

South East Queensland Biogeographic Region

Moreton Island National Park, Cape Moreton Conservation Park & Moreton Island Recreation Area Management Plan

April 2007



Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Thanks are extended to the Quandamooka people Traditional Owners of Moreton Island, members of the Moreton Island Planning Advisory Committee and members of the Moreton Island Working Group for their support and input into the development of this plan.

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Understanding this document

This management plan covers Moreton Island National Park, Moreton Island Recreation Area and Cape Moreton Conservation Park. The plan has been prepared by the Queensland Parks and Wildlife Service (QPWS) in accordance with the *Nature Conservation Act 1992* and *Recreation Areas Management Act 1988*.

A large proportion of Moreton Island National Park lies within the Moreton Island Recreation Area. Some areas of the national park and the Cape Moreton Conservation Park are outside the recreation area.

The document has been divided into four sections:

Section 1 defines the Moreton Island planning area, its regional context and a vision for the future.

Section 2 presents a summary of the legislative and management obligations of the various State and local government agencies involved.

Section 3 summarises the natural, cultural, recreational, scientific, educational and economic values of the Moreton Island planning area.

Section 4 presents the management objectives, guidelines and actions for the future management of the planning area, developed in accordance with the legislative requirements of the *Nature Conservation Act 1992* and the *Recreation Areas Management Act 1988*.

1 Introduction

1.1 Location and regional context

Moreton Island is a 37km long, 10km wide wedge-shaped sand island located on the eastern edge of Moreton Bay in south-east Queensland. Along with North Stradbroke and South Stradbroke islands, Moreton Island forms the eastern boundary of Moreton Bay, a large, shallow, biologically diverse expanse of water.

Moorgumpin is the Aboriginal name for Moreton Island. Moorgumpin lies within the area referred to as Quandamooka, which is commonly defined as the region and indigenous people of central Moreton Bay and its islands. The indigenous people of Quandamooka include the Nughi (Moreton Island), and the Gorenpul and Nunukal clans (North Stradbroke Island) who have inhabited this region for thousands of years.

The natural areas of Moreton Island have a high degree of protection with 95% of the island within national park. The island is also surrounded by the Moreton Bay Marine Park which was declared in 1993 in recognition of its important natural, cultural, recreational and economic values to Queensland.

Most of the island has been designated as a recreation area under the *Recreation Areas Management Act 1988* and is one of only five recreation areas designated throughout Queensland for the management of recreational activities – the others being Fraser Island, Green Island and Reef, Bribie Island and Inskip Peninsula. Moreton Island has become an important recreation area for the highly populated Brisbane region. It is one of the 10 most visited areas managed by QPWS in Queensland, receiving more than 170,000 visitors a year.

1.2 The planning area

The planning area (19,863ha) includes:

- Moreton Island National Park (16,900ha);
- Cape Moreton Conservation Park (3.36ha);
- unallocated State land around the townships of Koorringal, Cowan Cowan and Bulwer;
- intertidal areas (including a defined 40m width from Tangalooma Point to Reeders Point);
- gazetted esplanades other than those used for road purposes within the township boundaries;
- Port and Harbour Purposes Reserve R3069 south of Cowan Cowan; and
- Permit to Occupy No PO7103 in front of Tangalooma Resort lease.

The plan does not cover lands outside the national park, conservation park and recreation area:

- freehold land;
- leasehold land;
- licensed oyster areas;
- reserves for local government (refuse disposal) purposes;
- gazetted roads; and
- intertidal areas within the Moreton Banks Fish Habitat Area.

1.3 Vision statement

The protected areas on Moreton Island will remain and be managed as a relatively undisturbed coastal landscape where people will continue to access and enjoy the island's regionally unique, nature-based recreational activities. Conservation of the island's natural communities and species and cultural heritage will be the key focus of management on the island.

Locality of Moreton Island National Park



2 Basis for management

2.1 Management obligations

Planning and management decisions for Moreton Island must take into account relevant legislation, statutory duties, permits and agreements of all relevant parties with jurisdictions over land included in the planning area. In addition, international obligations apply to the island as a Ramsar Site for the conservation and wise use of wetlands and their resources. The various land tenures and agency obligations are identified below.

Recreation Area

The Moreton Island Recreation Area was declared on the 2 February 1991 (Queensland Government Gazette No 22) under the *Recreation Areas Management Act 1988*. The Act establishes a Queensland Recreation Areas Management Authority which defines objectives for the establishment and management of recreation areas in Queensland. The Authority is responsible for forming a Queensland Recreation Areas Management Board (the RAM Board) – which manages the recreation area through QPWS.

Objectives for managing a recreation area under the Recreation Areas Management Act 1988 are:

- (a) to provide, co-ordinate, integrate and improve recreational planning, recreational facilities and recreational management on recreation areas taking into account their conservation, recreation, education and production values and the interests of the proprietors;
- (b) to provide for joint management of any recreation area where necessary or desirable without derogating from the rights, duties, powers and responsibilities of –
 - (i) the chief executive of the department that deals with matters arising under the *Nature Conservation Act 1992* (NCA);
 - (ii) the chief executive of the department responsible for the administration of the *Forestry Act 1959*; or
 - (iii) any other proprietor in relation to a recreation area; and
- (c) to provide for the collection of funds from the users or intending users of the recreational facilities and services provided within recreation areas.

National Park

Most of the island is gazetted as Moreton Island National Park under the *Nature Conservation Act 1992* (NCA). The national park covers around 16,900 hectares of land down to high water mark (HWM). The principles for management of a national park under Section 17 of the NCA are to:

- (a) 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; and
- (b) present the area's cultural and natural resources and their values; and
- (c) ensure that the only use of the area is nature-based and ecologically sustainable.

Conservation Park

Cape Moreton Lighthouse, the associated buildings and immediate surrounds are gazetted as Cape Moreton Conservation Park (3.36ha) under the NCA.

The principles for management of a conservation park under Section 20 of the NCA are to:

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

Cape Moreton Conservation Park is also registered as a heritage place under the *Queensland Heritage Act 1992*.

Marine Park

QPWS also has management responsibility over the surrounding Moreton Bay Marine Park under the provisions of the *Marine Parks Act 2004*, and the *Marine Parks (Moreton Bay) Zoning Plan 1997*. The marine park was declared in 1993 to cover most of Moreton Bay's tidal lands.

It was subsequently amalgamated with Pumicestone Passage Marine Park in 1997. The marine park includes lands up to highest astronomical tide (HAT) and tidal waters seawards for three nautical miles off the east coast of Bribie, Moreton, North Stradbroke and South Stradbroke islands. State leasehold land below HAT is also included in the marine park.

The marine park has been divided into five management zones to provide a balance between human needs and protection of conservation values. Two of these zones surround Moreton Island:

- 1) Habitat zone – extends around the northern two-thirds of the island and provides for reasonable use and enjoyment while maintaining productivity of the natural communities by excluding activities such as shipping operations and mining.
- 2) Conservation zone – surrounds the southern third of the island and the area adjacent to Heath Island and conserves the natural condition to the greatest possible extent while providing for recreational activities. Trawling is excluded in this zone.

In addition, the zoning plan provides for a range of designated areas including the ocean beach, turtle and dugong conservation areas and the South Passage area.

Native title

The planning area will also be managed in accordance with Commonwealth and State Government native title legislation which provides for the recognition and protection of native title. In accordance with the *Native Title Act 1993*, the Native Title Representative Bodies and native title claimants must be notified of the preparation of a management plan, the development of a fire management plan and, where possible, the undertaking of any prescribed burning.

The plan does not intend to affect, diminish or extinguish any native title rights.

Cultural Heritage

Places and items of Aboriginal cultural heritage significance are protected under the *Aboriginal Cultural Heritage Act 2003*, which is administered by the Department of Natural Resources and Water.

The *Nature Conservation Act 1992* also provides for the protection and presentation of the cultural values of protected areas.

International agreements

The planning area is to be managed as part of the Moreton Bay Ramsar Site, designated by the Commonwealth under the Ramsar Convention as a wetland of international importance. The Ramsar Convention aims worldwide to conserve remaining wetlands which are one of the most threatened groups of habitats. Legislative obligations for managing declared Ramsar wetlands are defined in the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

In addition to this, two agreements also require the Government to have regard for the special cultural significance of wildlife:

JAMBA – Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment, signed at Tokyo on 6 February 1974; and

CAMBA – Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment, signed at Canberra on 20 October 1986.

