



NSW NATIONAL PARKS & WILDLIFE SERVICE

# Euston Regional Park

Plan of Management



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Cover photo: Billabong in flood at Euston Regional Park, 2011. E Foster/DPIE

**This plan of management was adopted by the Minister for Energy and Environment on 12 May 2020.**

Euston Regional Park is in the traditional Country of the Kureinji People.

This plan of management was prepared by staff of NSW National Parks and Wildlife Service (NPWS). Valuable information was provided by Ronnie O'Donnell, Kureinji Elder, on Aboriginal cultural history. Joseph Vann, retired Forestry Corporation of NSW employee, and Philip Cox, local resident, provided further information on the European history of the area.

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Euston Regional Park Plan of Management

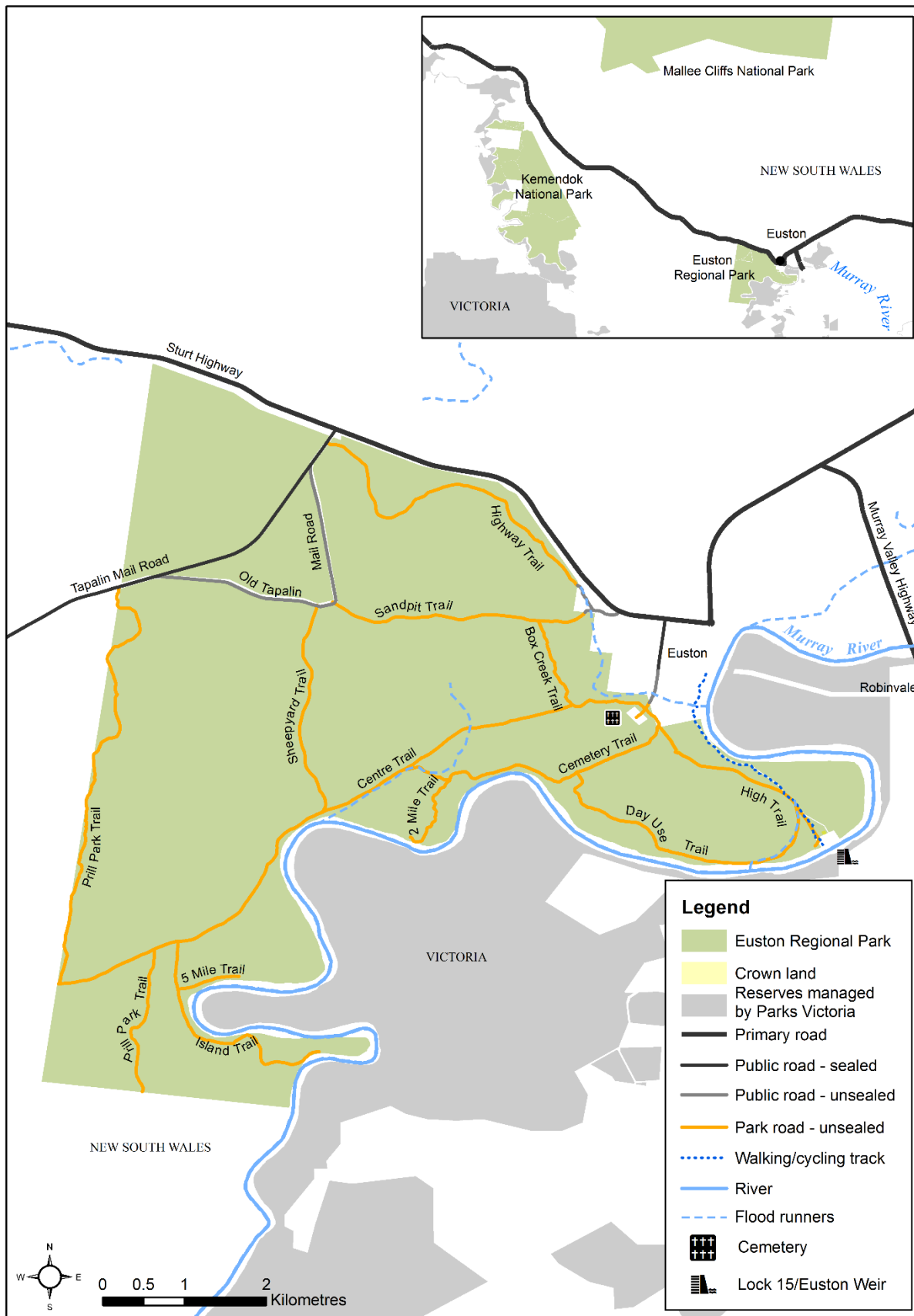


Figure 1 Euston Regional Park

# 1. Introduction

## 1.1 Location, reservation and regional setting

Features	Description
Location	Euston Regional Park (also referred to as 'the park' in this plan) is located in the far west of New South Wales adjacent to the township of Euston, approximately 80 kilometres east of Buronga and 80 kilometres west of Balranald. The eastern boundary of the park is defined by the Murray River, which is the state border between New South Wales and Victoria. See Figure 1.
Area	The park is 3274 hectares. It includes several roads that are vested in the Minister administering the <i>National Parks and Wildlife Act 1974</i> for the purposes of Part 11 of that Act. These roads ensure continued access to Euston Cemetery (managed by Balranald Shire Council) and the foreshore management area for the Euston Weir on the Murray River (managed by Water NSW). Both of these parcels of land are surrounded by the park (see Figure 1). As Part 11 land they do not form part of the reserved area of the park, but their management is subject to this plan and the National Parks and Wildlife Regulation (see Section 5.2).
Reservation date	The park was reserved on 1 July 2010 under the <i>National Parks Estate (Riverina Red Gum Reservations) Act 2010</i> .
Previous tenure	Before reservation Euston Regional Park was Euston State Forest, dedicated in 1959 for the purposes of timber production and other permitted uses including beekeeping, grazing and sand quarrying. The <i>Riverina Bioregion Regional Forest Assessment for River Red Gums and Woodland Forest</i> , conducted by the Natural Resources Commission in 2009 (NRC 2009), recommended the area be managed for conservation and recreation.
Regional context	
Biogeographic region	The park lies in the Murray Channels and Floodplains subregion of the Riverina Biogeographic Region (Thackway & Cresswell 1995). This bioregion is considered to be under-represented in reserves (ERIN 2014).
Surrounding land use	Land use surrounding the park is primarily pastoral, with a mix of recreation, tourism, conservation and urban settlement associated with the township of Euston. The park is bounded by the Murray River to the east, Euston town common to the north, and Western Lands leases on the western and southern boundaries. A narrow corridor of Crown land (a waterway reserve) lies between the park and the Murray River. Directly across the Murray River from Euston Regional Park is Gadsen Bend Park, managed by Parks Victoria.
Other authorities	The park is located in the areas of the Balranald Local Aboriginal Land Council, Western Local Land Services and Balranald Shire Council.

## 1.2 Statement of significance

Euston Regional Park is of significance due to its biological, Aboriginal and recreation values.

## **Biological**

- Euston Regional Park includes plant communities that are poorly represented at a national level in the reserve system. These include River Red Gum – Black Box Woodlands and Chenopod – Mallee Shrublands.
- The park provides habitat for a range of native animal species including several that are dependent on mature river red gum trees and associated hollows. Threatened species recorded in the park include the southern bell frog and the eastern subspecies of the regent parrot.

## **Aboriginal heritage**

- Euston Regional Park forms part of the Country of the Kureinji People and contains a diversity of evidence of Aboriginal occupation and use including modified trees, fire hearths, flaked stone artefacts, burial sites and middens.

## **Recreation and tourism**

- Euston Regional Park is bordered by the Murray River and offers opportunities for nature-based recreation such as camping, fishing, bushwalking, cycling, horse riding and birdwatching.

## 2. Management context

### 2.1 Legislative and policy framework

The management of regional parks in New South Wales is in the context of the legislative and policy framework of the NSW National Parks and Wildlife Service (NPWS), primarily the National Parks and Wildlife Act and Regulation, the *Biodiversity Conservation Act 2016* and NPWS policies.

Other legislation, strategies and international agreements may also apply to management of the area. In particular, the *Environmental Planning and Assessment Act 1979* may require assessment of the environmental impact of works proposed in this plan. The NSW *Heritage Act 1977* may apply to the excavation of known archaeological sites or sites with potential to contain historic archaeological relics. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may apply in relation to actions that impact 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 National Parks and Wildlife Act. Once the Minister has adopted a plan of management, 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 Euston Regional 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

#### Regional parks

Regional parks are reserved under the National Parks and Wildlife Act to protect and conserve areas in a natural or modified landscape that are suitable for public recreation and enjoyment.

Under section 30H of the Act, regional parks are managed to:

- provide opportunities for recreation and enjoyment in natural or modified landscapes
- identify, interpret, manage and conserve the park so as to maintain and enhance significant landscape values
- conserve natural and cultural values
- 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.

Regional parks are established for the purpose of providing recreational opportunities while protecting natural, cultural and landscape values.

#### Part 11 lands

Part 11 lands (i.e. unreserved lands) are lands vested in the Minister and are either land that is intended to be reserved (e.g. newly acquired additions to the park estate that have not yet



been formally reserved), or land that is unlikely to ever be reserved (e.g. severely modified areas, quarries, telecommunication towers, some access roads).

