

Maroochy River Conservation Park

Management plan



South East Queensland Biogeographic Region

November 1999



QUEENSLAND
PARKS AND
WILDLIFE
SERVICE

Summary

This management plan provides the framework and guidelines on how Maroochy River Conservation 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 July 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 Southern Regional Centre in Moggill, Brisbane, on (07) 3202 0200 during business hours.

This management plan was prepared by Queensland Parks and Wildlife Service staff. Thanks are due to those groups and individuals who made submissions in response to the draft plan.

Cover photograph: *Melaleuca quinquinervia* (paper-barked tea tree)

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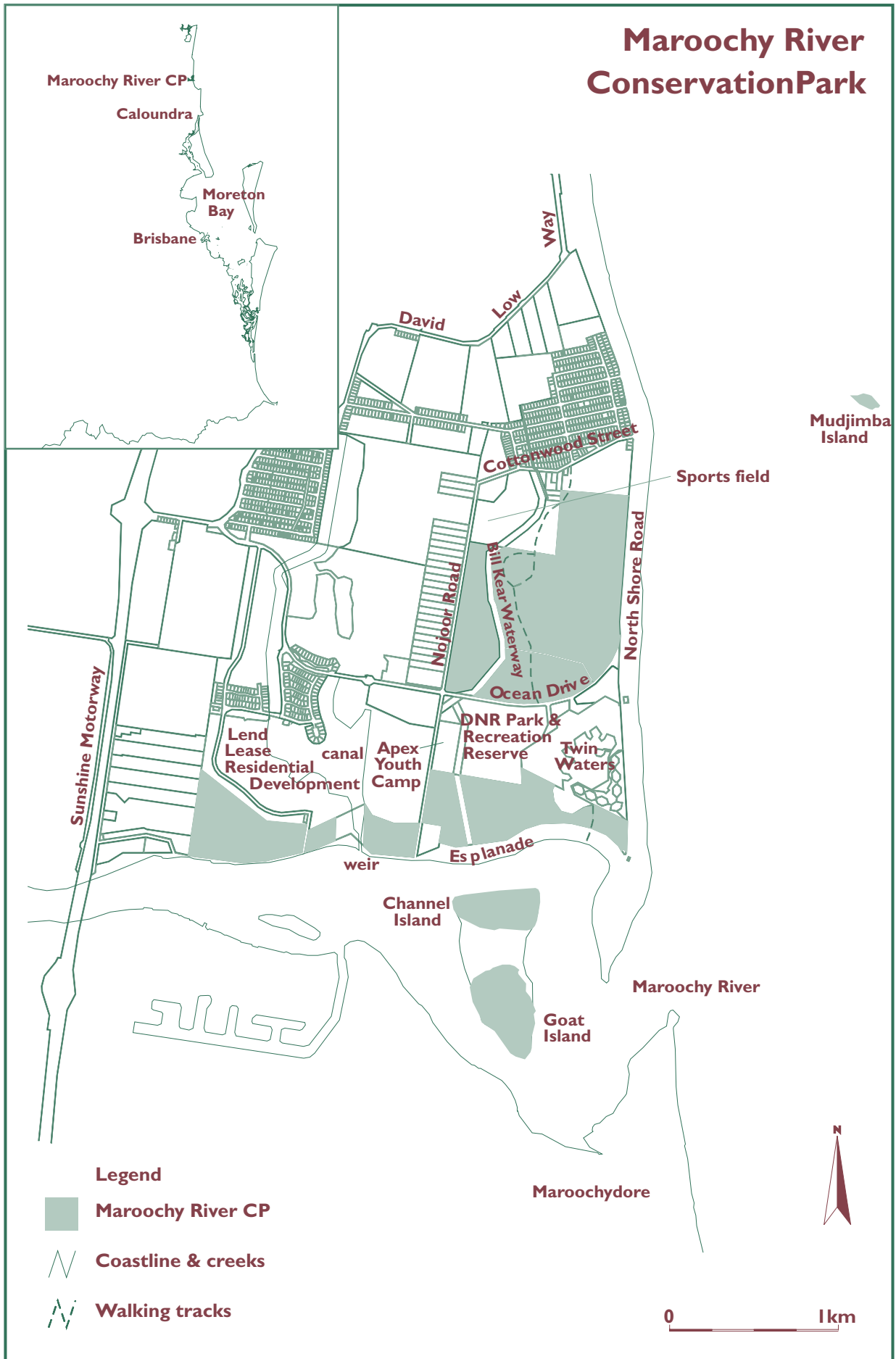
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Maroochy River Conservation Park



Maroochy River CP
Caloundra
Moreton Bay
Brisbane

Mudjimba Island

Sports field

North Shore Road

Ocean Drive

DNR Park & Recreation Reserve

Twin Waters

Esplanade

weir

Channel Island

Goat Island

Maroochy River

Maroochydore

Legend

- Maroochy River CP
- Coastline & creeks
- Walking tracks

0 1 km

Map produced by Conservation Resource Unit
Dept of Environment & Heritage, Oct 1998.

