

# Currawinya National Park

## Management plan



Mulga Lands Biogeographic Region

February 2001



**Queensland Government**  
Queensland Parks and Wildlife Service

## Summary

This management plan provides the framework and guidelines on how Currawinya National Park will be managed. It sets out the considerations, outcomes and strategies that are proposed to form the basis on which day-to-day management decisions are made.

This plan was prepared in October 1999 and, in accordance with s 125 of the Nature Conservation Act 1992, will be reviewed not later than 10 years after its approval. For further information on this plan or the planning process, please contact the Queensland Parks and Wildlife Service Charleville District Office, telephone (07) 4654 1255, during business hours.

## Acknowledgments

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The draft management plan was prepared by Queensland Parks and Wildlife Service staff. Although the principal author is Claire Grant, the preparation of this draft management plan has been made possible only by the contributions of a great number of people.

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Cover photograph: Currawinya National Park — pelican rookery.

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# 1 Management directions and purpose

## 1.1 Directions

Currawinya National Park is a new and developing park. Future directions for park management need to be established early if the true potential of the park is to be realised. The proposed management directions for the park are outlined below.

Currawinya is listed as a Wetland of International Importance, under the Convention on Wetlands (Ramsar, Iran, 1971), also commonly known as the Ramsar Convention. This title provides recognition of the significance of the park environment as a refuge for migratory birds, and other plant and animal communities on not only a local and regional scale, but also from an international perspective. The park will therefore be managed to protect the integrity of its wetland systems.

A rich and diverse array of plant and animal communities and a number of unique landforms are protected within Currawinya National Park. Management programs (such as weed and feral animal control, fire management and soil and catchment protection) will be developed and maintained, where necessary, to actively identify and control threats to the long-term viability of these natural systems.

Future management will be based on long-term, detailed research. The knowledge gained from such research will provide useful information for park managers, and help inform and educate land managers within the region on sustainable land management practices and the effects of current land use activities.

Currawinya National Park's cultural heritage values are worthy of recognition. Education and interpretation programs will highlight the significance of the area in terms of Aboriginal occupation and European settlement. Involvement of local community members and/or traditional owners in these programs will be supported.

Visitors will enjoy the remoteness of the park's natural setting and will have the opportunity to undertake a number of low-key, nature-based recreational opportunities such as camping, birdwatching, bushwalking and photography. Access to private accommodation and complementary recreational activities in the local area will also be recognised and promoted.

## 1.2 Purpose

The major purposes of management will be to ensure that:

### Conservation

- The integrity of the wetlands systems is protected and the ecological processes which occur within those systems are maintained, (i.e. the ecological character, as specified under the Convention on Wetlands, is maintained).
- Sensitive habitats and threatened species are monitored and their requirements are reflected in management programs.
- The park environment is maintained as a refuge for native plants and animals in a predominantly rural landscape.
- Pest plant and animal control action plans are developed with assistance and support from local communities.
- Places of special significance are managed in consultation with local communities including representatives of Aboriginal groups and local historic organisations.
- Existing research and monitoring programs in relation to vegetation and native animals are continued and, where appropriate, new research is started.
- A system of management zones satisfies the management principles of the national park.

## Recreation and tourism

- A range of low-key, nature-based recreational opportunities is provided; these complement opportunities offered in the surrounding area.
- Environmentally sensitive interpretive and recreational facilities are provided.
- Community awareness and appreciation of the park's values (including its international importance under the Convention on Wetlands and the Japan-Australia and China- Australia Migratory Bird Agreements (JAMBA/CAMBA) and resources are raised to foster support for its protection.
- The safety risks of travelling in western areas are highlighted in interpretive materials.

## Community involvement

- The local community, Aboriginal groups and other interested parties are provided with opportunities to become involved in planning and management of the park.
- A cooperative plan to respond to natural disasters, search and rescue operations and other matters which will require collaborative action is developed.
- Extension programs which will invite land managers to examine the effects of current land use practices on the environment are conducted.

# 2 Basis for management

## 2.1 Regional context

Currawinya National Park (NP23) is located between Hungerford and Thargomindah in the semi-arid interior of south-western Queensland, and abuts the New South Wales-Queensland border west of Hungerford (see Map 1). Occupying an area of 151 300 hectares, the park consists of a mosaic of landforms including low dunefields, sandplains, lakes, claypans, saltpans, deeply weathered residual ranges and the alluvial plains associated with the Paroo River and its tributaries.

Until recently, the native plants, native animals and landforms of the Mulga Lands Biogeographic Region were poorly conserved in any form of reserve within the State. In order to ensure the conservation of biodiversity and the biological health of the communities within the mulga lands, a system of reserves has been gazetted containing representatives of all land systems and vegetation types. Currawinya National Park, gazetted on 11 May 1991, was one of the first of those parks. Nineteen of the 91 land systems present in the western mulga country are conserved within the park. Of these, four are not present in any other protected area within the region (Purdie 1986).

Currawinya is becoming a popular tourist destination, attracting local, interstate and international visitors, particularly during the winter months. The park therefore provides supplementary economic benefits to the local communities within the area.

## 2.2 Land tenure

Currawinya National Park was previously operated as a grazing property. It contains the core areas of two original pastoral properties named Currawinya and Caiwarro. In earlier times these properties covered vast areas, and were managed predominantly for sheep and, at times, cattle. A small area near the Paroo River was irrigated for crops but was found to be unsustainable.

Currawinya was gazetted as a national park under the provisions of the *National Parks and Wildlife Act 1975* on 9 May 1991. The initial gazettal area was about 148 000 hectares. On 20 March 1992, a block of vacant Crown Land, which included Lake Wyara, was added to the park. The park now encompasses an area of 151 300 hectares.

In March 1996 Currawinya National Park was listed as a Wetland of International Importance under the Ramsar Convention.

## 2.3 Legislation and management agencies

Currawinya National Park is dedicated under the *Nature Conservation Act 1992* as a national park and, as such, will be managed in accordance with section 17 of the Act, which defines the management principles for national parks. The cardinal principle is to provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values. The other principles are to present the area's cultural and natural resources and their values, and to ensure that the only use of the area is nature-based and ecologically sustainable.

Other legislation, agreements and guidelines also affect the way in which protected areas are managed. Some of those applicable to the management of Currawinya National Park include:

- the *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*;
- the *Aboriginal Land Act 1991*;
- the *Queensland Heritage Act 1992*;
- the *Fisheries Act 1994*;
- the *Rural Lands Protection Act 1985*;
- the *Land Act 1994*;
- conservation plans pertaining to species found within the national park; and
- international agreements entered into by the Australian Government, such as the Convention on Wetlands and the China-Australia (CAMBA) and Japan-Australia (JAMBA) Migratory Bird Agreements, which involve the protection of migratory bird species and associated wetland habitats.

The *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* has recently come into force. The Act provides for the protection and management of Ramsar Wetlands and listed threatened and migratory species by:

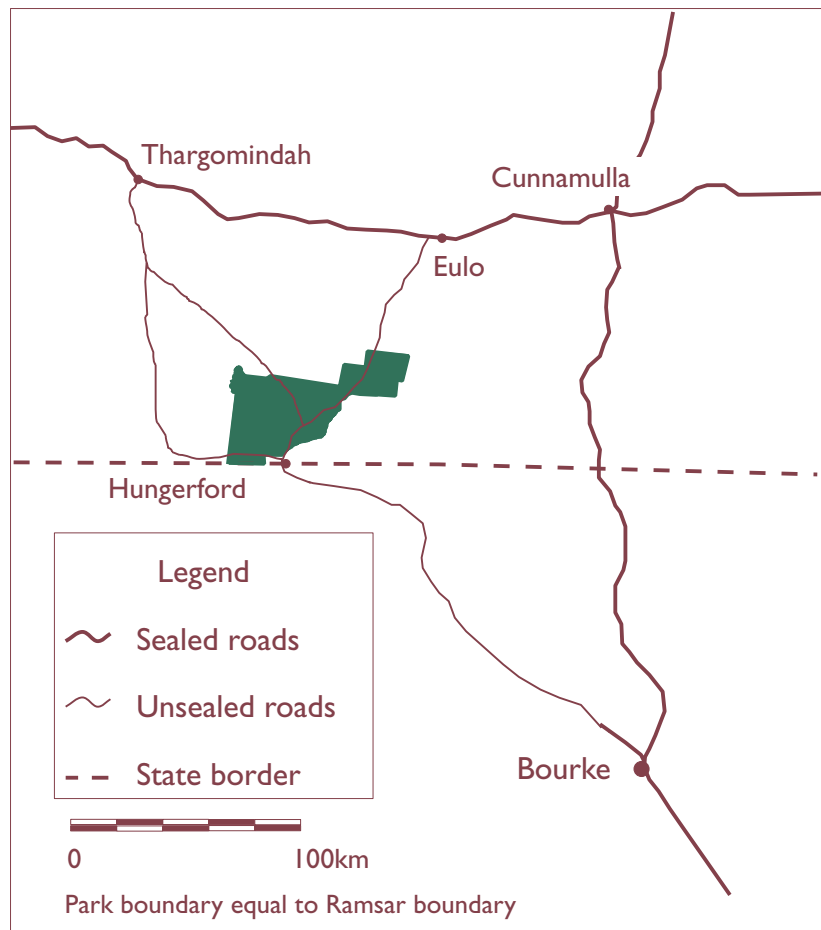
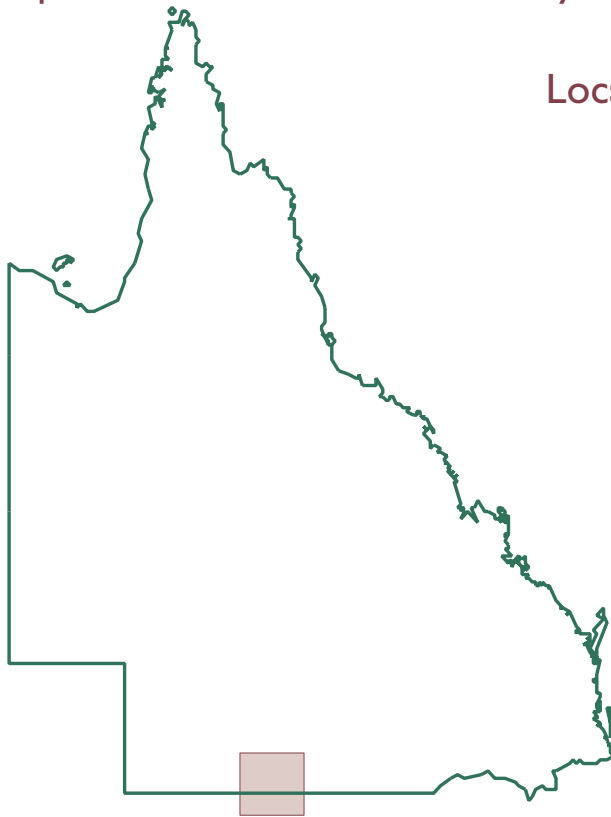
- recognising the Ramsar Wetlands of International Importance (and listed threatened and migratory species) are matters of National Environmental significance;
- introducing an environmental assessment and approval regime for actions that are likely to have a significant impact on Ramsar Wetlands (and listed threatened and migratory species); and
- providing for improved management of Ramsar wetlands

The regulation of certain activities that occur in or impact on the park may need to be administered through the provision of other Acts (and their associated Regulations) which have not been listed above.

Map 1.

# Currawinya National Park

## Locality Map





## 2.4 Surrounding land uses

The park is surrounded by grazing properties which predominantly run sheep, with some cattle. The Hungerford Common, which abuts part of the southern boundary, is used for the grazing of cattle and horses. Generally speaking, the surrounding properties are timbered rangelands where grazing occurs over natural environments. Mulga is often pulled or cut as drought fodder for sheep and cattle.

## 2.5 Values of Currawinya National Park

### Physical and ecological environment

Currawinya's wetlands are surprisingly diverse. They range in size from 3400 hectares (Lake Wyara) to pans less than one hectare, from clear to very turbid, saline to fresh, vegetated to bare, and from intermittent to permanent. These wetlands can be divided into four broad groups: saline lakes, freshwater lakes, pans and riverine waterholes. The concentration and diversity of its wetlands make Currawinya distinct among Australian desert wetlands (Timms 1997).

The lakes, ephemeral lakes and claypans conserved within the park provide major saltwater and freshwater habitats for a large variety of inland and migratory bird species. The two larger lakes, Wyara and Numalla which are listed in *A Directory of Important Wetlands in Australia* (ANCA 1996), are separated by only a few kilometres but are significantly different, both chemically and with regard to the vegetation associations which surround them. The clear saline water of Lake Wyara supports dense beds of macrophytes including the flowering plants sea tassel *Ruppia maritima*, widgeon grass *Ruppia* sp. aff.  *Tuberosa*, water mat *Lepilaena bilocularis*, *Lepilaena* sp. aff. *Cylindrocarpa* and the macro-algae (charophytes) *Lamprothamnium papulosum*, *Nitella* spp. and *Chara australis*. The vegetation fringing the shoreline is dominated by low shrubland of samphire *Halosarcia pergranulata*, pigface *Sarcozona praecox*, red trefoil *Lotus cruentus*, monkey flower *Mimulus repens* and mulka *Eragrostis dielsii*. The abundant macrophytes and large populations of invertebrates (Timms 1997; Kingsford & Porter 1994) are attractive to waterbirds - Lake Wyara can support over 85,000 waterbirds of 31 species (Kingsford 1995) of which 15 species are listed under the JAMBA/CAMBA.

Little light penetrates the highly turbid freshwater of Lake Numalla. These low light levels mean that macrophytes like the red water milfoil *Myriophyllum verrucosum*, water mat *Lepilaena bilocularis* and charophytes *Nitella* sp. can only grow in shallow water at the margin of the lake. Fringing vegetation includes pinrush *Cyperus gymnocaulos*, boobialla *Myoporum montanum*, sesbania pea *sesbania cannabina*, belalie *Acacia stenophylla*, lignum *Muehlenbeckia florulenta* and black box *Eucalyptus largiflorens*. The lake supports populations of shrimp *Macrobrachium* sp. and native fish such as yellowbelly *Maquaria ambigua*, bony bream *Nematalosa erebi* and spangled perch *Leiopotherapon unicolor*. These attract fish eating waterbirds including the Australian pelican *Pelicanus conspicillatus*, great cormorant *Phalacrocorax carbo*, pied cormorant *P. varius*, little black cormorant *P. sulcirostris*, little pied cormorant *P. melanoleucos* and darter *Anhinga melanogaster*.

Other interesting geological features within the park are the mound springs and the Granites. Mound springs are unique features of arid Australia and, when active, often contain rare native plants and endemic invertebrates and fish. The Granites have been dated between 230 and 310 million years old (Dawson 1974) and they are, therefore, of geological interest.

### Native animals

Currawinya has a rich array of native animals. Many of the recorded species are typical of the Mulga Lands Biogeographic Region, while other species are partly or totally dependent on some of the unique habitat types represented within the park. Currently 191 species of bird, 24 species of mammal, 14 species of frog and 51 species of reptile have been recorded from Currawinya National Park.

The numbers of waterbirds (sometimes over 100,000) that rely on wetlands in Currawinya National Park make it one of the most important Australian wetland habitats. Some of the migratory wader

species found at Currawinya are listed in the Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA and CAMBA). Lakes Wyara and Numalla are of particular importance in the conservation of waterbirds, as they provide a major breeding habitat and are also an important refuge during drought periods. The lakes are considered by Kingsford and Porter (1994) to be one of the most important drought-period refuge habitats for the freckled duck *Stictonetta naevosa*, one of Australia's rarer species of duck. Floods and flood produced plant growth is also an important food source for many species of birds that are not waterbirds.

