

WIESNERS SWAMP NATURE RESERVE
PLAN OF MANAGEMENT

NSW National Parks and Wildlife Service
February 2003

This plan of management was adopted by the Minister for the Environment on 10th February 2003.

Acknowledgments

This plan of management was prepared by staff of Conservation Management Unit, the former Griffith District, and South West Slopes Region, with the assistance of specialists in Western Zone and the Griffith District Advisory Committee.

Much of the information in the plan of management is drawn from a resource inventory prepared by consultants Steve Hamilton and Christine Sagona.

Cover photograph: Wiesners Swamp Nature Reserve by John Brickhill.

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ISBN 0 7313 6948 3

FOREWORD

Wiesners Swamp Nature Reserve is located in the Riverina, approximately 50 km northwest of Albury and 8 km northeast of the small town of Walbundrie. The reserve was gazetted in 1996 and has an area of 103 ha.

The reserve consists of seasonally flooded river red gum woodland and mixed box woodland, both of which have been modified by past clearing and grazing. Despite this modification, the reserve is an important remnant sample of native vegetation and animal habitat in a region which has been extensively cleared. It provides reliable waterbird habitat and a stopover for nomadic and migratory birds. Numerous tree hollows provide shelter and breeding opportunities for hollow-dependent birds and arboreal mammals.

Regeneration of a more natural vegetation cover is expected now that clearing and grazing of the reserve have ceased. This will be encouraged through rabbit control measures, vegetation monitoring and planting if needed. Water quality will be tested to guide management programs and the Service will cooperate in any efforts to improve management of the catchment.

Public use of the reserve will not generally be promoted because of the over-riding importance of preventing vegetation trampling, wildlife disturbance and fire ignition. Research and appropriate educational visits will, however, be permitted.

This plan of management contains the scheme of operations for Wiesners Swamp Nature Reserve. In accordance with section 76 of the *National Parks and Wildlife Act 1974*, this plan of management is hereby adopted.

BOB DEBUS
MINISTER FOR THE ENVIRONMENT

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1. INTRODUCTION

The *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each nature reserve. A plan of management is a legal document that outlines how the area will be managed in the years ahead.

The procedures for the adoption of a plan of management for a nature reserve are specified in the Act:

- * The Director-General is required to refer the plan to the National Parks and Wildlife Advisory Council for its consideration and advice.
- * The Director-General is required to submit the plan to the Minister, together with any comments or suggestions of the Advisory Council.
- * The Minister may adopt the plan without alteration or with such alterations as the Minister may think fit, or may refer it back to the Director-General and Council for further consideration.

Once a plan has been adopted by the Minister, no operations may be undertaken within the nature reserve except in accordance with the plan.

Although not a requirement under the Act, this plan of management was placed on public exhibition for three months from 18th January until 5th April 2002. The exhibition of the plan of management attracted 4 submissions which raised 12 issues. All comments received were referred to the Advisory Council with the plan for their consideration and advice to the Minister.

The planning process leading to the development of this plan has involved the collection and use of a large amount of information, which for reasons of document size, has not been included in the plan. For additional information or enquiries on any aspect of the plan, contact the Service's South West Slopes Office at 7a Adelong Road, Tumut, or phone (02) 6947 7000.

2. MANAGEMENT CONTEXT

2.1 NATURE RESERVES IN NEW SOUTH WALES

Reserving areas for nature conservation as a general purpose was introduced into Australia with the establishment of Royal National Park in 1879.

Nature reserves arose out of faunal reserves. Faunal reserves in New South Wales were first established under the *Fauna Protection Act 1948*. Under the *National Parks and Wildlife Act 1967*, faunal reserves were reclassified as nature reserves. The 1967 Act was subsequently replaced by the *National Parks and Wildlife Act 1974*.

Under the National Parks and Wildlife Act, nature reserves are areas of special scientific interest containing wildlife or natural environments or natural phenomena.

The purposes of nature reserves are defined in the Act as:

- "(a) the care, propagation, preservation and conservation of wildlife;
- (b) the care, preservation and conservation of natural environments and natural phenomena;
- (c) the study of wildlife, natural environments and natural phenomena; and
- (d) the promotion of the appreciation and enjoyment of wildlife, natural environments and natural phenomena.