Some species on Moreton Island, including the osprey *Pandion haliaetus*, are covered by the Bonn Convention, an international treaty for the conservation of migratory species of wild animals.

Brisbane City Council

The Brisbane City Council's City Plan gazetted in October 2000 includes a Moreton Island Settlements Local Plan. This Local Plan outlines Council's jurisdiction on local planning and assessable development over freehold land within the townships of Moreton Island: Bulwer, Koorlingal, Cowan Cowan and Tangalooma Resort and their associated infrastructures (club and radio station, waste disposal, shops, public toilets, sewerage, service stations etc). The Local Plan is based on the principles of ecologically sustainable development and protecting the unique environment of Moreton Island and Moreton Bay in relation to planning for the settlements.

Land under the control of Brisbane City Council within the Moreton Island Recreation Area includes the gazetted esplanades other than those used for road purposes which lie outside the recreation area.

Department of Primary Industries and Fisheries

The *Fisheries Act 1994* and *Fisheries Regulation 1995* regulates commercial and recreational fishing and bait collection in the tidal waters around Moreton Island. This includes bag limits on fishing, collecting and regulation of fishing apparatus for various fisheries.

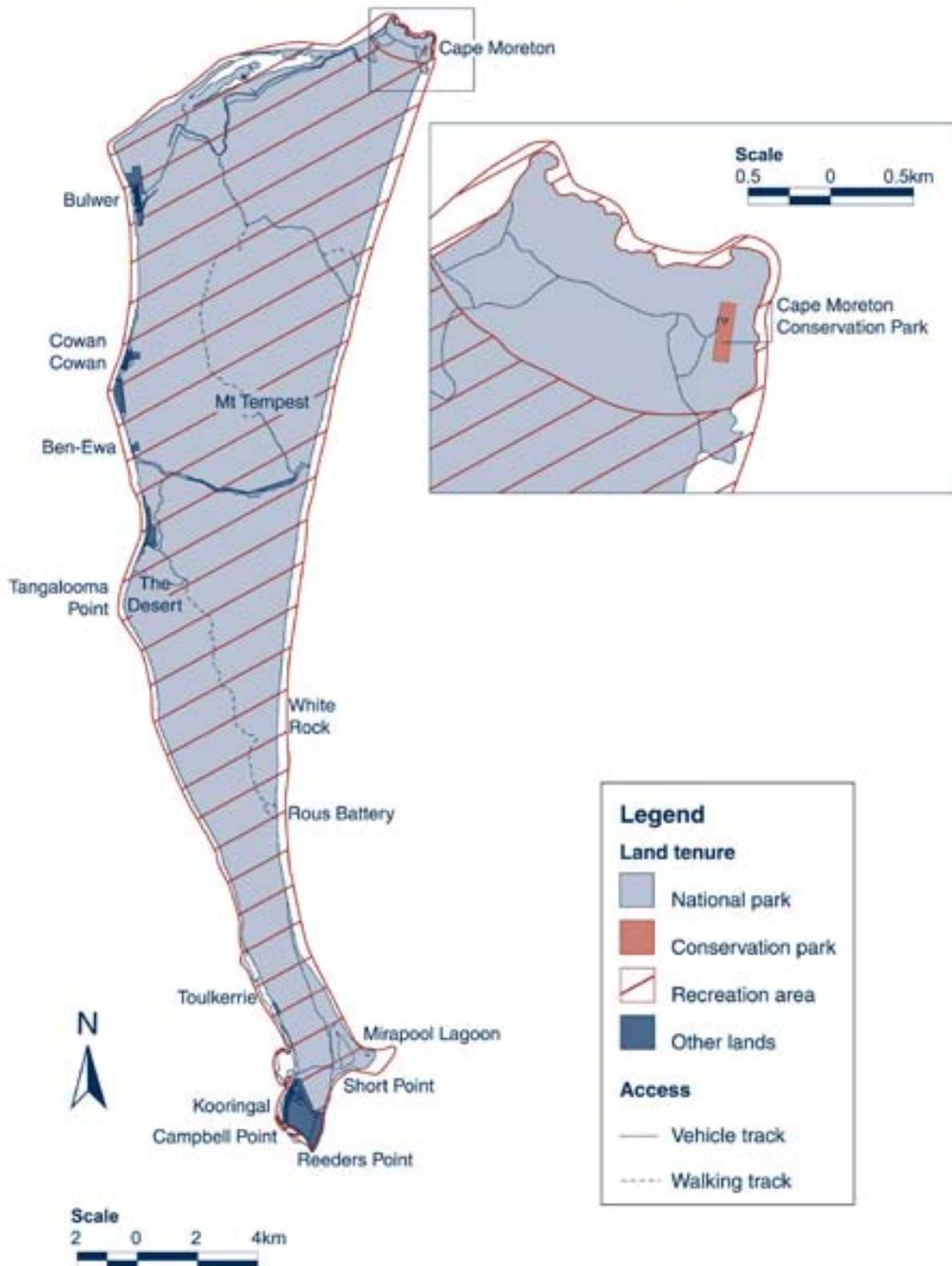
Department of Natural Resources and Water

Most of the unallocated State lands adjacent to the townships are under the control of the Department of Natural Resources and Water and are included in the Moreton Island Recreation Area.

Queensland Transport

Queensland Transport jurisdictions in the RAM Area include the Port and Harbour Purposes Reserve R3069 at Cowan Cowan Point. Queensland Transport also controls the licensing of barge operators.

Moreton Island National Park and Recreation Area and Cape Moreton Conservation Park



The values of Moreton Island

3.1 Geology and landform

Moreton Island represents one of the most outstanding records of on-going geological, geomorphological and biological processes which formed the sand island masses of south-east Queensland. The natural dune processes of erosion, accretion and stabilisation by vegetation and the development and infilling of lakes and swamps have continued relatively undisturbed by human activities.

Mt Tempest at 285m is thought to be the highest stabilised sand dune in the world. Moreton Island is also currently the only area in the region where Pleistocene dunes have been naturally destabilised and are being actively reworked by the prevailing winds. Examples of this are seen at The Desert south of Tangalooma and the Big and Little Sandhills.

3.2 Freshwater ecosystems

Few areas in eastern Australia exist where lakes and swamps associated with sand dunes occur in such a natural state and at such high density. More than 70 dune lakes and swamps occur on Moreton Island. These water bodies differ in age and form from those elsewhere in the Moreton region, with many possibly more than 10,000 years old.

Sedge-dominated swamps, perched and window lakes occur on the island. Perched lakes have formed where the sands have become cemented and capable of holding water and resisting erosion. Three forms of perched lakes occur on Moreton. Those formed by cementation of organic matter are mainly restricted to the swampy strand plain between Comboyuro Point and Cowan Cowan. Those formed through cementation by iron occur throughout the northern half of the island, while the lakes formed by cementation of both iron and organic matter occur along the eastern beach and are important in providing protection against beach erosion. Lake Jabiru of 48ha is the largest perched lake on the island. Window lakes such as Blue Lagoon (42ha) support an interesting variation from the aquatic fauna of the perched lakes.

The freshwater ecosystems of Moreton Island support unique fauna including three of the four vulnerable acid frogs and the vulnerable Oxleyan pygmy perch *Nannoperca oxleyana*.

3.3 Plants

Moreton Island is the most undisturbed large coastal sand island in south-east Queensland and has considerable value in its preservation of extensive stands of many of the regionally significant coastal lowland communities. These include communities such as mangroves, *Melaleuca* swamps, sedgelands, heath and eucalypt woodlands and open forests. The distribution of these communities is related to the age of the underlying sand deposits, the depth of the water table, nutrient levels, degree of wind and sun exposure and the age of the community.

Mapping of regional ecosystems (vegetation communities currently recognised in State legislation) of the island has recently been undertaken by the Environmental Protection Agency. Eleven regional ecosystems were identified, five of which are listed as 'of concern' in the *Vegetation Management Regulation 2000*.