Currawinya also contains suitable habitat for a number of species that are uncommonly recorded within Queensland. Banded stilts *Cladorhynchus leucocephalus*, white-fronted chats *Epthianura albifrons*, blue-winged parrots *Neophema chrysostoma* and chestnut teal *Anas castanea*, all predominantly southern species, have been recorded from the park. Numerous other noteworthy species are found at Currawinya National Park (see Management strategies — Native animals: Management).

## Native plants

Approximately 50 percent of Currawinya National Park consists of mulga *Acacia aneura* and poplar box *Eucalyptus populnea* low open woodland on sandplains. Dunefields covered in shrublands form a mosaic with numerous small claypans and saltpans. Dissected tablelands, ranges, low hills and associated undulating plains occur in the central north and western parts of the park, and support mulga, bastard mulga *A. stowardii* and turpentine mulga *A. brachystachya* communities. The channels and flood plains of the Paroo River form the south-eastern boundary of the park, and support yapunyah *E. ochrophloia* and alluvial gidgee *A. cambagei* communities.

Currawinya also contains a number of noteworthy plant species including:

- mature, relatively undisturbed communities of yapunyah *Eucalyptus ochrophloia* and turpentine mulga *Acacia brachystachya*. These communities are at the centre of their distribution in Queensland and have been described by Purdie (1985) as representing the peak development of these species in the State;
- several species at the extremes of their natural distribution, including:
  - black box *Eucalyptus largiflorens* — at its northern inland continental limit and its western limit within Queensland;
  - poplar box *E. populnea*, at its western limit in Queensland;
  - lancewood *Acacia petraea*, restricted to the Mulga Lands Biogeographic Region, at its south-western limit;
  - leopardwood *Flindersia maculosa*, at the south-western limit of its range in Queensland; and
  - wilga *Geijera parviflora*, at the extreme western limits of the species range in Queensland;
- a number of vegetation types including shrubland communities dominated by samphires *Halosarcia* spp., budda *Eremophila sturtii* and belalie *Acacia stenophylla*, and sedgeland communities dominated by pinrush *Cyperus gymnocaulos*. These communities are uncommon in Queensland because of their habitat requirements (Gasteen 1984);
- two species which are far beyond their current main ranges of distribution and which are extremely rare in Queensland, black bluebush *Maireana pyramidata* and inland belah *Casuarina cristata* ssp. *pauper*. These populations may be relic communities or may represent the rare occurrences in Queensland of habitats suitable for these plants (Purdie 1985). Belah *Casuarina cristata* also occurs in small patches and is at its western limit of distribution; and
- swamp paperbark *Melaleuca densispicata*, an uncommon shrub whose range is restricted to a small area of southern Queensland and northern New South Wales. It occurs in groves on the lower slopes of dunes near saltpans and claypans.

## Aboriginal

Aboriginal people have a strong affiliation with Currawinya National Park, as evident in personal accounts and the physical remains of occupation (archaeological sites) found in the park. Currawinya and its river and wetland environments are traditionally areas of great significance to Aboriginal people. There is a long history of association between Aboriginal people and the Paroo River and its lakes and floodplains (Robbins 1999). The exact location of tribal boundaries is still to be confirmed.

Archaeological evidence indicates that certain areas within the park may have been occupied about 11 000 years ago (Robins 1993). The park provides excellent opportunities for the involvement of Aboriginal people in the management and interpretation of such sites and offers park visitors the chance to increase their awareness of Aboriginal culture.

## Post-European

Currawinya National Park incorporates the areas of two former pastoral properties, Currawinya and Caiwarro. These properties originally occupied much larger areas, and included all or part of neighbouring properties. Currawinya was first occupied for pastoral use in 1865, and Caiwarro in 1864. In 1924, the two properties were amalgamated under the Paroo Pastoral Company, although they continued to be managed as separate units. Caiwarro homestead was abandoned and demolished in 1971. Management was moved to Currawinya homestead, and the two leases were formally amalgamated as Currawinya in 1974.

Little remains of the homestead complex at Caiwarro, as the majority of the buildings have been damaged by flood and subsequently demolished. However, the site offers the opportunity to examine the layout of the homestead area and surrounding yards. This reflects the social stratification amongst managers, jackeroos, stockmen and servants on properties in previous years. The Caiwarro ruins also present an opportunity to observe construction techniques of the time (1890s), most notably the brick and pisé construction which was common in the area.

The park also contains relics which demonstrate pastoral practices of early settlers, such as sheepyards and runs used by shepherds before the property was fenced, and fences which demonstrate early fence-building techniques. A small amount of old machinery, such as the pump used to draw water from the Paroo River to irrigate a fodder-growing area on Caiwarro, remains on the park and is of cultural heritage significance.

## Scenic and aesthetic values

The Australian outback is renowned for its open spaces and desolate natural beauty. In the midst of a harsh, semi-arid environment, dominated by extensive sandplains and rocky, residual ranges, Currawinya's lakes, river and wetlands provide areas of both stark visual contrast and great beauty and tranquillity which are not common in the region.

## Recreation and tourism

Straddling major roads leading to Cunnamulla, and to Bourke and Wilcannia in New South Wales, Currawinya National Park is becoming a major tourist attraction in the Eulo–Hungerford–Thargomindah area. The remote and arid landscape of south-western Queensland has contributed to the popularity of protected areas within the region.

Visitation to south-western Queensland is steadily increasing. In 1994–95, 208 000 Australian visitors were attracted to the western Queensland area, with 78 000 of these visiting south-western Queensland. An additional 3000 international visitors were recorded during the same period (Queensland Tourist and Travel Corporation, January 1996).

Currawinya provides opportunities for visitors to participate in a number of nature-based recreation activities which are not widely available in the general area. The park provides an outback setting in which visitors can pursue popular recreational pursuits such as camping, bushwalking, nature observation (particularly birdwatching) and nature photography, and at the same time enjoy a sense of adventure in a reasonably remote area.

## Economic values

Statistics provided by the Queensland Tourist and Travel Corporation (January 1996) show that during 1994–95 direct tourism expenditure in south-western Queensland totalled \$17.4 million.

Visitation to Currawinya National Park is currently estimated at 2000 visitors a year. This number has increased, and is likely to continue to increase in future years, further supplementing the economies of local rural centres located en route to the park, such as Hungerford, Eulo, Thargomindah, Bourke and Cunnamulla. Expenditure in the local communities is likely to be for accommodation, transport, food and beverages, shopping and other incidentals.

## Research and scientific values

The diversity of landforms and vegetation types within Currawinya National Park provides the area with a high potential for the development of reference sites which will aid the management of pastoral properties in the area. The provision of information on pasture condition and trend in the absence of domestic stock and on trends in populations of the dominant tree and shrub species may have broad-scale land management implications.

The park also offers great opportunities for research into geomorphological processes associated with inland lake systems, the ecology of native bird species, particularly waterbirds, and the general ecology of inland lakes and mulga communities. Research that is carried out on Currawinya National Park can also aid in the management of the park. The pastoral history and Aboriginal use of or associations with the Currawinya area warrant further investigation and documentation.

## Education and interpretation values

National parks offer visitors not only the chance to enjoy nature-based recreational pursuits but also an opportunity to gain knowledge of the native plants, native animals and natural processes associated with a region.

The park provides an ideal natural resource for formal and informal education. School groups, tertiary institutions, local community members and interest groups can use the park to study the processes associated with inland wetland systems, other characteristic semi-arid landforms, and native plant and native animal ecology, particularly that of waterbirds and macropods.

Public appreciation of the cultural importance of the area can be increased by reference to historic pastoral activities, Aboriginal culture and places associated with areas such as the mound springs and the Granites.

# 3 Management strategies

## 3.1 Management of natural resources

### Native plants and plant community management

#### Background

Broad descriptions and maps of the vegetation of the region have been completed by Dawson (1974), Boyland (1984) and Neldner (1984). A detailed vegetation map for the park has been completed. Vegetation groups are delineated on the map, and it is intended that locations of significant species populations (e.g. rare and threatened species, weed species) will be mapped as natural resource knowledge increases.

Currawinya contains a high diversity of vegetation communities typical of the Mulga Lands Biogeographic Region, including a number of noteworthy plant species (see Values section). Species considered noteworthy are those which:

- are rare or threatened (endangered or vulnerable);
- are endemic;
- have a limited geographic distribution;
- are at one limit of their known distribution (e.g. western limit); and
- live in susceptible or threatened communities.

Due to Currawinya's history as a pastoral property, the vegetation has suffered disturbance, in varying degrees, over almost the entire park. Currently, the most significant threats to vegetation within the park are:

- Grazing pressure from feral animals such as goats and stray stock. Goats pose the greatest threat to vegetation, largely as a result of their browsing behaviour, and can dramatically increase if their numbers are not strictly controlled. Stock wandering in from outside areas and large number of kangaroos may also exert considerable grazing pressure on native vegetation. Friedel (1990) indicates that grazing impacts on biodiversity are not uniform. Some areas tend to be grazed more heavily due to factors such as shade, prevailing winds, local run-on areas etc.
- Impacts caused by the activities of park visitors and the provision of visitor infrastructure. These impacts tend to be localised; they include trampling of vegetation and soil compaction around campsites and day use areas, and compaction of soil along tracks and roads. This, in turn, can lead to increased runoff and erosion problems, and alteration of drainage patterns, which can affect vegetation.
- Introduced plant species. While not presently a major management problem on Currawinya, introduced plant species may, in the future, pose a threat to various vegetation communities if they outcompete the native species. Weed species can be introduced on vehicles from weed-infested environments and from stock wandering from areas outside the park. Noxious weeds of particular concern include parthenium *Parthenium hysterophorus*, parkinsonia *Parkinsonia aculeata* and rubbervine *Cryptostegia grandiflora*, as they have been recorded further up the catchment, and may spread along the Paroo River.
- Increased densities of woody shrubs. There has been a general trend in all vegetation communities (except the woodlands associated with the alluvial plains of the Paroo River and tributary areas) towards more dense shrub cover. Whether the dominance of shrub species is a threat to the vegetation within the park has been questioned. Some think that their dominance may lead to decreases in plant species diversity and, therefore, habitat diversity. Witt (1993), on the other hand, states that some systems may have a number of stable states which are dependent on particular weather sequences. That is, a particular species or combination of species may dominate for a period, to be replaced under a different climatic regime. If the effective control of woody shrub densities over large areas was found to be necessary to maintain the biological health of the environment, the prohibitive costs of control would limit the extent of control.

Hodgkinson and Harrington (1985) state that this change in vegetation composition has been attributed to reduced competitive stress on shrub seedlings through the selective grazing of grasses, and a change in fire regimes after the commencement of pastoral activity, thereby removing the main control agent for low shrubs which, as a result, steadily become more dominant. Witt (1993) states that extended periods of high rainfall and, to a lesser degree, soil disturbance also aid the widespread establishment of shrub species. He adds that in some areas, where shrub densities are greater than 15 percent, vegetation may have reached a new stable state and the return of a grass understorey is unlikely. It is apparent that research to date has not confidently predicted outcomes.

Research is currently being undertaken on the recovery of vegetation after destocking in several different land systems. Sites have been established on- and off-park, as a method of comparing sites grazed for productive purposes against those grazed by native (and feral) animals. The research technique used is an adapted version of the Q-Graze monitoring system which was developed by the Queensland Department of Primary Industries. Ten exclosures have also been constructed to compare grazed and non-grazed sites.

The assessment of change in vegetation communities over time is being conducted at various locations on Currawinya National Park by park staff. Thirty-four MAP (Mulga Assessment Program) sites have been established in a wide variety of communities and land types. Analysis of data over the long term will provide useful information to both park staff and the local community.

The effective control of woody shrub densities over large areas may not be feasible due to the intensive labour requirements and prohibitive costs of manual control.

## Desired outcomes

- The biological health of plant species and associations is maintained, and natural processes which determine community structure and function are allowed to continue.
- The diversity and integrity of the ecosystems and communities are conserved, and degraded elements are restored.
- Noteworthy species are being researched and/or monitored and their requirements are being incorporated into management programs.

## Guidelines and actions

- Intensive vegetation surveys will provide baseline data for vegetation management.
- Information gained from vegetation surveys and various research projects will be used to make more detailed management decisions regarding vegetation, including the management of noteworthy species, woody weeds, the siting of visitor use areas and tracks, and the use of fire as a vegetation management tool.
- Established monitoring programs will continue. These programs will provide an insight into the movement of plant community boundaries over time, changes in community composition and structure, and the general health of plant communities.
- Monitoring and/or active management will ensure minimal disturbance to populations and associated habitats, particularly through the impacts of introduced plant and animal species. Emphasis will be placed on areas supporting noteworthy species.
- Managers will further investigate methods of suppressing shrub growth and recruiting annual and perennial grasses.
- Threats to ecosystems and communities (e.g. introduced species and unsustainable human use) will be identified and monitored. Appropriate responses will be implemented where practicable.
- Park staff will liaise with researchers and the Queensland Herbarium to benefit from studies involving plant species found within the park.
- Those species for which conservation plans are developed under the *Nature Conservation Act 1992* will be managed in accordance with those plans. Consideration will be given to:
  - fire requirements of each species;
  - environmental changes such as altered hydrological patterns/drought;
  - weed and feral animal management;
  - human impacts relating to recreational activity;
  - distribution, and the consequent differences in growth and form, of the species within the park;
  - assessment of locality, conservation status, ecological requirements and vulnerability of plant species; and
  - the extent to which physical protection, such as fencing, may be required.
- Noteworthy species will be monitored (e.g. through the use of permanent photo-monitoring sites).
- A folder displaying noteworthy species will be compiled to help park staff and park visitors recognise such species.
- Research into rare and threatened species to learn more about their ecological requirements, sensitivities and preferences will be encouraged.
- Before the development of any new infrastructure, an impact assessment of the site and its surrounds will be undertaken.
- Infrastructure in areas containing noteworthy species will be limited to what is necessary for protection and interpretation purposes.

## Native animals: management

### Background

The lake system and associated wetlands form part of an inland route for migratory waders listed under the JAMBA/CAMBA, and are therefore of international conservation significance. Each lake supports a different community of waterbirds. Lake Wyara provides valuable feeding habitat for wading birds, herbivores and ducks, due to the abundant growth of halophilic macrophytes (salt-tolerant water plants), plankton and epiphytic algae which support a large invertebrate population. Lake Numalla is important to piscivores (fish-eaters) and large wading birds which feed on larger aquatic vertebrates and invertebrates. The high diversity and density of waterbirds during dry periods are comparable with those seen in the Alligator Rivers region in the Northern Territory during the dry season, and occasionally Lake Eyre (Kingsford 1992).

Large numbers of waterbirds including Australian pelicans *Pelecanus conspicillatus* and black swans *Cygnus atratus* breed on the isolated islands created when Lake Wyara fills, while species such as Pacific black ducks *Anas superciliosa*, Australasian grebes *Tachybaptus novaehollandiae* and pied cormorants *Phalacrocorax varius* breed in suitably isolated sites around Lake Numalla. Various birds of prey including whistling kites *Haliastur sphenurus*, wedge-tailed eagles *Aquila audax*, little eagle *Hieraaetus morphnoides*, (rarely) white-bellied sea eagles *Haliaeetus leucogaster* and swamp harriers *Circus approximans* at times can be seen hunting over the lakes.