Nature reserves are valuable refuge areas, where natural processes, phenomena and wildlife can be studied. They differ from national parks which include as a major objective the provision of appropriate recreation opportunities.

2.2 WIESNERS SWAMP NATURE RESERVE

2.2.1 Location, Gazettal and Regional Setting

Wiesners Swamp Nature Reserve is located in the Riverina, approximately 50 km north-west of Albury (see map, page 4) and 8 km north-east of the small town of Walbundrie. The reserve was gazetted in 1996 and has an area of 103 ha.

From 1883 until 1971 the area which is now Wiesners Swamp Nature Reserve was a forest reserve. It was known locally as Wiesners Swamp from the early 1900s when the Wiesner (pronounced 'weezner') family took over the property adjacent to the swamp.

Surrounding lands have largely been cleared for sheep grazing and some cropping. Wiesners Swamp is one of several small nature reserves in the Riverina which sample remnants of formerly widespread vegetation types. Nearby reserves are The Rock, Lake Urana and Table Top Nature Reserve, all of which have different plant communities to Wiesners Swamp.

The nature reserve is within the Shire of Culcairn.

2.2.2 Importance of Wiesners Swamp Nature Reserve

Wiesners Swamp Nature Reserve is located in the NSW South West Slopes Bioregion on the edge of riverine plain country.

The nature reserve contains most of Wiesners Swamp, a seasonally flooded river red gum wetland on the Billabong Creek system. The swamp floods most years and provides reliable waterbird habitat, including breeding opportunities.

The mixed box woodland found on the areas of the reserve above flood level is the only sizeable stand of box woodland left in the district that is protected in a conservation reserve. The nature reserve thus protects an important remnant of native vegetation in a region that has been extensively cleared for grazing and cropping.

As a substantial remnant area of native vegetation, the reserve is a significant stopover for nomadic and migratory birds moving between remaining areas of habitat.

The reserve has value for scientific research and educational programs about waterbird ecology and management of remnant habitat.

3. OBJECTIVES OF MANAGEMENT

3.1 GENERAL OBJECTIVES FOR NATURE RESERVES

The following general objectives relate to the management of nature reserves in New South Wales:

- * protection and preservation of scenic and natural features, including significant geological and geomorphological features;
- * conservation of wildlife, including maintenance of biodiversity and populations of threatened species;
- * maintenance of natural processes;
- * preservation of catchment values;
- * preservation of Aboriginal sites in consultation with the Aboriginal community;
- * conservation of non-Aboriginal historic features;
- * provision of opportunities for appropriate use; and
- * encouragement of scientific and educational enquiry into environmental features and processes.

3.2 SPECIFIC OBJECTIVES FOR WIESNERS SWAMP NATURE RESERVE

In addition to the above general objectives the management of Wiesners Swamp Nature Reserve will be subject to the following more specific objectives:

- * protection of Wiesners Swamp Nature Reserve as a sample of river red gum wetland and mixed box woodland of the south-west slopes and plains;
- * protection of the habitat value of the swamp for waterbirds and aquatic species;
- * promotion of regeneration of a natural vegetation structure and species composition in the box woodland; and
- * promotion of community appreciation of the value of the reserve as a wetland and remnant sample of native vegetation.

3.3 OVERALL STRATEGY

The reserve will be managed as a significant area of remnant vegetation.

The habitat value of the swamp will be conserved by:

- monitoring and managing regeneration of the river red gum community;
- waterbird survey;
- fox control; and
- working through catchment management committees and other organisations to improve water quality.

Regeneration of a native shrub and ground cover in the box woodland will be promoted through:

- vegetation survey and monitoring;
- direct seeding/planting if needed;
- maintenance of fencing;
- appropriate fire management; and
- control of rabbits and hares.

Public use will be limited to research and educational visits by foot.

There will be ongoing liaison with neighbours, the local council and relevant government departments regarding pest control, fencing, control of land clearing and other issues which affect the conservation values of the reserve.

4. POLICIES AND FRAMEWORK FOR MANAGEMENT

This chapter contains the policies and framework for the management of Wiesners Swamp Nature Reserve together with relevant background information. Policies are summarised under the following section headings:

- 4.1 NATURE CONSERVATION
- 4.2 CULTURAL HERITAGE
- 4.3 USE OF THE AREA

Natural and cultural heritage and on-going use are presented individually for convenience and clarity. In practice, however, they are strongly inter-related and together form the landscape of an area. Much of the Australian environment has been influenced by past Aboriginal and non-Aboriginal land use practices and the activities of modern day Australians continue to influence bushland through recreational use, cultural practices, the presence of introduced plants and animals and in some cases air and water pollution.