- i. Open to closed forests on beach ridges and sandy banks of coastal streams (Regional Ecosystem 12.2.5);
- ii. *Melaleuca quinquenervia* open forest to woodland on sand plains and dunes (Regional Ecosystem 12.2.7).
- iii. Low shrubby woodland to shrubland on sandstones occurring on the north-east headland of the island (Regional Ecosystem 12.9/10.9); and
- iv. Vegetation complex of grassland and wind-sheared shrubland on the exposed rocky headlands of igneous rock (Regional Ecosystem 12.12.19).
- v. Sand blows largely devoid of vegetation (Regional Ecosystem 12.2.16).

The vegetation communities of Moreton Island contain 352 native plant species, including five species that are listed under schedules of the *Nature Conservation (Wildlife) Regulation 2006*, and a further ten species at the limits of their distribution or with disjunct populations.

Noteworthy plant species of Moreton Island

Species	Scientific name	Conservation significance
Little wattle	<i>Acacia baueri</i> subsp. <i>baueri</i> <i>Durringtonia paludosa</i>	Vulnerable Rare
Water milfoil	<i>Myriophyllum implicatum</i>	Rare
Chocolate greenhood	<i>Pterostylis nigricans</i>	Rare
A sedge	<i>Schoenus scabripes</i>	Rare
Black mangrove	<i>Lumnitzera racemosa</i> <i>Smithia sensitiva</i>	Southern limit Southern limit
Planchon's stringybark	<i>Eucalyptus planchoniana</i> <i>Eleocharis ochrostachys</i>	Northern limit Southern limit
Beach calophyllum	<i>Calophyllum inophyllum</i> <i>Lepturus repens</i> <i>Schoenus ericetorum</i> <i>Hibbertia fasciculata</i>	Southern limit Southern limit Northern limit Disjunct occurrence
Cone sticks	<i>Petrophile canescens</i>	Disjunct occurrence
Satinay	<i>Syncarpia hillii</i>	Disjunct occurrence

3.4 Animals

Moreton Island represents one of the least polluted and least disturbed coastal environments along the Queensland-New South Wales coast. Most of the island has been included in the internationally recognised Moreton Bay Ramsar Site in recognition of its important wetland sites: the salt marsh, tidal flats, sandy beaches and perched lakes. This relatively pristine environment with a variety of habitats supports some interesting and valuable species.

Moreton Bay and the sand islands provide a vital feeding and resting point for over 50,000 migratory waders making their annual journey from the Arctic and sub-Arctic regions between September and April each year. The eastern curlew *Numenius madagascariensis* and the grey tailed tattler *Heteroscelus brevipes* are among some of the uncommon migratory birds dependent on the bay environment during their non-breeding season. The Mirapool Lagoon area and the Heath Island area of Moreton Island are considered vital feeding and roosting sites for waders.

Over 180 species of birds have been recorded on the island – including seabirds, waders, forest-dependent birds and birds of prey. Thirty-one species of migratory birds protected under international agreements (JAMBA, CAMBA) have been recorded on Moreton Island. The pied oystercatcher *Haematopus longirostris* and the red-capped plover *Charadrius ruficapillus* are two of the more common resident waders of Moreton Island. The endangered little tern *Sterna albifrons* and the vulnerable beach stone-curlew *Esacus neglectus* are resident species which use the beaches of Moreton Island as habitat.

The osprey *Pandion haliaetus* which breeds on the island is considered regionally vulnerable in south-east Queensland up to Fraser Island and is listed in the Bonn Convention on the conservation of migratory species of wild animals.

Eleven native terrestrial mammals, including six bat species, have been recorded for the island. Of interest is the high population of the pale field rat *Rattus tunneyi*, one of only two rats recorded for the island, the other being the water rat *Hydromys chrysogaster*. The pale field rat was first described from Cowan Cowan in 1926 and its abundance appears to be higher on Moreton Island than on the neighbouring islands of North Stradbroke and Fraser. Hence Moreton Island presents a unique opportunity for ecological studies on this rat, particularly as there are no introduced rats for competition.

Surveys of some of the main waterbodies on Moreton Island found the vulnerable Oxleyan pygmy perch *Nannoperca oxleyana* in Lake Jabiru, Spitfire Creek and Blue Lagoon on the east coast and Craven Creek and Ben-Ewa Creek on the west coast. This perch is only associated with acidic freshwater lakes, creeks and swamps in coastal heathlands. Current threats to the populations on Moreton Island are minimal due to the low visitation and lack of other human impacts.

Eleven species of amphibians have been recorded from the freshwater lakes, creeks and swamps of the island, including three of the four wallum or acid frogs. These frogs are confined to the coastal lowlands and are threatened by development elsewhere within of their area of distribution in south-east Queensland.

Forty reptile species have been recorded on the island. The rare skink *Ophioscincus truncatus* was located in or near the Bulwer and Koorngal settlements. The location of this skink and the wallum acid frogs within or adjacent to Bulwer and Cowan Cowan highlights the need to consider the conservation management requirements of these populations in the future, in terms of minimising habitat removal and disturbance as well as changes to the water quality.

Rangers have records of marine turtle nesting, predominantly by loggerhead turtles, for the summer nesting periods on the island over the last five years. This recording of nesting will continue.

The island provides habitat for 14 animal species listed under schedules of the *Nature Conservation (Wildlife) Regulation 2006*.

Species	Scientific name	Status
Amphibians		
Wallum froglet	<i>Crinia tinnula</i>	Vulnerable
Wallum rocketfrog	<i>Litoria freycineti</i>	Vulnerable
Wallum sedgefrog	<i>Litoria longburensis</i>	Vulnerable
Birds		
Little tern	<i>Sterna albifrons</i>	Endangered
Beach stone-curlew	<i>Esacus neglectus</i>	Vulnerable
Black-necked stork	<i>Ephippiorhynchus asiaticus</i>	Rare
Grey goshawk	<i>Accipiter novaehollandiae</i>	Rare
Lewin's rail	<i>Rallus pectoralis</i>	Rare
Eastern curlew	<i>Numenius madagascariensis</i>	Rare
Sooty oystercatcher	<i>Haematopus fuliginosus</i>	Rare
Fish		
Oxleyan pygmy perch	<i>Nannoperca oxleyana</i>	Vulnerable
Reptiles		
Green turtle	<i>Chelonia mydas</i>	Vulnerable
Loggerhead turtle	<i>Caretta caretta</i>	Endangered
Burrowing skink	<i>Ophioscincus truncatus</i>	Rare

3.5 Marine environment

Moreton Island has an interface with the marine environment of around 90km. The natural systems of the island contribute to the maintenance of surrounding seagrass beds and mangrove communities which play a vital role in supporting marine life in Moreton Bay. The seagrass meadows enclosed by the Koorinal-Dunwich-Amity area form around 67% of all seagrass in the Moreton Bay Marine Park and support species such as the vulnerable dugong *Dugong dugon*, the vulnerable green turtle *Chelonia mydas* and the endangered loggerhead turtle *Caretta caretta*. Seagrass beds also occur in the vicinity of Comboyuro Point.

Moreton Bay has the most significant loggerhead turtle population in Australia. Limited numbers of green turtles and loggerhead turtles nest on the shores of Moreton Island each year.

3.6 Cultural heritage values

Moreton Island contains the most undisturbed and diverse range of archaeological evidence of the relationship Aboriginal people have with a coastal wallum environment in south-east Queensland. Other coastal wallum areas have been disturbed by urban development, agriculture, mining and natural erosion.

Extensive site surveys have established that the Nughli people lived on Moreton Island on a permanent basis maintaining a marine-based lifestyle for over 2000 years. Fish, shellfish, dugong, turtle and crustaceans formed a major portion of their diet which was supplemented by fernroot, pandanus and honey. Some literature indicates that as many as 65 plant species were utilised for food. Their connection with the land and sea also had a strong spiritual basis and various animals were considered totems. Evidence also shows Aboriginal people came from Stradbroke Island and the mainland to utilise the rich marine resources of Moreton Island. Likewise the people from Moreton Island attended ceremonies on the mainland, such as the Bunya Festival, with other mainland Aborigines.

Archaeological sites on the island are of considerable importance to the Nughi descendants as a reflection of their heritage. To date, as many as 330 cultural sites have been recorded and include shell and bone scatters, large shell middens and stone quarries. Ethnographic records also indicate that huts and camps were made on either sandy beaches or open forest/woodlands.