The diverse plant communities and associations provide resources for many other species of terrestrial birds found within the park. For example, areas of flowering yapunyah along the Paroo River floodplain provide valuable food resources for honeyeater species while the soft mulga sandplains are favoured by many species including the vulnerable Major Mitchell's cockatoo *Cacatua leadbeateri*. Sand dune communities are frequented by species such as the southern whiteface *Aphelocephala leucopsis*, Bourke's parrot *Neopsephotus bourkii*, various thornbills *Acanthiza* spp. and chestnut-crowned babbler *Pomatostomus ruficeps*.

Members of Birds Australia and Field Ornithological Clubs regularly visit the park to observe and monitor its prolific birdlife. A species list has been compiled for the park; however, it is expected that more species will be added in the future.

The western grey kangaroo *Macropus fuliginosus*, which is approaching the northern limit of its distribution, is commonly recorded from the park, as are red kangaroos *M. rufus*, eastern grey kangaroos *M. giganteus* and wallaroos *M. robustus* (Strahan, R. 1995). Koalas *Phascolarctos cinereus* and brush-tailed possums *Trichosurus vulpecula* have also been recorded along the Paroo River within the park, approaching the western limit of the distribution of these species. Several species of bats are found mainly along the riverine and mulga vegetation communities of Currawinya, including the rare little pied bat, *Chalinolobus picatus*. Water-rats *Hydromys chrysogaster* inhabit the waterholes of the Paroo River, while dunnarts and narrow-nosed planigales *Planigale tenuirostris* are found at various locations throughout the park including the floodplains of the Paroo River.

Amphibians recorded from the park include species which are commonly observed and familiar in the mulga lands, as well as unfamiliar burrowing species, such as the holy cross toad *Notaden bennettii* and the water-holding frog *Cyclorana platycephala*. Such burrowing species are generally observed only after significant rainfall events which cause the frogs to emerge to feed and breed. One of the recorded species which occurs in the south-western section of the Mulga Lands Biogeographic Region, but is uncommon or absent from the northern section of the region, is trilling metal-eyed frog *Neobatrachus centralis*.

A number of reptile species with specialised habitat requirements and limited distributions within the mulga lands such as skink *Morethia adelaidensis* and skink *Ctenotus brachyonyx* have been recorded from the park. Knob tailed gecko *Nephrurus levis* and skink *Ctenotus regius*, common in the southern section of the Mulga Lands biogeographic region but absent or uncommon in the northern sections of the region, have been recorded from the park. The park also contains populations of species that are approaching

the limits of their known distribution. For example, tree skink *Egernia striolata* is approaching the western limit of its distribution while a dragon lizard *Tympanocryptis cephalus* is approaching the southern limit of its distribution. Other significant records include the grey snake *Hemiaspis damelii*, which represents a western record for the species in Queensland, and the narrow-banded snake *Simoselaps fasciolatus*, which is uncommonly recorded within the State.

Currawinya National Park also supports a wide array of invertebrates, including insects, aquatic and terrestrial crustaceans, spiders, centipedes and millipedes. The tiger beetle *Megacephala australis* is abundant in the chenopod communities surrounding Lake Wyara. These swift predatory ground beetles are not only important predators in this community but, in turn, are important prey for a variety of species including small mammals such as the stripe-faced dunnarts. A permanent network of pitfall traps has been installed across the park to provide survey and monitoring data.

The claypans support a wide array of crustaceans including fairy shrimps, *Branchinella sp.* (Timms 1999); copepods including *Boeckella robusta* and *Calamoecia zeidlerii* (Timms 1999); shield shrimps *Triops sp.* (Jaensch 1999) and water fleas. These crustaceans have evolved reproductive strategies to cope with the ephemeral nature of waterbodies of arid environments. Once the claypan fills, a new population of crustaceans hatches, matures and breeds, with eggs remaining in the dust of the claypan once it dries.

Adjacent property owners have expressed concern that increased kangaroo numbers on the park will lead to high levels of migration onto their properties during times of drought, creating competition with stock when there is a limited availability of pasture grass. Property owners can control macropod numbers through the use of Wildlife Harvesting Licences and Damage Mitigation Permits; however, such permits are not issued on national parks. Preliminary research has examined options to reduce kangaroo numbers through natural means (the closing of artificial waters on the park). Surveys of macropod populations both on the park and on nearby properties are undertaken by helicopter each year to monitor population trends.

Surrounding landholders have also expressed concern that dingoes may migrate across their properties from the park and threaten livestock. Dingoes are protected under the *Nature Conservation Act 1992* while they are on a protected area. Anecdotal evidence suggests, however, that very few dingoes have been recorded in the Currawinya area. The control of this species is permitted under certain circumstances (e.g. if the animals are non-pure or numbers are significantly high), where standard methods of control (e.g. baiting, doggers or shooting) are implemented.

The most significant threats to native animals within the park include:

- 1 Impacts of introduced species, such as:
  - predators (e.g. foxes and cats) which hunt native animal species, nesting sites and offspring;
  - competitors (e.g. goats and rabbits) which compete with native species for food and habitat; and
  - pigs and European carp etc. which cause habitat disturbance, often to the detriment of native wildlife species.
- 2 The activities of visitors.

Visitor activities may cause disturbance to native animals, particularly to the birdlife around Lakes Wyara and Numalla, if visitation levels become excessive.

Observations made by Service staff suggest that disturbance of bird breeding areas can have a significant effect on the survival rate of juveniles. Concern has been expressed about allowing visitor access to such sites and the potential impact of aircraft activity in these areas.

## Bilby

The bilby *Macrotis lagotis* is currently listed as an endangered species under the *Nature Conservation Act 1992*. A recovery plan for the species has been developed by Environment Australia, the Queensland Parks and Wildlife Service, and numerous researchers and wildlife specialists ('the recovery team'). The recovery team is planning to reintroduce a population of bilbies to Currawinya National Park, in accordance with a conservation plan, within the life of this management plan.



Bilbies are currently conserved only within Astrebla Downs and Diamantina Lakes National Parks, in arid south central west Queensland. Historically, bilbies occupied a much larger area within the region, and anecdotal evidence suggests that at least one bilby existed on Caiwarro. Currawinya is a much wetter and more productive area than the above parks, and it is envisaged that Currawinya's climatic and protected environment will favour the establishment of a viable breeding colony in the long term.

Predation by introduced and feral animals and competition with domestic livestock are suspected to be the major causes of decline in population abundance and distribution. Consequently, the reintroduction program will need to be conducted in a number of phases. It is planned to establish a breeding colony on the park in a predator-free enclosure. Once external threats have been reduced and the population in the enclosure is large enough, the population will be allowed to naturally disperse onto the park and ultimately onto adjoining properties.

### Desired outcomes

- The diversity of animal species and populations of noteworthy animal species are maintained.
- Species with the potential to cause environmental degradation through population increases (e.g. kangaroos) are maintained at levels that are conducive to the conservation of all species.
- The habitats of all species, especially those with specific habitat requirements (such as feeding areas for migratory waders and breeding sites for the rare freckled duck), are protected.
- The bilby *Macrotus lagotis* has been reintroduced to Currawinya National Park.

### Guidelines and actions

- Continue to develop and implement a native animal survey program which will:
  - identify the assemblage of vertebrate and invertebrate species and the habitats they use;
  - identify threats, both on-park and off-park, and provide for the implementation of appropriate responses where practicable;
  - ensure data is collected throughout the entire year to ensure information is collected for the full complement of the park's native animals;
  - outline the importance of gathering information on indicator species; and
  - contribute data to the Regional Fauna Database which can be used to make informed management decisions.
- Visitor activities in sensitive areas will be strictly regulated (e.g. access to the lakes area will be restricted during peak waterbird breeding seasons). Staff access to certain areas (e.g. pelican rookeries) may also be restricted unless prior approval has been obtained from the District Manager, Charleville.
- Further research into all groups of invertebrates will be undertaken, given the important role invertebrates play in Currawinya's ecological processes.
- Noteworthy, i.e. rare and threatened native animals, will be researched and/or monitored in order to develop a better appreciation of their biology, habitat requirements, and breeding and migratory patterns.
- If monitoring indicates a need for control of potential pest species (e.g. kangaroos, emus and dingoes), further investigation and, where appropriate, implementation of available control options will be undertaken. Baiting of dingoes will occur only as part of a strategic and coordinated program, and will be restricted to areas along the park's perimeter. Baiting programs will be coordinated and supervised by suitable personnel from the Service and other agencies where appropriate.
- Those species for which conservation plans are developed will be managed in accordance with those plans.
- Locations where noteworthy species have been recorded will be monitored regularly to ensure minimal disturbance to populations and associated habitats, particularly through the impacts of introduced species and human interference.
- Park staff will liaise with researchers and the Queensland Museum to benefit from studies involving native animal species found within the park, and will promote research into understanding the ecological requirements and vulnerability of recognised endemic, rare, threatened and introduced species recorded from the park.
- Park staff will liaise with appropriate research institutions and specialists to establish a broad

- information base and network of contacts to monitor the security of nomadic and migratory species.
- Any action which has, will have, or is likely to have a significant impact on listed threatened species and ecological communities and/or listed migratory species should be referred to the Commonwealth Minister for the Environment and Heritage to determine whether the action is subject to the Environment Protection and Biodiversity Conservation Act 1999.
  - Before the development of any new infrastructure, the site and its surrounds will be surveyed to identify any potential threats (e.g. water pollution, visitor access to critical habitat) to noteworthy native animal species.
  - Populations of noteworthy species will be retained by investigating their habitat utilisation/ requirements and formulating management strategies which will promote populations and habitats (e.g. suitable fire regimes).
  - Guidelines and processes relating to the establishment of a breeding colony of bilbies on Currawinya National Park will be formalised within the life of this draft management plan.
  - Coordinated management of airspace over the national park will be developed so that aircraft are restricted to above 1500 feet. Methods of achieving this include amending the *Nature Conservation Regulation 1994* and ensuring that commercial operation permits exclude flights below 1500 feet. The use, and subsequent restriction, of aircraft being used for authorised management practices will be assessed on a case-by-case basis.

## Landscapes, soil, wetland and catchment protection

### Background

Currawinya contains an array of unique semi-arid landscapes centred around Hoods Range, with its dissected tablelands, rugged hills and scarps which run down to a diverse wetland system of permanent, semi-permanent and ephemeral lakes. These lakes drain through an extensive aeolian sandplain system, dominated by mulga associations, into the channels of the Paroo River.

The two major lakes, Wyara and Numalla, provide the most distinctive landscape features associated with the park. The freshwater Lake Numalla (2904ha) is mostly surrounded by sandy beaches, fringed by *Cyperus gymnocaulos* sedgeland leading up to black box and belalie low open woodlands. Surrounded by extensive dunefields and sandplains, the tranquillity of the lake's edge provides a welcome visual and sensory contrast to the surrounding semi-arid landscapes. The clear blue-green saline water of Lake Wyara (3813ha) is reminiscent of an inland sea. The surrounding dense low samphire shrublands covering relict beaches, with little tall vegetation in sight, allow for a great sense of space and openness, with Mt Roy to the west the only relief. The other smaller lakes, including Kaponyee, Yumberrara and Karatta, are each surrounded by distinct vegetation and have their own character.

Other significant landscape features on the park include a small outcrop of granite boulders at the southern end of Hoods Range, known locally as 'the Granites'. The view from the summit of this formation extends over the park to the horizon, and includes several different land systems.

Below the Granites in the remains of an old alluvial channel lies a system of remnant mound springs. Artesian springs, commonly called 'mound springs', lie on the fringe of the Great Artesian Basin, usually on faults through which water flows from below (Ponder 1986). Mound springs are unique features of the arid Australian landscape and are, therefore, of considerable limnological and geological significance. They provide researchers with an excellent opportunity to undertake a variety of evolutionary, ecological and biogeographical studies.

The Paroo River's waterholes, edged by river red gums and coolibahs, also provide scenic and tranquil spots for visitors. The Paroo River is the largest watercourse flowing through the park. It has a large catchment which forms part of the headwaters of the Murray–Darling Basin. Although the area is usually dry, flooding is not uncommon and can occur without rain falling in the immediate area. Major flows in the Paroo back up into Lake Numalla, adding nutrients to the largely self-sustaining system. Many semi-permanent waterholes en route to the lake are filled in the process.

The visual appeal of the landscape has, to date, been unmarked by infrastructure development or the damaging impacts of visitors.

## **Soils**

The soils of the mulga lands are, in general, considered to be particularly fragile. Soils are characterised by low levels of nutrients and organic matter, a large proportion of which is in the immediate topsoil (Walker and Fogarty 1986). Therefore, loss of topsoil through wind and water erosion significantly affects the delicate balance of nutrient cycling in these areas.

Since domestic grazing stock have been removed from the park, lower stratum vegetation has become more abundant. Miles (1993) states that vegetation removal by overgrazing exposes the soil surface to erosion, leading to soil loss and reduction in soil fertility. Miles also states that wind erosion is potentially worse than water erosion because wind-eroded sediments are rich in nutrients. Thus, wind erosion leads to a greater decline in soil productivity. The maintenance of groundcover is essential for maintaining the nutrient-cycling process.

Rehabilitation of degraded sites is being undertaken. Current and future rehabilitation efforts need to focus on eroded areas, washouts (e.g. along internal fencelines and roads or tracks), weed-infested areas and areas disturbed or compacted by feral animals.

## **Wetlands**

At Currawinya, the most important process influencing the formation of all wetlands, except riverine waterholes, is deflation (wind erosion). Riverine waterholes are formed by evorsion (vertical erosion during floods). Beaches and spits are common features in many of the wetlands, with their development being promoted by wind, sediment supply and water presence (Timms 1997).

The variable influence of riverine floodwater adds to the diversity and relative permanence of Currawinya's wetlands. The Paroo River floods in most years, but the timing and height vary. Minor floods affect only the riverine waterholes, while the largest floods may reach Lake Wyara and even a few of the pans on the outer floodplain. This irregular supply of floodwater is important for the functioning of the wetlands. It lengthens the time each lake or pan contains water and alters the quality (i.e. freshness, acidity and turbidity) of water in the system, and these changes, ultimately, have biological ramifications (Timms 1997).

Timms (1997) has documented basic, but detailed, information on the geomorphology and hydrology of Currawinya's wetlands together with an assessment of the physicochemical characteristics of the waters and their invertebrate populations. He has also briefly outlined the major threats to the long-term viability of the wetland systems within the park: sedimentation, introduced fish, feral pigs and visitor usage (see relevant sections of this plan).

Sedimentation of the wetlands has been identified as the issue of most concern. Lake Karatta, the worst affected, has shallowed by 42cm in the last few decades, with approximately 200 000cu.m of sediment having been deposited in the lake (Timms 1997). The implications of this relate to the lowered productivity of the lake system (due to increased turbidity) and the consequent impact that this will have on the foraging, drinking and breeding patterns of waterbirds and other wildlife.

At Currawinya, sedimentation is occurring as a result of erosion within local catchments and from table drains from nearby roads being directed into wetlands.