The policies and actions established in this plan of management provide the framework for future management consistent with anticipated resources available to the Service over the next five to ten years.

Where not specifically provided for in this plan, management of Wiesners Swamp Nature Reserve will be in accordance with the National Parks and Wildlife Act and with general Service policies.

4.1 NATURE CONSERVATION

Nature conservation covers all aspects of the natural environment including geology and soils, water quality, native plants and animals and the relationship between these. For convenience, management of landscape values, introduced species and fire are also considered in this section.

4.1.1 Landform, Soils and Water Quality

The nature reserve comprises a relatively large low lying area of ephemeral wetland (Wiesners Swamp) and small areas of gently sloping land above regular flood level on the north-western, south-western and north-eastern corners.

Wiesners Swamp is located in the headwaters of Simmons Creek, which flows into Billabong Creek. It lies in a depression on the Billabong Creek floodplain. Most of the swamp is contained within the nature reserve but small areas extend outside on the western, northern and southern boundaries. The swamp fills from drainage lines on the south-eastern and northern boundaries and drains to the west.

The swamp typically fills in late autumn/early winter and dries out by mid-summer. The area flooded and the water level depend upon local rainfall; maximum depth being about 0.75m. In many years the ground remains permanently moist and in wet seasons small pools of water are retained through the summer and autumn.

It is probable that the swamp was deeper prior to erosion associated with clearing in the early part of the century. This is supported by local recollections of permanent water over summer (Lieschke pers. comm. in Hamilton and Sagona 1997).

Levee banks have been constructed along parts of the southern and western boundaries of the swamp to raise fences above water level. Their impact on water levels in the swamp is minimal because they do not restrict the area of the swamp.

Water quality

Water quality and the on-going wildlife value of the swamp depend upon responsible management of the adjacent agricultural land. It would be vulnerable to activities that cause sediment, nutrients, herbicides and pesticides to be washed into the wetland.

Clearing in the Simmons Creek catchment is reported to have resulted in rising water tables and high levels of groundwater salinity. The surface water of the swamp was found to be moderately saline in 1996 when tested during its drying out phase.

The Catchment Management Act came into effect in 1989. Total catchment management provides an umbrella framework to aim for, amongst other matters, cleaner water, less soil erosion, improved vegetation cover, the maintenance of ecological processes and a balanced and healthier environment. It also provides a focus to balance conservation needs and development pressures and encourages a more aware and involved community. The Service will cooperate with any catchment management board or landcare committee that covers the Simmons Creek catchment.

Soils

The wetland area is located on Quaternary alluvium consisting of clays with scattered thin sand. Soils are grey cracking clays and have high residual levels of salt.

The surrounding higher ground lies on Devonian granite. Soils are sandy podsols of low fertility.

No erosion is evident in the reserve but the soils would be highly erodible if not protected by good vegetation cover.

Policies

- * All works will be designed and undertaken in a manner which minimises soil erosion and avoids water pollution.
- * The Service supports the principles of total catchment management and will liaise with neighbours, local government and other authorities to improve the water quality of the reserve's catchment.

Action

- * Testing of water quality, especially of salinity, will be undertaken regularly.

4.1.2 Native Vegetation and Introduced Plants

Most of the reserve supports river red gum *Eucalyptus camaldulensis* woodland. This consists of a mature overstorey with a ground cover of water plants such as sedge *Cyperus gymnocaulos*, spike-rush *Eleocharis acuta*, rushes *Juncus* spp., red water-milfoil *Myriophyllum verrucosum*, water ribbons *Triglochin procerum*, swamp lily *Ottelia ovalifolia* and blunt pondweed *Potamogeton ocreatus*.

The river red gum woodland has been partially cleared (see section 4.2) and there are few young trees. Hamilton and Sagona (1997) suggest that the last major recruitment event for river red gum in the reserve was during a major flood in 1891, prior to regular grazing. There may be significant regrowth of river red gum now that grazing has ceased. The effects of this on the reserve's habitat value must be monitored to guide future management programs.