Part 11 lands are managed in accordance with the objectives of the National Parks and Wildlife Act, including to:

- conserve nature, including habitats, ecosystems, biodiversity, landforms, landscapes, wilderness and wild rivers
- conserve objects, places or features of cultural value
- foster public appreciation, understanding and enjoyment of natural and cultural heritage and conservation
- apply the principles of ecologically sustainable development.

## **2.3 Specific management directions**

In addition to the general principles for the management of regional parks (see Section 2.2), the following specific management directions apply to the management of Euston Regional Park:

- encourage low-key, self-sufficient visitation in the park that is consistent with conserving the natural features of the park
- manage fire in the park to minimise the threat of wildfire, particularly to the adjacent township of Euston
- protect habitat and Aboriginal heritage by controlling priority pest plants and animals in the park, particularly declared weeds, rabbits, pigs and foxes.

## 3. Values

This plan aims to conserve the natural and cultural values of the park. The location, landforms and plant and animal communities of an area have determined how it has been used and valued by both Aboriginal and non-Aboriginal people. 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. To make this plan clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use are dealt with individually, although these features are interrelated.

### 3.1 Geology, landscape and hydrology

Euston Regional Park is located on the Murray River floodplain. It is comprised largely of heavy black soils on relatively flat plains which are dissected with numerous channels and billabongs that are inundated during peak floods.

Two land systems are present in the park area (Walker 1991):

Riverland Land System, covering approximately 50% of the park along the Murray River. This is a floodplain of grey, fine-textured Quaternary alluvium with sinuous river channels, back channels and billabongs. There are elevated levees of browner alluvium up to 3 metres high and riverside lunettes up to 10 metres high.

Murrumbidgee Land System, covering the remaining western portion away from the river. This land system is a complex mix of geomorphologic features of riverine origin. Features include floodplains of grey, fine-textured Quaternary alluvium with small rises up to 3 metres high; back plains, scalded levees and swamps; and riverside lunettes of deep sands up to 10 metres high. The area is irregularly inundated by flooding.

Both land systems are known to be susceptible to severe scalding of natural alluvium levees and gullying of riverbanks. Slumping of the riverbank in the park immediately below Euston Weir occurred as the result of the volume of water coming over the weir. To correct this, the wall of the weir has been raised and bank restoration is underway by means of rock armouring.

Soil erosion has occurred in several places in the park, due either to surface water erosion or wind erosion on heavily disturbed soils. A proportion of the lunette country is degraded and unstable due to grazing, rabbit activity and previous use as a sand quarry. Illegal sand extraction and recreational four-wheel driving by members of the public have also caused erosion of some sandhills, exposing Aboriginal cultural heritage sites. NPWS has deposited gravel overburden to prevent further sand extraction and to re-bury the exposed heritage sites (see Section 3.3).

Regulation of the Murray River and alteration of its natural flooding regime commenced in 1936 with the completion of the Hume Weir. As a result of extensive river regulation and water extraction, the hydrological regime of the Lower Murray River where the park is located has been significantly changed, with less than half the natural median annual discharge now reaching the border with South Australia (Gippel & Blackham 2002, cited in NRC 2009). Periods of prolonged low flow have become more frequent and the frequency, duration and magnitude of all but the largest of floods have been reduced. This in turn has reduced the extent and frequency of inundation of the adjacent floodplain and associated vegetation. The impact of the changed watering regime is compounded during extended periods of dry weather. The Natural Resources Commission has identified the river red gum (*Eucalyptus camaldulensis*) forests of the Lower Murray River as possibly the least frequently flooded and most stressed forests in the Riverina Bioregion (NRC 2009). Rising saline groundwater due

to extensive irrigation has also been known to occur and this may impact forest and wetland health (NRC 2009).

The riverine wetlands of Euston Regional Park include swamps, billabongs and flood runners (see Figure 1) which were once sustained by a natural watering regime of intermittent inundation and drying. Under natural conditions the park's wetlands can only be watered by overbank flooding from the main river channel, which now occurs very rarely. There is a small billabong in the north-east of the park which naturally retains water for longer periods than other sites.

Euston Weir is located on the eastern boundary of Euston Regional Park (see Figure 1) and is associated with Lock 15 on the Murray River. Both of these structures are owned and operated by Water NSW. Water NSW regulates river flows by using a Kato crane to lift trestles out of the weir (see Section 5.2). Lock 15, originally constructed to allow for navigation of river cargo, is now mainly used to manage irrigation water for the Robinvale Irrigation District (in Victoria) and for occasional passage by recreational craft. Since August 2015 the Murray–Darling Basin Authority has been varying weir pool levels as part of a trial to restore a more natural wetting and drying cycle to the Euston Lake system, located approximately 10 kilometres upstream of the park (Murray–Darling Basin Authority 2016). These weir manipulations have not resulted in water entering Euston Regional Park. Other options for accessing environmental water, such as pumping, need to be investigated with the relevant water management agencies. This environmental water delivery is needed to restore the health and condition of river red gum forest and wetland values in the park.

## Issues

- The land systems of the park are susceptible to soil erosion in high-use areas. Past use has contributed to the degradation of parts of the lunette (sandhill) country.
- The biodiversity values of the park have been impacted by regulation of the Murray River and alteration of its natural flooding regime (see Section 3.2). Wetland areas are disconnected from the river and ecosystem function is impaired by lack of water.
- Floodwaters have the potential to interrupt access to some parts of the park.

## Desired outcomes

- Soil erosion is minimised.
- Landscape values are restored in degraded areas.
- The extent of stressed vegetation is reduced.

## Management response

- 3.1.1 Continue to work with Commonwealth and NSW water management agencies, Water NSW and other relevant stakeholders to secure and deliver environmental water for improving the health and condition of biodiversity values in the park.
- 3.1.2 Monitor the potential for soil erosion in the park, particularly in sand deposits, and undertake corrective works as required.

## 3.2 Native plants and animals

Euston Regional Park contains a variety of habitat types that support a range of native plant and animal species.

Six plant communities have been identified in the park (Val 1997; Benson et al. 2010). These are described in decreasing order of extent, with the first two occupying most of the park.

## **River Red Gum – Lignum Very Tall Open Forest or Woodland Wetland on Floodplains**

This community primarily occurs on river banks and associated tributaries. It is dominated by river red gum (*Eucalyptus camaldulensis*), with trees up to 20 metres. Patches have a co-dominant of river cooba (*Acacia stenophylla*). The understorey is generally sparse but often contains nitre goosefoot (*Chenopodium nitrariaceum*) and ruby saltbush (*Enchylaena tomentosa*) as well as lignum (*Duma florulenta*).

## **Black Box – Lignum Woodland Wetland of the Inner Floodplains and Black Box Open Woodland Wetland with Chenopod Understorey**

Woodland communities dominated by black box (*Eucalyptus largiflorens*) have a lignum understorey where they are subject to periodic inundation and form temporary swamps. In some other areas a dense shrub layer is evident, often comprising old man saltbush (*Atriplex nummularia*), nitre goosefoot, lignum and dillon bush (*Nitraria billardierei*), or the shrub layer is discontinuous. Ground cover species also include cannonball burr (*Dissocarpus paradoxus*), creeping boobialla (*Myoporum parvifolium*) and various copperburrs (*Sclerolaena* spp.).

In the north-west section of the park, red box (*E. intertexta*) appears in association with black box and the understorey is a mix of speargrass (*Austrostipa* spp.) and copperburrs. The condition of this community is variable with black box exhibiting a range of tree health.

## **Black Oak (Belah) – Western Rosewood Open Woodland**

A small, eastern portion of the park is covered by the belah – rosewood community with its characteristic overstorey of belah (*Casuarina pauper*). Shrubs and smaller trees of rosewood (*Alectryon oleifolius*), sugarwood (*Myoporum platycarpum*) and white cypress (*Callitris glaucophylla*) may also be present. Understorey species include bluebush (*Maireana* spp.), saltbush (*Atriplex* spp.) and speargrass.

## **Chenopod Sandplain Mallee Woodland/shrubland**

The north-west corner is covered by two mallee vegetation communities of which chenopod mallee comprises a small portion. The dominant mallee species on the undulating sandplain are yorrell (*E. gracilis*), acorn mallee (*E. oleosa*) and white mallee (*E. dumosa*) with sugarwood over bluebush, saltbush and copperburr species.

## **Spinifex Linear Dune Mallee**

This mallee community occurs on linear east–west running sand dunes and is dominated by white mallee, red mallee (*E. socialis*) and narrow-leaved red mallee (*E. leptophylla*) with sugarwood. The shrub layer consists of *Acacia* species, *Senna* species, narrow-leaved hopbush (*Dodonaea viscosa* subsp. *angustissima*) and porcupine grass (*Triodia scariosa*).

## **White Cypress Pine Open Woodland**

On the sandy lunettes within the alluvial plain of the Murray River, occasional white cypress pine trees are all that remains of this community following felling for timber and concentrated grazing by native and non-native animals. The understorey of this community is either completely absent or dominated by exotic species such as turnip weed (*Brassica tournefortii*), horehound (*Marrubium vulgare*), thornapple (*Datura* spp.), Paterson's curse (*Echium plantagineum*) and brome grass (*Bromus* spp.). Grazing by stock and rabbits has

contributed to a lack of regeneration of trees. Despite the lack of understorey, this vegetation forms part of a threatened ecological community listed under the Biodiversity Conservation Act: Sandhill Pine Woodland in the Riverina, Murray–Darling Depression and NSW South Western Slopes Bioregions Endangered Ecological Community (NSW SC 2008).