Captain Cook made the first recorded European sighting of Moreton Bay and Moreton Island in 1770, followed by Matthew Flinders in 1799. The first European settlement was established in 1848 when the pilot's station was relocated from Amity Point, North Stradbroke Island to Cowan Cowan because of several shipping disasters through the South Passage. The northern end of Moreton became the main passage to and from Moreton Bay, with Queensland's first lighthouse built at Cape Moreton in 1857 from the local sandstone. The Cape Moreton Lighthouse Complex has been listed in the Register of the National Estate and the Queensland Heritage Register. Its structures and landscape setting show an association with the early settlement of the Moreton Bay region and the expansion of the intercolonial shipping trade.

A telegraph line was constructed in the 1890s to service the Cape Moreton lighthouse. This line linked North Stradbroke Island, Koorngal, Bulwer and the lighthouse. The line was abandoned in 1952, but the relics of the old line can still be seen on the island.

A further signal light was established at Cowan Cowan in 1874 and a lighthouse established there by 1899. Around this time, shipping activity had increased as the Brisbane settlement grew. There were many ship-wrecks and loss of life at sea. The graves of many who lost their lives are on the island.

Moreton Island was also used as a first line of defence in the world wars. In WWI, Cowan Cowan Point provided the main defence base. Very little evidence of this base remains because of the natural sand movement processes that occur along the west coast of the island.

World War II saw two large defence battery-complexes built on the island; one at Cowan Cowan and the second at Toompani Beach (the Rous Battery). Also during this war, the Rous Battery Track, Middle Road, and a naval base and jetty at Tangalooma were constructed. The remains of the batteries and a variety of other relics are still present and contain items of historic interest.

Queensland's only whaling station was built in 1952 at Tangalooma and operated over a period of ten years. Remains of the whaling station are now part of the Tangalooma Resort facilities.

3.7 Recreation and aesthetic values

Moreton Island is unique in its offering of self-reliant and nature-based recreational opportunities in a relatively undeveloped island environment so close to Brisbane. Many people go there to seek isolation and seclusion from city living and to enjoy beach-side activities and camping in a safe environment.

The island supports some unique vegetation communities, with many species at their northern or southern-most extension. The island also supports a diversity of fauna species, particularly birds. These values alone are an attraction for nature enthusiasts who come to explore the beauty of Moreton Island.

The beaches of Moreton Island are the most popular areas for visitors and offer a variety of settings. The eastern side of the island offers beach fishing, relative isolation and both formal and informal camping. Cape Moreton provides cultural attractions with the presence of the lighthouse and associated infrastructure. Surfing, snorkelling and rock fishing are possible off the northern end of the island. The western side of the island is popular for extensive formal and informal camping, snorkelling around The Wrecks, and beach fishing. Boating and swimming in quiet, protected waters are popular, as are general beach activities.

The interior of the island, though not as popular as the beaches, provides a variety of walks through heath, woodlands and open forest to high vantage points such as Mt Tempest, as well as to inland lakes. Bushwalking tracks on Moreton Island take visitors to a variety of locations: the summit of Mt Tempest with its spectacular views; Blue Lagoon and Honeyeater Lake for bird watching and wildflowers; the Big Sandhills and Little Sandhills; Cape Moreton and the Old Telegraph Road; and Rous Battery Road through eucalypt open forest and woodland communities.

Sand tobogganing is a popular pastime on the island, particularly in The Desert, and on Big and Little Sandhills.

The south-western area of Moreton Island is less accessible to land vehicles but is popular with visitors who come by boat. Fishing and camping in relative isolation appear to be the main attractions there. The southern end of the island provides for fishing and birdwatching.

Moreton Island is a popular fishing venue for local people. A substantial number are so committed to their pastime that they have formed organised clubs and facilities on the island. Many of Moreton Island's visitors are involved in recreational fishing.

Whale watching is popular between June and November each year, during the annual migration of the humpback whale.

Regionally, Moreton Island is the only sand island in south-east Queensland to remain relatively untouched by human development. In this respect it differs dramatically from the other Moreton Bay islands which offer relatively easy access, growing nature-based tourism industries, and intensive recreational and residential markets.

3.8 Scientific and educational values

The diversity and number of Aboriginal sites on Moreton Island is not replicated elsewhere in south-east Queensland and therefore has considerable scientific value. The rich archaeological deposits also contain valuable information for the region from a geological, zoological and botanical perspective.

Scientific value is also derived from the island's suitability for ongoing benchmark studies of dune processes, aimed at understanding the geomorphological mechanisms involved and the significance of these mechanisms in terms of managing coastal environments. The undisturbed and isolated nature of the island lends itself to scientific studies on the flora, fauna and natural ecosystems.

Moreton Island also provides an educational perspective on the relationships which Aboriginal people had, and continue to have, with the island environment. The value of this relatively intact record is increasing due to the destruction of archaeological sites in other parts of south-east Queensland.

The Queensland Wader Study Group has an extensive shorebird monitoring program in Moreton Bay. Regular monitoring of shorebirds at Mirapool will be included in the program.

3.9 Social and economic values

The social value of places such as Moreton Island lies in the contribution they make to the quality of life for the community. There is an appreciation that these natural environments are protected and will continue to be protected in the future.

The mangrove forests and intertidal mud/sand banks with seagrass also contribute significantly to the inshore marine productivity of Moreton Bay. The mangroves and seagrass meadows, especially in the Moreton Banks area, are the most important commercial fishing grounds in Moreton Bay. They are vital as a breeding ground for commercial species such as bream, whiting, flathead, prawns and sand crabs. The oyster breeding grounds are also heavily dependent on the seagrass beds in the Moreton Banks area.

Tangalooma Resort on the western side of the island bases its business largely on the natural attractions of Moreton Island and adjacent Moreton Bay Marine Park. The resort attracts national and international visitors, bringing tourist dollars to the island and to Queensland. There are also twenty commercial operators currently offering tourism services on Moreton Island. These operators utilise the natural, cultural and recreational values of Moreton Island to generate income.

The outstanding natural setting of Moreton Island also has significant economic value to the Moreton Island townships and their resident communities. Economic benefits flowing on to the island come from visitors using holiday accommodation, shops, kiosks and service stations, as well as employment of staff.

The camping fees and beach permit fees that are paid by visitors to the island are used to manage and protect its natural, social and cultural values.

4 Management strategies

4.1 Natural resource management

Conservation of native vegetation

Desired outcomes

The biodiversity and integrity of the natural ecosystems and plant communities are maintained. Endangered, vulnerable and rare species and 'of concern' communities continue to exist on the island.

Background information

The major threats and potential threats to the conservation of the native vegetation (species and ecosystems) of Moreton Island are:

- inappropriate fire regimes;
- increases in the abundance and dominance of introduced invasive plant species;
- continued or increasing damage by feral animals (particularly pigs and goats);
- destruction or damage to plant species (particularly those which are endangered, rare, or vulnerable) through recreational activities; and
- new invasions of pest plants and animals.

Proposed policies, guidelines and actions

- Develop and implement a fire management strategy that takes into account the ecological requirements of the different vegetation communities and plant and animal species of Moreton Island. The strategy will also provide for monitoring the effects of the fire regimes on communities and species of concern.
- Develop and implement a comprehensive pest plant control strategy for the island. This strategy should include:
 - a list of weed species of concern;
 - distribution map of the weeds;
 - a description of the weeds and recommended control methods;
 - priorities for weed control;
 - mechanisms to reduce the planting of potential environmental weeds; and
 - monitoring of weed control activities
- Develop and implement a scientifically-based and humane feral pig and goat eradication program.
- Map the distribution of the noteworthy plant species (Section 3.3). Assess and manage impacts from fire, weeds, feral animals, recreation and park management.
- Implement any approved recovery plans for rare and threatened species to restore the species to a more secure status.
- Limit development and impacts in areas supporting vegetation communities or species of conservation concern.
- Liaise with tertiary institutions to expand the knowledge of coastal plant communities and species on which to base management decisions.

Conservation of native animals

Desired outcomes

The diversity of native animal species on Moreton Island is maintained.
The populations and habitats of animals of special conservation significance are protected.

Background information

Many of the shorebirds which frequent Moreton Island need to feed, to recover from and prepare for their migratory flights and annual breeding. Disturbances (such as shorebirds having to take off because a person, animal, vehicle or vessel disturbs them) can use up critical energy, thus resulting in the birds dying rather than successfully migrating. Repeated disturbances add to this problem. Disturbances are more critical if they occur in March/April before the shorebirds depart, and in September/October when they have just returned and are recovering.