I Introduction

Maroochy River Conservation Park covers approximately 174ha and is situated near the mouth of the Maroochy River at Mudjimba on the Sunshine Coast. It was gazetted as a conservation park in 1992. Mudjimba Island, a small rocky island one kilometre offshore from Mudjimba Beach, was added to the park in 1998.

The Sunshine Coast is one of the fastest growing areas in Australia. As a result, parks such as Maroochy River must be managed to cope with increasing visitor use and surrounding development which isolate the park from other natural areas. It is therefore important that the Queensland Parks and Wildlife Service (QPWS) maintains support from the local community, Maroochy Shire Council and developers in order to protect the long-term conservation values of the park. The management plan will set the guidelines for the future management of the conservation park within the legislative framework provided by the *Nature Conservation Act 1992*.

2 Management directions and purposes

2.1 Management directions

Situated in one of Australia's fastest growing regions, the park will be managed primarily for nature conservation while allowing low impact and sustainable nature-based recreational opportunities. Management will also focus on conserving the aesthetic values of the park including Mudjimba Island off the coast and Channel and Goat Islands in the river mouth.

Negotiations are underway between QPWS and Maroochy Shire Council with the intention of the latter becoming conservation park trustees. A trusteeship will direct the implementation of the management plan by the two agencies.

2.2 Management purposes

The major purposes of management will be to ensure that:

- the biodiversity of the park is maintained in a natural state;
- significant species or community types such as those that are rare or threatened are protected;
- fire and weed management maintains the park's natural flora and fauna diversity;
- Maroochy Shire Council and community groups are involved in the management of the park including special projects such as site rehabilitation and weed control;
- opportunities are provided for environmental education and scientific research;
- the QPWS Good Neighbour Policy is implemented;
- visitor use is monitored and controlled so that the diversity and integrity of flora and fauna communities are maintained;
- interpretation for the park is developed and incorporates an educational component on the area's conservation values;
- nature-based recreation and tourism including associated river access at designated locations is managed to minimise impacts on the park's natural integrity;
- natural changes to the size and shape of Channel and Goat Islands will be allowed to occur; and
- surrounding land use has minimal impacts on the park's conservation values and complementary land use of nearby areas is promoted.

3 Basis for Management

Maroochy River Conservation Park is dedicated under the *Nature Conservation Act 1992* and must be managed under s 20 of the Act to -

- conserve and present the area's cultural and natural resources and their values;
- provide for the permanent conservation of the area's natural condition to the greatest possible extent; and
- ensure that any commercial use of the area's natural resources, is ecologically sustainable.

The *Native Title Amendment Act 1998* places obligations on the management of areas designated under the *Nature Conservation Act 1992*. Notification is given to Native Title Representative Bodies in the area and native title claimants on the preparation of management plans, fire management plans and the undertaking of prescribed burning where possible.

The Environmental Protection Agency is producing a regional coastal management plan for the south-east Queensland coast. This plan is in accordance with the *Coastal Protection Management Act 1995* and will describe how the south-east Queensland coastal zone including Maroochy River Conservation Park will be managed.

The requirements of other legislation will be met where necessary.

3.1 Regional and management context

Maroochy River Conservation Park was gazetted in 1992 and is located in Maroochy Shire, on the Sunshine Coast. Covering approximately 174 hectares, the park is situated in geographically separate areas on the northern bank of the Maroochy River. It also includes Channel and Goat Islands in the river mouth. Channel and Goat Islands protect natural habitat in the flood tide delta of the Maroochy River. These islands are constantly changing shape and location as the natural course of the river changes. Mudjimba Island (to high water mark) was added to the park in 1998 and is located one kilometre offshore from Mudjimba beach (Refer Map).

Maroochy River Conservation Park conserves a diverse range of vegetation types. Paper-barked tea tree *Melaleuca quinquenervia* swamp occurs on poorly drained sites, with tall open forest of mainly pink bloodwood *Corymbia intermedia* and brushbox *Lophostemon confertus* on more elevated areas. Saltmarsh communities occur behind the littoral mangroves bordering the Maroochy River. These vegetation communities, once common in the Maroochy landscape, are now poorly conserved in the region as habitats continue to be cleared for development.