## **Catchment protection**

The catchment area for Lake Wyara is situated to the west of the park, where the tributaries of Werewilka Creek drain Willies Range and the western slopes of the Walters Range. Lake Numalla

receives water primarily from Boorara Creek, which drains the eastern slopes of Willies Range and the western slopes of Hoods Range, and also from Carwarra Creek, which drains the southern slopes of Hoods Range. Lakes Kaponyee and Yumberarra are fed by Kaponyee Creek. Lake Karetta is filled by Stinking Well Creek. Infilling of Lake Karatta is occurring following the destabilisation of soil after the removal of groundcover, largely due to the grazing of stock (B. Timms pers. comm. 1996).

Sedimentation occurring on the western shore of Lake Wyara is of concern as the shore is adjacent to islands used for bird breeding. Rapid sedimentation at the mouths of Youlaingie and Benegara Creeks might eventually allow terrestrial predators access to bird breeding colonies. The area needs to be regularly monitored.

Siltation of the lakes, and other waterbodies within the park, is occurring, as indicated by the reddish colour of the water after rainfall. High turbidity, caused by siltation, prevents light from penetrating the water and results in less primary production. It is therefore imperative that the catchments of the park's waterbodies are protected from impacts that degrade both water quality and water quantity.

Currawinya National Park occurs within the bounds of the Murray–Darling Basin. Activities within the park and further up the catchment will have an impact, whether positive or negative, further downstream in the basin.

The Currawinya lakes represent arguably the most important wetlands for waterbirds in arid Australia because they so often hold water and support large concentrations of waterbirds (Kingsford & Porter 1999). Altering the river flows in the park represents a major threatening process to the ecology of the park. Loss of habitat through changed flows not only leads to loss of ecosystem diversity, but also can have a detrimental impact on genetic and species diversity as all levels of diversity are inextricably linked (Watts 1999). Given that the Currawinya wetlands are Wetlands of International Importance under the Ramsar Conventions and included in the National Estate, there is an obligation under national and state agreements to conserve the ecological integrity of the Currawinya wetlands (Timms 1999).

## Desired outcomes

- The natural scenic qualities of the park's environment are maintained.
- Degraded areas of the park are rehabilitated and further impacts in these areas have been limited.
- The park is protected from the negative impacts of upstream catchment management practices and off-park land use practices.
- Soil erosion and compaction damage in the national park are minimal.
- The composition, distribution and condition (i.e. the site's ecological character) of the park's wetland systems are maintained.

## Guidelines and actions

- Natural hydrological processes will be permitted to continue throughout the park with a minimum of interference.
- Existing soil erosion problems will be identified and, where possible, countered, using measures such as the diversion of runoff, controlling access, revegetation with local plant species, and stock/feral animal control. Flood frequency will be considered when selecting appropriate erosion control measures along watercourses.
- Erosion control and rehabilitation measures will be included as part of any park developments. Accordingly, Recreation Zones (see Zoning Scheme) will, where possible, be located on more stable soils.
- The development of facilities will be kept to an absolute minimum, with facilities very low-key in style and designed and sited for minimum visual impact.
- Specific areas for rehabilitation will be targeted. These include:
  - internal roads, tracks and fencelines, with consideration given to:
    - optimal widths and placement for firebreak effectiveness
    - optimal walking track system

- erosion potential
- access for management purposes
- Any action which has, will have, or is likely to have a significant impact on the ecological character of the Currawinya Lakes Ramsar Wetland should be referred to the Commonwealth Minister for Environment and Heritage to determine whether the action is subject to the Environment Protection and Biodiversity Conservation Act 1999.
  - lakes and wetland systems, with consideration to be given to:
    - access to and use of sites
    - impacts on birdlife and other native animals
    - impacts on the lake edge native plants
    - reclamation plans for degraded sites
    - initiating an education program to raise awareness of the significance of maintaining the integrity of the wetlands systems
  - weed-infested areas
  - areas of high visitor use which are displaying signs of degradation.
- Further research and monitoring of the wetland systems will be encouraged and supported.
- Any form of degradation of the park's wetland systems attributable to human causes will be countered by changes to permitted use levels, increased patrols or other actions considered necessary.
- Vehicular access will be restricted to stable areas. All tracks will be appropriately maintained, with particular emphasis given to drainage and appropriate siting of any new sections of track.
- Park management staff will liaise with neighbouring landholders on conservation measures to protect the integrity of the park's wetland systems.
- Sedimentation within the wetland systems will be monitored and minimised where it is of non-natural causes.
- Methods of trapping sediment will be investigated to alleviate sedimentation caused by road runoff.
- An appropriate monitoring program for the assessment of water quality in the park will be developed.
- Park staff will maintain knowledge of current and proposed land management practices in the larger catchment which can impact on the wetlands within the park and further downstream (e.g. water quality and flow rate, creek integrity and soil stability).

## Weed management

### Background

Approximately 10 percent of Australia's plant species are introduced. Many of these plants are better adapted than native plants to living in disturbed environments. Free of the insects and diseases from their homelands, some are able to outcompete (Csurches & Edwards 1998) existing native species. A plant is classified as a weed if it interferes with the human use of land, whether that is for productive purposes or for maintaining the quality of the environment (Buchanan 1989).

Weed species have the potential to impact significantly on the conservation values of protected areas through displacement of native species and the destruction of habitat. Weeds can also degrade the aesthetic and recreational values of parks.

Weeds can be introduced into an area by a number of different vectors including wind, water, native and feral animals, clothing and vehicles. Buchanan (1989) states that 'invasion by weeds is most likely after disturbance...the greater the degree of disturbance the greater the degree of invasion...(but) the greater the diversity of the natural community the less likely weeds are to invade'. Maintenance and promotion of the natural communities within the park should, therefore, help prevent the spread of existing weed infestations.

Few environmental weed species are found within Currawinya National Park. Most of the species present do not pose a major threat to the park's natural values. However, their ability to reproduce under favourable conditions to the detriment of native species is recognised. Management guidelines have been formulated to monitor their distribution and abundance, and control strategies have been recommended.

Weed species currently found within the park tend to grow in isolated but disturbed areas such as roadsides and airstrips. They include Mexican poppy *Argemone ochroleuca*, saffron thistle *Carthamus lanatus*, Bathurst burr *Xanthium spinosum*, spiny emex *Emex australis*, sesbania pea *Sesbania cannabina* var. *cannabina*, African boxthorn *Lycium ferocissimum*, coral cactus *Opuntia cylindrica* and the downy thorn apple *Datura innoxia*.

Noogoora burr *Xanthium occidentale* has been observed on the park; however, the biological control agent, rust, is present in these outbreaks. Buffel grass *Cenchrus ciliaris* is another weed of concern on Currawinya National Park. Although considered a valuable pasture grass by the rural community, buffel grass has an amazing ability to outcompete many of the native pasture species to the detriment of the natural systems. Unfortunately, control of this species is often very difficult.

Noxious weeds such as rubbervine *Cryptostegia grandiflora*, parkinsonia *Parkinsonia aculeata* and parthenium *Parthenium hysterophorus* have been recorded in the catchment or in nearby townships growing as ornamentals or isolated individuals. Weed species, originally grown as ornamentals around the homesteads, are still growing on the park. These include athol pine *Tamarix aphylla*, bougainvillea *Bougainvillea* sp., and mother of millions *Bryophyllum tubiflorum*. Although of historical interest, the majority of these weeds grow in flood-prone areas and are therefore seen as a potential threat to the integrity of the park and the larger catchment.

Grazing by livestock and feral animals may have facilitated the spread of weeds within the park. Removal of livestock from the park and active management of feral animal species within the park may therefore reduce this risk.

Due to a lack of resources, active weed management (by means of chemical application) by park staff has been limited. Without appropriate equipment, training and protective clothing, weed management can be inefficient, ineffective and hazardous to the operator.

In the absence of available funding, staff have been encouraged to investigate and, where appropriate, implement mechanical and biological controls for weed species growing within the park. Fire, for example, can be a useful tool in the management and manipulation of vegetation communities.

## Desired outcomes

- A reduction in the extent of weed species within the park and no establishment of new species.

## Guidelines and actions

- A weed action plan will be prepared for the park on an annual basis, as part of the annual works program. This plan should consider:
  - prioritising the control of weed species, particularly in habitats with high conservation value, disturbed sites, watering points, park boundaries and popular visitor areas;
  - the importance of control efforts being both species and site-specific;
  - all methods of control (chemical, mechanical and biological). Park managers should adopt the most efficient, effective and environmentally sensitive method.
  - the monitoring and mapping of weed species on the park. Weed maps should be regularly updated by means of overlay to allow assessment of control efforts and responses to environmental conditions over time;
  - the importance of liaising with tourists and the local community to acquaint them with the dangers of inappropriate plant introductions in the area;
  - encouraging park users to wash down vehicles before entering the park, if they have previously been in weed-infested areas;
  - rehabilitating areas of weed infestation by encouraging natural regeneration and adopting methods which will impede weed growth (e.g. replanting lower stratum species);
  - the use of fire as a mechanism to control the spread of weeds;
  - monitoring the occurrence of other weed species not currently established on the park and

- plants considered to have a damaging effect on the community structure;
- liaising with Department of Natural Resources staff, local shire councils, utility service providers and landholders regarding the control of declared plants and weeds within the larger catchment, to prevent re-infestation or invasion of new species in the park;
- establishing and encouraging research programs to investigate the environmental effects of weeds;
- incorporating a plant pest component (potential and established weeds) in education programs aimed at park visitors, user groups and local groups and communities; and
- existing and future resourcing requirements (e.g. funding, plant and equipment, personal protective equipment).
- The weed management guidelines will be revised and/or updated as appropriate (as new control techniques are developed etc.).
- Ornamental weeds will be actively controlled and their historical value recognised through the use of interpretive displays.

## Feral animal management

### Background

Three types of feral animal are currently found on Currawinya:

- ex-Currawinya stock (sheep, cattle and horses) which have remained after stock were removed from the park, and stray stock;
- animals such as goats and pigs which were introduced to Australia as domestic animals but have now become feral over wide areas; and
- animals introduced for recreational purposes (such as rabbits, foxes and carp) or as 'companions' (domesticated animals which have become feral, most notably the cat).

Small numbers of grazing feral animals (sheep, cattle and goats) pose no immediate threat to either vegetation or soils on Currawinya, although their presence is in contradiction with the purposes of a national park. Significant localised damage can occur at watering points by hoofed animals (i.e. pigs, sheep, cattle and horses), even in relatively small numbers, therefore control mechanisms need to be put in place. The threat from grazing animals lies mostly in the possibility of their numbers increasing if they are left without some form of active management. This is especially true of feral goats, which have the greatest capacity for rapid increases in recruitment under good conditions, and also because of their generalist browsing behaviour.

A contract has been developed for the mustering of goats on Currawinya National Park; over 9000 goats have been taken since 1992. The animals are mustered, yarded and trucked by the successful tenderer, and the Service receives an agreed amount per head. It is envisaged that the contract will continue to be tendered out in the future. The option of establishing a contract for the control of pigs on the park has been examined, but administration of such a contract appears much more complex than that of the goat contract.

The foraging behaviour of feral pigs digging for roots and tubers of plants in soft soil and mud can cause extensive damage. Feral pigs have been known to destroy the nests of both aquatic and ground-dwelling birds while raiding them for eggs. This is particularly significant on Lake Wyara when water levels are low and pigs and other carnivores, such as foxes and cats, have easy access to breeding colonies on the lake's former islands.

Predatory feral animals kill native animals and also compete with them for food and shelter. Cats and foxes are considered to be significant influences in the decline of populations of small to medium-sized prey, including mammals, birds and reptiles. Rabbits are a major problem over wide areas of eastern Australia, where they compete with small to medium-sized native mammals for food and habitat. Numbers of some feral species on the park are monitored annually by air when kangaroo surveys are being conducted (usually about September). Yearly estimates of sheep, cattle, goat and pig numbers are obtained from these surveys and feral animal action plans are derived from the results. Unfortunately,

estimates of cat, fox and rabbit numbers are not as easy to acquire. Park staff are, however, continuing to monitor the spread of the rabbit calicivirus.

European carp numbers in the lake system and the Paroo River are thought to be increasing. This species is classified as a 'noxious fish' under the *Fisheries Act (Queensland) 1994* and, if caught, must be destroyed (and not returned to the water) under the provisions of that Act.

The mosquito fish *Gambusia holbrooki* was introduced to eastern Australian waters in 1929 as a mosquito control agent. The introduction was highly successful due to early maturation, a high reproductive rate, large numbers of annual broods and the fact that the young are born live. This species is now a declared noxious due to its dominance of fish communities in streams. Introduction of the species into a riverine system often results in a reduction of native fish numbers or the total elimination of native fish species (DPI 1999).

Mice *Mus domesticus* are also present on the park, though mainly around the occupied homestead areas. Standard methods of control are used in the shearers quarters, i.e. traps, with the rangers utilising their own control techniques in their accommodation. At present mice do not present a significant hazard to the ecology of the park.

Feral animal management guidelines have been developed for Currawinya. The guidelines list the feral animals currently found on the park, describe the nature and biology of these animals, and recommend best methods of control.

Feral animals can be controlled in a number of ways. Trapping, baiting and shooting are the most common methods used. Biological controls can sometimes be a feasible option. To improve the efficiency and effectiveness of control programs, park staff try to organise activities in conjunction with surrounding properties.

Currently, control methods include the trapping of pigs and the shooting of feral animals on sight. Other options, such as the 'Judas method', are used by the Queensland Parks and Wildlife Service and conservation departments in other States, and have proven to be very successful. The Judas method involves putting a radio collar on a female pig or goat, releasing the animal and shooting all of the other animals it meets. When the animal finds a new mob, the process continues.

Beekeeping is a major primary industry in the area. Apiary sites are located on the road reserves which traverse the park. While the influence of the introduced honeybee on native animals and plants is not well understood, it has been suggested that nectar extraction behaviour by bees may damage flowers and fail to pollinate various species of native plants. Although apiculture is considered an extractive industry and is thus incompatible with the management philosophy of national parks, the Service has no control over the conduct of beekeeping on adjacent private lands.

## Desired outcomes

- A reduction in the number, species and impact of feral animals on the park.

## Guidelines and actions

- Action plans which require monitoring of the park for types, distribution and population sizes of feral animals will be established and implemented as part of the annual works plan.
- Monitoring and research programs will be established to investigate the environmental effects of introduced animals including pigs, goats, cats, carp, mosquito fish and introduced bees.
- Park staff will liaise with local governments, the Department of Natural Resources, the Department of Primary Industries and local landholders to develop cooperative animal pest management strategies, and promote the use of cooperative control programs for feral animal species in the local area/district.
- The occurrence of feral animals will be monitored at regular intervals to determine the effectiveness of control measures.



- The shooting, trapping and baiting of feral animals (especially cats) will be continued by park staff partly on an opportunistic basis and also in response to favourable climatic conditions (conditions which favour breeding), as described in feral animal action plans. Baiting will occur only as part of a strategic and coordinated program.
- An animal pest management component (for both established and potential pests) will be incorporated into education programs aimed at park visitors, user groups and the local community.
- Because of budgetary constraints, boundary fencing will be constructed progressively to prevent domestic stock entering the park from adjacent properties.
- The option of continuing the goat-mustering contract under the tendering system will be assessed, on an annual basis, throughout the life of this draft management plan. Alternative control methods will also be examined.
- Further research into alternative, more efficient control methods for goats will be undertaken within the life of this draft management plan.
- Local beekeepers will be encouraged to remove wild hives of introduced bees that have established in the park, subject to Service guidelines.
- Recreational fishers will be advised of their obligation under the provisions of the *Fisheries Act (Queensland) 1994* to kill European carp caught on their lines. The environmental impact of these fish will be described as a basis for such action.
- Monitor mosquito fish populations and research and implement any appropriate control measures.

