 HISTORIC HERITAGE

Prior to gazettal as a National Park Oolambeyan was a working pastoral and cropping station for more than 100 years, with almost the entire holding operated as a merino stud enterprise. The park retains a significant amount of built infrastructure relating to the prior grazing landuse, including the Oolambeyan homestead and associated outbuildings, shearing sheds, shearers' quarters and operational structures (as shown on Map 2). Beyond the homestead precinct Oolambeyan also retains a remote rabbiter's hut and numerous windmills, tanks and troughs (NPWS 2003), some of which remain operational.

The heritage significance of these buildings and structures has been assessed and a conservation management plan (CMP) has been prepared (Sheppard 2007). The CMP outlines the history of Oolambeyan Station and provides a guide for managing its built heritage.

The Oolambeyan homestead, which was constructed around 1926, has been found to have high regional heritage significance. It comprises two distinct areas, the kitchen wing and the manager's wing which were separated by use and occupation type rather than any formal barriers. The exterior of the building is influenced by the Federation Queen Anne and Federation Bungalow styles.

The shearing complex dates from the early 1920s, and includes buildings which demonstrate responsiveness to the local climate such as the brush drying shed. The suite of three ram sheds used to house the stud merino rams to maintain and improve the animals' condition are good examples of purpose built sheds, as is the sweating shed which was used to hold sheep before shearing. The oldest ram shed was constructed in 1935 with cypress pine log structural posts and dressed timber pens. The other sheds are constructed of cypress pine and steel and were built in 1953 and 1975 respectively. Some buildings also contain interesting movable heritage items such as the wool press, sorting table and bale scales in the shearing shed and the furphy water cart.

The CMP has identified some buildings as having potential for adaptive re-use. For example the station hand's cottage and manager's wing of the homestead could provide opportunities for visitor

accommodation, and the timber framed shed may be suitable as an interpretation area to provide visitors with an insight into pastoral activity on the Hay Plains.

The surroundings of the buildings, including the homestead's attractive lawns, gardens and orchard add to the ambience of the place. The homestead and overseers complexes contain introduced plants within the gardens, while stands of species considered to be pests such as Athel pine (*Tamarix aphylla*) and pepper trees (*Schinus areira*) occur around various buildings and yards. The CMP considers these plantings have heritage significance and should be retained, but recommends removal of seedlings, and replacement of senescent trees with the same or structurally similar species where practicable.

Part of the heritage significance of the Oolambeyan complex relates to its operation as an isolated pastoral station which relied on a large and self-sufficient workforce. The station also provided its own entertainment in the form of a polo field, tennis court and a cricket pitch which is still occasionally used.

Oolambeyan's former rubbish tip and items in the tip, located south of the homestead, may have historical significance, as may the former irrigation area and associated infrastructure. The channel system was used to fill ground tanks in the eastern paddocks. Groundwater was used in the irrigation area to grow irrigated wheat and barley crops (refer section 4.1).

Issues

- Oolambeyan National Park's significant historic heritage infrastructure will require ongoing maintenance.
- Any future use of buildings or other historic features, including adaptive re-use, must not compromise their heritage values (refer section 3.6).

Desired Outcomes

- Historic heritage on the park is conserved and managed as a significant, intact and integrated set of infrastructure, building, fabric and features which demonstrate the activities and lifestyles of a stud merino property on the Hay Plain.
- Public appreciation of the cultural significance of the park is enhanced.

Management Response

3.5.1 Implement the recommendations in the conservation management plan for Oolambeyan National Park including:
- Determine if the buildings can, and should be adaptively reused for visitor, tourist or management purposes.
- Manage the buildings to conserve their historic heritage.
- Retain moveable heritage items in situ.
- Prepare and implement an infrastructure maintenance program.

3.5.2 The shearing shed may be used for sheep handling when sheep are grazed on the park, under NPWS agreement.

3.5.3 Maintain the existing gardens and grounds to retain their heritage value while removing pest plants (refer section 4.1).

3.5.4 Interpret the historic heritage of the park through displays and the collection of oral histories from people who previously worked on Oolambeyan Station.

3.6 RECREATION AND EDUCATION

Visitor opportunities provided in national parks are generally those at the low key end of the spectrum, in natural and undeveloped settings. Recreational uses which are ecologically sustainable and which directly contribute to the visitor's understanding and appreciation of the park are considered appropriate. Management of ecologically sustainable visitor use requires placing limits on the number of access points, design of facilities to ensure that numbers of visitors and the style of uses appropriate for the site, and promotion of minimal impact use. The provisions for visitor management are designed to maintain the low key, scenic, natural settings which are the

special feature of the park and to provide for future use in a manner which protects ecological integrity and cultural heritage values.