The different vegetation communities on the park provide habitat for a diverse range of fauna including several significant species. For example, the wallum froglet *Crinia tinnula* which is listed as vulnerable under the *Nature Conservation (Wildlife Regulation) 1994* is present in the *Melaleuca quinquenervia* swamp. The park also protects suitable habitat for the vulnerable false water-rat *Xeromys myoides* which has been recorded nearby.

Saltmarsh areas within the park provide important feeding and roosting sites for waterbirds and migratory waders. Mangroves form an integral part of estuarine habitats providing nursery habitat for many marine animals including important commercial fish species. Mudjimba Island protects the southernmost wedge-tailed shearwater *Puffinus pacificus* colony in Queensland.

Evidence of former Aboriginal occupation in the area exists as midden sites along the Maroochy River. Mudjimba island is an important cultural landmark on the coast for both Aboriginal groups and non-indigenous people.

The park provides recreational opportunities including walking and birdwatching and provides access to the Maroochy River. Local people and visitors from all over Australia holidaying on the Sunshine Coast use the park and enjoy its scenic amenity. The local community was active in seeking the gazettal of the park and provides valuable assistance for day-to-day management issues such as weed control.

3.2 Resource description and values of Maroochy River Conservation Park

Geology and landform

Most of the park is low lying with elevations at less than 0.5 metres above sea level which gradually increase inland to just over 0.5 metres above sea level. These areas are comprised of relatively young marine and freshwater sands and silts.

The park includes Mudjimba Island which is a well known landmark about one kilometre off the coast at Mudjimba Beach. This is formed by an outcrop of the Landsborough Sandstone which is of Jurassic age (approximately 190 million years). About 25 metres high, the island covers 1.1 hectares and is surrounded by a wave cut platform which extends to a rocky reef.

Native plants

Well established mangrove communities along the banks of the Maroochy River Conservation Park consist of four species - red mangrove *Rhizophora stylosa*, orange mangrove *Brugiera gymnorhiza*, grey mangrove *Avicennia marina* and, river mangrove *Aegiceras corniculatum*. Grey and river mangrove communities are also present on Channel and Goat Islands. Mangroves are highly productive, acting as nursery habitat for a variety of commercial fish species. The mangrove communities protect the natural character of the river mouth and provide protection from erosion.

Saltmarsh occurs on the conservation park along the river foreshore and on the two islands in the river mouth. The two distinct types consist of closed grassland dominated by *Sporobolus virginicus* and a herbland dominated by *Juncus kraussii* spp. *australiensis*. Typically, littoral saltmarsh occurs immediately behind mangrove communities and occupies the upper intertidal areas which are frequently inundated by tidal or freshwater. The role that saltmarsh communities play in the ecology of estuaries is perhaps the least understood of intertidal ecology in Australia, however they are known to provide important habitat for avian, terrestrial and marine fauna and assist in stabilising erosion prone mudflats. Saltmarsh communities are not well represented in protected areas in south-east Queensland.

Discrete patches of beach scrub are present on more elevated sections of the northern part of the park and contain elk horns *Platynerium bifurcatum*, cork wood *Duboisia myoporoides*, celery wood *Polyscias elegans*, lilly-pilly *Acmena smithii*.

Small areas of swamp oak *Casuarina glauca* open forest are present on the south western section of the park. The vegetation of Channel and Goat Islands shows good representation of saltmarsh communities with adjacent *Casuarina glauca*.

Poorly drained areas support paper-barked tea tree *Melaleuca quinquenervia* tall open forest with varying understoreys. On more elevated sites, tall open forest dominated by brushbox *Lophostemon confertus*, pink bloodwood *Corymbia intermedia* and *Melaleuca quinquenervia* or Moreton Bay ash *Corymbia tessellaris* occur. A mixture of rainforest and dry heath species are found in the mid and understorey throughout both forest types, although in the wetter sections *Melaleuca quinquenervia* grows in pure stands with a sedge understorey. *Melaleuca* communities are of regional significance as this coastal community type is being rapidly cleared and drained for development.

Native animals

Mudjimba Island protects a significant breeding colony of wedge-tailed shearwaters or muttonbirds *Puffinus pacificus*. Deep loamy soil on the higher, treeless part of the island provides an ideal spot for muttonbirds to build their burrows. About 4000 birds use the island during breeding season, and have built about 2000 burrows where the females lay their eggs.

The species is listed under the Japan Australia Migratory Bird Agreement (JAMBA), in which the governments of both countries agreed to protect migratory birds and birds in danger of extinction. The wedge-tailed shearwater breeds on a limited number of islands along the eastern and western coasts of Australia. While a breeding colony exists on Mudjimba Island, all others in Queensland are located on Great Barrier Reef islands. Mudjimba Island, which is the southernmost breeding site in Queensland is also the closest to the mainland. The colony is also significant as it is 20 metres above sea level. In contrast, northern Queensland reef islands which support these birds are only 5-6 metres above sea level and vulnerable to cyclonic damage (Dyer, 1997).