Migratory shorebirds in the marine park are protected under the Moreton Bay Marine Park Zoning Plan. The statutory intent of the zoning plan relating to shorebird management includes conservation of the shorebird populations and their habitats, and allows for the review and rationalisation of existing activities which do not conform with the purpose of the conservation zone. Existing activities, such as vehicle and personal water-craft access to the Mirapool area seaward of the inland track, are not compatible with conserving shorebird populations and their habitats.

The pied oystercatcher is a prominent feature of the ocean beaches. They nest in the nearby sand dunes where their eggs and young are vulnerable to destruction and disturbance by people on foot and in vehicles. The young chicks are present on the beach during December and January when visitation is at its peak.

Turtle nesting sites are usually located in the vegetated areas of the fore-dunes. However, some nests are also located on the beach above high water mark and are therefore susceptible to damage by vehicles driving over them. Hatchlings generally emerge between January and March.

Fire management will need to ensure that adequate habitat trees, unburnt habitat areas and food sources are retained through mosaic burning patterns.

All horses and most of the goats have now been removed from the island. Feral pigs and cats now represent the biggest threat to the integrity of the native animal communities through predation and/or habitat disturbance.

The occasional cane toad has been recorded on the island in recent times and there is a definite need to minimise the potential for cane toad infestation in the future.

The exotic mosquitofish *Gambusia holbrooki* was introduced to Moreton Island as a biological control agent for mosquitoes and is present in water bodies on the western side of the island. This species should be prevented from entering any further freshwater systems on the island as it represents a general threat to the native fish and frog species.

Torresian crows *Corvus orru* are increasing in numbers on the island, probably in response to increasing food supplies from rubbish and litter. Crows also feed on the eggs and young of other bird species and as a result may be an additional threat to the survival of some species. Improved rubbish and litter management methods should be investigated.

Proposed policies, guidelines and actions

- Limit the potential disturbance to shorebirds in the roost sites at Mirapool, Heath Island and Reeders Point areas through vehicle management and interpretation. Increase awareness of the inland bypass road around Mirapool and encourage its use.
- Prohibit swimming within the Mirapool Lagoon.
- Investigate the potential for seasonal fishing closures and appropriate vessel use within the Mirapool Lagoon, in consultation with DPI Fisheries and the local community.
- Develop a monitoring program in conjunction with the Queensland Wader Study Group to assess the adequacy of the management of shorebird sites and alter management according to findings.
- Increase public awareness of the sensitivity of shorebirds to disturbance.
- Implement any approved recovery plans for rare and threatened species to restore the species to a more secure status.
- Monitor populations of all rare and threatened species (birds, fish, frogs and reptiles) as key indicators of habitat condition and natural integrity and adapt management practices to reduce threats.
- Monitor the population of the pied oystercatcher and manage threats through education and awareness programs.
- Liaise with tertiary institutions on research projects to further our knowledge of the management of native fauna and control of feral animals.
- Barricade known turtle nesting sites on open beaches or campsites to prevent disturbance by passing traffic.
- Ensure that any foredune fencing allows for the movement of turtles.
- Develop a scientifically-based and humane pest animal control strategy with emphasis on feral pig and goat eradication and cat control. This will include:
 - priority areas for control;
 - methodologies for control;
 - recommendations to liaise with the Department of Natural Resources and Water on implementing control programs;
 - responsibilities, time frames and budget for strategy implementation; and
 - a monitoring program to assess the suitability of the strategy in fulfilling the aims.
- Increase public awareness of the problem of the introduction of cane toads and other animal pests such as fire ants to the island.
- Ensure all landscape and building materials brought to the island for use by QPWS are treated in a way that minimises the risk of cane toad, fire ant and other non-native animal introductions.
- Encourage other island stakeholders to implement techniques to minimise the risk of cane toad and fire ant introductions in landscape and building materials.
- Investigate reports of cane toads or other new animal pests on the island as soon as practicable and destroy any such animals located.
- Investigate the adequacy of rubbish and litter management and any associated ecological imbalances. Develop improved waste management strategies in conjunction with Brisbane City Council and other major stakeholders.
- Implement a scientifically-based fire management strategy, which takes into account the ecological requirements of native animal species and includes monitoring of the effects of the fire regimes on them.

Foreshore and dune management

Desired outcomes

Foreshore habitats and fauna and natural regeneration processes are protected.

Background information

Although Moreton Island is predominantly vegetated, its shoreline is subject to the natural processes of erosion and accretion by wind and water. Active dune blowouts and mobile dune sheets occur along the north and north-eastern coast. The eastern beaches from Cape Cliff to the Little Sandhills are naturally eroding systems as are Comboyuro Point and Reeders Point. The position of the shoreline over time in these areas shows a net loss.

In contrast, the Mirapool area is accumulating sand which is slowly becoming vegetated. Over the last 10 years the sand banks at Mirapool have built up and extended eastwards past the original Mirapool Islands. The build-up has extended the south-eastern shoreline and two lagoons have developed which have become significant areas for migratory waders. The Mirapool Lagoon area and adjacent dunes are included within Moreton Island National Park. These areas and the adjacent beaches are also included within the Moreton Island Recreation Area.

Humans contribute to sand movement through four-wheel driving and camping which damages vegetation. Fire can also seriously damage foreshore and dune vegetation. Any loss of vegetation will expose sand and enhance erosion.

Vehicle traffic on the beaches also disturbs the sand fauna, such as soldier crabs at Heath Island and ghost crabs which emerge on the ocean beach at night.

Proposed policies, guidelines and actions

- Manage the natural processes of beach and foreshore accretion and erosion around townships in accordance with current coastal management practices.
- Enforce the use of vehicles on formed tracks and trafficable beaches only.
- Monitor disturbance of vegetated foreshore and dune systems and, where necessary, provide barriers to prevent camping and vehicle traffic.
- Monitor foreshore and dune systems for bitou bush *Chrysanthemoides monilifera* and other potential pest plants such as telegraph weed *Heterotheca grandiflora*.
- Implement a fire management strategy that provides for protection of sensitive dune and foreshore vegetation.

Conservation of freshwater systems

Desired outcome

The water quality and ecological integrity of the freshwater systems on the island is maintained.

Background information

The types of freshwater systems found on Moreton Island are not well conserved elsewhere in south-east Queensland. Protection of these systems is therefore of regional importance. The low nutrient status of the swamp systems must be maintained against the threats from:

- nutrient input, either directly into the water body or through the water table, leading to algal growth and weed invasion; and
- disturbance of water level caused by erosion of the sides of the water bodies or erosion, causing water runoff and stream formation.

The freshwater systems on Moreton Island are regarded as being among the cleanest and most ecologically intact in south-east Queensland. These values need to be protected so that water quality and ecological integrity do not deteriorate.

Most of the freshwater systems on Moreton Island are difficult to reach, which gives them a reasonable level of protection from human impacts. One exception is Blue Lagoon which is a popular recreation site with camping and swimming opportunities. The water quality and the amount of rubbish in Blue Lagoon are key issues to be addressed. Bulwer Swamp also needs to be protected from nutrient and weed incursion and from artificial drainage.

The use of portable toilets by island visitors is a concern because of the lack of suitable effluent disposal or treatment facilities on the island. Inappropriate disposal of the effluent and associated chemicals from portable toilets may pollute groundwater and nearby streams and lakes. Disposal of effluent from portable toilets into existing composting or septic toilet systems kills the biological treatment process and results in system failure.

Proposed policies, guidelines and actions

- Maintain the Blue Lagoon campground as the only campground to be located close to a freshwater lake on the island, to minimise human impacts on the freshwater systems. Prohibit development of all new facilities within 50m of freshwater creeks, lakes and swamps.
- Restrict vehicle activity in the vicinity of the lakes and swamps.
- Ensure road works on the island do not impede or enhance the flow of water from creeks, lakes and swamps.
- Redesign the Blue Lagoon campground and day use area to improve access to the lagoon and toilet facilities and to resolve localised drainage problems.
- Manage access to freshwater lakes and swamps according to the Moreton Island Zoning Scheme.
- Redesign the Eagers Creek campground to remove detrimental impacts on the creek system and cultural values.
- Ensure shower and toilet facilities are properly designed and maintained. Upgraded systems should include adequate facilities to allow for nutrient loads to be removed from the island.
- Provide further toilet facilities for bush-campers to reduce the hygiene and nutrient enrichment problems around campsites.
- Investigate the provision of disposal and/or treatment facilities for effluent from portable toilets.
- Provide interpretation to increase visitor awareness of the sensitivity of freshwater systems to nutrient enrichment and pollution.
- Maintain water quality and ecological integrity of creeks, lakes and swamps at or above their current condition.