Oolambeyan was purchased primarily for the purpose of conserving the plains-wanderer and this remains the flagship goal of its management. Recreational activity will be permitted where it does not compromise the conservation objectives of the park and promotes understanding and appreciation of the park's significance.

Public access to Oolambeyan National Park from Hay or Darlington Point is from the Sturt Highway, then the Carrathool – Conargo Road (also named Gum Creek Road). Access to Oolambeyan National Park from Deniliquin (in the south) is via the Carrathool-Conargo Road then Oolambeyan Road (refer to Map 1).

There is keen interest from bird watching and nature based groups to visit Oolambeyan, particularly to see plains-wanderers. There is also interest from former workers and people with an association to the area to visit Oolambeyan. Being relatively close to the Sturt Highway, the park is potentially an attractive stop-over for visitors travelling through the region.

The park has a number of natural and cultural features of interest to visitors, including the native grassland environment of the plains-wanderer, the Sandhill Pine Woodlands, and the homestead and garden, shearing and ram shed complexes.

A picnic area, consisting of a large shelter with gas barbecues and tables, has been developed south of the homestead overlooking the cricket pitch. Visitors may use the on-site barbecues or their own fuel stoves. Wood fires are not permitted. The cricket pitch has in the past been used for local cricket matches, including between the two local Rural Fire Service brigades.

There are no facilities for visitors to stay overnight on park. Opportunities for camping are available at the nearby Murrumbidgee Valley reserves and the townships of Hay and Darlington Point.

Research which is compatible with the management objectives for the park is also considered an appropriate activity for Oolambeyan. While managing the park as plains-wanderer habitat is the key subject for ongoing research, the park offers opportunities for research into a range of other natural and cultural values as well. Some of the topics identified to date which would benefit from research include:

- the impact of introduced pasture and other flora species on plains-wanderer habitat;
- the contribution of native fauna species to total grazing pressure on plains-wanderer habitat;
- Aboriginal use and occupation of the park and adjoining lands; and
- the fire response of significant plant species and EECs present on the park.

Issues

- Visitor use including spotlighting has potential to adversely impact on plains-wanderers and their habitat.
- Visitors driving in the park could easily become disorientated and lost in the largely featureless, flat landscape.
- There is limited information publicly available to encourage the local community and other visitors to visit the park.

Desired Outcomes

- Low key nature-based recreation opportunities are available that encourage enjoyment and appreciation of the park.
- Visitor use does not compromise the park's natural and cultural heritage values, particularly the habitat needs of the plains-wanderer.
- There is improved community understanding and appreciation of the park and its role in conserving the plains-wanderer.

- Research is undertaken that enhances the information base and assists management of the park.

Management Response

3.6.1 Public motorised vehicular traffic within the park will be permitted only on the entrance road to the homestead (refer Maps 1 and 2). Driving across paddocks by visitors will be strictly prohibited for environmental and safety reasons.

3.6.2 Cycling will be permitted on park roads and on management trails only (refer Map 1).

3.6.3 Trail bike riding, recreational and commercial horse riding will not be permitted in the park.

3.6.4 The day-use facilities adjacent the homestead (as shown on Map 2) will be maintained.

3.6.5 A toilet will be constructed to service the existing day-use area. The toilet will be linked into the existing septic system located at the shearers' quarters.

3.6.6 Group tours and activities will be permitted with prior written consent. Commercial tours will require a licence.

3.6.7 Group activities for the purpose of spotlighting require prior written consent. Spotlighting may only be carried out on foot and will be limited to either;

- Guided groups: 4 people per guide and a maximum of 12 per group or
- Unguided groups: a maximum of 5 people.

3.6.8 Visitor numbers and impacts within the park will be monitored through the use of traffic counters, bookings and visual observations.

3.6.9 Prepare a research prospectus for prospective researchers.

3.6.10 Investigate the potential for adaptive re-use of the station hand's cottage and managers' wing of the homestead to provide accommodation for birdwatchers, researchers and the like.

4. THREATS

4.1 PESTS

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 park values, including impacts on biodiversity, cultural heritage, catchment and scenic values.

The Western Rivers Region Pest Management Strategy identifies pest species across the region's reserves including Oolambeyan National Park and details priorities for control (including actions listed in the Priority Action Statements and Threat Abatement Plans prepared under the TSC Act). The pest management strategy also identifies where other site or pest-specific plans or strategies are needed to provide a more detailed approach.