Areas of mixed box woodland occur on the land above flood level around the edges of the reserve. The overstorey is mature grey box *Eucalyptus microcarpa*, yellow box *E. melliodora* and white box *E. albens*. There are a small number of buloke *Allocasuarina leuhmannii* trees in the south-western corner of the reserve. It is probable that buloke was formerly more common and may now expand. It is known that white cypress-pine *Callitris glaucophylla* was present until the 1920s and it may return from stands on nearby road reserves.

As a result of grazing (see section 4.2), there is virtually no shrub layer in the box woodland and a mainly introduced ground cover. Based on historical accounts and vegetation on nearby road reserves, it is probable that the reserve originally supported an understorey of species such as sweet quandong *Santalum acuminatum*, cherry ballart *Exocarpos cupressiformis*, various wattles (*Acacia decora*, *A. homalophylla*, *A. montana*, *A. pycnantha*), desert cassia *Senna artemisioides* subsp. *eremophila*, wedge-leaved hop bush *Dodonaea cuneata*, sweet bursaria *Bursaria spinosa*, spear grass *Stipa* spp., kangaroo grass *Themeda* spp., wallaby grass *Danthonia* spp and a variety of herbs.

Further plant survey is needed in the reserve to identify annual species and record changes in vegetation now that sheep grazing has ceased. Seed of some native shrub and ground cover species may be present in the reserve and other species may spread from road reserves. If significant natural regeneration does not occur it may be necessary to introduce seed to the reserve and to consider the benefits of fire to promote regeneration (see section 4.1.4). It will be vital to ensure that stock do not enter the reserve and that numbers of rabbits and hares are kept as low as possible.

Because of its maturity and the lack of young trees, death of some of the existing overstorey can be expected in the next 50 years (Hamilton and Sagona 1997). Natural regeneration is expected to occur from the trees within the reserve and from nearby road reserves.

Introduced species

An introduced species is defined in this plan as any plant or animal species not native to the reserve. Introduced species within the reserve and on adjoining land are of concern because they have the potential to have detrimental effects on ecological values and can spread to and from neighbouring land. The *Noxious Weeds Act 1993* places an obligation upon public authorities to control noxious weeds on land that they occupy to the extent necessary to prevent such weeds spreading to adjoining lands.

Of the 116 plant species recorded in the reserve, 48 are introduced. Most are grasses and pasture weeds. Species of concern are Bathurst burr *Xanthium spinosum*, spear thistle *Cirsium vulgare* and Paterson's curse *Echium plantagineum*. Programs to control these species in the reserve have commenced and on-going monitoring will be necessary.

Policies

- * Management will aim to encourage regeneration of trees and shrubs and to improve habitat values for native animals in the reserve.
- * Introduced plant species will be controlled and if possible eradicated. Priority for treatment will be given to those which:
 - have been declared noxious;
 - threaten regeneration of native communities;

- may affect neighbouring lands; and
 - are isolated infestations.
- * The cooperation of other authorities and reserve neighbours will be sought in implementing weed control programs.
- * The Service will liaise with neighbours and land use authorities to encourage retention of areas of native vegetation close to the reserve, particularly on those parts of the swamp outside the reserve and on local road reserves.

Actions

- * There will be on-going monitoring for noxious and significant environmental weeds and these will be treated as needed.
- * A program of vegetation survey and monitoring will be introduced to determine whether satisfactory natural regeneration is taking place and guide management programs. Direct seeding/planting will be undertaken if needed.

4.1.3 Native and Introduced Animals

Survey for native animals in the reserve has resulted in a total of 57 species being recorded, of which 50 were birds. Further survey may show the presence of other species, particularly bats and additional waterbirds.

Fifteen bird species have been observed nesting in the reserve (including up to 60 pairs of sacred ibis). The river red gum and box trees of the reserve are generally mature, with numerous hollows. These provide shelter and breeding opportunities for hollow-dependent birds and arboreal mammals.

Many of the birds recorded in the reserve are waterbirds including the swamp harrier *Circus approximans*, sacred kingfisher *Halcyon sancta*, Pacific heron *Ardea pacifica*, yellow-billed spoonbill *Platalea flavipes*, sacred ibis *Threskiornis aethiopicus* and clamorous reed-warbler *Acrocephalus stentoreus*. Much of the swamp is covered with dense reed growth which may provide habitat for birds such as bitterns. The regular cycle of filling and drying of the swamp produces flushes of productivity and therefore food for native fauna. It is essential for this cycle to continue and for good water depths to be maintained for sufficient periods to enable successful breeding.