The park has been infrequently watered over many years and the overall condition of vegetation in the park is poor. Dramatic changes in the number and size of natural floods reaching the Lower Murray River has led to widespread decline of riverine native vegetation including lignum, river cooba, black box and particularly river red gum. An assessment of river red gum health across seven sites in the Lower Murray River in 2007 found 40–50% of the trees sampled were stressed, 10–40% severely stressed, 5–10% near death and less than 5% were in good condition (Val et al. 2007). High rainfall in the summers of 2010–11 and 2011–12 may have contributed to a minor improvement in the condition of river red gum in the park.

When managed as Euston State Forest, river red gum was the focus of timber harvesting and silvicultural operations. These practices, combined with changed water regimes, drought, domestic stock grazing and firewood collection, have negatively impacted the health and structure of the community. Escaped campfires have also threatened the survival of individual river red gum trees. Occurring on higher ground that would naturally receive flooding less frequently, the condition of Black Box – Lignum Woodland is poorer than the river red gum areas. Rising saline groundwater is suspected of contributing to tree decline and death, especially around swamps.

Despite the poor condition of much of its vegetation, the park provides important habitat for a range of plant and animal species. Ten threatened species have been recorded in the park (OEH 2015) and others are likely to occur based on records from nearby areas with similar habitat (see Table 1). In addition, the aquatic ecological community of the Lower Murray River catchment is listed as an endangered ecological community under the *Fisheries Management Act 1994* (Fisheries SC 2001).

**Table 1 Significant plant and animal species recorded in or near Euston Regional Park**

Common name	Scientific name	BC Act status	EPBC Act status
<b>Plants</b>			
Boland yellow gum	<i>Eucalyptus leucoxydon</i> subsp. <i>pruinosa</i>	V	
<b>Animals</b>			
<b>Frogs</b>			
Southern bell frog	<i>Litoria raniformis</i>	E	V
<b>Reptiles</b>			
Mallee worm-lizard <sup>A</sup>	<i>Aprasia inaurita</i>	E	
<b>Birds</b>			
Brown treecreeper	<i>Climacteris picumnus</i>	V	
Chestnut quail-thrush <sup>A</sup>	<i>Cinclosoma castanotum</i>	V	
Fork-tailed swift	<i>Apus pacificus</i>		M
Gilbert's whistler <sup>A</sup>	<i>Pachycephala inornata</i>	V	
Hooded robin	<i>Melanodryas cucullata</i>	V	
Little eagle	<i>Hieraaetus morphnoides</i>	V	



Common name	Scientific name	BC Act status	EPBC Act status
Major Mitchell's cockatoo <sup>A</sup>	<i>Lophochroa leadbeateri</i>	V	
Malleefowl <sup>A</sup>	<i>Leipoa ocellata</i>	E	V
Purple-crowned lorikeet <sup>A</sup>	<i>Glossopsitta porphyrocephala</i>	V	
Rainbow bee-eater	<i>Merops ornatus</i>		M
Regent parrot (eastern subspecies)	<i>Polytelis anthopeplus monarchoides</i>	E	V
Shy heath wren <sup>A</sup>	<i>Hylacola cautus</i>	V	
Southern scrub-robin <sup>A</sup>	<i>Drymodes brunneopygia</i>	V	
Speckled warbler	<i>Chthonicola sagittata</i>	V	
Spotted harrier <sup>A</sup>	<i>Circus assimilis</i>	V	
Superb parrot	<i>Polytelis swainsonii</i>	V	V
Varied sittella <sup>A</sup>	<i>Daphoenositta chrysoptera</i>	V	
White-fronted chat <sup>A</sup>	<i>Epthianura albifrons</i>	V	
<b>Mammals</b>			
Inland forest bat <sup>A</sup>	<i>Vespadelus baverstocki</i>	V	
Southern ningau <sup>A</sup>	<i>Ningau yvonneae</i>	V	
Western pygmy possum <sup>A</sup>	<i>Cercartetus concinnus</i>	E	

BC Act = Biodiversity Conservation Act; EPBC Act = Environment Protection and Biodiversity Conservation Act;

V = Vulnerable; E = Endangered, M = Migratory.

<sup>A</sup> Recorded in New South Wales within 10 kilometres of the park and considered likely to occur in the park due to presence of suitable habitat.

A single specimen of the vulnerable Boland yellow gum was recorded in the former Euston State Forest. Boland yellow gum is a small to medium-sized tree occurring at the base of sandy rises and on loamy clay flats on the floodplains of the Murray River and its tributaries in the Riverina Bioregion (NSW SC 2007). This species is restricted to several small occurrences between Barham and Euston and a concentration of six stands west of Moulamein. Threats include clearing for agriculture, grazing, salinity (for stands in low-lying areas) and collection of fallen woody debris. The location of the specimen in the park is not known. The nearest other occurrence is 20 kilometres downstream at Pound Bend, near Wemen, Victoria (J Vann [former Forests NSW] 2012, pers. comm.).

The endangered eastern subspecies of the regent parrot is known to nest in the park. Typical nest trees are large, mature, healthy red gums with many spouts (i.e. broken branch ends with hollows or capable of developing hollows). Regent parrots are known to forage extensively in mallee vegetation communities as well as riverine communities. The major threat to this species is the loss of mallee woodland within 20 kilometres of the Murray River. This habitat is threatened by rising groundwater and tree clearing. Grazing also has the potential to reduce the quality of foraging habitat (Martin & Possingham 2005). Competition for nest hollows with feral honeybees can result in the abandonment of nest sites (see Section 4.1).

The endangered southern bell frog is known from two 20-year-old records (OEH 2015). There have been no amphibian surveys since and the species has not been re-recorded in the park. The southern bell frog was once distributed along the Murray and Murrumbidgee rivers and their tributaries but is now thought to have disappeared from much of this range

and exists only in isolated populations (Wassens & Amos 2011). The park provides suitable habitat for the southern bell frog. Under suitable conditions, such as after large floods, the species could potentially be detected in the park. There have been recent records at Lake Victoria (approximately 175 kilometres to the west of Euston Regional Park) and at Yanga National Park (approximately 95 kilometres to the east).

Strategies for the recovery of threatened species, populations and ecological communities have been set out in the statewide *Biodiversity Conservation Program* (OEH 2017). These actions are currently prioritised and implemented through the *Saving our Species* program, which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years. Individual recovery plans may be prepared for threatened species to consider management needs in more detail. A national recovery plan has been prepared for the regent parrot (Baker-Gabb & Hurley 2011) and a draft recovery plan has been developed for the southern bell frog (DEC 2005).

## Issues

- Vegetation is in poor condition as a result of changed water regimes and lack of flood water, overall grazing pressure and past land-use practices.
- Much of the information known about the native animals of the park is based on old records. Little is known of some classes of animal, particularly small mammals and reptiles. No recent surveys have been carried out.

## Desired outcomes

- Structural diversity and habitat values are restored in degraded areas.
- Improved knowledge of plants and animals in the park is used to clarify park values and inform park management.
- Negative impacts on threatened species are minimised.

## Management response

- 3.2.1 Encourage and support the undertaking of biological surveys, research and monitoring to better understand plant and animal occurrences in the park.
- 3.2.2 Conduct vegetation monitoring, including of tree health, in relation to water management and other impacting processes.
- 3.2.3 Implement relevant strategies in the *Biodiversity Conservation Program* and recovery plans for the threatened regent parrot and southern bell frog, including:
  - undertake an annual monitoring program for regent parrots
  - undertake surveys for southern bell frogs.
- 3.2.4 Confirm the location of the single Boland yellow gum record in the park.

## 3.3 Aboriginal connections to Country

The land, water, plants and animals in 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 Country are inseparable and need to be managed in an integrated manner across the landscape.

Euston Regional Park lies in the traditional Country of the Kureinji People (Tindale 1940) and of the Keramin language group (Hercus 1998). Neighbouring tribal groups in the vicinity of the park include the Muthi Muthi, Yitha Yitha, Wadi Wadi, Tarti Tarti and Yari Yari peoples (Hercus 1998). Some of the known totems for the Kureinji include eel-tailed catfish (*Tandanus tandanus*) (water), tree dtella (*Gehyra variegata*) (land) and whistling kite (*Haliastur sphenurus*) (sky).

Today, Aboriginal people in the area are represented by the Balranald Local Aboriginal Land Council and local Elders.

A range of sites have been found within the park that show evidence of Aboriginal occupation and the culture of local Aboriginal people. A limited survey of the park has revealed approximately 90 sites. The majority of these sites are modified trees, however, hearths, artefacts and middens have also been found. There is at least one recorded burial site and it is highly likely that others occur in the sandy lunettes.

All Aboriginal sites are vulnerable to disturbance, for example through accidental discovery, erosion or the action of pest animals such as rabbits (*Oryctolagus cuniculus*). Particularly susceptible are the deep sand lunettes of the Murrumbidgee Land System which were preferred sites for burials, and were important to Aboriginal people as sites for refuge during floods. In the 1980s, burial material was disturbed during sand quarrying operations that were permitted while the area was state forest. These remains were subsequently re-buried.

While sites and artefacts are significant in their own right, they must be viewed in the broader context of the cultural landscape. The broader features of the landscape can also be used to predict the likelihood of sites. For example, the park has many river bends that provided opportunities for food, camping and living in pre-European times through to recent history. The river also acted as a route for traversing Country. People were known to follow the river, from Nyah (approximately 115 kilometres to the south-east, in Victoria) to Lake Victoria (approximately 175 kilometres to the north-west), possibly to attend ceremonies. The area around Euston was known as an area for large gatherings.