Pest Plants
African boxthorn (*Lycium ferocissium*) is of particular significance as it has infested many areas on the park. African boxthorn shrubs compete with native regrowth and understorey seedlings for water and nutrient resources, and thus have the potential to restrict native vegetation from regenerating. African boxthorn may provide valuable habitat for some native birds such as fairy wrens (*Malurus* sp.) (Michelle Ballestrin, pers obs. 2011) where no other native shrubs now exist.

Control programs have been undertaken for African boxthorn on the park using a number of techniques including physical removal of plants, spot spraying and the cut/paint method.

Horehound (*Marrubium vulgare*), Bathurst burr (*Xanthium spinosum*) and khaki weed (*Alternanthera pungens*) are high priority weeds on the park. Strategic weed spraying for these species is undertaken as needed to minimise the potential impacts and spread of pest plants upon park values (NPWS 2003).

Naturalised pasture species include rye grass (*Lolium perenne*), wild oats (*Avena fatua*), barley grass (*Hordeum leporinum*) and medics (*Medicago* spp.). These dominant cool-season grassland species have probably changed nutrient cycles, grassland density and regeneration of native plants (Lenz et. al. 2003). Rye grass may potentially invade the primary plains-wanderer habitat areas so on-going monitoring of its extent is necessary.

Pest Animals
The impact of the four main vertebrate pests which occur on the park have been recognised as a key threatening process to biodiversity values at both state and national level. They are listed as follows:

- Predation by the European red fox (*Vulpes vulpes*) (TSC and EPBC Acts);
- Competition and grazing by the feral European rabbit (*Oryctolagus cuniculus*) (TSC Act); competition and land degradation by rabbits (EPBC Act);
- Predation by the feral cat (*Felis catus*) (TSC and EPBC Acts); and
- Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (TSC and EPBC Acts).

Foxes suppress native animal populations, particularly medium sized ground-dwelling and semi-arboreal mammals, freshwater turtles and ground-nesting birds such as the plains-wanderer. Foxes have also been implicated in the spread of a number of weed species and are known to prey on domestic stock, including lambs.

Predation by the European red fox was declared a key threatening process under the TSC Act in 1998. The NSW Fox Threat Abatement Plan (Fox TAP) was initiated in 2001 (and revised in 2010) with the primary objective of establishing long-term control programs to protect priority threatened fauna species and populations. Foxes are being controlled at priority sites across NSW including Oolambeyan and Yathong, Nombinnie and Round Hill Nature Reserves to protect biodiversity.

Within Oolambeyan National Park a fox control program was initiated upon gazettal, fox bait stations were established and these stations have been maintained and are consistently baited five times per year.

European rabbits impact negatively on native species via competition for resources, alteration of the structure and composition of vegetation, and land degradation. Competition and grazing by rabbits is listed as a key threatening process under both the TSC Act and EPBC Act.

Grazing by rabbits reduces survival and recruitment of several species of threatened plants and appears also to have marked effects on the structure and composition of vegetation communities in many areas. A number of EECs are impacted including the Sandhill Pine Woodlands of Oolambeyan. Key indicators of the impact of rabbits on Oolambeyan are the lack of diversity within the ground layer and a lack of recruitment of shrub and canopy species. As such, fencing of Sandhill Pine communities on Oolambeyan National Park to exclude rabbits has commenced.

At the time of Oolambeyan's gazettal in 2002 approximately 3800 rabbit warrens were mapped and subsequently ripped. The highest concentration of rabbit warrens on Oolambeyan is in the sandhills and it is within these areas that control measures are focussed.

Feral cats are commonly seen in the woodland areas of the park. Small mammals such as rodents, dasyurids and ground-nesting birds such as the plains-wanderer are at particular risk from cat predation. There are no current methods effective in broad scale control of cats across landscapes. Rabbit control works are relied on to reduce this potential prey source and shelter sites, helping to reduce the cat population.

Feral pigs occasionally occupy Oolambeyan National Park following good seasons. Feral pigs present a significant threat to native species and ecological communities as a result of their behaviour and feeding habits. Pig wallowing and rooting causes direct disturbance to habitats and facilitates weed spread; and pigs eat native animals, plant tubers, rhizomes and fungi fruiting bodies.

Infestations of **house mice** (*Mus musculus*) also occur on the park from time to time. Their population fluctuate widely with large plagues following favourable seasons. The impact of house mice on natural ecosystems does not appear to be well understood, although they may compete with native species and affect vegetation dynamics. House mice are eaten by raptors including the threatened spotted harrier, as well as black-shouldered kites, brown falcon, black falcon (*Falco submiger*) and barn owls (*Tyto alba*). The primary impact of house mice is the invasion of sheds and other buildings, where they cause damage to building fabric and wiring.