The saltmarsh and saline herbland communities provide habitat for terrestrial, avian and marine fauna. This includes potential habitat for the rare false water rat *Xeromys myoides*. Habitat for the false water rat consists of mangroves, associated sedgelands and saltmarsh as well as the abutting buffer of salt tolerant woodland species. Its habitat is currently threatened by urban development (estate, marina and golf course construction) and possible predatory behaviour by foxes and cats.

Other native animals present on the park include the swamp wallaby *Wallabia bicolor*, the eastern grey kangaroo *Macropus giganteus*, echidna *Tachyglossus aculeatus* and brush-tailed possum *Trichosurus vulpecula*. The squirrel glider *Petaurus norfolcensis* has been recorded in tall open forest adjacent to the northern section of the park. Smaller mammalian species are relatively common in the region with the grassland melomys *Melomys burtonii* and the yellow footed antechinus *Antechinus flavipes* often recorded in the area (Carter and Baxter 1998).

A variety of frog species are found on the conservation park. An abundance of the vulnerable wallum froglet *Crinia tinnula* is present in the freshwater sedgeland and it is likely that related species including the wallum rocket frog *Litoria freycineti* and the wallum treefrog *Litoria longburnensis* are also present in this habitat. The copper-backed broodfrog *Pseudophryne raveni*, green treefrog *Litoria caerulea* and eastern dwarf treefrog *Litoria fallax* occur at vegetated lagoons (Carter and Baxter 1998).

Birds are the most diverse type of vertebrate fauna recorded on the park. The lower reaches of the Maroochy River are important habitat for many migratory wading birds including curlews and whimbrels. The whimbrel *Numenius phaeopus*, sharp tailed sandpiper *Calidris acuminata* and the common tern *Sterna hirundo* use the park and are listed under both JAMBA (Japan Australia Migratory Bird Agreement) and CAMBA (China Australia Migratory Bird Agreement). Common seabirds include the little black cormorant *Phalacrocorax sulcirostris* and the Australian pelican *Pelecanus conspicillatus* with the white ibis *Thresciornis molucca* and straw-necked ibis *Thresciornis spinicollis* frequently seen in flocks along the shoreline (Carter and Baxter 1998). A variety of bird species including honeyeaters, kingfishers, parrots, warblers, whistlers and fairy-wrens are found in forested sections of the park. Species include the yellow tailed black cockatoo *Calyptorhynchus funereus*, red browed firetail *Emblema temporalis*, superb fairy-wren *Malurus cyaneus* and mangrove honeyeater *Lichenostomus fasciularis*. Raptors include the whistling kite *Haliastur sphenurus*, brahminy kite *Haliastur indus*, white-bellied sea-eagle *Haliaeetus leucogaster*, brown falcon *Falco berigora* and rare grey goshawk *Accipiter novaehollandia* (Catterall and Cilento 1997).

Reptiles present on the park include the common tree snake *Dendrelaphis punctulata*, eastern brown snake *Pseudonaja textilis* and dark-flecked garden sunskink *Lampropholis delicata* (Carter and Baxter 1998).

Cultural heritage

Local Aboriginal people consider Mudjimba “Old Woman” Island to be an integral component of the cultural landscape of the Sunshine Coast. The history of the island can be told through various creation stories, one of which is associated with the formation of the Glass House Mountains.

The island is also an important landmark for local non-indigenous people and the name “Old Woman” Island may also relate to sailors coming in from sea and commenting that the island resembled an old woman (Dyer 1997). A hut was constructed on Mudjimba Island in the late 1940s and people lived there until 1998.

Other Aboriginal cultural sites protected on the conservation park include shell mounds and scar trees.

Scenic and aesthetic

The littoral vegetation protected in the park helps maintain the natural character of the Maroochy River including Channel and Goat Islands in the river mouth. The park provides a natural and pleasant setting for river and park users and provides a scenic backdrop in an otherwise rapidly developing area.

Mudjimba Island is an impressive offshore landmark seen from beaches along the Sunshine Coast.

Scientific and educational

With its close proximity to research institutions and the presence of interesting species and significant vegetation communities, Maroochy River Conservation Park provides various opportunities for scientific research and education programs. For example, the Sunshine Coast University is undertaking studies on the wedge-tailed shearwater population at Mudjimba Island, including the problems associated with exotic weed species. Community groups are also involved in research on the park such as a regular monthly water monitoring program being conducted by the local Maroochy Waterwatch group.