## Fire management

### Background

Fire ecology is the relationship between natural communities and fire. Many Australian plant species have adapted to live and reproduce under certain fire regimes. More specifically, they are dependent on the frequency and intensity of the fire, and the season in which it occurs.

One of the many options available to land managers is the use of fire as a management tool. Fire is a quick, effective and inexpensive means of manipulating the environment and many benefits can be derived from its use (Claus 1989). With appropriate knowledge, and experience, land managers can develop fire regimes which achieve clearly defined objectives.

The primary objective of fire management in protected areas is to ensure the conservation of nature while maintaining diversity. Natural systems need active and professional management if undesirable, irreversible changes to natural communities are to be minimised (Preece 1990). Understanding the impact fire has on the natural, cultural, recreational and water catchment values of the area will help provide a foundation for responsible park management. Park fire management strategies should evolve with an improved understanding gained through research and monitoring programs.

To date, fire management has had a low priority on Currawinya National Park. Due to the high variability of seasonal conditions and the impacts of past grazing pressure on pasture species, the occurrence of fire, in the short term, is unlikely. In the absence of grazing, however, pasture biomass is likely to increase and fire management will assume a greater importance.

Management practices are often dictated by personal endeavours, skills, experiences and interests and, therefore, often lack continuity and consistency (Preece 1990). It is envisaged that fire regimes at Currawinya National Park will be developed through the collation of data which are relevant to managers and ecologists alike.

Without adequate knowledge, managers often develop fire regimes without considering the botanical and ecological implications of their decisions. For example, if the interval between successive fires is too short for seedlings to mature and produce seeds, species may become extinct over time.

Patchwork (or mosaic) burning maintains community structure, composition and dynamics (Preece n.d.) due to the variation in fire patch size, ages and distribution. Mosaic burning can also benefit wildlife and

impede the progress of hot, uncontrolled wildfires. Wildfires endanger the lives of park visitors, staff and neighbours, and threaten plant communities, infrastructure and cultural sites on the park and in adjacent areas. A Wildfire Response Procedure has been compiled for Currawinya National Park.

Firebreaks protect park infrastructure and visitor safety and play an important part in preventing the movement of fires into and out of the park. They also provide a means of access to fight fires and impede or block the progress of fires. At present, the firebreak network reflects the tracks and roads within Currawinya. Future requirements are being examined.

A draft zoning scheme has been developed for the park. The use of wood fires is prohibited in all but the Recreation Zone, but gas fires are allowed in all visitor access zones. Fire is likely to be a potential hazard under certain circumstances and fire ban regulations may need to be imposed at particular times. Zone objectives will dictate the types of burns conducted by park staff (e.g. hazard reduction or ecological) and the policies adopted to control natural fires (e.g. 'let burn', 'suppress' or 'manipulate') in individual zone categories. Signs stating that firewood should only be collected from roadsides have been placed at the northern and southern entrances to the park, along the Eulo–Hungerford road (a gazetted road).

Park staff are actively involved in many local committees and interest groups. They are members of the SES and Bushfire Brigade, and work in close association with the local community. Recently, the Bushfire Brigade purchased a fire truck to service the local area. The truck is based at Hungerford, approximately 16 kilometres south-west of the park headquarters. Park staff are equipped with a tractor and a 'mop-up unit'.

## Desired outcomes

- Fire regimes aimed at achieving both conservation and management objectives are developed.
- The park's physical landscape is protected and the natural diversity of native plants and animals, particularly noteworthy species, is conserved.
- Park visitors, infrastructure and adjacent property are protected from the impacts of fire.

## Guidelines and actions

- Before undertaking active fire management, compile information which will contribute to the establishment of a soundly based fire management strategy for western parks by:
  - collating and synthesising (through research) ecological and technical knowledge on fire applicable to the Mulga Lands Biogeographic Region;
  - collating methods of fire management and control suitable to semi-arid Australia;
  - developing planning procedures for the management and application of fire; and
  - providing safety information and rules.
- Prepare a fire action plan, consulting with local governments and neighbours, which includes:
  - site-specific objectives of fire management in terms of natural resource and cultural heritage conservation;
  - appropriate fire regimes within each identified fire block;
  - assessment of the risk of fire damage to natural and cultural resources;
  - assessment of fire risk to human life, park infrastructure and other property;
  - the works and resources need to carry out the fire regime (i.e. staff, equipment, water sources and access tracks);
  - procedural matters, detail of actions required, fire detection, and liaison between park staff, neighbours, fire wardens and the Bushfire Brigade; and
  - compilation and distribution of fire reports, and research and monitoring information.
- Utilise knowledge of fire management in the mulga lands to facilitate small-scale use of fire management on the park before adoption as a widespread management tool.
- All park staff will be provided with appropriate fire training and personal protective equipment and, where possible, will undertake training in conjunction with other local area interest groups.
- Document the fire history of the park including date, source of fire, extent, intensity and recovery, and

- record the information on a Geographic Information System.
- Fire prevention and protection measures should include well-placed and well-maintained firebreaks, clearing around buildings and other facilities, educating visitors and neighbours on their fire responsibilities, and general staff preparedness for fire emergencies.
- Where possible, use permanent artificial water sources (bores and dams) within the park for fire control purposes.
- Display official fire signs during periods of extreme fire danger and, if necessary, close the park.
- Initiate specific fire awareness through education and interpretation programs.

## Research, monitoring and scientific sites

### Background

Currawinya's landscape has been shaped over many thousands of years — by Aboriginal management for at least 13 000 years, pastoral management for 130 years and conservation for the last six years (Robins 1993). The majority of the park, therefore, has been modified or degraded to some degree. The most obvious research challenge is the rehabilitation of this degraded landscape to a healthy community composed of native species.

Natural systems are dynamic and unpredictable. They have an amazing ability to recover from many types of disturbance. Managers can help improve the quality of the natural landscape, but they must first understand the area and its history, its natural components (their requirements for growth and reproduction, the fundamentals of their biology and ecology), potential threats and opportunities, and the successes and failures of land management practices used to date.

Currawinya National Park has the potential to offer experiences, achievements and challenges at all educational levels. It is an excellent outdoor classroom which can be used for the study of biology, ecology, geography, geology, limnology, history, archaeology and sociology.

Results and findings from research projects carried out on the park can benefit local people. These findings can also be included in interpretation programs, to educate the general community about the interactions of people and the environment at Currawinya National Park. The application of research findings extends further than the park boundary.

A body of research has been started on Currawinya which should be continued. Existing and past research projects consider vegetation dynamics, habitat requirements, limnology, artificial waters, cultural heritage places, archaeology and the effects of drought. These projects can either be continued or split into a number of projects with different research emphasis.

### Desired outcomes

- Research is integrated with management and national parks in the region are used by research institutions and other recognised organisations.
- Management decisions are based on an expanding knowledge base.
- Long-term research projects highlight how national parks can be used in a way that benefits people and the environment.

### Guidelines and actions

- Establish a formal process of suggesting and reviewing research proposals and priorities through consultation with appropriate research bodies.
- Ensure communication occurs between university delegates and staff at all levels of the Department.
- Establish a scientific research base on the park. The provision and maintenance of suitable infrastructure are likely to attract continuing research to the park.

- Make available and protect research and scientific sites within the park.
- Prepare an inventory of existing sites and projects, including an assessment of their values for continued scientific use.
- Where practicable, support continuing research projects in the day-to-day management of the park.
- Update the Ramsar Information Sheet (RIS) for Currawinya Lakes (Currawinya National Park) Ramsar site with findings from research.
- Monitor for any changes in the ecological character of the site. If any changes are detected, inform Environment Australia and take appropriate management actions to reduce or reverse any negative impacts.
- Investigate and establish new projects and research sites if, and where, they meet the requirements and/or needs of management.
- Where appropriate, use Currawinya National Park as a component of broad-scale research into the long-term sustainable use and rehabilitation of the mulga lands.
- Incorporate monitoring and/or research site data in a geographic information system (GIS) for the park.
- Ensure that researchers and relevant organisations submit findings and reports to park, District and Regional Offices.
- Communicate research outcomes to the local community and other user groups, through extension and interpretation activities and programs.
- Encourage interest groups to continue visiting the park for educational purposes.
- Encourage park staff and researchers to continue active involvement with, and support for, the local community.
- Ensure that research has no detrimental long-term effects on the environment of the park.
- Encourage and support the involvement of park staff in all research projects.
- Research bodies consider the appropriateness of an area's zone classification before recommending research projects.

## 3.2 Management of cultural resources

### Aboriginal interests

#### Background

All Aboriginal sites are protected under the provisions of the *Nature Conservation Act 1992*, the *Cultural Records (Landscapes Queensland and Queensland Estate) Act 1987*, the *Queensland Heritage Act 1992* and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.

Much physical evidence of Aboriginal occupation remains on Currawinya National Park today, and knowledge of specific sites of Aboriginal significance is continually increasing. Stone artefacts are used to interpret aspects of Aboriginal culture on the park. These materials have been sourced from informal collections provided to Currawinya National Park.

Consultation with Aboriginal groups who have historical and cultural associations with Currawinya has been an important aspect of the management planning process. Currawinya is traditionally an area of great significance to Aboriginal people. The Service has an obligation to manage Aboriginal cultural sites in accordance with relevant legislation and in a way which is consistent with the cultural values of the people, ensuring that their spiritual and social ties to the land are not compromised.

As Europeans settled the area, many Aboriginal families continued to work and live on the pastoral properties. Interpretation programs should stress not only that Aboriginal people have spiritual and cultural associations with the land but that they are also an important component in the history of the pastoral industry within the local area.

A study titled 'Archaeology and the Currawinya Lakes: Towards a Prehistory of Arid Lands of Southwest Queensland' has been completed by Richard Robins from the Queensland Museum. His study describes

the types of archaeological evidence/sites, where artefacts are found, the age of the evidence, why it is found where it is found, and its relationship to past and present environments.

A study of cultural heritage places in the Queensland section of the Murray-Darling Basin has been completed. The project aimed to:

- achieve a broad understanding of the region's cultural heritage resources and the nature of the activities which impact upon them;
- achieve a clear understanding of the various interest groups and identify their roles now and in the future; and
- identify any specific needs and deficiencies in the management strategy for cultural heritage of the region and propose appropriate strategies to overcome these deficiencies or meet the needs.

Possible future projects for the park include: a study of degradation of sites over time, ways to prevent natural deterioration of archaeological evidence within the park, ways of better dating sites, and attainment of more detailed site descriptions.

The complex network of roads and tracks crossing the park traverses many of the artefact scatters. Damage to these sites is particularly evident where vehicles drive around the edge of saltpans during wet conditions. Where damage to artefact scatters has already occurred, re-alignment of the roads is anticipated to cause further damage, and therefore is not necessary. An intensive surface study must now be undertaken before construction of any new developments on the park (e.g. roads and fences). Park staff conduct initial surveys, and these are followed up by Regional staff.

## Desired outcomes

- The interests of Aboriginal people are reflected through their involvement in the park's management.
- The integrity of Aboriginal sites and locations connected with Currawinya is protected and conserved.

## Guidelines and actions

- Develop partnerships with Aboriginal people regarding the cultural resource management of Currawinya National Park.
- Formalise the level and extent of Aboriginal input in the planning and management of Aboriginal cultural sites and places on the park.
- Identify specific concerns, interests and sites of cultural importance through consultation with appropriate groups, allowing for the privacy of spiritual associations with particular sites.
- Restrict the removal of, and monitor damage to, archaeological material on the park.
- Encourage non-Aboriginal people to develop an appreciation of Aboriginal cultural values, through appropriate interpretation and extension activities and programs.
- Encourage the traditional Aboriginal custodians and other researchers to conduct continuing research into the significance of Aboriginal cultural sites and locations within the park.
- Assess, with the active and constructive involvement of traditional custodians, the need to restrict access to sites of high cultural and archaeological significance.
- Improve access to cultural heritage information relating to the park by consolidating it in one place, preferably on the park.
- Develop, in conjunction with the traditional custodians and relevant archaeologists, a management strategy for the archaeological resources and sites within the park.

## Post-European heritage

### Background

Management of historic sites in Queensland is controlled primarily under the *Queensland Heritage Act 1992*. The *Nature Conservation Act 1992* provides for the protection of cultural resources in national parks and other protected areas. The Burra Charter provides detailed guidelines for the management of historic sites.

Vandalism, fire and natural attrition can threaten historic sites. Many sites and relics require assessment to ensure appropriate management, protection and maintenance prevent further degradation.

Many members of the local community have close links to the area and have first-hand knowledge of sites and relics on Currawinya National Park. This may prove valuable for management and interpretation.

Currawinya National Park provides a wealth of historical information which has considerable interpretive value in that it sets a historic context from which the present-day Currawinya has evolved. The activities of pastoralists and the conditions under which they and their families lived provide an interesting insight into the lifestyles and attitudes that existed in the years before Currawinya and Caiwarro became a national park.

Currawinya and Caiwarro have long histories as grazing leases, and some of the machinery and infrastructure still remain on the park. Much of the machinery and infrastructure associated with the farming and grazing activities of the former rural enterprises is worthy of preservation. A survey of the grazing and farm machinery and infrastructure has been completed for the park. The resultant report provides a summary of items for which information has been acquired, suggests priorities for preservation works and recommends future actions and funding requirements.

Most of the heritage items remaining on the park are large. Some of them are very old and have considerable interpretive value. Many of the smaller items have been removed from the property, or destroyed in the rubbish dumps.

The Caiwarro ruins are of particular heritage value. The Currawinya homestead and woolshed complex and their surrounds also have interpretive potential.

Many features of historical significance are not, as yet, interpreted on the park. The Public Contact Plan will identify these features and address this issue.

## Desired outcomes

- European cultural heritage sites and structures are conserved for future generations consistent with the principles established in the Burra Charter.

## Guidelines and actions

- Identify and protect sites and structures of heritage significance.
- Develop heritage management plans, in association with local historians, to determine the historic value of sites and structures and to establish detailed management requirements (including recreational and interpretive use).
- Any new structures in close proximity to historic sites will be sited and designed to ensure that they do not adversely affect heritage values.
- Remove introduced plant species associated with historic sites where they threaten historical features or visitor safety, or have the potential to spread. Recognise the historical significance of these species in interpretive displays.
- Identified heritage sites will be managed as required under the *Queensland Heritage Act 1992*, the *Nature Conservation Act 1992*, the *Heritage Building Protection Act 1990*, and the Burra Charter.
- Until management guidelines can be developed for the Caiwarro homestead complex, manage and present the area in a manner which will ensure material remains are maintained and visitor safety is ensured.
- Review the content and availability of information relating to non-Aboriginal cultural resources.
- Interpret cultural resources in a manner which will appropriately portray their unique heritage and discourage damage or disturbance.

## 3.3 Management of recreation and tourism

### Recreational opportunities and facilities

#### Background

Currawinya provides opportunities for nature-based, low-impact recreational activities which range from bushwalking and nature appreciation to vehicle-based sightseeing. The park enables visitors to experience the outback while providing both familiar and unique recreational challenges.