The **Australian plague locust** *(Chortoicetes terminifera)* is a native insect, capable of reaching extremely large population levels which cause significant damage to cropping and grazing lands. Parts of the Riverina, Central West and Far Western New South Wales have the highest recorded frequency of infestation in Australia together with parts of Southwest Queensland (DAFF 2012). Under the *Rural Lands Protection Act 1998* all land managers, including NPWS, are responsible for locust control on their land.

Locust habitats are primarily open tussock grasslands on clay loam soils and therefore the plains-wanderer habitat on Oolambeyan is at risk from locust predation. Habitats become suitable for locust breeding after rainfall, when soil moisture allows egg development and vegetation response provides food for subsequent survival of nymphs.

To manage the competing responsibilities of preserving the food resources and habitat of native fauna and assisting in the control of Australian locust plagues, NPWS has an environment risk assessment protocol in place. This is used in response to reports of locusts on NPWS reserves and requires the use of environmentally friendly products for known or suspected threatened species habitat and otherwise sensitive areas. Broadscale use of pesticide poses a potential risk

for plains-wanderers at Oolambeyan on account of the reserve's location in an established pastoral area, and the sensitivity of the species to disturbances.

Issues

- Current infestations of weed species are impacting upon the natural and cultural values of the park.
- Competition, grazing, habitat degradation and predation by pest animals are negatively impacting the integrity of species and ecosystems.

Desired Outcomes

- Introduced species are monitored, controlled on the basis of threat, feasibility and significance.
- The impact of introduced species on native plants and animals and neighbouring land is minimised.
- Native vegetation is restored in areas where pest plants have been controlled.

Management Response

4.1.1 Implement priority pest management actions in accordance with actions outlined in priority action statements, recovery plans and Regional Pest Management Strategy. The highest priority will be placed on fox, rabbit and African boxthorn control. Consideration will also be given to feral cat and pig control as necessary.

4.1.2 Continue to monitor the distribution, density and impact of pest vertebrates by ground inspections and targeted monitoring.

4.1.3 Control plague locust outbreaks with environmentally sensitive techniques such as the use of Greenguard in accordance with the NPWS environmental risk assessment protocol for locust control.

4.1.4 Undertake pest control in cooperation with neighbouring landholders and the Riverina Livestock Health and Pest Authority.

4.2 FIRE

The primary fire management objectives of NPWS is to protect life and property and community assets from the adverse impacts of fire, while managing fire regimes to maintain and protect biodiversity and cultural heritage.

The fire history of Oolambeyan National Park is partially known, with two large fires occurring prior to gazettal and three smaller fires occurring since the park was created. A large fire in December 1969 burnt 20,000 hectares, destroying fences and forcing the property to be evacuated (Sheppard 2007). In 1991 another large fire burnt nearly all of Oolambeyan. This fire originated well west of the park and extended for about 60 kilometres. It was fuelled by an above-average growth of grass that followed a wet season, and was assisted by strong winds.

More recently fires started by lightning burnt 113 hectares in Gap Paddock in 2005, 0.42 hectares in Well Paddock and 42 hectares in James, Gap and Clump Paddocks in November 2006. These fires were extinguished by a combination of rain and fire crews.

Under the *Rural Fires Act 1997* NPWS is a fire authority and is responsible for controlling fires on national parks and ensuring that they do not cause damage to other land or property. An important part of NPWS fire management is participation in local co-operative fire management arrangements, including implementation of bush fire risk management plans developed by district bush fire management committees. NPWS is a member of the Murrumbidgee Irrigation Area (MIA) Zone Bush Fire Management Committee. It maintains liaison with the Rural Fire Service and the local Boyd Brigade in the MIA Zone, as well as the Area E Brigade in the Hay Rural Fire District. All proposals for burning proposals and fire trail works are submitted annually to the MIA Zone Bush Fire Management Committee.

An Oolambeyan National Park Fire Management Strategy has been prepared (NPWS 2006). The strategy identifies the bushfire threat, requirements for the conservation of natural and cultural

values, the key assets within and adjoining the park, as well as community protection measures on the park.

A boundary trail, a centre trail and east-west trail (refer Map 1) are maintained as the principal fire control lines and management trails. The internal important management trails are slashed prior to the fire season. Minor breaks are located around the paddocks containing larger areas of plains-wanderer habitat in the north-west of the park. Areas around the homestead and other buildings are slashed and sprayed prior to the fire season as a fire protection measure.

Water supplies for fire fighting are available at the waterpoints in paddocks that are grazed. Water is also available from the bore at the homestead and a standing pipe near the pump shed.