The development of interpretive signage will provide visitors with opportunities to learn more about the importance of coastal ecosystems in a highly urbanised area.

Recreation and tourism

The conservation park provides a popular recreational setting for local residents, visitors to Twin Waters Resort including international visitors, and other holiday makers to the Sunshine Coast region. Visitors to the park have the opportunity to participate in nature-based recreation mainly in the form of walking and observing nature. A track system progressing through the northern section of the conservation park provides visitors with an interesting progression through various vegetation communities, and includes boardwalks across a paperbark swamp. The park provides recreational access to Maroochy River for fishermen, swimmers and other users.

The waters around Mudjimba Island are used by surfers, divers and fishermen. The island also provides sheltered mooring for yachts, although the steep rocky platform around the island prevents landing in most weather conditions.

The conservation park also contributes to the region’s economic gains from tourism. The natural vegetation towards the Maroochy River mouth adds to the aesthetic values of the area. This provides holiday makers in apartments on the southern side of the river with pleasant views. Commercial tour operators run boat charters around the conservation park including Channel and Goat Islands in the river mouth. Many tourists to the area and guests at the neighbouring Twin Waters Resort use the walking track through the park and enjoy being within a natural setting. Recreational use of the park will increase in response to surrounding urban development.

Economic

Apart from the economic benefits of tourism, the natural setting of the conservation park is promoted in surrounding residential development and possibly increases property prices in adjoining areas.

The mangrove communities such as those fringing the Maroochy River act as nursery habitat for many commercial fish species. Draining and development in surrounding areas is causing these communities to become degraded and lost.

The melaleuca communities are important biological filters. They slow and filter land water runoff before it reaches the river system. This decreases pollution of the river system and associated damage to fish populations.

4 Management strategies

4.1 Natural Resource management

Native plants

Current situation

Flora surveys have been conducted on the park and the Queensland Herbarium has undertaken the 1:25000 Coastal Wetlands Vegetation Survey and Mapping project which includes Maroochy River Conservation Park.

Melaleuca quinquenervia vegetation on the park is threatened by changes to the water table, altered fire regimes and nutrient pollution. Disturbance to these communities has increased their vulnerability to invasion by weeds, particularly groundsel, lantana, Singapore daisy and umbrella trees.

Mangrove and saline herbland communities on the foreshore area of the park are being degraded by overuse and inappropriate recreational use such as four wheel driving, trail bike riding, unauthorised camping and lighting of fires.

Desired outcomes

The biological diversity and integrity of the natural ecosystems are conserved in the long term.

Species of special significance including any rare or threatened plants are preserved *in situ*.

An improved baseline inventory of park flora and vegetation communities is available.

Ecological change is monitored.

Proposed policies, guidelines and actions

- Conduct rehabilitation of the degraded foreshore area at the end of Nojoor Road. This will be done in conjunction with the Maroochy Shire Council and Mudjimba Progress Association. The project will be conducted over time and involve restricting vehicle use to defined and hardened areas. This will allow natural revegetation by native saltmarsh plants to stabilise the bare mud flats. Access will still be permitted to the river for approved recreational purposes. The project will aim to enhance the aesthetic value of the area and increase habitat for native wildlife.
- Close vehicle tracks along the foreshore of Maroochy River to prevent further disturbance to the saltmarsh vegetation.

- Close other degraded areas to public use for rehabilitation if necessary.
- Allow only limited access to the western section of the park (west of the weir) to protect mangrove communities and false water rat habitat.
- Develop a fire management plan which considers the ecological requirements of the different vegetation community types occurring on the park and includes a fire monitoring component.
- Prepare and implement a weed control program which targets particularly invasive species.
- Survey and map the locations of noteworthy species and keep photographic records.
- Liaise with tertiary institutions to encourage scientific research which increases knowledge of the management requirements of different plant and animal species and vegetation communities.
- Liaise with Lend Lease Pty Ltd regarding any flora and fauna monitoring and research they have undertaken on the park and surrounds.

Native animals

Current situation

Fauna surveys have been conducted on the park and surrounding land. The conservation park is included in a bird monitoring study sponsored by Lend Lease Development Pty Ltd. A variety of birds and other wildlife have been recorded on the park and surrounding areas.

Fauna on the park are facing the pressures of isolation and disturbance as surrounding natural areas are developed for residential purposes.

The wedge-tailed shearwater colony on Mudjimba Island is particularly susceptible to disturbance if visitors are able to roam freely around the underground burrows. Little is known about other fauna occurring on the island. Ground covering weeds such as prickly pear and lantana are limiting the amount of open ground available for shearwaters to construct their burrows.