Aboriginal people continued living and working along the river into recent history, either by camping or working in pastoral or transport enterprises. One family is known to have lived on a paddleboat that regularly plied the Murray until it sank in the vicinity of Lock 15 in about 1916.

While the NSW Government has legal responsibility for the protection of Aboriginal sites and places, NPWS acknowledges the right of Aboriginal people to make decisions about their own heritage. Aboriginal communities will be consulted and involved in the managing Aboriginal sites, places and related issues, and promoting and presenting Aboriginal culture and history. It is also recognised that all parts of Country are part of the cultural landscape of Aboriginal people, which includes custodial responsibilities for and connections to nature.

## Issues

- Aboriginal connections to Country are ongoing, however, access and rights have been diminished.
- Aboriginal sites are vulnerable to disturbance and have been disturbed by previous permitted land uses, such as quarrying, and unauthorised activities, including sand extraction and off-trail four-wheel driving (see Section 3.1).
- Consultation with Aboriginal communities must incorporate understanding of the broader cultural landscape.
- Further survey and research effort may reveal more about the Aboriginal cultural values of the park.

## Desired outcomes

- Aboriginal places and values are identified and protected, and impacts minimised.
- Aboriginal people are involved in managing Euston Regional Park.
- Understanding of the cultural values of the park is improved.

## Management response

- 3.3.1 Consult and involve the Balranald Local Aboriginal Land Council, relevant Aboriginal community organisations and custodial families in the management of Country in the park, including the management of Aboriginal cultural heritage and natural values.
- 3.3.2 Encourage further research into the Aboriginal heritage values of the park in consultation with relevant Aboriginal community organisations.
- 3.3.3 Work cooperatively with the local Aboriginal community to rehabilitate, protect, promote and provide interpretation for sites as required.

## 3.4 Historic heritage

Heritage places and landscapes are made up of living stories as well as connections to the past that individuals and communities have inherited and wish to conserve for current and future generations, and can include natural resources, objects, customs and traditions. Cultural heritage comprises places and items that may have historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. NPWS conserves the significant heritage features of the parks and reserves that it manages.

Before the declaration of Euston Regional Park the area was Euston State Forest. The first portion of Euston State Forest was 1912 hectares, declared in 1959. Boundary adjustments and extensions, occurring in 1963, 1964 and 1980, created a total of 3274 hectares. This forest was previously Crown land managed by the Western Lands Commission and used by earlier graziers.

There is much evidence of trees having been ringbarked during the earlier pastoral era. The ringbarking is likely to have been carried out by Chinese work gangs that were well-organised and equipped, and were responsible for clearing hundreds of thousands of hectares of vegetation in New South Wales (McGowan 2006).

Several historic heritage sites are located in the park. These include the remains of a small tin hut at a locality known locally as Sheep Yards or Chapman's Yards. Joe Chapman held a forestry grazing lease until the late 1960s and used the hut and yards (that no longer exist) for crutching sheep (*Ovis aries*). The hut site is located on a high bend in the river, giving good views of both directions of the river, and it is a popular camping spot.

There are also yards associated with the old racecourse that was located approximately three kilometres from Euston. Little evidence of the racecourse remains.

Clay target shooting was a popular activity with a well-established club active during the 1950s and 1960s. The remains of the footings for the target launcher are in the park not far from the town.

A section of the original coach road from Mildura to Euston traverses the park, hugging the river in sections before joining the Tapalin Mail Road. It remains in use today as a public access road in the park known variously as Centre Trail and Sheeptyard Trail (see Figure 1).

## Issues

- There is limited knowledge of the park's history before its reservation. In particular, the significance of historic heritage known to occur in the park has not been assessed.

## Desired outcomes

- Historic heritage is appropriately recorded, conserved, managed and interpreted.
- Understanding of the historic heritage values of the park is improved.

## Management response

- 3.4.1 Record historic heritage sites and assess their significance. Manage and interpret historic heritage values according to their significance.
- 3.4.2 Undertake necessary stabilisation works, if required and as resources permit, until heritage value is assessed.
- 3.4.3 Assess internal fencing for historic heritage value and conserve accordingly. Internal fences without significant heritage value will be removed.

## 3.5 Visitor use

### Camping and day visits

NPWS parks provide a range of visitor opportunities. NPWS aims to ensure that visitors enjoy, experience and appreciate parks at the same time as conserving and protecting park values.

Euston Regional Park provides nature-based recreational opportunities in a riverine setting that includes the Murray River, its backwaters, Lock 15, and river red gum and black box woodlands. The proximity of the township of Euston attracts visitors for day trips and overnight stays, although visitors from further afield are not uncommon, especially those coming to Lock 15 for fishing. Peak visitation occurs during holiday periods such as Easter, long weekends and school holidays, especially mid-summer. Houseboats are available for hire across the river in Robinvale. The houseboats generally travel upstream from Robinvale but some travel downstream through the lock and moor on either side of the river.

Access to the park is via the township of Euston on the Sturt Highway and a short drive along Cowper Street, a well-formed, gravel public road. Public vehicles are allowed on all public and park roads shown in Figure 1. These roads are constructed to two-wheel drive standard but may be impassable during extended wet weather.

The park experiences low levels of visitation, and activities are centred on low-impact, self-reliant recreation such as bushwalking, camping, fishing and birdwatching. Several points along the banks of the Murray River, including Lock 15, are used to launch boats but there are no formal boat ramps. Most visitors are thought to be local and stay for relatively short durations. The most popular areas for visitors are along the river banks, however, these are prone to periodic flooding.

NPWS has maintained the informal nature of visitation previously available to users of Euston State Forest. This means that access has remained unrestricted throughout the park and no visitor facilities have been provided. Open campfires continue to be allowed outside the fire season, however, NPWS encourages the use of alternative fuel stoves due to the potential impacts of firewood collection and escaped campfires.



Firewood may be collected by people camping in the park between April and October, as this is outside the fire season and the risk of escaped campfires is lower. To reduce the risk of escaped campfires during the fire season, only fuel stoves may be used from November to March.

The area in the park adjoining Euston Weir is the most popular area for day visitors, and in the past has also been very popular for campers. This has resulted in littering, soil compaction and escaped campfires. There are risks to visitor safety where the river edge is steep and unstable and from branches dropping from trees. For these reasons, camping will no longer be permitted in the vicinity of Euston Weir. This area will be available for day use only (see Figure 2). Camping remains permissible in all other parts of the park, and camp sites are available in caravan parks in Euston and Robinvale.

Some recreational activities that were permitted under state forest management, such as recreational hunting, are now not permitted. Dogs are allowed in the park provided they are on a leash and kept under control. Informing visitors about permissible uses in the park is a priority for NPWS (see Section 3.6).

NPWS recognises that a high proportion of visitors to Euston Weir are from a non-English speaking background and may not fully understand information and regulatory signage. The provision of interpretive and regulatory material in languages other than English will be investigated (see Section 3.6).

## **Cycling**

The park provides opportunities for cycling along park roads, consistent with NPWS policy and the *Sustainable Mountain Biking Strategy* (OEH 2011b).

In addition, a three-kilometre dual-use walking and cycling track has been constructed by Balranald Shire Council in the eastern portion of the park in a cooperative arrangement with NPWS (see Figure 2). This track is the continuation of the existing Euston to Robinvale (Victoria) walking track and extends from the park boundary adjoining the Euston Common through to Euston Weir. The track is partly within a former road reserve that was excised from the park during gazettal (see Section 5.2) and partly within the park, it is managed under a Memorandum of Understanding between Balranald Shire Council and NPWS. The track is signposted as a dual-use track and is an easy grade, suitable for less experienced riders and families. Horses and motorised vehicles are not permitted on this dual-use track.

## **Horse riding**

Horse riding is known to occur, mostly in the eastern portion of the park. Horse riding on park roads and camping with horses is permitted in the park except in the day use area in the vicinity of Euston Weir. Horse riding is not permitted off-trails, off-road or on the Euston–Robinvale Walking and Cycling Track, except where this trail shares a short distance with the park road between High Trail and Euston Weir. Horse riding is to be conducted in accordance with the *Code of Practice for Horse Riding in Parks* (OEH 2014a).

## **Recreational fishing**

Members of the local community use Lock 15 and a nearby informal boat ramp for recreational fishing and boating along the Murray River adjacent to the park. Native fish species sought include golden perch (*Macquaria ambigua*), Murray cod (*Maccullochella peelii*) and yabbies (*Cherax destructor*).

All fishing activities in NSW waters are regulated under the Fisheries Management Act. Both commercial and recreational fishing must comply with licence conditions specified by the relevant regulatory authority. This includes people fishing from the bank and in the river.

## Issues

- Visitor awareness of recreational constraints and opportunities is limited. In particular, visitors from a non-English speaking background may require targeted information.
- There is potential for unsafe interactions between park users including cyclists, people walking dogs and horse riders.

## Desired outcomes

- Visitor use of the park is ecologically sustainable and consistent with the conservation of the park's natural and cultural values.
- Visitor experiences in the park complement those offered outside the park, including in the neighbouring townships of Euston and Robinvale.
- Negative impacts of visitors and recreational activities on park values are minimised.
- Visitor opportunities encourage appreciation and awareness of the park's values and conservation.