Ecological requirements

The fire ecology of Oolambeyan's woodlands and grasslands is poorly known due to significant modifications to vegetation structure and composition, changes to land use and the removal of fire as a management tool from the majority of the landscape. The past modification of chenopod shrublands to grassland, both on park and on neighbouring properties for example is considered to have increased the possibility that fire will occur, whilst the modification of habitats both on and off park for cropping and grazing management is likely to have reduced the frequency, extent and intensity of fire.

Fire is a natural feature of many environments and is essential for the survival of some plant communities. While fire has not been identified as being requisite to the survival of plant communities on Oolambeyan, it is possible that fires are or were important in the maintenance of some ecosystems' structure.

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. Where fires continue to occur naturally on Oolambeyan, post-fire monitoring is important to increase the understanding of the impact of fire within these communities and the role it may play in regeneration or degradation of communities.

Further research into the impact of fire on communities on Oolambeyan is required.

Issues

- Life, property and community assets must be protected from adverse impacts of fire.
- Fire is not thought to be essential to maintain the natural vegetation communities in the park, but its role in maintaining the park's modified grasslands needs further research.
- Fire fighting activities can potentially damage natural and cultural features.

Desired Outcomes

- Persons and property on or immediately adjacent to the park are protected from bushfires.
- Fire regimes are appropriate for long-term maintenance of the park's plant and animal communities, so that negative impacts of fire on natural values are stable or reduced.
- Unplanned human-caused bushfires are minimized or suppressed when they occur.
- The potential for spread of bushfires from or into the park is minimised.
- Aboriginal sites, historic places and other culturally significant features are protected from damage by bushfires and suppression operations.

Management Response

4.2.1 Implement the adopted fire management strategy for Oolambeyan National Park and review as required.

4.2.2 Monitor and encourage research into the ecological effects of fire in the park, particularly the fire response of significant plant species and the fire requirements of endangered ecological communities.

4.2.3 Continue to actively participate in the MIA Zone Bush Fire Management Committee. Maintain close contact and cooperation with local government fire officers and volunteer

bush fire brigades and neighbours with regard to fire management and suppression. Where appropriate, carry out fuel management in cooperation with neighbours.

4.3 CLIMATE CHANGE

Climate change has been listed as a key threatening process under the TSC and EPBC Acts. The NSW Climate Impact Profile (DECCW 2010) has identified climate change impacts on a regional basis.

In the Riverina Region of New South Wales projections of future changes in climate include: increasing temperatures; an increase in summer rainfall and a decrease in winter rainfall; increased evaporation for most of the year; and more extreme impacts under the El Nino Southern Oscillation.

These changes are likely to have major impacts on natural ecosystems in the region and will increase stress on threatened species and on fragmented and degraded ecosystems. Ecosystems and species that have already undergone major declines because of land clearing, fragmentation, grazing and other non-climatic pressures are particularly vulnerable to climate change. This includes Sandhill Pine Woodland, Weeping Myall Woodland and the plains-wanderer. Climatic changes are likely to exacerbate many of the existing stresses on these species and communities, and species that have retracted to small and/or isolated populations, are at high risk of extinction.

Species abundance and composition are very likely to change in all ecosystems, even those dominated by hardy species including Oolambeyan's arid-adapted chenopod shrublands. Perennial winter-growing grasses and forbs that intersperse with shrubs are also likely to decline because of reduced winter rainfall. Such declines are likely to result in a loss of species diversity, food resources for animals and soil productivity.

While Oolambeyan National Park contains a significant land area and therefore would not experience the difficulties of small isolated vegetated remnants, under the scenario outlined above, the projected impacts of climate change are likely to be severe. Best practice land management must be followed in order to improve ecosystem resilience where possible with the aim of lessening the severity of projected impacts.

Issues

- Human-induced climate change is a key threatening process likely to have major impacts upon the natural and cultural values of Oolambeyan. In particular those species and communities already under threat such as the Sandhill Pine Woodland, Weeping Myall Woodland and the plains wanderer.

Desired Outcomes

- Reserve management practices maximise ecosystem resilience and adaptation.

Management Response

4.3.1 Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.

4.3.2 Liaise with neighbours, catchment management authorities and other agencies to encourage retention, and improve the condition of native vegetation close to the park.

5. MANAGEMENT OPERATIONS AND OTHER USES

Park Operations
Oolambeyan National Park is managed by staff located in the NPWS office in Griffith and a Senior Field Officer resident on park. The former Overseer's Cottage is used for the Senior Field Officer's accommodation. The homestead is currently used as accommodation for staff and occasionally by researchers and bird-watching groups undertaking field work and surveys.