Birds observed in the box woodland include the brown treecreeper *Climacteris picumnus*, dollarbird *Eurystomus orientalis*, mistletoebird *Dicaeum hirundinaceum*, zebra finch *Taeniopygia guttata*, white-plumed honeyeater *Lichenostomus penicillatus* and tawny frogmouth *Podargus strigoides*.

Apart from birds, the only native animals recorded are the eastern grey kangaroo *Macropus giganteus*, common ringtail possum *Pseudocheirus peregrinus*, common brushtail possum *Trichosurus vulpecula*, eastern brown snake *Pseudonaja textilis*, lace monitor *Varanus varius*, spotted marsh frog *Limnodynastes tasmaniensis* and Peron's tree frog *Litoria peronii*.

The low diversity of mammals and reptiles is a result of the lack of understorey and ground cover in the box woodland areas of the reserve and widespread clearing in the district. Salt levels in the soil and water of the swamp are likely to affect numbers and diversity of amphibians (only 2 species recorded) and aquatic invertebrates. No survey has been undertaken for invertebrates.

Introduced species

Introduced animal species observed in the reserve are the rabbit, brown hare, fox, cat, common starling, carp and mosquito fish. Numbers of rabbits and hares are currently low. On-going control will be maintained as needed. Cooperative fox baiting has been undertaken with reserve neighbours and numbers are relatively low. Significant control of foxes is not possible unless programs are done over a wide area. The Service will continue to take part in cooperative fox control programs.

It is thought that carp and mosquito fish enter the swamp from surrounding farm dams and creeks when they overflow during heavy rain. Both species have a significant impact on wetland quality and it would be desirable for them to be eliminated from nearby dams.

Policies

- * The high habitat value of the river red gum wetland for waterbirds will be conserved through monitoring and active management if needed.
- * Increase in the habitat value of the box woodland will be promoted through regeneration of a shrub layer (section 4.1.2).
- * Introduced animals will be controlled, with priority given to those that have a significant impact on native species. Priority will be given to control of rabbits, hares and foxes. Control programs will be designed to avoid impact on non-target species and will be undertaken in cooperation with the Albury Rural Lands Protection Board and neighbouring land holders.
- * Effective fencing of boundaries will be maintained in conjunction with neighbours to ensure that stock do not enter the reserve.

Actions

- * On-going surveys will be undertaken for native animals, particularly waterbirds.
- * Populations of introduced animal species will be monitored, and treated if needed.
- * Neighbours will be approached regarding elimination of carp and mosquito fish from farm dams.

4.1.4 Fire Management

Management of fire in the reserve is an important issue. Management must aim to achieve both long term conservation of native plant and animal communities and ongoing protection of life and property within and adjacent to the reserve.

Fire history

Low intensity burning of large areas by Aborigines was witnessed at Walla Walla station in the late 1930s and it is reported that Aborigines formerly burnt river red gum areas along the Murray River to maintain an open woodland and encourage grazing plants.

High-intensity fires were a frequent event in the early days of European settlement, perhaps because of the absence of Aboriginal burning. Large fires are reported for the district in 1851, 1878 and 1888. It is not known whether Wiesners Swamp was burnt during these years but it did not burn in extensive fires in 1905 or 1969.

A low intensity grassfire burnt the majority of the reserve in March 1973. There is no evidence of any fire since then.

Ecological requirements

Fire frequency, intensity and season of occurrence are major factors influencing the distribution and composition of plant and animal communities. A variety of fire regimes is needed in order to conserve floristic diversity and provide diversity of habitat for animals. Inappropriate fire regimes such as frequent or regular fire can cause loss of particular plant and animal species and communities. Similarly, species which require fire for regeneration will decline if fire does not occur for long periods.

Fire is not needed for regeneration of the river red gum community but may be useful for maintaining areas of open tree cover in the swamp for purposes of waterbird habitat.

Fire may be important for the long term survival of the box woodland and associated shrub species which may return to the reserve. Hamilton and Sagona (1997) suggest that the last high-intensity fire in the reserve was in 1888 and that this was the last major recruitment event for trees in the box woodland. It would not now be possible or desirable to achieve a high intensity burn in the reserve because of its small size and the risk to adjacent properties. Low to moderate intensity prescribed burning may be appropriate, however, to promote regeneration or to control its density.