Management of Currawinya National Park will be closely aligned to constraints imposed by a number of practical considerations. These centre on an increasing number of park visitors and the need to balance a conservation ethic with public expectation for provision of recreational opportunities. Visitor numbers are predicted to continue increasing within the life of this draft management plan, thus intensifying the demand for facilities and services and, invariably, increasing impacts on the natural environment.

#### Visitation

Statistics provided by the Queensland Tourist and Travel Corporation (January 1996) showed that visitation to south-western Queensland is steadily increasing. This is reflected by the camping statistics obtained for Currawinya National Park: the total number of person nights has more than tripled since the park's gazettal (with 255 camper nights recorded in 1992 and 779 in 1996). This trend is likely to continue throughout the life of this draft management plan.

To date, groups of family and friends have been the most common visitors to the park, followed by special interest groups. Currawinya is slowly becoming a popular destination for educational groups in the region. The availability of the shearers' quarters complex for group accommodation is likely to have influenced this trend.

While the number of people visiting the park is increasing, the average stay per person has decreased, as has group size. An accurate estimate of day-trippers to the park has been difficult to reach as several major roads traverse the park.

Visitation to the park (and to south-western Queensland, in general) is closely related to seasons: most people visit in the cooler months of the year. A regional approach to marketing will need to be taken to ensure that Currawinya National Park complements, and does not compete with, recreational opportunities offered at other localities in the region.

With a steadily increasing visitation rate, it is inevitable that impacts on the park environment will also increase. Often these impacts occur slowly and are not obvious to park managers. For this reason, appropriate levels of use required to maintain desired recreational opportunities and settings need to be established in the near future. The zoning scheme, which has been developed for the park, will assist this process.

#### Zoning

The zoning scheme for Currawinya National Park is designed to reflect the broad management objectives of protection and conservation while allowing presentation of the park's resources to visitors. When completed, the zoning scheme will dictate the level of access available and the range of recreational pursuits possible within individual park zones.

#### Walking tracks

At present, there are no major walking tracks within Currawinya National Park. The standard of walking track (unmarked trail, graded walking track etc.) will reflect zoning classifications. It is envisaged that tracks will offer challenges to people in a broad range of fitness levels.

## *Water activities*

Regulatory notices will be used to specify the range of water activities prohibited in various locations on Currawinya National Park. Zoning of Lake Numalla, and other relevant waterbodies, will ensure that competing interests are separated.

Motorised boating will not be permitted on the lakes, except for management purposes and during authorised emergency operations. Powerboating disturbs wildlife, displaces sediments, increases wave action on banks, pollutes water sources and detracts from the aesthetic enjoyment of natural settings.

## *Fires and cooking facilities*

No barbecues (wood or electric) are provided to the general public at Currawinya National Park. The woolshed complex has a wood barbecue for use by those accommodated in the shearers' quarters. Open wood fires, or gas fires, are currently used by park visitors in camping grounds. It is envisaged that gas barbecues will be installed on a needs basis, as funding permits.

The use of gas fires for cooking purposes will be promoted on Currawinya National Park. Wood fires will only be permitted for communal cooking and campfire experiences in the Recreation Zones located within the park. During times of high fire danger, fire ban restrictions may be imposed over the entire park.

## *Commercial tourist operators*

Currently eight tour operators are able to conduct commercial tours on the park. Tour operators have the potential to provide opportunities for people who would otherwise be unable to visit the park to appreciate and learn about park values. In addition to providing high quality visitor experiences, well-trained and properly informed tour operators have the potential to promote a conservation ethic.

## *Facility developments*

Currawinya's hot, dry environmental conditions and the susceptibility of large areas to flooding make development difficult. Self-sufficient camping is provided at two main camping areas within the national park — Ten Mile Bore and Caiwarro. Both camping areas are located close to water sources and there is concern that, with increased use, the waterbodies will become polluted. More formal accommodation can be obtained in the nearby townships of Hungerford, Thargomindah and Eulo.

Camping is not permitted at the lakes because:

- the area was previously very degraded and is still recovering;
- the lake edges are fragile and would be easily scarred through camping activities — camping activities can detract from the ecological and aesthetic values of the area; and
- the lakes are important waterbird breeding areas — camping activities can disturb breeding activities.

A pit toilet has been located at Ten Mile Bore for overnight campers and people travelling to the lakes. Groups being accommodated at the shearers' quarters have access to toilet, shower and cooking facilities. Facilities will be erected in other high-use locations if conservation considerations permit.

The suitability of particular areas for facility development will be determined in accordance with guidelines set out in the zoning scheme. Monitoring for environmental impacts will be undertaken before facility development and, where necessary, alternative sites and options will be investigated.

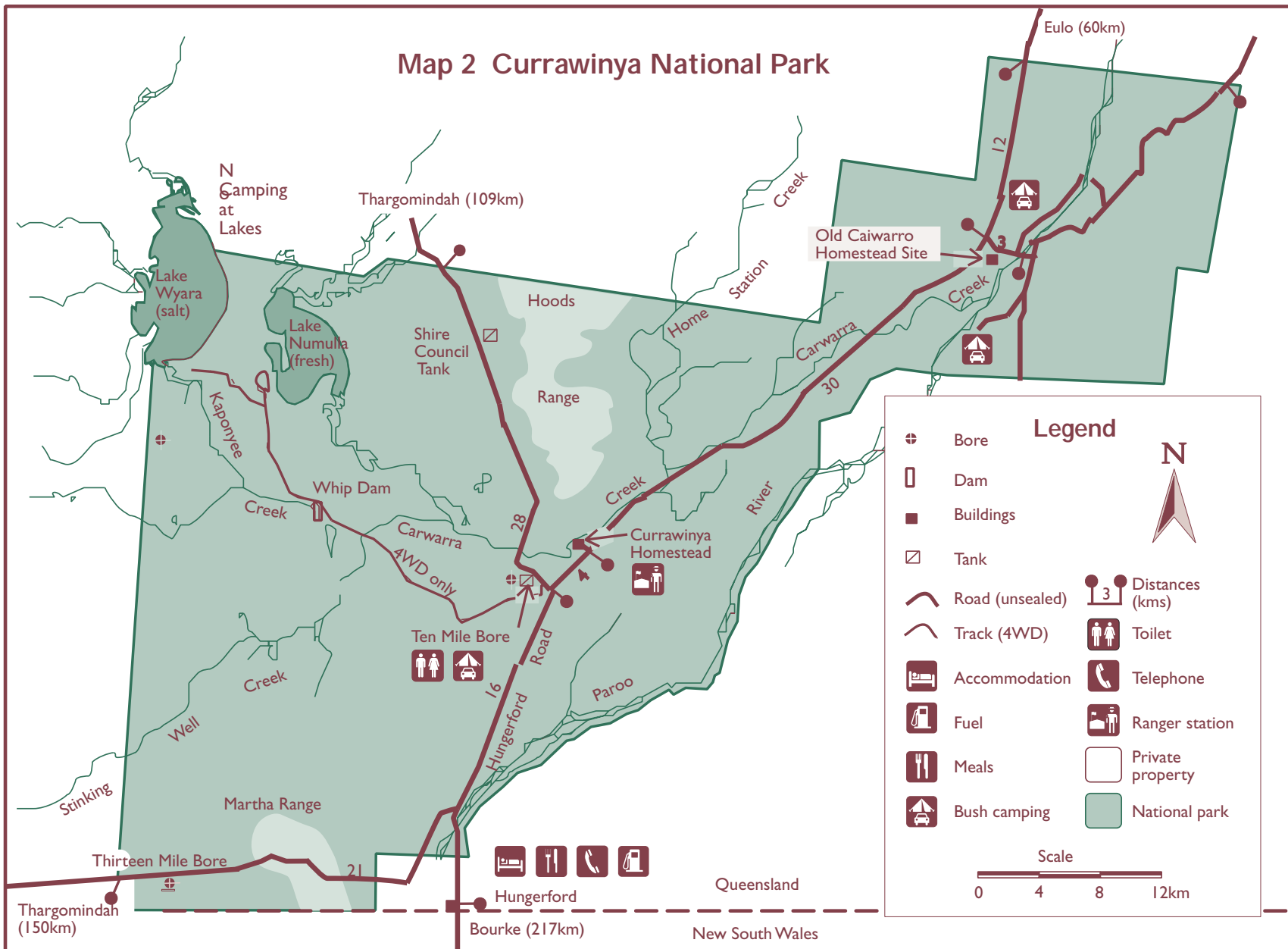
## *Visitor access*

*To the national park:*

Four major access roads, all through-roads, lead to the national park (see Map 2). Several other gazetted roads abut, or are close to, the park boundary.



## Map 2 Currawinya National Park



Local residents have expressed concern about the increased use of the roads in the local area. It is anticipated that, as use increases, there will be a greater demand to maintain existing roads, and that local residents' day-to-day use of these roads may be affected as a result. For example, if roads deteriorate during wet conditions, the transport of stock along those roads may be very difficult even after the roads dry out.

#### *Within the national park:*

Due to the park's large size, access within the park is primarily by vehicle (with short walks to park attractions from carparks). Four-wheel-drive or high clearance vehicles are recommended as driving conditions can change rapidly following rainfall events. Two-wheel-drive vehicles are also at risk of becoming dry bogged in the park's sandy areas during dry weather.

Opportunities exist for park visitors to hike throughout the park. However, environmental conditions influence the ability of park users to undertake this type of activity, particularly during the hot, dry seasons of the year.

Directional signage is being upgraded. With increased use, and for the safety of visitors, adequate information about various localities and clear directional signage will be needed.

The park experiences an arid climate characterised by low, variable rainfall, hot summers and mild to cold winters. Summer days are typically extremely hot and winter nights are extremely cold. Humidity is low and evaporation is high throughout the year. Visitation to the park is therefore seasonally variable, with the majority of park users visiting during the winter months when the climatic conditions are not as hazardous. Interpretive material warns visitors of the temperature extremes and advises on safety precautions to be taken while visiting the park.

Driving conditions can change markedly following rain and/or flooding. Areas can become isolated and extremely slippery and boggy. The general nature of the landscape and soils makes the park suitable for four-wheel-drive (4WD) or high-clearance vehicles. Interpretive material recommends the use of 4WDs in the park.

Surface waters in the park are unfit for drinking for a variety of reasons, including high salinity levels and feral animal contamination. Feral animals can cause fouling and ecological damage to waterholes (and contribute to compaction of the soils surrounding these waterbodies), and spread disease.

## **Desired outcomes**

- The park provides a range of recreational activities which highlight its special character and which complement other local and regional opportunities.
- Recreational access and facilities on the national park complement the natural setting and do not compromise natural and cultural values.

## **Guidelines and actions**

- Monitor recreational opportunities and experiences by annually surveying visitor numbers, reasons for visiting, location, use of recreation facilities and visitor attitudes.
- Encourage cooperative regional promotion of a wider range of available recreational opportunities, so the park is not serving needs which could be met elsewhere in the local area or region.
- Develop cooperative liaison with:
  - user groups to monitor attitudes to recreational experiences and expectations;
  - ensure that the park is promoted in a manner appropriate with the level of services and facilities provided; and
  - park neighbours and local communities regarding access to and promotion and use of park areas.
- Ensure pre-visit information makes visitors aware of:
  - appropriate nature-based activities that are permitted on the park;

- regulations regarding domestic animals and fires;
- safety issues relating to western environments; and
- low impact camping methods and practices in preventing the spread of weeds.
- Prohibit recreational powerboating and waterskiing on the lakes. Authorised personnel can only use outboard motor craft during monitoring and/or safety training exercises. Otherwise, limit water craft to non-motorised boating (e.g. canoes, kayaking).
- Manage recreational use (including visitation levels, activities and facilities) in accordance with the zoning scheme. Use seasonal closures when and where necessary.
- Influence visitor activities through promotion of certain areas, in an attempt to decentralise impacts.
- Monitor recreational impacts using photo-monitoring points at suitable sites (e.g. in carparks, at campgrounds, at recreational nodes and along tracks) to measure impacts including erosion, trampling and littering.
- Close areas for rehabilitation where damage to the sites and surrounding vegetation communities occurs.
- Assess the location and design of camping and toilet facilities, in accordance with the zoning scheme.
- Provide only day-use facilities at Lakes Wyara and Numalla. Signage will be used to highlight the ban on camping at the lakes.
- Erect self-registration stands at appropriate locations within the park.
- Guide public access to the park through use of signage and information along the four major access roads.
- Visitor orientation within the park will be provided by signs placed along internal roads and tracks.
- Minimise built facilities to keep with the park's remote nature, thereby reducing ecological and visual impacts on the natural environment.
- Encourage visitors to inform park staff of their movements while staying on the park.
- Ensure tour operators have correct information on the park's natural environment and cultural heritage significance.
- Monitor the need for training of tour operators or guides and implement training workshops accordingly to minimise the physical impact and maximise interpretive potential.
- Control the number of commercial operators, and specify the maximum size of groups, in accordance with the zoning scheme.
- Promote minimal impact and safe walking, driving and camping practices in public brochures.
- Consult, where appropriate, special interest groups where management and recreational activities conflict.
- Examine future prospects for the woolshed complex.

## Education and interpretation

### Background

The primary goal of public education and awareness in national parks is to develop within the visitor an understanding and appreciation of nature. Community support is vital to meeting this goal, and can be gained through the provision of quality visitor experiences.

A number of management options are available to managers, including site hardening, the control of numbers and types of visitors, and interpretation and education (McArthur 1994). Interpretive signs and programs are the most commonly used, and most effective, way of providing high-quality experiences which satisfy visitor expectations, motivations and needs. If used effectively, they can modify and influence visitors' behaviour to ensure that the area's conservation values are maintained.

The presentation of facts and figures is used as a general principle of interpretation (McArthur 1994). Through the use of concepts, themes and messages, managers can broaden visitors' horizons, enabling visitors to better understand their place in the total environment (McArthur and Hall 1993). Improved understanding results in a level of responsibility and ownership, to the benefit of the environment. Local community input is important in the development of an education and interpretation program.

For education programs to be effective, interpretive signs and activities cannot operate alone. Other dimensions of visitor management, such as marketing, monitoring and evaluation, need to be integrated as part of a strategic planning approach.

Currawinya National Park's natural and cultural history offers many interpretive and educational opportunities. This is evident in the popularity of the park among educational organisations. School groups, university students, birdwatching groups and numerous other education-related users frequently visit the park to obtain both formal and informal educational experiences.

With higher standards of education and an increased level of environmental concern, the general public is now better informed and more discriminating than in the past. The nature of the interpretive materials provided, the level of detail and the quality of information will need to reflect this.

Despite the significant number of special-interest groups visiting Currawinya, their contact with park staff and access to educational material relevant to the park requires some improvement. Currently, direct contact with these groups occurs only on request (generally for those groups staying at the woolshed), or on an incidental basis. While interpretive brochures for the park are being developed, a limited range of information is available to visitors. General information about the park's natural values is presently available to visitors, and species lists are currently being printed, but information about the area's cultural history is lacking.

Staff based on the park coordinate most management and visitor activities. However, the Charleville Office also receives enquiries about Currawinya and other national parks within the District. Visitor Information Sheets can be obtained before or during a visit. These brochures:

- help people decide when and how to visit Currawinya National Park;
- establish appropriate visitor expectations;
- identify recreational and educational opportunities in the park;
- identify relevant regulations, and safety hazards, likely to affect visitor activities; and
- encourage appropriate visitor behaviour.