False water rat habitat occurs on the western foreshore section of the park. Disturbance to this area includes trampling of mangrove and saltmarsh vegetation and damage caused by domestic dogs entering the park. A new residential development is planned to border the area.

Desired outcomes

Native fauna including any species of special significance is protected.

Habitat necessary for native fauna is protected.

An improved baseline inventory of fauna using the park and surrounding habitat is developed, including Mudjimba Island, and ecological change monitored.

Proposed policies, guidelines and actions

- Conduct long term monitoring of the false water-rat population in the park to assess the potential impacts of adjacent landuse. Should a decline be detected, identify the factors responsible and implement ameliorating measures.
- Encourage local community groups and research institutions to conduct fauna research on the park which will increase the park resource inventory and assist park management. Projects would only be approved that cause minimal impact on the environment.
- Encourage researchers to continue monitoring the breeding status and viability of the wedge-tailed shearwater colony on Mudjimba Island.
- Conduct weed control on Mudjimba Island in conjunction with DNR and the local community.
- Liaise and work with surrounding land developers and new neighbours to encourage surrounding land use that creates minimal disturbance to the park.
- Use park interpretation and education programs to highlight problems domestic pets cause to the park's native animals.

Introduced plants and animals

Current situation

Environmental weeds are a major problem on the conservation park. Invasive plants such as groundsel *Baccharis halimifolia*, umbrella trees *Schefflera actinophylla*, lantana *Lantana camara* and Singapore daisy *Wedelia trilobata* are threatening the park's natural vegetation. Weeds particularly invade disturbed sites such as the degraded area at the end of Nojoor Road and the park entrance off Cottonwood Street. Weeds are spread by wind, birds and other animals, humans and from upstream. Weed sources include suburban gardens, farming land and degraded natural areas.

Weed disturbance on Channel and Goat Islands is minimal although weed species such as groundsel, broad-leaved pepper tree *Schinus terebinthifolia*, mile-a-minute *Ipomoea cairica* and lantana are present.

Prickly pear *Opuntia stricta* and other environmental weeds including lantana and umbrella trees have invaded Mudjimba Island and are reducing the availability of nesting areas for the wedge-tailed shearwaters.

Feral animals, such as foxes and cats, are present on the mainland sections of the park and are possibly having adverse impacts on native fauna.

Urban development around the mainland sections of the park has the potential to increase impacts from straying domestic dogs and cats and weed invasion from suburban gardens.

Desired outcomes

Decrease the threatening impacts of introduced plants and animals on the natural biodiversity of the park.

Proposed policies, guidelines and actions

Develop a long term weed action plan for the conservation park to include Mudjimba Island. This will focus on:

- mapping weeds in the park and recommending subsequent priorities for control and appropriate control methods.
- undertaking weed clearing that minimises erosion, reinfestation and enables natural regeneration;
- undertaking any revegetation immediately after weeding to prevent reinfestation;
- initiating a public education campaign for park neighbours and other interest groups on environmental weeds and their threats to natural vegetation;
- involving community groups in weed control and investigating funding for relevant projects;
- involving employment programs such as "Youth Conservation Corps" in weed control;
- working with the Department of Natural Resources (DNR), community volunteers and other authorities to eradicate prickly pear on Mudjimba Island. This will be done while causing minimal disturbance to the shearwater burrows and the island's other native flora and fauna. Difficulty of access to the island needs to be considered when weed control is planned; and
- linking the plan with the South East Queensland Environmental Weeds Strategy being developed by the Rural Lands Protection Board.

Developers will be encouraged to install dog and cat-proof fencing along the interface between urban development and the conservation park.

QPWS will negotiate with Maroochy Shire Council regarding increasing dog patrols on and around Maroochy River Conservation Park.

Neighbour education and on-the spot fines will be implemented if people continue to walk dogs on the park.

A feral animal control program is being planned for the conservation park after consultation with Maroochy Shire Council, Department of Natural Resources and neighbouring landholders.

Fire management

Current situation

Vegetation communities occurring within the park have different fire management requirements which are not yet clearly understood.

Nearby residents have been concerned of the fire risk of the conservation park. Uncontrolled vehicle access to the park increases the risk of fires being either deliberately or accidentally lit.

Desired outcomes

The biological diversity and integrity of native plant and animal communities is maintained by appropriate fire management.

Human life, park infrastructure and neighbouring properties are protected as far as possible from fire originating from within the park.