## Management response

- 3.5.1 Promote nature-based recreational activities in the park that do not conflict with the park's natural and cultural values.
- 3.5.2 Allow domestic dogs to be taken into the park as long as they remain under control at all times, by means of a leash, and faeces are removed from the park.
- 3.5.3 Allow camping in the park, except in the day use area in the vicinity of Euston Weir. Formalised campgrounds will not be provided in the park.
- 3.5.4 Encourage visitors to be responsible for the removal of their rubbish from the park.
- 3.5.5 Prohibit wood fires in the park during the fire danger season. Firewood may be collected in the park for campfires at other times of the year unless otherwise indicated by signage. Fuel stoves will be encouraged as the preferred alternative to wood fires.
- 3.5.6 Allow recreational cycling on all park roads. Off-road and off-trail cycling is not permitted.
- 3.5.7 All group and commercial activities proposed in the park require prior consent from NPWS.
- 3.5.8 Allow horse riding on park roads and camping with horses except in the day use area in the vicinity of Euston Weir. Horse riding is not permitted off-trails, off-road or on the dual (Council and NPWS)-managed dual-use walking and cycling track, except where this trail shares a short distance with the park road between High Trail and Euston Weir.
- 3.5.9 Monitor the environmental and social impacts of cycling, horse riding and dog walking, including erosion, weed dispersal and interactions with other park users. Routes may be closed to these activities where impacts are identified.
- 3.5.10 Continue to provide access for recreational fishing, and to work cooperatively with the relevant regulatory authority to ensure fishing in the park has minimal impact on park values.

## 3.6 Information and education

Information provision assists the protection of natural and cultural heritage, promotes support for conservation, and increases the enjoyment and satisfaction of visitors. An interpretation plan will identify the most appropriate way to deliver this information for the park, including interpretive signage on that part of the Euston–Robinvale Walking and Cycling Track that crosses the park.

Since July 2010, NPWS has progressively installed entrance, hazard, directional and regulatory signs to inform members of the public about NPWS management of the park.

### Issues

- There is minimal public information available regarding the values of the park and the appropriate behaviours to support visitor safety and the protection of natural and cultural values. There is also limited understanding of what activities are permissible in the park. Some of this messaging may need to occur in languages other than English due to the large number of visitors to Euston Weir who come from non-English speaking backgrounds.

### Desired outcomes

- There is enhanced widespread community understanding and appreciation of the park's natural and cultural values.
- Visitors are aware of the park's recreational opportunities and can easily and safely find their way to park facilities.
- Educational opportunities are made available to schools and community organisations.

### Management response

- 3.6.1 Provide interpretive, safety and minimal impact use information at entry points to the park and at Euston Weir.
- 3.6.2 Maintain directional, regulatory and interpretive signage to enhance visitor use of the park.
- 3.6.3 Develop an interpretation plan following consultation with relevant stakeholders, including the Aboriginal community, and investigate the need for multilingual signage.
- 3.6.4 Identify opportunities for sharing information and communicating with the broader community.

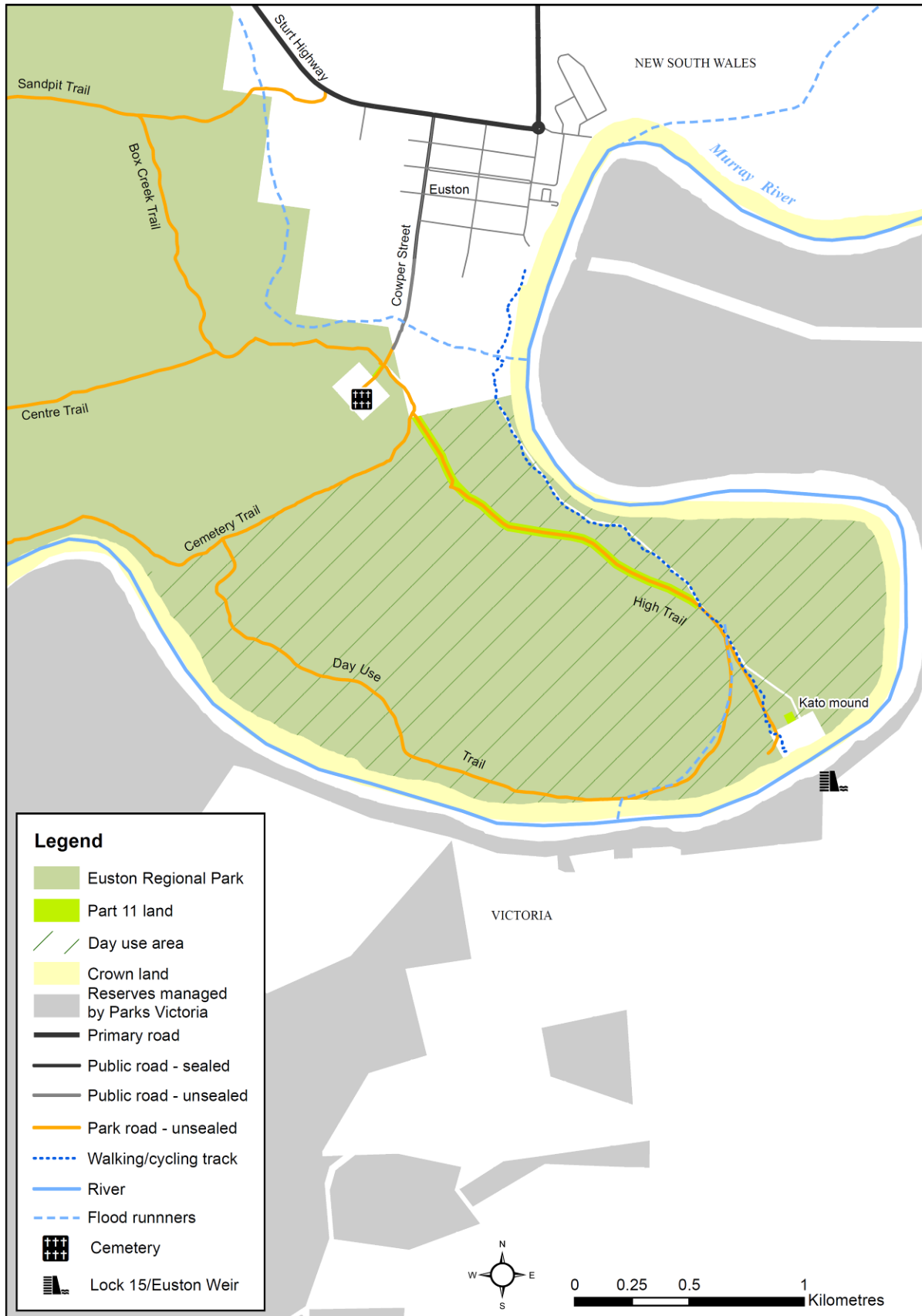


Figure 2 Euston Regional Park Day Use Area

## 4. Threats

### 4.1 Pests

Pest species are plants, animals and pathogens 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 *Biosecurity Act 2015* and its regulations provide specific legal requirements for the response, management and control of biosecurity risks, including weeds and pest animals. These requirements apply equally to public land and privately-owned land. Under this framework, Local Land Services has prepared regional strategic weed management plans and regional strategic pest animal management plans for each of its 11 regions, including the *Western Regional Strategic Weed Management Plan 2018-2023* (Western LLS 2017) and *Western Regional Strategic Pest Management Plan* (Western LLS 2018). These plans identify priority weeds and pest animals in each of the regions, plus the appropriate management response for the region (i.e. prevention/alert, eradication, containment or asset protection).

NPWS prepares regional pest management strategies which identify the operations and control actions undertaken by NPWS to meet the priorities from regional strategic pest and weed management plans. This also includes other important programs such as the *Biodiversity Conservation Program* (see Sections 3.2).

The overriding objective of the NPWS regional pest management strategies is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. These strategies are regularly updated. Reactive programs may also be undertaken in cooperation with neighbouring land managers, in response to emerging issues. Significant pest species recorded in the park are listed in Table 2 and discussed below.

Pest species that are also key threatening processes may be managed under the *Biodiversity Conservation Program* where it includes key threatening processes strategies. The *Saving our Species* program has developed targeted strategies for managing key threatening processes using the best available information to minimise current and future impacts of key threatening processes on priority biodiversity values, including threatened species and ecological integrity.

**Table 2 Pest species recorded in Euston Regional Park**

Common name	Scientific name	Comment
<b>Pest plants</b>		
Bathurst burr	<i>Xanthium spinosum</i>	Isolated along river or flood edges.
Boneseed	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> <sup>ABC</sup>	Isolated bushes in flood-out areas near Euston Weir. Limited distribution.
Gazania	<i>Gazania</i> spp. <sup>B</sup>	Scattered along the river area, usually as isolated clumps.
Horehound	<i>Marrubium vulgare</i> <sup>B</sup>	Scattered along roadsides and disturbed areas. Able to invade poor soil and waste places and disturbed native vegetation forming thick stands.
Noogoora burr	<i>Xanthium occidentale</i>	Isolated along river or flood edges.