Strategies and cooperative arrangements

It is considered that the risk of fire ignition within the reserve is low because of the high ground moisture levels during much of the summer and the lack of human activity. The reserve may be vulnerable, however, to fire spreading from adjacent land and vigorous regrowth can be expected to carry fire. A fire break will be maintained along the reserve boundaries to the extent that this is feasible given the regular flooding of much of the area.

Under the *Rural Fires Act 1997* the Service is a fire authority and is responsible for controlling fires on the reserve and ensuring that they do not cause damage to other land or property. An important part of the Service's fire management is participation in local cooperative fire management arrangements. The Service is a member of the Culcairn Bush Fire Management Committee which aims to coordinate fire management and fire control on a district basis.

Policies

- * Fire will be managed in accordance with the principles below to ensure:
 - protection of human life and property within and adjacent to the reserve;
 - maintenance and regeneration of plant and animal species and communities through the provision of fire regimes compatible with their conservation; and
 - protection of Aboriginal sites and management structures.
- * Prescribed burning may be undertaken to promote vegetation regeneration or produce habitat suitable for species with specific requirements. Prior to any such burning an assessment of vegetation characteristics and the status of key species in the area will be undertaken to determine the need for fire and its likely ecological effect.
- * The use of heavy machinery for fire suppression will be avoided.
- * Research will be encouraged into the ecological effects of fire in the reserve and its value for regeneration.
- * The Service will continue to actively participate in the Culcairn Bush Fire Management Committee. Close contact and cooperation will be maintained with Council fire officers and volunteer bush fire brigades.
- * As far as possible fuel management will be carried out in cooperation with neighbours for mutual protection.
- * The reserve may be closed to public use during periods of extreme fire danger.

Action

- * A fire break will be maintained around the reserve boundaries.

4.2 CULTURAL HERITAGE

Cultural heritage includes both Aboriginal and non-Aboriginal history and associated activities and works. It comprises important sites, structures and relics that may have aesthetic, historic, scientific and social significance to present and future generations.

Aboriginal sites

The reserve lies within the area of the Wiradjuri Aboriginal people and today is in the area of the Albury Local Aboriginal Land Council. The swamp is likely to have been an important reliable source of water and game for Aboriginal people. It has also been suggested that the swamp may have mythological significance and be connected to other features in the region by dreaming lines, and may have been part of a movement corridor along Billabong Creek (Steve Meredith pers. comm.).

No systematic survey has been undertaken for Aboriginal sites. A possible scarred tree is located in the box woodland and there may be camp sites around the swamp.

Archaeological sites are important to Aboriginal communities as they are a testament to their culture's great antiquity. Aboriginal people may also have traditional spiritual links with an area and hold knowledge which is important for nature conservation.

Aboriginal sites are also important to non-Aboriginal people as they provide information about the past ways of life of all humans.

While the Service presently has legal responsibility for the protection of Aboriginal sites it acknowledges the right of Aboriginal people to make decisions about their own heritage. It is therefore policy that Aboriginal communities be consulted about the management of Aboriginal sites and related issues and how the Aboriginal culture and history of an area controlled by the Service will be promoted and presented.

Post-contact history

When Hume and Hovell travelled through the district in 1824 they noted it as 'fine open box country - the sloping hills covered with an excellent coat of grass' (Hovell 1911 quoted in Hamilton & Sagona 1997).

The district was settled by European squatters in the 1830s, who took up large runs. Wiesners Swamp was selected as part of Walla Walla Station. Clearing and grazing began at this time and a series of droughts led to reports of extreme pasture depletion and soil erosion in the district. In 1883 the area of the nature reserve was excised from Walla Walla station and notified as two crown reserves. The remainder of the station was progressively subdivided and in 1909 the area surrounding the two reserves was bought by the Wiesner family.

Wiesner gradually cleared the surrounding land. Wiesner and the subsequent owner also cleared the northeastern section of the two reserve blocks, including complete clearing of up to 5 ha of vegetation in the swamp and removal of a substantial number of mature trees. Sheep were periodically grazed in the reserves.