The park contains management trails that are also utilised as fire trails (refer Map 1). There are also a number of trails in the homestead area that are not required for visitor or management purposes.

A former airstrip is located in Home Paddock which contains plains-wanderer habitat. This airstrip is not currently required for NPWS management operations or emergency services and has not been maintained to a serviceable standard. Regeneration of this area as habitat suitable for the plains-wanderer is desirable.

A reliable and efficient water supply system is needed for fire suppression and for watering sheep brought onto the park from time to time for maintaining plains-wanderer habitat. A network of bores and windmills supplies groundwater to the paddocks and homestead area on Oolambeyan National Park. However much of this infrastructure is aging and prone to failure so is being progressively upgraded. Windmills are being replaced with solar pump systems and new bores (under licence approvals) in strategic locations to improve water supply. The on-site Senior Field Officer provides ongoing maintenance of the system.

Transmission Lines
Transmission lines (servicing Oolambeyan and surrounding properties) transverse Oolambeyan National Park through Arnolds, Jacksons, Barigenbah and Four Corners paddocks in the north west of the park and into the homestead through Ridge paddock. Essential Energy is the service provider.

Access Agreements
The government authority, NSW Office of Water, regularly check the groundwater levels from two test bore sites located on Oolambeyan National Park.

Fencing
At the time of acquisition, fencing on the northern and western boundaries was in poor condition. Stock from neighbouring properties occasionally stray onto the park through inadequate boundary fencing. This needs to be progressively replaced with stockproof fencing to better suit the needs of the park.

Issues
- Two buildings on-park have been adaptively re-used as accommodation on-park.
- The current management trail network includes trails from previous management as a property which as superfluous to park management needs.
- The former airstrip requires rehabilitation.
- Current water infrastructure on-park is insufficient for park management requirements.
- Third parties such as Essential Energy and NSW Office of Water require ongoing access to the park.
- Stock proof boundary fencing is in poor condition in some areas.

Desired Outcomes
- Management facilities adequately serve the needs of park management and have acceptable environmental impact.

- Utilities on the park are maintained to an appropriate standard and have a minimal environmental impact.

Management Response

5.1.1 Maintain the buildings, park roads, management trails (dry weather roads only) and other facilities used for management purposes in accordance with NPWS policy.

5.1.2 Close the excess trails around the homestead and rehabilitate. No additional management trails will be developed.

5.1.3 The airstrip will not be maintained. It will be allowed to regenerate naturally.

5.1.4 Prepare and implement a plan to improve the paddock water supply system on Oolambeyan National Park.

5.1.5 Develop stockproof boundary fencing in consultation with neighbours in accordance with the NPWS Boundary Fencing Policy.

5.1.6 Continue to allow access for third party interests to maintain necessary infrastructure on the park. Develop maintenance agreements with third parties consistent with NPWS policy where required.

6. IMPLEMENTATION

Section	Management Response	Priority
6.1 On-park Ecological Conservation	3.2.1 Monitor the vegetation structure of the native grasslands to determine whether intervention is required to maintain it in optimal condition for plains-wanderer habitat.	High
	3.2.2 Promote natural regeneration of woodland and grassland areas through management of grazing and continued control of rabbits.	High
	3.2.3 Monitor the condition of Weeping Myall Woodland and Sandhill Pine Woodland EEC vegetation and implement rehabilitation measures as needed.	High
	3.2.4 Implement priority action statements and recovery plans (where developed) for threatened plant species and communities on the park.	High
	3.3.1 Implement relevant actions in the draft Plains-wanderer Recovery Plan through an adaptive management approach which allows for: - Ongoing monitoring of the plains-wanderer population; - Ongoing monitoring of habitat; - Controlled sheep grazing for habitat management; and - Investigation of grazing pressure by other species (native and introduced) on plains-wanderer habitat.	High
	3.3.2 Continue monitoring of kangaroo numbers to establish an understanding of their population dynamics.	High
	3.3.3 Implement relevant actions in priority action statements and recovery plans (where developed) for threatened animal species in addition to the plains-wanderer.	Medium
	3.3.4 Horses will continue to be allowed for management use on park when conditions do not permit vehicle access and for emergency sheep mustering.	Ongoing
	4.3.2 Liaise with neighbours, catchment management authorities and other agencies to encourage retention, and improve the condition of native vegetation close to the park	Medium
6.2 Cultural Heritage	3.4.1 Undertake site surveys and research and manage Aboriginal heritage in consultation with the local community.	High
	3.4.2 Ensure all sites are recorded in the Aboriginal Heritage Information Management System (AHIMS) and as far as possible protected from damage.	High
	3.4.3 Do not publicise the location of Aboriginal sites and places except where the agreement of relevant Aboriginal community organisations has been obtained.	High
	3.5.1 Implement the recommendations in the conservation management plan for Oolambeyan National Park including: - determine if the buildings can be adaptively reused; - manage the buildings to conserve their historic heritage; - retain moveable heritage items in situ; and	High