Common name	Scientific name	Comment
Onion weed	<i>Asphodelus fistulosus</i> <sup>D</sup>	Established throughout the park on sandier soils, creating a dense, monospecific ground cover restricting growth of native species.
Paterson's curse	<i>Echium plantagineum</i> <sup>B</sup>	Scattered in the park, along roadsides or disturbed areas. Prolific seeder and forms dense patches suppressing the growth of native species.
Prickly pear	<i>Opuntia</i> spp. <sup>AE</sup>	Scattered throughout the park usually as isolated specimens. Dense patches can form an impenetrable barrier and provide harbour for introduced species.
Saffron thistle	<i>Carthamus lanatus</i>	Scattered along roadsides and disturbed areas.
Thornapple	<i>Datura innoxia</i>	Scattered throughout the park along the river or disturbed sandier locations. Can form thick infestations.
Willow	<i>Salix</i> spp. <sup>AE</sup>	Scattered trees at Euston Weir.
<b>Pest animals</b>		
European red fox	<i>Vulpes vulpes</i> <sup>BFG</sup>	Scattered throughout the park.
Rabbit	<i>Oryctolagus cuniculus</i> <sup>BFG</sup>	Scattered throughout the park on sandier soils.
Feral honeybee	<i>Apis mellifera</i> <sup>B</sup>	Scattered throughout the park. Compete with regent parrot for river red gum tree hollows.
Feral cat	<i>Felis catus</i> <sup>BH</sup>	Scattered throughout the park.
Feral pig	<i>Sus scrofa</i> <sup>BFG</sup>	Scattered populations in the vicinity of the river and wetlands. Numbers are low but variable.

<sup>A</sup> Declared Weed of National Significance.

<sup>B</sup> Declared a key threatening process under the Biodiversity Conservation Act.

<sup>C</sup> Western LLS (2017) state-level priority weed, eradication management category.

<sup>D</sup> Western LLS (2017) other regional priority weed.

<sup>E</sup> Western LLS (2017) state-level priority weed, asset protection.

<sup>F</sup> Western LLS (2018) asset protection pest animal management category.

<sup>G</sup> Declared a key threatening process under the EPBC Act.

<sup>H</sup> Western LLS (2018) limited action pest animal management category.

Several of the pest plant species in the park are examples of escaped exotic garden plants. The movement of vehicles, people and equipment through the park increases the potential for the spread and introduction of weed species. In this riverine environment, weed propagules are also readily transported during inundation by flooding.

## Boneseed

Boneseed is a native of South Africa. It is a Weed of National Significance, is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 1999). Boneseed has a propensity to become dominant in the community and exclude native plant species. Invasion by boneseed leads to a decline in the species diversity of affected plant communities and the fauna that depend on them. Boneseed readily invades a wide variety of disturbed and undisturbed habitats including woodlands and mallee. A threat abatement plan has been prepared (DEC 2006) that lists actions to abate, ameliorate or reduce the threat posed by boneseed to threatened species, populations and ecological communities. In the

park, boneseed occurs in a limited number of isolated locations. Control will be undertaken with the objective of eradication.

## **Willow**

Willows are among the worst weeds in Australia because of their invasiveness, and economic and environmental impacts. They invade riverbanks and wetlands, and occur near Euston Weir. Willows are a Weed of National Significance.

## **Opuntoid cacti**

Opuntoid cacti, including prickly pear, are Weeds of National Significance. These species are a significant hazard to native wildlife, in some instances causing painful death, reducing habitat opportunities and impeding wildlife movement. Native vegetation is also adversely affected through competition for resources.

## **European red foxes**

Foxes suppress native animal populations, particularly medium-sized ground-dwelling and semi-arboreal mammals, ground-nesting birds and freshwater turtles. Foxes have also been implicated in the spread of a number of weed species such as boneseed. Predation by the European red fox is a key threatening process under the Biodiversity Conservation Act (NSW SC 1998) and the Environment Protection and Biodiversity Conservation Act (DoE 2009).

The *NSW Threat Abatement Plan for Predation by the Red Fox* was initiated in 2001 (and revised in 2010 — see OEH 2011a) 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 New South Wales to protect biodiversity.

## **Rabbits**

Grazing and burrowing by rabbits can cause or exacerbate erosion. This is of particular concern in the park on the sandy dunes where Aboriginal cultural heritage can occur, including burials. Rabbit activity can also reduce plant recruitment and survival. Competition and land degradation by feral rabbits is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2002a) and the Environment Protection and Biodiversity Conservation Act (DoE 2009).

Rabbit numbers declined post-1998 with the introduction of the rabbit calicivirus but have subsequently increased due to disease resistance and widespread rainfall. In riverine areas of hard clay soils, rabbits reside above-ground and therefore conventional warren destruction techniques such as ripping are not feasible. In the dune country, where Aboriginal cultural heritage may be present, ground disturbance of any type is to be avoided. Control of rabbits by way of gassing and poisoning is being examined. Continued monitoring of the rabbit population and its impacts will be necessary.

## **Feral honeybees**

Feral colonies of the European honeybee are known to occur in the park. The park is also used by apiarists for managed hives (see Section 5.2). Honeybees can have adverse impacts on some native plants and animals (Paton 1996) including poor flower pollination and competition with native nectar feeders. Competition from feral honeybees is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2002b), but managed honeybees are not the subject of this determination.

European honeybees have been observed utilising significant numbers of nesting hollows in the river red gum woodlands. Further research into the impacts of this is needed to determine the scale of this impact on the regent parrot and other hollow-dependent native species within the park.

## **Feral cats**

Feral cats impact heavily on native animals and predation by feral cats is listed as a key threatening process under both the Biodiversity Conservation Act (NSW SC 2000c) and the Environment Protection and Biodiversity Conservation Act (DoE 2009). Cats are known to be one of the causes in the decline of native species. In addition to predation, cats act as a reservoir for infectious diseases such as toxoplasmosis and sarcosporidiosis which can be transmitted to native animals, domestic stock and humans. Effective methods of cat control are currently unavailable. Preliminary work has been undertaken to develop specifically designed cat baiting stations and, subject to further research and approvals, this technique may be suitable for use in the park.

## **Feral pigs**

The impact of feral pigs on habitat and other conservation values can be substantial as they forage, wallow and dig in wetland areas; and cause major disturbance and damage to soils, roots, sensitive ground plants and wetland environments. Feral pigs are active predators of native birds, reptiles (including their eggs), frogs, soil invertebrates such as earthworms, and the underground storage organs of plants and fungi. Areas disturbed by feral pigs are at risk from weed invasion and soil erosion.

Predation, habitat degradation, competition and disease transmission by feral pigs is listed as a key threatening process under both the Biodiversity Conservation Act (NSW SC 2004) and the Environment Protection and Biodiversity Conservation Act (TSSC 2001b).

In Euston Regional Park the impact of pigs is variable depending on the seasons. Populations in this park are possibly transitory. The distribution and density of pigs will be monitored. When impacts are considered significant, cooperative strategic control programs will be undertaken.

## **Desired outcomes**

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of pest plant and animals on park values are minimised.

## **Management response**

- 4.1.1 Monitor the distribution and impact of pest species on the park and park values including disturbance to Aboriginal cultural heritage, threatened species and their habitats.
- 4.1.2 Manage pest species in accordance with pest management strategies relevant to the park. Priority will be given to priority weeds, rabbits, pigs and foxes.
- 4.1.3 Monitor the park for new outbreaks of priority weeds or pests. Destroy any new outbreaks where possible.
- 4.1.4 Ensure heavy plant and equipment is cleaned before use in the park to mitigate against the introduction and spread of weed species.
- 4.1.5 Implement weed and pest control programs in cooperation with Balranald Shire Council, Western Local Land Services and park neighbours as required.

## 4.2 Fire

The primary objectives of NPWS fire management are to protect life, property, community assets and cultural heritage from the adverse impacts of fire, while also managing fire regimes in parks to maintain and enhance biodiversity. NPWS assists in developing fire management practices that contribute to conserving biodiversity and cultural heritage across the landscape, and implements cooperative and coordinated fire management arrangements with other fire authorities, neighbours and the community (OEH 2013).

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 the loss of particular plant and animal species and communities, and high frequency fire has been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000b).

The fire history in what is now the park is only partially known. Early settlers are thought to have regularly burnt river bends to promote grass growth for stock grazing. In recent history, fires have been small-scale with the majority of outbreaks from lightning strikes or inadequately extinguished or unattended campfires.

Intense and even moderate fires in riparian environments can have serious environmental impacts. River red gum regeneration is highly susceptible to fire due to the lack of a lignotuber and older trees may be destroyed by fire. Black box is more resilient to repeated fire events due to its ability to sprout from a basal lignotuber. The resultant loss of nesting hollows in riverine environments from too-intense or too-frequent fire can severely affect animal species dependent on hollows for breeding and refuge.

Mallee eucalypts possess lignotubers so are adapted to fire, but high frequency fires or a too-intense fire can be detrimental. This applies not only to individual trees but to important habitat features such as variable vegetation structure and age classes, the presence of leaf litter and coarse woody debris.

NPWS aims to minimise the occurrence of accidental fires in the park by providing information to the public on park fire bans. Wildfires will be suppressed in order to minimise the loss of life, property, habitat or cultural heritage sites.

A fire management strategy that defines the fire management approach for Euston Regional Park has been prepared (OEH 2012). The fire management strategy outlines the recent fire history of the park, key assets in and adjoining the park, including sites of natural and cultural heritage value, fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the park's vegetation communities, including provision of guidelines for prescribed burning.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service and is actively involved with the Lower Western Zone Bush Fire Management Committee. Cooperative arrangements include fire planning, fuel management and information sharing. Hazard reduction programs, ecological burning proposals and management trail works are submitted annually to the bush fire management committee.