4.2 Cultural heritage management

Desired outcomes

The cultural heritage values of Moreton Island are conserved and appropriately presented. Aboriginal involvement in the management of the natural and cultural values of the island is supported and further developed.

Background information

A native title claim has been lodged with the National Native Title Tribunal on behalf of the Quandamooka people, which covers the waters around the southern end of Moreton Island, among other areas. Traditional Owners are becoming increasingly involved in park management, including determining appropriate levels of protection and presentation for identified sites. All park management activities have a cultural dimension and Traditional Owners have a direct interest in caring for country.

Comprehensive archaeological surveys have been undertaken on Moreton Island. Archaeological sites provide an important record of Aboriginal society and utilisation of the island. Many recorded cultural sites show evidence of some form of disturbance through natural erosion, pigs and human development. Some of these sites are already being protected through fencing and signage, such as the stone scatter near Cape Moreton, which shows the stone-working technology of the Aborigines. Other sites require protection, including the site complex near

Eagers Swamp which is being disturbed by four-wheel drive vehicles and camping. A diversity of relics of historic significance such as bunkers and gun emplacements of the world wars, old signal stations, the telegraph line and historic grave sites are scattered throughout the island. These structures are in varying states of repair.

The Cape Moreton Lighthouse property was transferred from the Commonwealth to the State Government under the responsibility of QPWS in 2000. Most of the lighthouse land at Cape Moreton was gazetted as national park. The immediate lightstation area was gazetted as Cape Moreton Conservation Park (3.36ha) to permit leasing of the lighthouse structure and a small service area to the Australian Maritime Safety Authority. An adjacent small area is leased to the Commonwealth Bureau of Meteorology to cover the existing automatic weather station.

One of the main issues for the conservation park is the maintenance of the buildings.

The former Commonwealth lands are not included within the Moreton Island Recreation Area. The addition of these areas to the recreation area would provide for consistency of management across the whole planning area. The gazettal of these areas as part of the recreation area will require the agreement of the Quandamooka Land Council.

Proposed policies, guidelines and actions

- Increase public awareness of the cultural heritage values of the island and the need for their protection. Information on Aboriginal cultural heritage will be developed with the Quandamooka people and will respect their cultural ownership and privacy.
- Continue the employment of Traditional Owners as QPWS staff on Moreton Island to facilitate a high level of indigenous involvement in park management activities.
- Work co-operatively with the Quandamooka people in the assessment and provision of all new facilities for the island to ensure that sites of cultural significance are not impacted adversely.
- Ensure that the Quandamooka people are consulted in relation to the fire management strategy and prior to any prescribed burns.
- Provide opportunities for the Quandamooka people to establish an indigenous tourism program on the island.
- Redesign the Eagers Creek campground to remove detrimental impacts on its environmental and cultural values. Provide improved opportunities for Traditional Owners to spend time at Eagers Creek.
- Produce an inventory and conservation plan for the WWII sites. This may include allowing some of them to naturally erode away. Visitor safety should be considered as a priority in determining management actions.
- Protect cultural heritage structures from fire.
- Initiate a program for the repair and maintenance of the buildings within the Cape Moreton Conservation Park.
- Develop a cultural heritage management strategy in close liaison with Quandamooka and relevant historical societies.
- The cultural heritage management strategy will include cultural heritage management protocols and reference to the need for indigenous ranger involvement in the development and implementation of a cultural heritage management schedule.
- Incorporate cultural heritage management principles in visitor management programs and future visitor management action plans.
- Provide cultural heritage awareness and management training to all Moreton Island QPWS staff.
- Provide training in, and Delegation of Authority under, the *Aboriginal Cultural Heritage Act 2003* to Moreton Island QPWS staff.
- Include the former Commonwealth lands at Cape Moreton within the Moreton Island Recreation Area subject to the agreement of the Quandamooka people.
- Recognise the importance of the middens at Toulkerrie and exercise extreme care during road maintenance there.

4.3 Recreation, tourism and visitor use

Recreation: opportunities, facilities and management

Desired outcome

A diverse range of safe, sustainable, nature-based recreational opportunities and facilities, which protect, promote and reflect the natural and cultural values of Moreton Island are provided.

Background information

Moreton Island is unique in offering self-reliant and nature-based recreational opportunities in a relatively undeveloped island environment close to Brisbane. In this respect, it differs dramatically from other Moreton Bay islands, which have been subject to higher levels of development. Many people visit Moreton Island to seek isolation and seclusion and to enjoy beachside activities and camping with their families or friends in a safe and quiet environment.

Preserving the very values that attract visitors to Moreton Island necessitates incorporating measures to ensure that infrastructure development and recreational pressures do not diminish its much sought after values. This is reflected in the vision for the island:

“The protected areas of Moreton Island will remain and be managed as a relatively undisturbed coastal landscape where people will continue to access and enjoy the island’s regionally unique, nature-based recreational activities. Conservation of the island’s natural communities and species and rich cultural heritage will be the key focus of management.”

To achieve this vision, it will be necessary to ensure that the protected areas of Moreton Island remain as natural as possible, with minimal development of hard surfaces and facilities.

Recreation is largely concentrated on the beach and adjacent waters where fishing and water activities are enjoyed in a quiet and natural setting. The west coast provides calmer waters and a relatively safe environment in which to enjoy these beach activities. The east coast provides fishing opportunities and is popular for those who appreciate its relative isolation.

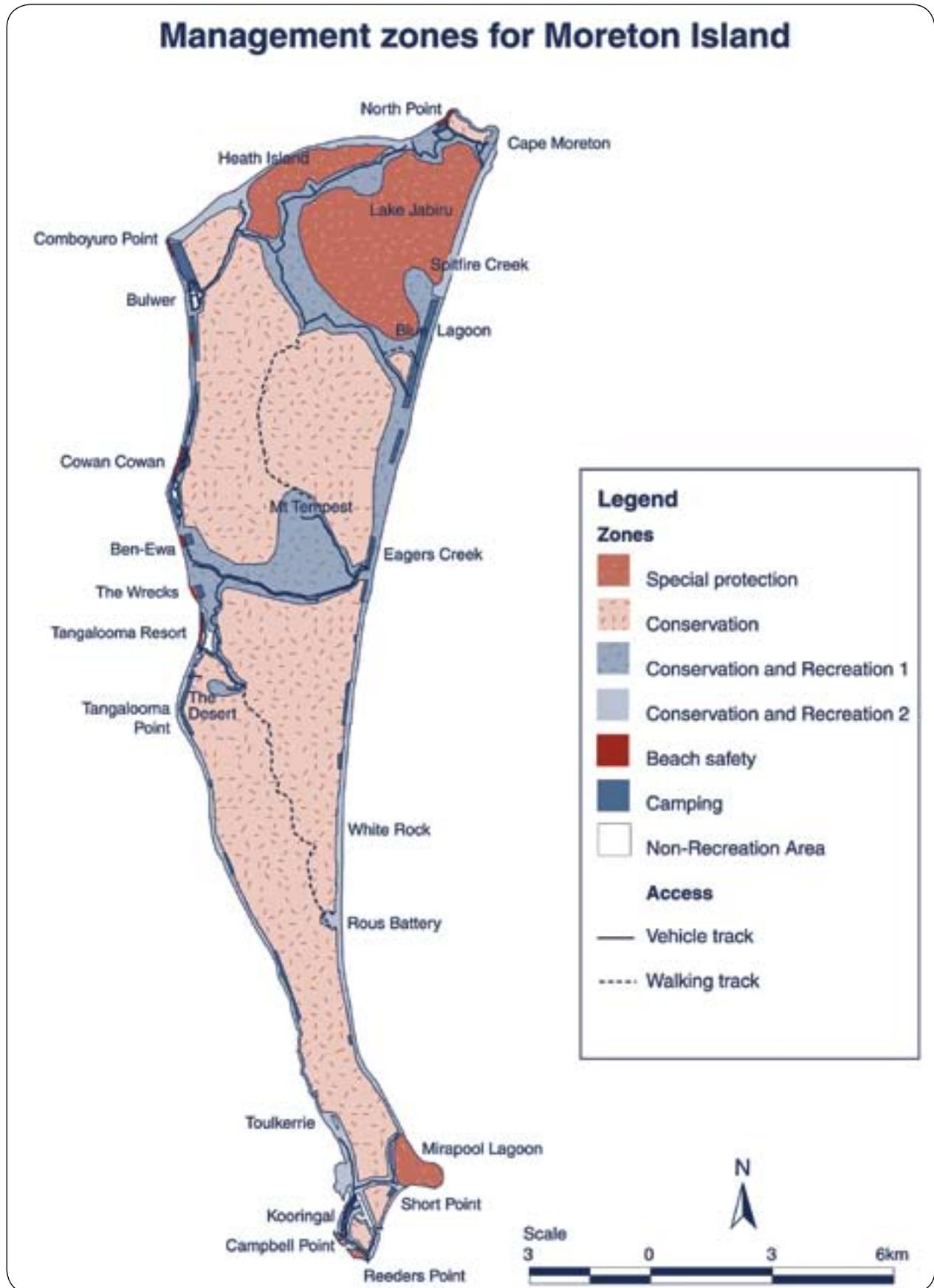
A variety of camping opportunities is provided along both the east and western beaches, ranging from developed campgrounds with defined sites and toilet and shower facilities, through to beach camping where limited or no facilities are provided. Some interpretive information is displayed in key areas.