	- prepare and implement an infrastructure maintenance program. 3.5.2 The shearing shed may be used for sheep handling when sheep are grazed on the park, under NPWS agreement.	 Medium
6.3 Visitor Use and Services	3.6.1 Public motorised vehicular traffic within the park will be permitted only on the entrance road to the homestead (refer Maps 1 and 2). Driving across paddocks by visitors will be strictly prohibited for environmental and safety reasons. 3.6.2 Cycling will be permitted on park roads and management trails only (refer Map 1). 3.6.3 Trail bike riding, recreational and commercial horse riding will not be permitted in the park. 3.6.4 The day-use facilities adjacent the homestead (as shown on Map 2) will be maintained. 3.6.5 A toilet will be constructed to service the existing day-use area. The toilet will be linked into the existing septic system at the shearers' quarters. 3.6.6 Group tours and activities will be permitted with prior written consent. Commercial tours will require a licence. 3.6.7 Group activities for the purpose of spotlighting require prior written consent. Spotlighting may only be carried out on foot and will be limited to either: - guided groups: 4 people per guide and a maximum of 12 per group or - unguided groups: a maximum of 5 people. 3.6.8 Visitor numbers and impacts within the park will be monitored through the use of traffic counters, bookings and visual observations. 3.6.10 Investigate the potential for adaptive re-use of the station hand's cottage and managers' wing of the homestead to provide accommodation for birdwatchers, researchers and the like.	High High High High High Medium Medium Medium Medium
6.4 Community Programs and Education	3.5.4 Interpret the historic heritage of the park through displays and the collection of oral histories from people who previously worked on Oolambeyan Station. 3.6.9 Prepare a research prospectus for prospective researchers. 4.3.2 Liaise with neighbours, catchment management authorities and other agencies to encourage retention, and improve condition of native vegetation close to the park.	Medium Low Low

6.5 Weeds and Pest Animals	4.1.1 Implement priority pest management actions in accordance with actions outlined in priority action statements, recovery plans and the Western Rivers Regional Pest Management Strategy. The highest priority will be placed on fox, rabbit and African boxthorn control. Consideration will also be given to feral pig and cat control as necessary.	High
	4.1.2 Continue to monitor the distribution, density and impact of pest vertebrates by ground inspections and targeted monitoring.	Ongoing
	4.1.3 Control plague locust outbreaks with environmentally sensitive techniques such as the use of Greenguard in accordance with the NPWS environmental risk assessment protocol for locust control.	Ongoing
	4.1.4 Undertake pest control in cooperation with neighbouring landholders and the Riverina Livestock Health and Pest Authority.	High
6.6 Fire Management	4.2.1 Implement the adopted fire management strategy for Oolambeyan National Park and review as required.	High
	4.2.2 Monitor and encourage research into the ecological effects of fire in the park, particularly the fire response of significant plant species and the fire requirements of endangered ecological communities.	Ongoing
	4.2.3 Continue to actively participate in the MIA Zone Bush Fire Management Committee. Maintain close contact and cooperation with local government fire officers and volunteer bush fire brigades, and neighbours with regard to fire management and suppression. Where appropriate, carry out fuel management in cooperation with neighbours.	High
	4.3.1 Continue existing fire, pest and weed management programs to increase the ability of native flora and fauna to cope with future disturbances, including climate change.	High
6.7 Infrastructure and Maintenance	3.1.1 Design and undertake all works in a manner that minimises soil erosion.	High
	3.1.2 Introduced species that accelerate soil erosion will be controlled (refer section 4.1).	High
	3.1.3 The impacts of sheep grazing will be closely monitored so as to minimise soil erosion and vegetation impacts.	High
	3.1.4 Movement of vehicles on-park will be restricted to existing trails, except where off-trail use is required for emergency management purposes.	High
	3.5.3 Maintain the existing gardens and grounds to retain heritage value, while removing pest plants.	High
	5.1.1 Maintain the buildings, park roads, management trails (dry weather roads only) and other facilities used for management purposes in accordance with NPWS policy.	Medium
	5.1.2 Close the excess trails around the homestead and rehabilitate. No additional management trails will be developed.	Ongoing
	5.1.3 The airstrip will not be maintained. It will be allowed to	Ongoing

	regenerate naturally. 5.1.4 Prepare and implement a plan to improve paddock water supply system. 5.1.5 Develop stockproof boundary fencing in consultation with neighbours in accordance with the NPWS Boundary Fencing Policy. 5.1.6 Continue to allow access for third party interests to maintain necessary infrastructure on the park. Develop maintenance agreements with third parties consistent with NPWS policy where considered necessary.	Low High Medium