From 1975 there were proposals to gazette the swamp as a state game reserve or as a nature reserve for its value as a wetland and remnant woodland. Following advice that the swamp was dry before the duck season commenced and rarely used for hunting, the area was proclaimed a nature reserve in 1996.

There are no known sites or features of historical significance in the reserve.

Policy

- * The cultural places of the nature reserve will be conserved in accordance with the Burra Charter of Australia ICOMOS.
- * The Albury Local Aboriginal Land and other relevant Aboriginal community organisations will be consulted and actively involved in all aspects of management of Aboriginal sites and values in the reserve.
- * Aboriginal people will be permitted to carry out activities in the reserve related to maintenance of traditional links to the land. Any such activities must comply with the objectives and policies of this plan of management and have minimal environmental impact.
- * Aboriginal sites will be protected from disturbance or damage by human activities.
- All works with the potential to impact on Aboriginal sites will be preceded by an archaeological assessment.

Action

- * Aboriginal site survey will be undertaken and the possible scarred tree will be assessed.

4.3 USE OF THE AREA

Certain public and private uses may be appropriate in Service areas provided that they do not conflict with the primary purpose of conservation of natural and cultural heritage and are consistent with the objectives and strategy of the plan of management. The major categories of use that can be appropriate in Service areas are:

- education and promotion of the area, the Service and the conservation of natural and cultural resources;
- involvement of the public in aspects of management;
- certain types of recreation;
- Aboriginal cultural activities;
- research; and
- management operations by the Service and other authorities with statutory responsibilities in the area.

The extent to which these categories of use will be provided for in Wiesners Swamp Nature Reserve is indicated below.

4.3.2 Visitor Opportunities

The primary purposes of nature reserves are conservation of wildlife, natural environments and significant cultural features and to provide opportunities for education and scientific research into these resources.

Wiesners Swamp Nature Reserve is a small and significant area of remnant vegetation. Primary management aims are to protect the reserve's wildlife habitat value and promote regeneration of native shrub and ground cover. Recreational use is not compatible with these aims. The reserve will be available for appropriate educational visits, however, by local schools, community groups and interested individuals. All such use must be by walking in order to minimise damage to regenerating native vegetation.

Public access is available to the north-western corner of the reserve. No provision will be made for parking within the reserve.

If there is sufficient demand, educational material may be prepared on the nature reserve to promote public awareness of its values and of the Service's conservation responsibilities. Community appreciation of the area and awareness of management programs may also be promoted through media releases and direct contact with neighbours and community organisations.

Policies

- * Public vehicle use will not be permitted within the nature reserve.
- * Nature study visits by educational and community organisations and individuals will be permitted. Group sizes and frequency of use will be limited if necessary to minimise environmental impacts such as trampling of regenerating native vegetation.
- * Provision of facilities such as information signs and bird hides may be considered if warranted by strong interest in educational use of the reserve.
- * Community understanding and appreciation of the natural and cultural values of the reserve will be promoted through such means as media releases and staff contact with neighbours and school groups.

4.3.2 Research

The purpose of scientific study in the reserve is to improve understanding of its natural and cultural heritage and the processes that affect them. Research also establishes the requirements for management of particular species.

Service research efforts must be directed towards the areas of greatest need and will concentrate on native plant and animal survey and monitoring of regeneration.

Research by other organisations and students may provide valuable information for management. A prospectus will be prepared to encourage involvement of other organisations in priority research areas.

CSIRO Land and Water installed a piezometer in the nature reserve in 2001 as part of a study (the Heartlands Initiative) with a primary focus on the impacts of broad-scale revegetation of agricultural landscapes and salinity problems associated with rising ground water. Although not specifically related to the reserve, this study, and the installation of the piezometer, are considered appropriate use in terms of providing valuable scientific data as evidence of a changing landscape post European settlement. CSIRO have committed to supplying the NPWS with information relating to the significance of Wiesners Swamp as an indicator of broader catchment quality.

Policies

- * Wiesners Swamp Nature Reserve will be available for appropriate research. The consent for installation of the piezometer (dated 1 June 2001) will remain valid until scientific research is no longer required, or until either party terminates the agreement.
- * Service conducted research will aim to provide information about the natural and cultural heritage and management needs, with priority to maximising the habitat values of the wetland.
- * Researchers from other organisations will be encouraged to design programs to provide information which is directly useful for management purposes.
- * Liaison will be maintained with researchers to obtain as much mutual information and assistance as possible. The results of research will be required to be provided to the managers of the area.