The interior of the island, though not as popular as the beaches, provides for a variety of nature-based activities with sand roads and walking tracks in a relatively undisturbed coastal setting. Sand tobogganing occurs on several of the island’s exposed dunes.

Cape Moreton is another frequently visited area and QPWS has established an interpretation centre in one of the houses there. Cape Moreton provides visitors with panoramic views of Moreton Island and the Pacific Ocean and is a good location for whale watching.

It is considered important to manage recreation in order to protect the island’s high natural, cultural and social values. Management should also have due consideration for the safety of users and dangerous activities should be discouraged.

Management zones for Moreton Island



Moreton Island management zones

Four discrete zones have been applied to specific areas of the island to assist with the management of its natural, cultural and recreational values. Zoning has been determined according to the conservation values of the area, the sensitivity of those values to impacts, existing uses and the desire to retain the social setting which the island currently provides.

The zones set out appropriate access, facility development, recreational opportunities, interpretation requirements and management purposes for different areas of the island. Map 3 shows the location of the zones on the island.

Each management zone requires a specific level and type of public contact and interpretation.

Special protection zones

Areas within this zone have special conservation values and will be managed primarily to protect natural or cultural resources. Significant shorebird habitat (Mirapool Lagoon, Heath Island, Reeders Point) and freshwater habitats (Lake Jabiru-Spitfire Creek area) are examples of values in the special protection zone.

Vehicle access will be managed to prevent undue disturbance to the values. Access tracks and other facilities will not be provided and pedestrian access will not be encouraged.

Facilities, interpretive signage and vehicle and walking tracks will be limited to the boundaries of this zone and will be used for the management of the intended values only. The specific strategies for the four special protection zones are:

- Heath Island Intertidal Area: Discourage the use of vehicles on the mud-flats to protect the soldier crabs and shorebirds which use the area. Vehicle traffic will be managed through signage according to seasonal conditions. Traffic to North Point will be encouraged to use the inland bypass track through directional signage.
- Lake Jabiru-Spitfire Creek area: Vehicle access prohibited. No vehicular or pedestrian tracks to be provided.
- Mirapool Lagoon and ocean beach area: Manage access to minimize the disturbance to feeding and roosting shorebirds. Encourage the use of the inland bypass track. Undertake a 12 month trial of allowing vehicle access along the beach only below half tide and with a speed limit of 30 km/h. Provide public education on and off site to identify the reasons for restrictions. Provide parking space nearby to encourage walk-in use and undertake improvements to the alternative access track. If the trial is not successful in reducing disturbance to shorebirds, introduce a seasonal beach closure between and including September and April (subject to ongoing use of the area as a major high tide shorebird roost). Vehicles will then be required to use the upgraded inland bypass track during this period.
- Reeders Point-Campbell Point area: Encourage residents and visitors to limit the use of vehicles in this area. Encourage barge operators to minimize the disturbance to feeding and roosting shorebirds.

Interpretation relating to this zone should be concentrated off-site as much as possible, either as pre-visit information or information at the major interpretive sites on Moreton Island such as campgrounds and the Information Centre. Information about each area and its wildlife should be provided. This material should not promote these sites as major recreation destinations but instead highlight the need for protection and appropriate visitor behaviour. On-site interpretation in the form of physical structures or signs should be limited to the edge of this zone.

Key messages will be:

- conservation of landscapes, natural and cultural resources;
- protection of migratory and residential shorebirds and their habitat; and
- appropriate minimal impact behaviours.

Conservation zones

This zone covers areas which support fragile ecosystems or species, or areas of cultural significance which are subject to degradation from human disturbance. These must remain relatively undisturbed by recreational activities but may provide for low key nature-based activities such as bushwalking, wildflower viewing and birdwatching. It will be important to manage impacts of recreation in these areas.

Low-impact walking trails may be present in these zones but no other visitor facilities and infrastructure will be provided.

As these areas are of high conservation significance, interpretation should highlight low impact, environmentally sensitive use and encourage an appreciation of natural and cultural values. Interpretation should be concentrated off-site as much as possible, either as pre-visit information or information at the major interpretive sites. Limited on-site structures or signs may include directional signage and interpretation of highly significant features.

Key messages will be:

- conservation of landscapes, natural and cultural resources;
- minimal impact behaviours, environmentally sensitive use of the environment; and
- safety and orientation information.

Conservation and recreation zones

This zone includes places where most recreational activities occur and will be suitably managed for a combination of its natural, cultural and recreational values. Camping areas are included within this zone. These are marked on the zoning plan (Map 3).

Vehicle tracks and walking trails provide access to the recreational opportunities.

Facilities, infrastructure and interpretation will be provided, as necessary, to ensure protection and enjoyment of the natural and cultural values, and to promote visitor awareness and safety.

The conservation and recreation zone has been separated into two categories, 'Conservation and Recreation 1' and 'Conservation and Recreation 2', as an indication of the preferred focus of visitor activity. The categories differ in the extent of the facilities provided.

Conservation and Recreation 1

This zone includes the major campgrounds and popular visitor destinations. It will be the focus of developed infrastructure and on-site interpretation. These are the areas where recreational activities will be promoted and higher levels of visitation will occur.

Identified vehicle tracks and walking trails provide access to the recreational opportunities available. Infrastructure development will protect and enhance visitor enjoyment of the natural and cultural values of the area. Structures will remain in keeping with the natural surroundings and will not impact on the values of the area.

Interpretation will be provided to ensure protection and enjoyment of the natural and cultural values and to promote minimal impact behaviours, visitor awareness and safety. This can be through both written and face-to-face interpretation and ranger patrols. Off-site interpretation is also appropriate.

On-site interpretation should be site-specific, at points of interest or special features and at camping grounds. Some interpretation may also be needed at highly used recreation areas. Pre-visit information or information at the Cape Moreton Information Centre is also appropriate. There are many opportunities for face-to-face interpretive programs and ranger patrols within campgrounds, major recreation areas and feature sites.

Any signs required in this zone should combine with existing infrastructure if possible. Signs should always consider the natural aesthetics of the site and be relatively unobtrusive.

Key messages will be:

- natural and cultural values of the island;
- minimal impact use of the environment, particularly for four-wheel driving and camping;
- recreational opportunities on the island; and
- safety and orientation information.

Conservation and Recreation 2

These areas within the conservation and recreation zone occur along the coastline where access is constrained by topography and tidal movements. They provide for dispersed recreational activity.

Vehicle access will be along trafficable beaches with no formed vehicle tracks provided. Identified walking trails may be provided to enhance recreation opportunities. Facilities will be limited to those required for enhanced visitor safety or protection of natural and cultural values.

This area will have some opportunity for on-site interpretation, though at a lower level than in the Conservation and Recreation 1 zone. Interpretation should be provided where necessary to ensure protection and enjoyment of the natural and cultural values and to promote minimal impact behaviours, visitor awareness and safety. This can be through both written and face-to-face interpretation. Off-site interpretation is also appropriate for this zone.