*** 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.

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

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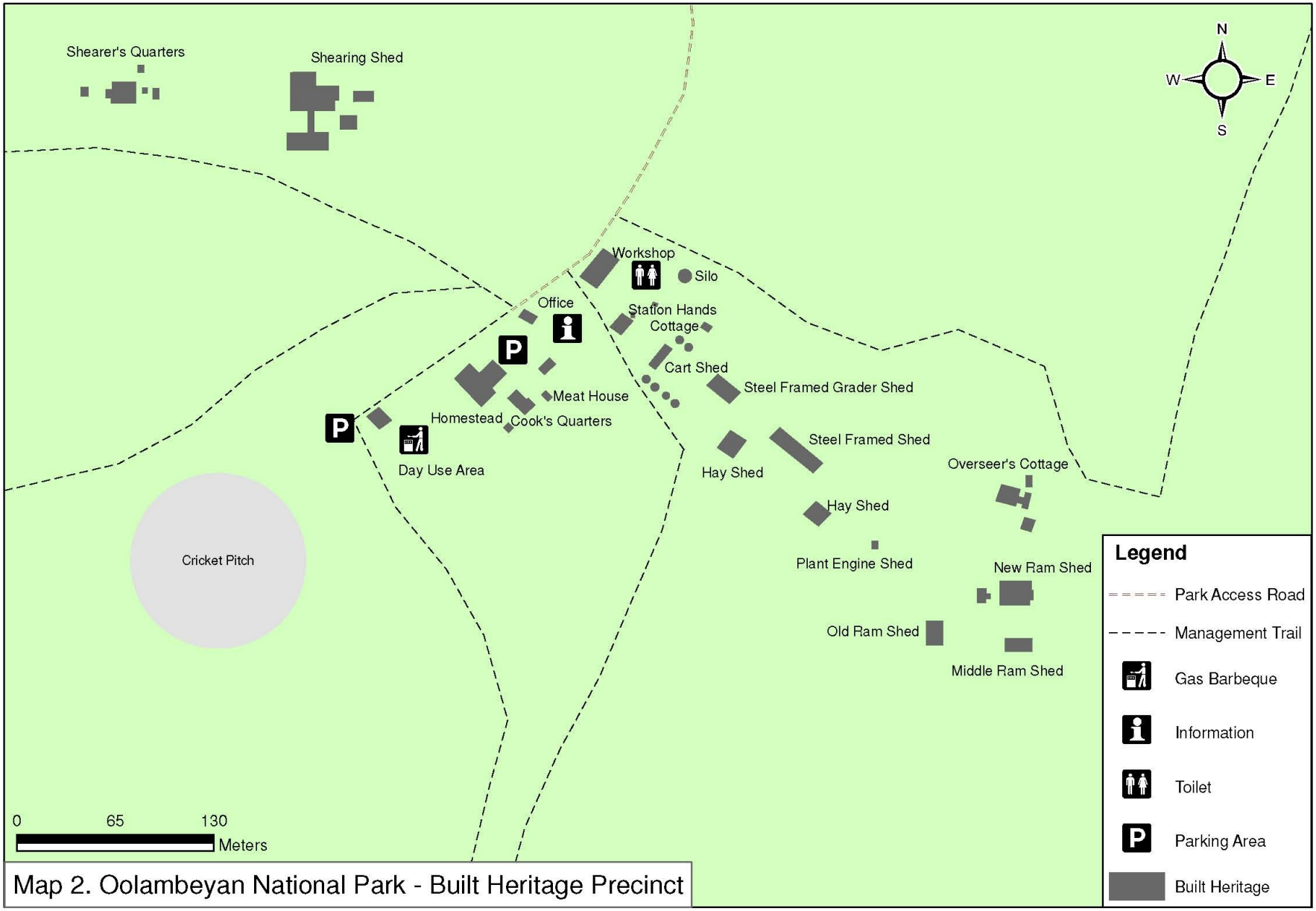
Topographic maps 1:50 000 Oolambeyan 7928-N and Epsom Downs 7928-S

Map 1. Location of Oolambeyan National Park



Map 2. Oolambeyan National Park - Built Heritage Precinct