Proposed policies, guidelines and actions

Develop a fire management plan for the park which will focus on :

- liaising with Maroochy Shire Council and park neighbours and the Mudjimba Rural Fire Brigade;
- implementing the QPWS Good Neighbour Policy;
- maintaining the biological diversity of native plant communities through appropriate fire management;
- undertaking, after assessment and monitoring, prescribed burning to maintain the natural vegetation communities occurring on the park and to assist in controlling weed infestation in some situations;
- locating adequate fire access points around the park boundary;
- detailing emergency response procedures and methods of early fire detection including liaising with park neighbours, local fire brigade and other relevant authorities; and
- notifying the Undumbi people, FAIRA, park neighbours and community groups on the development of the fire management plan and of any proposals to undertake prescribed burning.

4.2 Cultural heritage

Current situation

Aboriginal sites including scar trees and middens are present on the park, and Mudjimba Island is of cultural importance to local Aboriginal people.

Places of cultural heritage significance to Aboriginal people are automatically protected under the provision of the *Cultural Records(Landscapes Qld and Qld Estate) Act 1987*.

A native title claim covering Maroochy River Conservation Park has been lodged with the National Native Title Tribunal on behalf of the Undumbi people.

Desired outcomes

Cultural heritage sites on the park are identified and protected in accordance with the wishes of Aboriginal people.

Cultural values of the park are presented to visitors if appropriate.

Any native title rights are not compromised by management actions.

Proposed policies, guidelines and actions

- Assess the cultural heritage values of the park in accordance with the *Cultural Record Act 1987* and with the Undumbi people who have traditional links to the area.
- Manage Aboriginal cultural sites in association with Aboriginal people affiliated with the area.
- Give Aboriginal people the opportunity to participate in other park management issues where appropriate.
- Only undertake interpretation of cultural sites and the cultural landscape of the park after liaison with key interest groups including Aboriginal people and other locals affiliated with the area.
- Liaise with Aboriginal groups and others regarding any cultural heritage management issues.
- Assess the cultural heritage significance of infrastructure on Mudjimba Island.

4.3 Recreation and tourism

Visitor use

Current situation

A walking track was constructed by Novotel Twin Waters Resort with assistance from local organisations and community groups in the northern section of the park in 1994. The four kilometre walkway begins opposite the entry to the resort and winds through different vegetation types until it reaches Cottonwood Street. Raised bridges and boardwalks allow visitors to enjoy the paperbark swamp which is characteristically boggy underfoot.

The southern end of the conservation park is used for vehicle access to the Maroochy River for recreational purposes. Recreational visitors use the degraded area as a boat ramp, carpark and camping area. The degraded area extends approximately 300 metres along the northern bank of the Maroochy River and consisted of closed grassland dominated by *Sporobolus virginicus* and saline herbland dominated by *Juncus kraussii* spp. *australiensis*. Environmental weeds establishing in the area and erosion are both major problems in this section of the park. An increasing number of visitors are using and degrading the area, especially during peak holiday season.

The residential development being undertaken by Lend Lease Development Pty Ltd. is progressing north of the western section of the park and will potentially lead to increased recreational use. Lend Lease has undertaken to develop a masterplan for the area around their development, including adjacent sections of the conservation park. This will be done in consultation with QPWS and Maroochy Shire Council. As part of this project Lend Lease will help establish a formalised boat ramp and carpark at the end of Nojoor Road. The company will also be involved in the rehabilitation of the surrounding area and provide pedestrian access across the weir. Construction of an educational boardwalk system through a small section of the nearby saltmarsh and mangrove community is a possibility.

Desired outcomes

Recreation and tourism opportunities do not conflict with the conservation of the park's natural values.

Visitors can enjoy safe, nature-based recreation and tourism opportunities without disturbing other visitors.

Opportunities for sustainable nature-based recreation and tourism are provided.

Proposed policies, guidelines and actions

- Rehabilitate the degraded saltmarsh vegetation at the end of Nojoor Road. Control access through the formalisation of both access and carparking at the end of Nojoor Road. A joint project with Maroochy Shire Council, Mudjimba Progress Association and other volunteers and community groups will be established to achieve these objectives.
- Construct a permanent boat ramp at the end of Nojoor Road after negotiation with park interest groups.
- Close and revegetate vehicle tracks along the foreshore area.
- Formalise a track system to control recreational access on the western side of the weir. This will potentially incorporate an educational component and raised boardwalks to protect the sensitive vegetation communities.
- No picnic areas will be developed on the park.
- Due to the sensitivity of the mangroves and potential habitat for the false water rat, access to the river will not be provided through the far western section of the park.
- Undertake negotiations with DNR for gazetted road reserves which traverse the western side of the park to be closed and added to the park.
- Monitor recreational impacts using photo-monitoring points at sensitive sites to measure impacts including erosion, trampling and littering.
- Assess current recreational opportunities at Maroochy River Conservation Park by conducting visitor surveys to calculate visitor numbers, reasons for visiting and visitor attitudes.
- Conduct liaison with park neighbours and local users regarding access, promotion and appropriate park use.
- Decrease levels of inappropriate park use such as the walking of dogs and vehicle use through combining community education with the issuing, by rangers, of on-the-spot fines.
- Develop an interpretive plan for the park which includes provision for interpretive and directional signage along designated walking tracks.
- Maintain all structures and ground surfaces, including the northern track system, in a safe condition as part of the regional risk assessment program.
- Camping will not be permitted on the conservation park.