Signage needs are constantly being monitored. The original homestead sign ('Currawinya') is currently used to indicate the location of the park office and information centre, thus confusing many park users. In addition, as this is a relatively new park, interpretive signs have not yet been developed in areas of high visitation. The Public Contact Plan for Currawinya has determined optional sites for on-site interpretive material with the signage requirements considering the flow patterns of visitors. General directional maps and interpretive displays will be constructed at the park's northern and southern entrances. Static displays will be used until there is a need for personal contact. One such example of this is the information shelter recently constructed at the Ten Mile Bore camping area in the centre of the park.

To promote better understanding and to resolve potential conflicts or deleterious uses, liaison between park managers, park neighbours, user groups and the general public is essential. Extension programs seek to involve and inform not only park visitors but also the local community about the intrinsic worth of the park environment and the wider natural environment. By ensuring that the public is aware of and, where possible, involved in important issues relating to park management, the park's public image will be improved.

A Public Contact Plan has been produced for Currawinya. It identifies target audiences (on-park and off-park), key messages and appropriate communication strategies for these audiences, interpretive themes based on the park's unique and significant natural and cultural values, and the requirements of educational groups. It develops interpretive concepts, themes and key messages for use in the interpretive program. It also reviews existing signage in order to:

- provide adequate and clear directional signage;
- advise of hazards; and
- regulate visitor use and behaviour in a manner consistent with the sustainable use of the area.

## Desired outcomes

- Visitors understand, enjoy and behave responsibly towards the park's natural and cultural values.
- Minimal impact practices are promoted and accepted by private visitors and commercial operators.
- The community supports the implementation of expressed management purposes and actions.
- Community nature conservation ideals and programs are promoted.

## Guidelines and actions

- Provide pre-visit and on-park information to visitors so they have an awareness of park values, appropriate nature-based recreational expectations and knowledge to plan their trip.
- Improve directional, interpretational and risk management signs, and ensure that proposed interpretive facilities and services enhance the park's management.
- Implement recommendations outlined in the Public Contact Plan, in accordance with the zoning scheme.
- Establish cooperative relationships with the traditional custodians of the area and encourage and implement the appropriate interpretation of their culture as desired by the Aboriginal community.
- Integrate the major interpretive values of the park into material designed for the larger inland tourist route (NSW–SA–Qld — Western Parks).
- Produce brochures and signs explaining the negative effects of inappropriate visitor behaviour, place management interpretive signs at problem areas and increase Ranger patrols during the tourist season.
- Liaise with tourism boards, other media organisations and local businesses, to ensure promotion of an appropriate park image to the general public.
- Develop a strategic plan to ensure fair and equitable use of the woolshed complex by educational groups.
- Encourage curriculum-based school excursions which are well planned and organised and demonstrate the need to use the park environment.
- Provide training opportunities and assistance for tour operators to ensure interpretive material given reflects management goals and Service ideals.
- Review the content and availability of information provided by the Service and other sources. This process will involve coordination between Regional interpretive staff and local staff.
- Where possible, increase opportunities for the public to have contact with Ranger staff.

## Safety

### Background

Under the *Workplace Health and Safety Act 1995*, and under common law, the Service has an obligation to workers and others to provide a safe environment for all persons entering the park. Consequently, managers must ensure, as far as practicable, that built and naturally occurring hazards are identified and their associated risks minimised.

Management must consider what measures can and should reasonably be taken to try to prevent harm occurring. This obligation cannot be discharged merely by discouraging or prohibiting certain access and activities.

The Department's Risk Management Policy sets out procedures for the identification and assessment of hazards and identifies appropriate control measures to be taken. It is not possible to guarantee visitor safety in an outdoor recreation setting — there will always be an element of risk. However, risk management provides a uniform approach and helps ensure that risks to visitors (and park employees) are identified and minimised.

Visitor safety considerations in the park relate to hazards presented by the natural environment (e.g. hot, dry climatic conditions) and those presented by previous pastoral activities (e.g. the use of certain residual chemicals, such as DDT, in sheepyards). Particular sites, such as the Granites and waterbodies, can present specific risks, such as falling or drowning.

Park staff are, at times, required to operate machinery and handle various items (e.g. asbestos and firearms) which present certain risks and require safety precautions to be taken.

Park staff are actively involved with several local emergency groups (e.g. Rural Fire Brigade and the State Emergency Service). Safety awareness is promoted on the park's Visitor Information Sheet and by park staff.

Grids on the Eulo–Hungerford road are numbered; however, the grids within the park boundary have been removed, thus eliminating useful landmarks for people travelling through the park. Options available to help both tourists and park staff pinpoint their locality, particularly in times of emergency, are currently being examined.

The Royal Flying Doctor Service (RFDS) provides primary health care in rural and remote areas of Australia. It is the main provider of aero-medical services throughout Queensland, and has been called to Currawinya National Park on numerous occasions to provide medical assistance. This service is vital to the health of park staff and visitors. For this reason, it is essential that all park staff know and understand the services provided by the RFDS (medical, aviation and radio). Currently, only one of the airstrips on the park complies with RFDS standards. Additional requirements are being investigated.

Due to the rotational roster system used, park staff are often required to undertake park activities (e.g. enforcement duties and plant and machinery operation) alone. The associated safety risks compromise the provisions of the *Workplace Health and Safety Act 1995*.

## Desired outcomes

- Visitors ensure their own and other visitors' safety.
- Injuries associated with recreation activities are limited to unforeseeable accidents, intentional risk-taking or voluntary acceptance of risk by individuals or groups.

## Guidelines and actions

- As far as possible, maintain all structures in a safe condition through regular park inspections as part of the regional risk management program. Erect signs and/or fencing at dangerous sites.
- Minimise the probability of visitor injuries and assaults through:
  - signs including warning signs where necessary;
  - safety messages in all brochures and displays;
  - verbal messages during face-to-face contact with Ranger staff;
  - law enforcement; and
  - contact with tour guides etc.
- For dangerous park-wide conditions (e.g. fire ban periods), provide information at the park entrances and in other key locations to inform visitors of the danger, the possible consequences and safe behaviour to adopt.
- Establish, in conjunction with Police, State Emergency Service, Queensland Fire Services, rural fire brigades and park neighbours, the procedures required for the enactment of emergency operations including search and rescue, evacuation in case of fire, and protocols for the treatment and hospitalisation of staff and visitors.
- Maintain comprehensive records of staff and visitor injuries and search and rescue events.
- To reduce the need for emergency actions, encourage visitors to inform park staff of planned overnight hiking activities.
- Retain the park in an undeveloped manner, as far as possible, without compromising safety.
- Maintain work practices and work and storage areas in accordance with Australian Safety Standards.
- Ensure staff adhere to Workplace Health and Safety policies in the course of park operational duties.
- Induct all staff, including volunteers and researchers, into the workplace and supply them with relevant training to enable them to carry out their duties in a safe manner. Provide them with all necessary equipment to conduct operations in a safe manner.
- Undertake an assessment of the park's airstrips to ascertain if the standards and locations of these

- facilities are adequate for estimated future demands.
- Examine alternative practices to address safety issues relating to park staff working alone in remote areas.

## 3.4 Park administration and management

### Infrastructure and administration

#### Background

Conflicts in management will almost certainly arise within any protected area. Park management revolves around satisfying a number of purposes and vested interest groups. The draft management plan aims to minimise conflicts arising from the main purposes of management — maintaining the natural and cultural values and providing recreational opportunities.

This section of the draft management plan tries to deal with issues relating to the provision of essential and desired infrastructure on the park and administrative requirements needed for the park's efficient and effective operation. Where possible, the draft management plan takes into consideration the needs of park visitors, park residents and park neighbours.

Resident and visitor demands for services and infrastructure relate to access (e.g. roads and airstrips) and utilities such as water supply, electricity, solid waste disposal and sewage disposal. Park neighbours are often affected by park operations and are therefore concerned with issues such as fencing, water supply, access and the management and control of plants and animals.

#### *Staffing*

Adequate levels of park staffing are vital for maintaining the park and ensuring that operational objectives are carried out in a timely and efficient manner.

The three staff currently permanently employed on the park work on a rotational roster system. Park staff are adequately managing the park at the present levels of visitor use. Park staff are assisted and supervised by a District Manager and District Ranger based in the Charleville Office. Specialist positions are also based in the Charleville and Toowoomba offices to provide specific advice and expertise, when required, in relation to natural resource monitoring and management.

To ensure the efficient running and operation of the park, the provision of sufficient housing and work facilities is also important. The housing offered to all staff at Currawinya does not meet Departmental standards. The health and safety implications of this have been acknowledged by Regional staff and a new ranger residence is currently being built at Caiwarro to help alleviate the problem and improve park-wide management activities.

#### *Infrastructure management*

Park infrastructure is often constructed and maintained by park staff who may not be the best qualified and have little time to do the work effectively. The use of qualified contractors often provides a better-quality result, is more efficient and can provide indemnities in the event of accidents due to equipment or structure failure. The remoteness of the park does at times call into question the economic viability of this option.

Maintenance programs are, at present, not well planned and tend to be reactive in nature, with items repaired or replaced as the need becomes apparent.

Internal fencelines are being removed progressively. Fences which have historical value, or which will assist in the management of feral and domestic stock, are being retained.

A section of the Moombidary Road, in the vicinity of Martha Range, does not lie within the bounds of the gazetted road reserve. This has public liability implications.

### ***Community liaison***

Currawinya National Park has and will continue to have a close association with park neighbours, including residents of the township of Hungerford. Major issues of concern include impacts from exotic plant species, feral animals, domestic animals and stock, as well as water supplies and informal access routes into the park. The Good Neighbour Policy recognises the importance of cooperative land management practices, as does this draft plan of management.

A UHF repeater has been placed near the Telecom Tower on Hoods Range. The tower was jointly funded by a number of organisations to assist with emergency services and law enforcement activities in the local area. Local landholders will also be able to derive benefit from the tower's construction.

### **Desired outcomes**

- Staff and resources assigned to Currawinya National Park enable the draft park management plan to be implemented.
- Neighbouring landholders and the local community are aware of and supportive of the park management aims and activities.
- Infrastructure provided for park users, park residents and park neighbours is suitable and is being maintained.

### **Guidelines and actions**

- Manage Currawinya National Park in accordance with the guidelines contained in this draft management plan. The plan is expected to remain in force for the next 5–7 years; however, management guidelines may be reviewed and amendments made at any time.
- Draw up a staff schedule to implement the draft management plan, considering the cost, timing, resources and number of staff and/or specialist expertise required. Review, on a yearly basis, the progress of objectives being satisfied and strategies being implemented.
- Review staff accommodation needs and, where necessary, upgrade and/or relocate buildings.
- Assess the option of employing a seasonal ranger to assist with administrative and public contact duties during periods of high visitation.
- Maintain a database or management system which will ensure that:
  - planning information is available in a practical form to facilitate integrated decision making;
  - research information is used;
  - gaps in information required for planning and management can be accurately identified; and
  - staff remain informed about the park's issues and values.
- Ensure, through the use of the Department's site planning manual, that all developments blend with the park's natural amenity.
- Identify staff training needs to ensure that at least basic maintenance of equipment and infrastructure can be carried out by park staff.
- Re-gazette that section of the Moombidary Road outside the gazetted road reserve, as appropriate.
- Produce leaflets outlining current and proposed management, and interpretive and research activities for the park on a quarterly basis, and distribute such publications to park neighbours.
- Park staff will maintain informal and, where necessary, formal liaison with adjoining landholders so that two-way communication is achieved.
- Assess infrastructure and prioritise restoration needs. Where appropriate, infrastructure with no feasible future use will be sold by public auction or tender.
- The construction and/or removal of infrastructure such as internal fencelines and roads will take into account catchment protection issues such as erosion and siltation.



## Resource harvesting

### Background

#### *Grazing*

Grazing on a national park contravenes the provisions of the *Nature Conservation Act 1992*.

Before its gazettal as a national park, Currawinya's stocking rates were quite high, at around 31 000 sheep (approximately equivalent to 1 sheep to 5 hectares). Stock were removed from the park in 1991. However, due to the poor standard of some boundary fences, stock from neighbouring land occasionally stray onto the park. Their presence is often highlighted through direct observation and comments from park users.

The estimated cost of complete fencing of the park to a stock-proof standard is \$290,000. Boundary fences are, therefore, being constructed progressively, as funding permits. The Department's Good Neighbour Policy states that fencing costs are shared between the parties, to promote mutually beneficial relationships.

Fencing of the legal boundary location is impractical in certain places, due to the ruggedness of the terrain or the frequency of inundation from water sources. Agreement on the location of the fence is made locally with affected landholders. Where possible, 'give and take' boundaries are surveyed and re-gazetted.

Mustering of stock for removal from the park is to occur in accordance with the provisions of the *Nature Conservation Act 1992*. Adequate notice must be given by the party starting the action and satisfactory arrangements about place, time, method and disposal must be reached. Both parties should be in attendance. A stock mustering permit must be obtained before the muster takes place.

The stock routes which traverse the park are 60 metres wide (equivalent to the width of the road reserves). This width is likely to be impractical for the travelling of stock through the park. If travelling stock permits are issued by QPWS to allow access to the former stock routes on the park, the successful applicant will be eligible to utilise the full 1.6km wide route.

#### *Water extraction*

Water is fundamental to the survival of all forms of life. It is the basic requirement for all plant and animal communities. A clean water supply is also essential for a variety of human-related activities ranging from human consumption, household requirements for staff, firefighting, cleaning and swimming to sewage treatment.

Water can be obtained from surface water supplies and underground water tables. Underground water is often a valuable source of clean potable water and can be more reliable than surface supplies during extended periods of drought.

Surface water on the park is abundant following rainfall, but these water sources are not reliable for extended periods. Only a few of the larger lakes, and sections of the Paroo River, retain water during extended dry periods. Consequently, a bore network was developed on Currawinya while it was operating as a pastoral property, for grazing and domestic purposes. A number of dams were also located throughout the park, for stock watering purposes. Park residents use rainwater for consumption purposes and underground water supplies for general household use.

Visitors camping at Ten Mile Bore can currently obtain water from a bore tap. The health implications associated with the provision of water to the public and the ecological sustainability of the water supply during severe drought conditions are, however, questionable. Interpretive material describes the water as being unsuitable for drinking and recommends that visitors bring their own drinking water.

It is envisaged that all flowing bores on the park will gradually be capped and tapped, if economically feasible or achievable, allowing for future use (e.g. during firefighting operations). This is likely to be a long-term project which will be monitored to ascertain its impact on the park's native plants and animals. The Department of Natural Resources will be responsible for overseeing any bore capping when funding and resources are available to Currawinya National Park for this project.

It has been hypothesised that the use of bores has had an impact on the mound springs within the park. Most of the mound springs are now inactive or not noticeably active. A long-term research project should be conducted to determine whether or not the bore-capping scheme revitalises the supply of water to these mound springs.

### ***Road material extraction***

Materials suitable for maintaining roads in the local area were extracted from Currawinya for many years. The removal of natural and cultural resources from a national park does, however, contravene the provisions of the *Nature Conservation Act 1992*. Consequently, the extraction of gravel and shale from the park has been prohibited.

A number of roads within the local area provide access to, and through, Currawinya National Park. These roads are the responsibility of either Queensland Transport or the relevant local shire councils. Internal access roads are the responsibility of the Department. Because the park's gravel and shale resources can no longer be used for the maintenance of these roads, alternatives are currently being examined by the Queensland Parks and Wildlife Service, the local authorities and the Department of Main Roads.