### Desired outcomes

- Negative impacts of fire on life, property and the environment are minimised.
- The potential for spread of bushfires on, from, or into the park is minimised.
- Fire regimes are appropriate for the conservation of native plant and animal communities.

## Management response

- 4.2.1 Implement the fire management strategy for Euston Regional Park and update as necessary.
- 4.2.2 Continue to be involved in the Lower Western Zone Bushfire Management Committee and maintain cooperative arrangements with the Euston Rural Fire Service brigade and neighbours in regard to fuel management and fire suppression.

## 4.3 Firewood collection

Many people enjoy the experience of having a campfire when camping or picnicking in the bush. However, firewood collection results in the loss of woody debris and fallen logs, reducing the availability of this material as habitat. The removal of timber, woody debris, dead wood and dead trees has been identified as having a significant negative impact on habitat availability and ecosystem functioning and is listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2003). The collection of wood from river banks and at sites of cultural significance may also result in the disturbance, damage or destruction of artefacts.

NPWS therefore encourages the use of alternative fuel stoves to avoid collection of woody debris and escaped campfires.

Firewood may only be collected by people camping in the park outside the fire season, that is, between April and October. Firewood collected in the park is only to be used in the area from which it is collected.

To reduce the risk of escaped campfires during the fire season, only fuel stoves may be used from November to March.

NPWS administers a domestic firewood collection program in some river red gum parks in the Riverina where the level of coarse woody debris is sufficiently high to avoid adverse impacts on biodiversity values. Euston Regional Park has a coarse woody debris level well below the minimum threshold level, and the level is not expected to be exceeded during the life of this plan.

## Desired outcomes

- Levels of coarse woody debris are maintained.

## Management response

- 4.3.1 Encourage use of alternative fuel sources such as gas stoves.
- 4.3.2 Prohibit the collection of firewood for domestic use unless coarse woody debris thresholds are exceeded.

## 4.4 Climate change

Human-induced climate change has been listed as a key threatening process under the Biodiversity Conservation Act (NSW SC 2000a) and the associated loss of habitat is listed under the Environment Protection and Biodiversity Conservation Act (TSSC 2001a). The latest information on projected changes to climate are from the NSW and ACT Regional Climate Modelling (NARClm) project (OEH 2014). The climate projections for 2020–2039 are described as ‘near future’, and projections for 2060–2079 are described as ‘far future’. The snapshot shown in Table 3 is for the Far West Region, which includes Euston Regional Park (OEH 2014b).



Projections of future changes in climate for the Far West Region include higher average, maximum and minimum temperatures; increased summer and autumn rainfall, but drier winter and spring seasons (OEH 2014b). For the region, these changes are likely to lead to more intense summer rainfall events, decreased river flows in spring and higher evaporative demand. The southern fringe of the region adjacent to the Victorian border currently experiences milder conditions than the remainder of this large region. The effects of climate change may be less extreme for Euston Regional Park than in other parts of the region.

Climate change may significantly affect biodiversity by changing the size of populations and distribution of species, and modifying species composition and geographical extent of habitats and ecosystems. Species most at risk are those unable to migrate or adapt to reduced water availability and changed rainfall seasonality, particularly those with small population sizes or with slow growth rates.

**Table 3 Far West Region climate change snapshot**

Projected temperature changes	
Maximum temperatures are projected to <b>increase</b> in the near future by 0.3–1.0°C	Maximum temperatures are projected to <b>increase</b> in the far future by 1.8–2.7°C
Minimum temperatures are projected to <b>increase</b> in the near future by 0.4–0.8°C	Minimum temperatures are projected to <b>increase</b> in the far future by 1.4–2.7°C
The number of hot days (i.e. > 35°C) will <b>increase</b>	The number of cold nights (i.e. < 2°C) will <b>decrease</b>
Projected rainfall changes	
Rainfall is projected to <b>decrease</b> in spring	Rainfall is projected to <b>increase</b> in summer and autumn
Projected Forest Fire Danger Index changes	
Average fire weather is projected to <b>increase</b> in summer and spring	Number of days with severe fire weather is projected to <b>increase</b> in summer and spring

Source: OEH 2014b.

Effects are likely to be most intense where existing pressures are exacerbated, particularly for wetlands and riverine ecological communities that are already under pressure. An increase in weeds, particularly summer-growing opportunists, is likely. However, some weeds are likely to become less problematic (DECC 2008).

The potential impact of climate change on the park is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from feral animals.

The river red gum forests and black box woodlands throughout the Murray–Darling Basin have already been heavily impacted by reduced water availability and extensive changes to natural flooding regimes. Considerable effort is being applied to restoring environmental flows to the Murray, Murrumbidgee and Lachlan rivers and their tributaries. Measures, including water sharing rules and buy-back programs, are aimed at helping to restore the health of these communities and address future water availability under a drying climate. NPWS will continue to participate in catchment-scale and cross-border initiatives aimed at improving the resilience of riverine ecosystems.

NPWS management of other threats to the natural and cultural values of Euston Regional Park is also helping to build resilience to the effects of climate change. Ongoing programs to reduce the impacts of habitat fragmentation, invasive species and bushfires will help reduce the severity of the effects of climate change.

## **Desired outcomes**

- The effects of climate change on natural systems are mitigated.

## **Management response**

- 4.4.1 Continue existing fire, pest and weed management programs to increase the park's resilience and ability to cope with future disturbances, including climate change.
- 4.4.2 Work with adjoining land managers, government stakeholders and the community to improve habitat resilience to the effects of climate change including cross-tenure initiatives.

## 5. Management operations and other uses

### 5.1 NPWS management facilities and operations

#### Park roads

A network of formal and informal roads and trails exists in the park as a legacy of former logging activities and unrestricted public access. The number, condition and extent of roads and trails has negatively impacted the natural and cultural values of the park by reducing and fragmenting available habitat and increasing opportunities for weeds and pest activity. The number of roads in the park is excess to the needs of NPWS to manage the area for conservation and recreation.

Public vehicle access in the park is allowed via the roads shown on Figure 1. These roads are also used by NPWS for management purposes. There are no designated management trails in the park. During wet weather or flooding, park roads may be closed temporarily.

All roads and trails in the park not shown on Figure 1 will be permanently closed to traffic and actively rehabilitated or allowed to revegetate naturally. In some instances, closed roads may be temporarily re-opened for NPWS use in the event of fire.

#### Boundary fencing

Stock are allowed to graze in Euston Regional Park under permit (see Section 5.2) but stock-proof boundary fencing is needed to keep unpermitted stock out of the park. The condition of existing park boundary fencing varies from fair to poor. Significant sections may need replacing and all boundaries need encroaching vegetation cleared. NPWS will liaise with neighbouring landowners regarding boundary fencing and may enter into fencing agreements where necessary to improve the effectiveness of boundary fencing.

#### Desired outcomes

- Impacts of informal roads and tracks decrease over time, with areas rehabilitated or allowed to regenerate naturally.
- Park roads and trails provide for the effective management of recreational activities and management requirements.
- Unauthorised stock access to the park is prevented.
- Signage reinforces NPWS management, educates visitors and encourages appropriate behaviour.

#### Management response

- 5.1.1 Maintain the roads shown on Figure 1. Close all roads and trails excess to NPWS management and visitor needs.
- 5.1.2 Assess the condition of boundary fencing, prioritise replacement where necessary and enter into fencing agreements with neighbouring landowners as required and as resources allow.

## 5.2 Non-NPWS access and operations

### Euston Weir and Lock 15

Lock 15 and Euston Weir are associated structures on the Murray River which are owned and operated by WaterNSW. Lock 15 is on the southern, Robinvale, side of the river opposite the park. Euston Weir spans the river between the lock and the bank of the river adjacent to the park. Sometimes these two structures are collectively referred to as 'Lock 15'.

WaterNSW regulates river flows by using a Kato crane to lift trestles out of the weir. This equipment is set on rails and is housed on a mound that sits above normal flood levels. The mound is set back from the weir and is referred to as the 'Kato mound' (see Figure 2).

For management and access purposes, a small area of land surrounding the weir and Kato crane, together with an access corridor were originally excised from the park. However, the access corridor proved insufficient and, as a result, a new access road to the weir was formed through the park. This unsealed road and the Kato mound lie on land that is vested in the Minister administering the National Parks and Wildlife Act under Part 11 of the Act (see Section 2.2).

### Council-managed roads and walking track

Balranald Shire Council owns and manages several roads and co-manages a section of the dual-use walking/cycling track which traverses the park with NPWS (see Figures 1 and 2). Following gazettal of the park, NPWS enacted boundary adjustments and other arrangements to clarify maintenance responsibilities and other arrangements for these facilities.

The dual-use walking/cycling track was constructed by Balranald Shire Council in the corridor of the original access road to Euston Weir. For the 500 metres or so closest to the weir, the track coincides with the new access road which is within the park. This section of the trail is managed under a Memorandum of Understanding between Balranald Shire Council and NPWS. Euston Cemetery is wholly enclosed by Euston Regional Park and is accessed via the extension of Cowper Street. This road corridor is Part 11 land (see Section 2.2).

Tapalin Mail Road is a sealed public road passing through the north-west corner of the park. Its former alignment, known as the Old Tapalin Mail Road, is an unsealed road and is also vested in Balranald Shire Council.

### Apiary sites

There are six authorised apiary sites in Euston Regional Park. Access to the apiary sites is via park roads and short access tracks. These sites existed before the gazettal of the park and will continue to be permitted as existing interests. NPWS policy on beekeeping allows existing sites to continue but does not allow any new or additional sites.