Education and interpretation

Current situation

Existing public contact consists of a park information brochure produced in 1992 in conjunction with Twin Waters Resort, Maroochy Shire Council, Mudjimba Progress Association and Sunshine Coast Environment Council. Interpretive signage on the park and visitor information sheets need updating. There is currently a lack of information on-site about the park's natural and cultural values. The park has the potential to enable educational institutions to study its rainforest, native plants and animals, geology and human impacts on the environment.

Desired outcomes

The park is used as a site for research, education and promotion of coastal ecosystems.

The local community supports and is involved in park management.

Visitors increase their understanding and appreciation of the natural and cultural values of the park which results in more sympathetic use of natural areas.

Proposed policies, guidelines and actions

Develop an interpretation plan for the conservation park. This will include:

- revising and reprinting the Mudjimba Conservation Park brochure with information on natural values and recreational opportunities on the park as well as problems to park management such as weeds;
- updating existing signage and developing new directional and risk management signage. New signs would be placed at strategic locations to identify the conservation park boundary;
- developing other educational and interpretive signage for the park. Interpretive signage would include information on cultural heritage and the area's natural values as well as safety issues; and
- initiating a community awareness program about the impacts of environmental weeds and domestic animals.

Liaise with tertiary institutions to encourage studies in natural resource management and human-use influences.

Develop the volunteer network to assist in appropriate park activities.

4.4 Complementary management of adjoining areas

Current situation

Maroochy River Conservation Park has become increasingly isolated as residential development and roads separate the park from other natural areas and wildlife corridors.

Pressures from surrounding land use include weed invasion and intrusion by domestic and feral animals. Other impacts include nutrient and other pollution run-off into the park as well as altered water tables and drainage patterns.

The Maroochy Shire Council Strategic Plan and Open Space Strategy includes methods to maintain wildlife corridor linkages to the conservation park.

Desired outcomes

Surrounding land use buffers and complements the conservation values of the park.

Surrounding land use is compatible with the management aims of the conservation park.

Proposed policies, guidelines and actions

- Rationalise the park boundary where possible by adding areas which both link disjunct sections and provide linkages for wildlife.
- Investigate the incorporation of adjoining council reserves into the conservation park;
- Negotiate with Maroochy Shire Council regarding the linking of vegetation and riparian corridors with public and private landholders adjacent to the park.

- Liaise with Department of Natural Resources regarding the management of The Esplanade.
- Liaise with surrounding landholders to encourage land use which does not compromise the conservation park values.
- Initiate neighbour education on important park management issues including the impacts of environmental weeds, wildlife feeding and domestic animals. Methods of public contact may include neighbour liaison, letterbox drops and information days.
- Prepare a recommended planting list of locally occurring native plant species for circulation to park neighbours and community groups.

4.5 Plan implementation and monitoring

Current situation

The park is managed on a day-to-day basis by the North Moreton District staff based at Noosa with assistance from District staff situated at Maroochydoore. Regional staff will assist with the implementation of the management plan where appropriate. Maroochy Shire Council, local community members and groups such as the Mudjimba Progress Association play an important role in the protection and management of the park. The park is to be managed primarily for nature conservation and nature based recreational use.

Desired outcomes

The management plan is successfully implemented and desired outcomes achieved.
The management unit is allocated enough resources to successfully implement the plan.

Proposed policies, guidelines and actions

- Develop an implementation schedule for the plan which considers available staff and resources and prioritises management actions. This will be reviewed annually and tie in with yearly budget allocations.
- Priorities for management at Maroochy River Conservation Park will include:
 - initiating weed control and site rehabilitation programs in degraded areas in conjunction with Lend Lease Development Pty Ltd, Maroochy Shire Council, DNR and local community groups; and
 - increasing education and awareness to decrease threatening process caused by park users and neighbours.
- Finalise negotiations with Maroochy Shire Council regarding a trusteeship agreement for the conservation park.
- Set timeframes to enable monitoring of plan implementation and effectiveness of management strategies.
- Review the management plan within ten years of approval in accordance with s 125 of the *Nature Conservation Act 1992*.

5 References

Carter, B. (1988) *Plant Communities of the Maroochy River North Shore*, Bill Carter and Associates, Mooloolaba.

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