Obtaining road materials from outside the park increases the haul distance, thus substantially increasing the cost of maintenance. The use of gravel and shale sources within the park appears to be the only economically feasible option. However, this alternative will require de-gazettal of a section of the national park and the re-gazettal of the area as either a Resource Reserve (under the *Nature Conservation Act 1992*) or a Reserve for Public Purposes (under the *Land Act 1962*). Any changes to the tenure of the land currently identified as National Park should not lead to an alteration in the Ramsar boundary. Extractive activities may still therefore – depending on the scale and impact – be a “controlled action” under the Environmental Protection and Biodiversity Conservation Act 1999.

A number of potential sites for use as road material extraction sites have been identified. Their suitability and feasibility are currently being investigated. Management of these reserves will need to be carefully considered, given the public's perception of their being within a national park. The development of an Operational and End Use Plan has been proposed to ensure that this issue is dealt with in an environmentally sensitive manner. Negotiations will continue between park management and the local shire to ensure that the best management decision about the possible development of resource reserves is reached. This decision will take into account the environmental sustainability of possible gravel extraction as well as the needs of the local communities and shires.

### ***Recreational fishing***

Fishing is permitted in those national parks listed in Schedule 2 of the *Nature Conservation Regulation 1994*. Currawinya National Park is included in the schedule.

A number of restrictions will apply to fishing within national parks:

- only live bait caught adjacent to the park can be brought onto the park;
- fishers will be required to adhere to the *Fisheries Act 1994* and the *Fisheries Regulation 1995* and the *Fisheries Freshwater Management Plan 1999*; and
- fishers must abide by the *QPWS-SUNFISH Code of Conduct for Fishing on Protected Areas* which is available at QPWS offices.

Fishing within national parks will be monitored to identify and address any possible detrimental impacts.

Fish reserves in the park vary dramatically. Waterbodies are generally shallow, with a few deep pools. The Corni Paroo waterhole and other locations along the Paroo River are the most popular fishing spots within the park. All areas of Currawinya National Park are open to recreational fishing, however this activity may be regulated in response to changing environmental conditions.

Anecdotal evidence suggests that European carp are outcompeting native fish populations within the park. This has become extremely evident at Lake Numalla. There appears to be a lot of concern from local interest groups in this regard. Control measures are currently being examined.

The Murray Darling Basin Commission has recently funded a research project, titled 'Drought Impacts and Recovery of Wetlands and Fish Habitat, Upper Darling'. Fifteen sites have been chosen, including the Corni Paroo waterhole and Lake Numalla. Initial research has shown that there is a general lack of fish recruitment at these locations and that the species present are flood-induced spawners.

An endemic strain of the yellowbelly *Maquaria ambigua ambigua*, is found in the Corni Paroo waterhole in the park. Little is known about the status of and/or threats to this species. Additionally, the current distribution and abundance of silver perch is poorly understood for much of the Murray Darling Basin. Only a few sites have been identified in recent years where the species is relatively abundant. Given the species' significant decline, the protection of key populations should be given priority as they represent an important resource for the future. If populations in the Park are abundant it is likely they will be regionally significant.

## Desired outcomes

- Park boundary fences are in a stock-proof condition.
- Sources of underground and surface water have been assessed and are being used appropriately.
- Gravel extraction activities have little impact on the park's environmental, cultural and aesthetic values.
- Recreational fishing does not adversely impact on fish populations, invertebrates and riparian environments.

## Guidelines and actions

- Fencing of the park will continue to be a priority issue. Service staff will liaise with neighbouring landholders to determine appropriate fencing arrangements, and work will be performed as funding permits.
- Maintain boundary fences and sufficient yarding facilities to minimise the number of, and manage, stray stock entering the park.
- Create reasonable access along boundary fences.
- Remove all stock from the park in accordance with the conditions set out in the Good Neighbour Policy and the *Nature Conservation Act 1992*.
- Where necessary, issue travelling stock permits.
- Draw up formal agreements between the Service and the affected landholder, concerning the supply of fencing materials and the conduct of the work to be completed.
- Avoid any actions which have the potential to significantly pollute watertables.
- Assess windmills and prioritise their restoration needs. Those with no feasible future use will be sold by public auction or tender.
- Interpretive materials, park signs and advice from park staff will encourage park users to supply their own drinking water when visiting the park.
- Monitor water quality, for consumption and environmental purposes, through standardised procedures for collection, recording and analysing of data established by the Department of Natural Resources, Queensland Parks and Wildlife Service and Department of Primary Industries.
- Progressively regulate underground water supplies (as recommended by the Department of Natural Resources) and, where possible, use such facilities during park management activities such as firefighting and road construction.
- Undertake research into the impacts that the control of water sources will have on native and introduced plant and animal species.

- Investigate alternatives to the extraction of road materials from within the national park, and make formal arrangements with local authorities, within the life of this draft management plan.
- Departmental staff will provide input to State and local government authorities to ensure sensitive siting and management of road material extraction points adjacent to the park.
- Rehabilitate existing extraction sites located within the park to an environmentally acceptable standard, in accordance with Operational and End Use Plans prepared by local government.
- Ensure recreational fishing conducted on the park is in accordance with the Code of Conduct and the Fisheries Regulations.
- Define areas within the park which are unable to be fished through the use of regulatory notices.
- Any action which has, will have, or is likely to have a significant impact on a matter of National Environmental Significance (e.g. Ramsar Wetland, listed threatened species and ecological communities, listed migratory species) should be referred to the Commonwealth Minister for the Environment and Heritage to determine whether the action is subject to the Environment Protection and Biodiversity Conservation Act 1999.
- Interpretive signage will outline the requirement, under the *Fisheries Act (Queensland) 1994*, of recreational fishers to destroy European carp when they catch them.
- Monitor recreational fishing activities to determine if they have adverse impacts on aquatic species (e.g. yellowbelly) and riparian environments.
- Undertake research into the population diversity and distribution of yellowbelly and silver perch (*Bidyanus bidyanus*) in national park waters.

## Zoning

### Background

Currawinya National Park contains a range of natural and cultural features. Some of these features are more sensitive than others and, therefore, require greater protection. Limiting access, site-hardening, research and careful monitoring are essential to conserve, and provide for the long-term use of, these areas.

Management zones have been developed for the park. Individual zones have been established based on fragility of the landscape, vulnerability of the native plants and animals, environmental qualities, resource impacts, recreational opportunities and existing patterns of use. The zones reflect the broad management objectives of protection and conservation of values and presentation of these values to visitors. They also serve to regulate activities and any development within specific areas so that visitor use does not conflict with protection of the park's natural and cultural values.

Four zones have been chosen for use on Currawinya National Park: Remote Natural Zone, Natural Zone, Natural Recreation Zone and Recreation Zone. These are described below. Table I provides a summary of zone criteria.

#### **Remote Natural Zone**

This zone can be accessed only by Departmental staff and authorised personnel. Maintenance of the natural and cultural values is the overriding priority of this zone. Natural processes will be allowed to operate with minimal human interference.

#### **Natural Zone**

This zone covers the major part of Currawinya National Park and has the dual purpose of providing an experience of remoteness for visitors and protection of the park's natural environment. To achieve this balance, public access will be by foot. Access by vehicles will be limited to Departmental staff and other authorised personnel (e.g. emergency services), and then only where no other option is feasible.

All visitors wishing to use the Natural Zone will be required to register their intentions with the park office, as a safety measure. The number of persons and length of stay may also be regulated in particular areas. Overnight camping by those who wish to backpack will normally be allowed in this zone, provided camping permits are obtained, fire regulations are observed, and minimal impact wilderness techniques are followed.

No visitor facilities will be provided. Trail markers may be used as an aid to visitor safety and environmental protection.

### ***Natural Recreation Zone***

The aim of this zone is to enable less experienced and active visitors to gain a safe and rewarding experience from the national park environment. The major activities envisaged are walking, nature appreciation and vehicle-based sightseeing.

Carparks within this zone will be designated, and overnight camping is permitted only at specified sites. As in the Natural Zone, fire regulations and restrictions must be observed.

Interpretive shelters may be located alongside tracks and at key attractions. Directional signs indicating destinations will also be located at popular tourist nodes. Tracks and key attractions will be monitored for degradation and interference and it may, therefore, be necessary to restrict use in some areas to allow rehabilitation or where there is a risk to public safety.

Ecological burning is permitted in all zones; however, as a safety measure, hazard reduction burns may be conducted in this zone.

### ***Recreation Zone***

Recreation Zones are areas within which specific sites will cater for the development of visitor facilities, and where recreational impacts will be concentrated. Joint priorities in this zone will be the maintenance of conservation values and allowing for the development of recreation facilities. Infrastructure and management will be appropriate to keep impacts to acceptable levels.

Major facilities such as campgrounds, quarters accommodation (for educational groups only), day-use areas, the park office, carparks, public amenities and staff accommodation will be provided as deemed appropriate.

A high degree of site information will be provided within this zone. Opportunities for education and interpretation of the area's values will be provided, and the responsible use of the area will be promoted.

Wood fires are permitted within this zone, for communal cooking and campfire experiences only. The use of fuel stoves for cooking will be actively encouraged as part of a park-wide strategy to promote minimum-impact recreational practices. Wood-gathering is not permitted within the national park.

See Map 3 for details of the proposed zoning scheme for Currawinya National Park.

**Table 1: Criteria used to establish zone categories for national parks in the Charleville District**

Zone characteristics	Remote Natural Zone	Natural Zone	Natural-Recreation Zone	Recreation Zone
Off-site interpretation	Yes	Yes	Yes	Yes
Natural and cultural resource management (e.g. ecological burning, weed/feral animal control, erosion control etc.)	Yes	Yes	Yes	Yes
Research/educational projects	Specified projects	Yes	Yes	Yes
Fuel stoves	Authorised personnel	Yes	Yes	Yes
Pedestrian access	Authorised personnel	Yes	Yes	Yes
Management presence	Minimal	Moderate	Moderate to high	Moderate to high
Camping	Authorised personnel	Bushcamping	Designated sites	Vehicle-based/campgrounds
Development of structures for Departmental purposes	Yes	Yes	Yes	Yes
Land-based vehicle access	Authorised personnel	Authorised personnel	Yes	Yes
Nature-based recreational opportunities		Yes	Yes	Yes Grade 1, 2 or 3
Walking tracks		Grade 4 or 5	Grade 2 or 3	Designated areas
Commercial operations		Specified areas and operators	Designated areas	High
On-site interpretation/interpretive signage		Minimal	Moderate	Yes

Zone characteristics	Remote Natural Zone	Natural Zone	Natural-Recreation Zone	Recreation Zone
Fuel-reduction burning			Yes	Yes
Development of structures for recreational purposes			Yes	Yes
Day-use areas			Yes	Yes
Carparks			Yes	Yes
Toilets			If needed	Yes
Interpretive shelters			If needed	Yes
Wood fires				Cooking and campfire experiences at designated campfire sites

Seasonal closures may apply to all zones.

Restricted access areas may be imposed within any of the zones.

Emergency situations and management strategies may override zone criteria and will be assessed on a case-by-case basis.

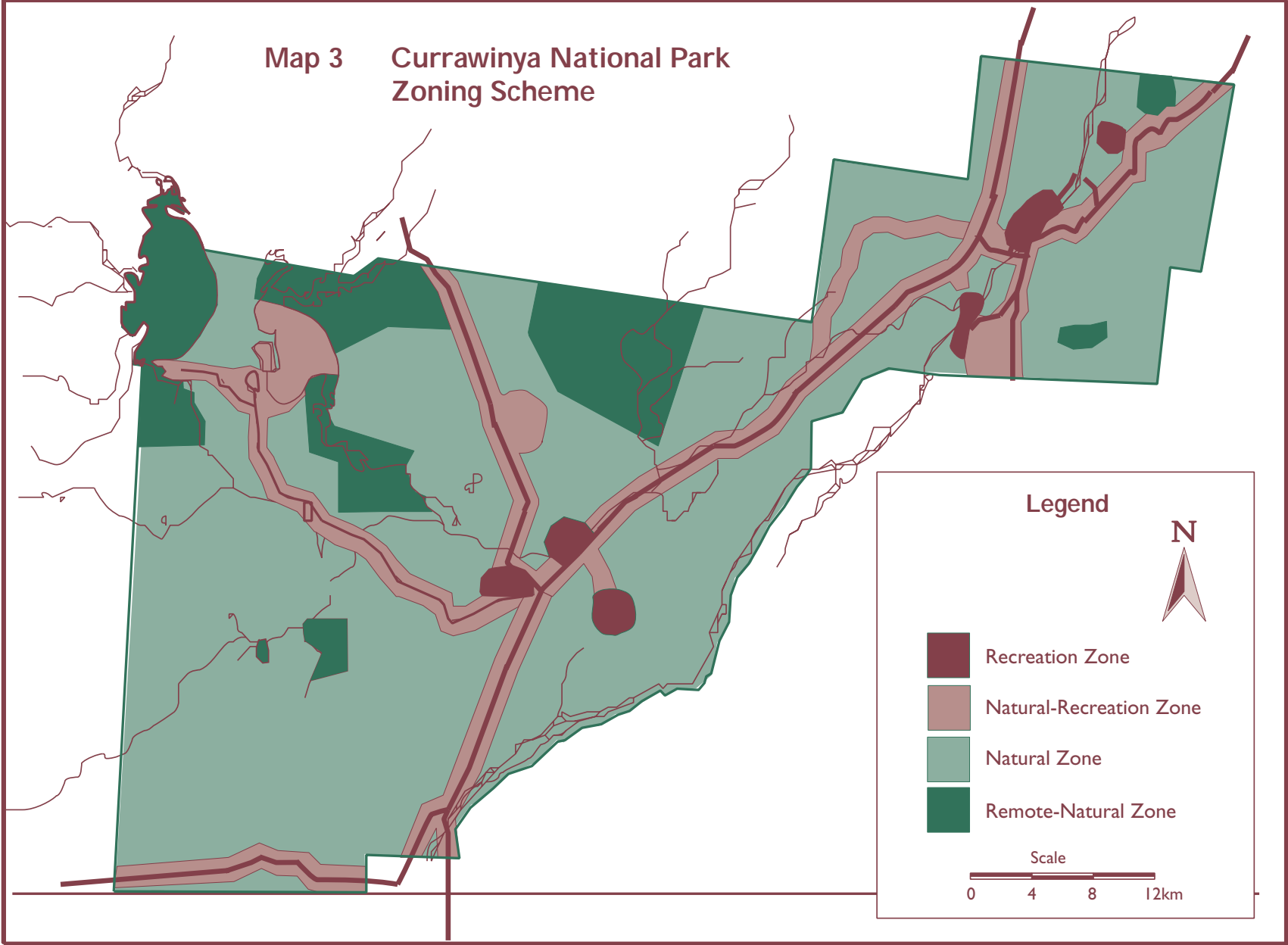
### Desired outcomes

- A range of nature-based recreational experiences is offered at Currawinya National Park.
- Management actions and recreational activities comply with zoning criteria.

### Guidelines and actions

- Provide visitors with a spectrum of available recreational experiences ranging from self-sufficient bushcamping to walking on graded tracks and camping at designated camping grounds. See Map 3 for details of the zoning scheme.
- Monitor the effectiveness of the zoning scheme over the life of this draft management plan.
- Use the zoning scheme as a tool to regulate or restrict public access and/or management activities where unacceptable adverse impacts are occurring.

Map 3 Currawinya National Park Zoning Scheme





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