- * Research structures and long term markers must be placed in locations which will minimise their visual impact and be removed upon completion of the research, unless they have on-going management value.

Action

- * A prospectus will be prepared as a guide to preferred research projects in the reserve. Preferred topics will be those of direct relevance to management and will include:
 - native plant and animal survey;
 - survey for Aboriginal sites;
 - management of fire for vegetation regeneration and fuel management.

4.3.3 Management Operations

Access to the nature reserve is available to the north-western corner across a power line easement along Riders Road. There are no management tracks within the reserve.

As far as possible, management vehicle use within the reserve will be limited to light weight all terrain vehicles (e.g. 4WD bikes) in order to avoid damage to regenerating native vegetation. Researchers from CSIRO Land and Water will access the piezometer on foot.

Management facilities within the nature reserve consist of boundary fences and chemical firebreaks. Preference is given to the maintenance of chemical firebreaks over graded breaks due to the potential for soil erosion following grading. The Service currently clears stumps and fallen timber, and sprays this perimeter break on an annual basis with a non-residual herbicide. Maintenance of the firebreaks is covered in section 4.1.4. It is the neighbours' legal responsibility to maintain the fences to prevent stock entering the reserve but the Service's fencing policy provides that, subject to funding and other priorities, assistance with materials can be given as part of a fencing agreement with a neighbour.

Policies

- * Subject to funding and priorities, boundary fencing will be maintained in association with neighbours, in accordance with the Service's fencing policy.
- * Close liaison will be maintained with reserve neighbours to deal with matters of mutual interest.
- * As far as is practical all management and research activities within the reserve will be undertaken by foot or using light weight all terrain vehicles (e.g. 4WD bikes).
- * New works, facilities or operations proposed by any organisation or individual will not be permitted unless they are consistent with the purposes of reservation of the area and this plan of management.

5. PLAN IMPLEMENTATION

This plan of management is part of a system of management developed by the National Parks and Wildlife Service. The system includes the National Parks and Wildlife Act, management policies, established conservation and recreation philosophies, and strategic planning at corporate, Regional and District levels.

The implementation of this plan will be undertaken within the annual programs of the Service's South West Slopes Region. Priorities, determined in the context of district and regional strategic planning, will be subject to the availability of necessary staff and funds and to any special requirements of the Director-General or Minister.

District programs are subject to ongoing review, within which, works and other activities carried out in Wiesners Swamp Nature Reserve are evaluated in relation to the objectives laid out in this plan.

The environmental impact of all development proposals will continue to be assessed at all stages of the development and any necessary investigations undertaken in accordance with established environmental assessment procedures.

Section 81 of the Act requires that this plan shall be carried out and given affect to, and that no operations shall be undertaken in relation to the nature reserve unless they are in accordance with the plan.

No term is proposed for this plan of management. If after adequate investigation, operations not included in the plan are found to be justified, this plan may be amended in accordance with 76(6) of the Act.

As a guide to the implementation of this plan, relative priorities for identified activities are summarised below:

ACTIVITY	PLAN REF
High Priority	
* Monitor and treat weeds	4.1.2
* Monitor and treat introduced animal species	4.1.3
* Maintain fire break	4.1.4
Medium Priority	
* Survey and monitor vegetation regeneration	4.1.3
* Survey native animals	4.1.3
* Prepare fire management plan	4.1.4
Low Priority	
* Test water quality	4.1.2
* Seek elimination of carp and mosquito fish from upstream dams	4.1.3
* Survey for Aboriginal sites and assess scarred tree	4.2
* Prepare research prospectus	4.3.2

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Filename: Wiesners final.doc
Directory: C:\TEMP\p.lotus.notes.data
Template: C:\Program Files\Microsoft Office\Templates\Normal.dot
Title: (NAME OF AREA)
Subject:
Author: NSW National Parks and Wildlife Service
Keywords:
Comments:
Creation Date: 23/04/02 13:03
Change Number: 10
Last Saved On: 03/03/03 9:40
Last Saved By: hofsdajr
Total Editing Time: 22 Minutes
Last Printed On: 26/03/03 9:37
As of Last Complete Printing
Number of Pages:23
Number of Words: 8,355 (approx.)
Number of Characters: 47,625 (approx.)