While no problems are currently known in the park, hive sites may cause unacceptable environmental impacts or user conflicts at times. Where needed, NPWS will aim to negotiate the relocation of hives to other sites in the park to minimise the impact of apiary activities.

### Grazing

Grazing is currently permitted under licence in Euston Regional Park subject to conditions. Under the National Parks and Wildlife Act, grazing licences are recognised as an existing interest. Existing grazing licences on areas reserved under the National Parks Estate (Riverina Red Gums Reservations) Act have been allowed to continue while a

comprehensive grazing study is undertaken on NPWS-managed lands in south-west NSW. The outcomes will inform future decisions about grazing on certain NPWS-managed lands in south-west NSW.

### **Desired outcomes**

- Non-NPWS uses are managed appropriately to minimise potential negative impacts on park values.
- Management agreements are in place for maintenance of non-NPWS managed roads and the walking and cycling track in the park.

### **Management response**

- 5.2.1 License ongoing use of the Kato mound adjoining Euston Weir by Water NSW under the National Parks and Wildlife Act.
- 5.2.2 Develop an agreement with Balranald Shire Council and Water NSW for the maintenance of the Euston Weir access road.
- 5.2.3 Work cooperatively with Balranald Shire Council to transfer ownership of the access road to Euston Cemetery to the council.
- 5.2.4 Work cooperatively with Balranald Shire Council in the management of Tapalin Mail Road and Old Tapalin Mail Road, including pest plant management.
- 5.2.5 Continue to allow existing access to Euston Cemetery and Euston Weir through the park. Enter into agreements for future maintenance where required.
- 5.2.6 Continue to authorise and manage apiary sites in the park in accordance with NPWS policy and consent conditions.
- 5.2.7 Monitor and manage stock grazing in accordance with licence conditions.



## 6. Implementation

This plan of management establishes a scheme of operations for Euston Regional Park.

Activities identified in the plan are listed in the table below. Relative priorities are allocated against each activity as follows:

**High priority** activities are those imperative to achieve the plan's objectives and desired outcomes and 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 for achieving management objectives and desired outcomes but can wait until resources become available.

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

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with the National Parks and Wildlife Act.

**Table 4 List of management responses**

Management response		Priority
<b>3.1 Geology, landscape and hydrology</b>		
3.1.1	Continue to work with relevant water management agencies and other stakeholders to secure and deliver environmental water for improving the health and condition of biodiversity values in the park.	Medium/Ongoing
3.1.2	Monitor the potential for soil erosion in the park, particularly in sand deposits, and undertake corrective works as required.	Ongoing
<b>3.2 Native plants and animals</b>		
3.2.1	Encourage and support the undertaking of biological surveys, research and monitoring to better understand plant and animal occurrences in the park.	Medium
3.2.2	Conduct vegetation monitoring, including of tree health, in relation to water management and other impacting processes.	Medium/Ongoing
3.2.3	Implement relevant strategies in the <i>Biodiversity Conservation Program</i> and recovery plans for the threatened regent parrot and southern bell frog, including: undertake an annual monitoring program for regent parrots undertake surveys for southern bell frogs.	Medium/Ongoing
3.2.4	Confirm the location of the single Boland yellow gum record in the park.	Low
<b>3.3 Aboriginal connections to Country</b>		
3.3.1	Consult and involve the Balranald Local Aboriginal Land Council, relevant Aboriginal community organisations and custodial families in the management of Country in the park, including the management of Aboriginal cultural heritage and natural values.	Ongoing
3.3.2	Encourage further research into the Aboriginal heritage values of the park in consultation with relevant Aboriginal community organisations.	Medium
3.3.3	Work cooperatively with the local Aboriginal community to rehabilitate, protect, promote and provide interpretation for sites as required.	Ongoing

Management response		Priority
<b>3.4 Historic heritage</b>		
3.4.1	Record historic heritage sites and assess their significance. Manage and interpret historic heritage values according to their significance.	Low
3.4.2	Undertake necessary stabilisation works, if required and as resources permit, until heritage value is assessed.	High
3.4.3	Assess internal fencing for historic heritage value and conserve accordingly. Internal fences without significant heritage value will be removed.	Low
<b>3.5 Visitor use</b>		
3.5.1	Promote nature-based recreational activities in the park that do not conflict with the park's natural and cultural values.	Ongoing
3.5.2	Allow domestic dogs to be taken into the park as long as they remain under control at all times, by means of a leash, and faeces are removed from the park.	Ongoing
3.5.3	Allow camping in the park, except in the day use area in the vicinity of Euston Weir. Formalised campgrounds will not be provided in the park.	Ongoing
3.5.4	Encourage visitors to be responsible for the removal of their rubbish from the park.	Ongoing
3.5.5	Prohibit wood fires in the park during the fire danger season. Firewood may be collected in the park for campfires at other times of the year unless otherwise indicated by signage. Fuel stoves will be encouraged as the preferred alternative to wood fires.	Ongoing
3.5.6	Allow recreational cycling on all park roads. Off-road and off-trail cycling is not permitted.	Ongoing
3.5.7	All group and commercial activities proposed in the park require prior consent from NPWS.	Ongoing
3.5.8	Allow horse riding on park roads and camping with horses except in the day use area in the vicinity of Euston Weir. Horse riding is not permitted off-trails, off-road or on the dual (Council and NPWS)-managed dual-use walking and cycling track, except where this trail shares a short distance with the park road between High Trail and Euston Weir.	Ongoing
3.5.9	Monitor the environmental and social impacts of cycling, horse riding and dog walking, including erosion, weed dispersal and interactions with other park users. Routes may be closed to these activities where impacts are identified.	Ongoing
3.5.10	Continue to provide access for recreational fishing, and to work cooperatively with the relevant regulatory authority to ensure fishing in the park has minimal impact on park values.	Ongoing
<b>3.6 Information and education</b>		
3.6.1	Provide interpretive, safety and minimal impact use information at entry points to the park and at Euston Weir.	High
3.6.2	Maintain directional, regulatory and interpretive signage to enhance visitor use of the park.	Ongoing
3.6.3	Develop an interpretation plan following consultation with relevant stakeholders, including the Aboriginal community, and investigate the need for multilingual signage.	Low
3.6.4	Identify opportunities for sharing information and communicating with the broader community.	Ongoing
<b>4.1 Pests</b>		

<b>Management response</b>		<b>Priority</b>
4.1.1	Monitor the distribution and impact of pest species on the park and park values including disturbance to Aboriginal cultural heritage, threatened species and their habitats.	Ongoing
4.1.2	Manage pest species in accordance with pest management strategies relevant to the park. Priority will be given to priority weeds, rabbits, pigs and foxes.	High/ Ongoing
4.1.3	Monitor the park for new outbreaks of priority weeds or pests. Destroy any new outbreaks where possible.	Ongoing
4.1.4	Ensure heavy plant and equipment is cleaned before use in the park to mitigate against the introduction and spread of weed species.	Ongoing
4.1.5	Implement weed and pest control programs in cooperation with Balranald Shire Council, Western Local Land Services and park neighbours as required.	Ongoing
<b>4.2 Fire</b>		
4.2.1	Implement the fire management strategy for Euston Regional Park and update as necessary.	High/ Ongoing
4.2.2	Continue to be involved in the Lower Western Zone Bushfire Management Committee and maintain cooperative arrangements with the Euston Rural Fire Service brigade and neighbours in regard to fuel management and fire suppression.	High/ Ongoing
<b>4.3 Firewood collection</b>		
4.3.1	Encourage use of alternative fuel sources such as gas stoves.	Ongoing
4.3.2	Prohibit the collection of firewood for domestic use unless coarse woody debris thresholds are exceeded.	Ongoing
<b>4.4 Climate change</b>		
4.4.1	Continue existing fire, pest and weed management programs to increase the park's resilience and ability to cope with future disturbances, including climate change.	Ongoing
4.4.2	Work with adjoining land managers, government stakeholders and the community to improve habitat resilience to the effects of climate change including cross-tenure conservation initiatives.	Ongoing
<b>5.1 NPWS management facilities and operations</b>		
5.1.1	Maintain the roads shown on Figure 1. Close all roads and trails excess to NPWS management and visitor needs.	Ongoing
5.1.2	Assess the condition of boundary fencing, prioritise replacement where necessary and enter into fencing agreements with neighbouring landowners if required and as resources allow.	Ongoing
<b>5.2 Non-NPWS access and operations</b>		
5.2.1	Licence ongoing use of the Kato mound adjoining Euston Weir by Water NSW under the National Parks and Wildlife Act.	Medium
5.2.2	Develop an agreement with Balranald Shire Council and Water NSW for the maintenance of the Euston Weir access road.	Medium
5.2.3	Work cooperatively with Balranald Shire Council to transfer ownership of the access road to Euston Cemetery to the council.	Low
5.2.4	Work cooperatively with Balranald Shire Council in the management of Tapalin Mail Road and Old Tapalin Mail Road, including pest plant management.	Ongoing

Management response		Priority
5.2.5	Continue to allow existing access to Euston Cemetery and Euston Weir through the park. Enter into agreements for future maintenance where required.	Medium
5.2.6	Continue to authorise and manage apiary sites in the park in accordance with NPWS policy and consent conditions.	Ongoing
5.2.7	Monitor and manage stock grazing in accordance with licence conditions.	Ongoing

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