On-site interpretation should be site specific, at points of interest or special features and at camping grounds. Some interpretation may also be needed at highly used recreation areas. Forms of on-site interpretation should always consider the natural aesthetics of the site and be relatively unobtrusive. Pre-visit information or information at the Information Centre is also appropriate. There are opportunities for face-to-face programs and ranger patrols within campgrounds, major recreation areas and feature sites.

Key messages will be:

- natural and cultural values of the island;
- minimal impact use of the environment, particularly four-wheel driving and camping;
- recreational opportunities on the island; and
- safety and orientation information.

Beach safety zone

This zone provides for areas where pedestrian-vehicle interactions are minimised and where safety for beach pedestrians is actively promoted.

Infrastructure and interpretation are likely to be required to manage vehicle access to these areas and potentially to provide vehicle parking areas. These facilities should promote the purpose of these areas and ensure that human safety is not compromised.

The areas within this zone are located on the beaches adjacent to:

- North Point campground;
- Ben-Ewa campground;
- Comboyuro Point campground;
- The Wrecks campground;
- Cowan Cowan township;
- Barge landing areas at Reeder's Point, The Wrecks and Bulwer; and
- The permit to occupy in front of Tangalooma Resort.

These areas have been chosen on the basis of their proximity to proposed or existing major campgrounds, busy vehicle congregation points, or population centres. The vehicle speed limit will be set at 30km/h. The beaches at Cowan Cowan and Tangalooma are closed to public vehicle access at all times. The beaches adjacent to the campgrounds at North Point and Comboyuro Point will also be closed to public vehicle traffic at all times. Public use of the beach safety zone at North Point will be monitored and its effectiveness assessed and reviewed after 12 months. Seasonal closure of beaches or sections of beaches adjacent to other major campgrounds may be introduced during peak visitation periods or as required for safety purposes.

Interpretation will be used to help manage vehicle access to the other areas and ensure human safety is not compromised.

Regulatory, interpretive or directional signs should be permanently on-site at beach safety zones. Pre-visit publications are also useful for disseminating safety information, along with written information in major campgrounds and the information centre.

The key message will be:

- The location of beach safety zones, their purpose with regard to pedestrian safety and appropriate vehicle speed limits and/or restrictions.

Proposed policies, guidelines and actions

- Work co-operatively with the Quandamooka people in the assessment and provision of all new facilities for the island to ensure that sites of cultural significance are not impacted adversely.
- Implement the provisions of the management zones.
- Ensure that the future development of visitor facilities and infrastructure adheres to the zoning scheme outlined above.
- Ensure that the design of facilities is in keeping with the natural surroundings and does not impact on the values of the area.
- Assess the landscape setting at selected sites in each management zone, using the QPWS Landscape Classification System, and monitor over time to maximise the protection of the island's natural condition.
- Prepare and implement a public contact strategy which details methods and priorities for the provision of visitor information and interpretation.
- Maintain walking tracks in good condition with appropriate signage at access points to allow visitors to identify the tracks easily. Close walking tracks which are having detrimental impacts on conservation values.
- Promote visitor behaviour that is safe and causes minimum impact on the environment.
- Close the beaches at North Point and Comboyuro Point to public vehicle traffic..
- Monitor the safety zone at North Point and review its effectiveness in 12 months.

Visitor access and transport

Desired outcome

Access to and within the planning area does not compromise the natural integrity of the island's resources or diminish the quality of other visitors' experiences.

Background information

Access to the island

Access to Moreton Island is restricted naturally by virtue of its relative isolation and distance from the mainland. Vehicle access to the island is provided by barge operators running from Scarborough to Bulwer, from the Brisbane Port to the Tangalooma Wrecks and from North Stradbroke Island to Koorlingal. The Tangalooma Resort offers passenger transport to Moreton Island via passenger ferries. Several additional commercial operators and charter operators also provide passenger transport to the island. Many people also use private boats to travel to the island for day trips, camping or commuting to and from the townships.

Personal watercraft such as jet skis are also used to access some locations on the island, but are generally regarded by other users as noisy and disruptive.

There is also limited transport by private aeroplane or helicopter. Access by aircraft is limited to the Tangalooma Resort-operated helicopter landing pad and airstrip. Airstrips near Cowan Cowan and Koorlingal and helipads in all townships and at Cape Moreton accommodate emergency aircraft only. No aircraft landing is permitted on the beaches.

Access within the island

Access to the interior of the island and around the island is restricted to pedestrian access or motorised vehicles which have current Queensland Transport registration. Conventional two-wheel drive access on the island is not appropriate and four-wheel driving is the main mode of transport. Private vehicle use within the island is subject to permits.

Quads and trikes (four and three-wheel motor bikes) and trail bikes are used by township residents for transport around the island. Residents are required to have these vehicles road-registered through Queensland Transport and have a police permit for their use on the island. They represent a safety threat to pedestrians when driven on the walking tracks and there is substantial evidence of environmental damage from off-track use of these vehicles.

Commercial tours generally take their clients to natural sites of interest and the cultural site at Cape Moreton. A taxi service and four-wheel drive hire also operate on the island. There is currently a variety of walking tracks through the interior of the island and beach walking is popular. At present, there are limited opportunities for beach walking without disturbance from vehicles.

Motorised transport access on the island creates a number of concerns:

- vehicle use on sand dunes, especially foredunes, can initiate and accelerate erosion and reduce new dune formation. Dune vegetation has a low threshold for damage from vehicle activity;
- disturbance of beach nesting and feeding seabirds and migratory birds which use the shoreline;
- spread of weeds and pathogens through soil and other debris;
- safety issues with dual use by pedestrians and vehicles on the beach; and
- intrusion on visual amenity which can be accentuated by large groups of vehicles traveling together, or by frequent encounters with large capacity vehicles.

Proposed guidelines and actions

- Limit the number of camping permits issued per night according to the seasonal pattern presented in Tables 1 and 2.
- Limit the number of permitted barge landing sites.
- Designate Bulwer and The Wrecks as the main barge landing points for the island.
- Maintain the barge service at Koorinal as a low volume operation to North Stradbroke Island, to protect the social characteristics and environmental values of the southern part of Moreton Island from overuse.
- Review commercial operator permits or agreements to reflect site capacities and equity of access for all users.
- Implement and publicise the zoning scheme to help manage access to sensitive sites and ensure tracks are not constructed in sensitive ecosystems.
- Restrict motorised transport to designated vehicle tracks and beaches. No provision will be made for conventional two-wheel drive access.
- Continue to grant permission for the use of quads, trikes and trail bikes to island landholders and residents only.
- Introduce conditions of use to Vehicle Service Permit exemptions issued to landholders and residents for quads, trikes and trail bikes including;
 - designation of permitted routes within the recreation area and national park being restricted to major vehicle thoroughfares, and
 - permanent cancellation of Vehicle Service permit exemptions in cases of infringement of conditions of use.
- Undertake enforcement of permit conditions for quads, trikes and trail bikes.
- Ensure that sand roads are maintained in a way that does not accelerate erosion or impact on adjacent natural or cultural values.

- Ensure that most of the road network remains as natural sand or earth surface, with minimal hardening and no widening.
- Erect notices to regulate the movement of vehicles on the island.
- Review vehicle access to campsites as part of the proposed camping management plan. Confine traffic to designated tracks and beaches. Close and rehabilitate degraded areas.
- Manage access points across dunes and maintain them in such a way that erosion is minimised.
- Locate tracks away from sensitive areas such as driftlines, young dunes, leading edges of expanding dunes, older stable dunes and heathlands. Tracks should only be constructed in accordance with the zoning scheme for the island.
- Restrict aircraft to existing landing strips. No new landing strips will be developed.
- Designate all helipads in the planning area for emergency use only, as approved by the Civil Aviation Safety Authority.
- Encourage greater pedestrian use and provide information outlining the walking tracks available.
- Investigate options for more walking and bush-camping opportunities, other than in the Special Protection Zone.
- Develop a cross-island walking track adjacent to Middle Road.
- Upgrade facilities and signage at Cape Moreton to improve safety and access and provide better opportunities for whale watching and appreciating the panoramic views.

Visitor safety

Desired outcome

Safety risks to visitors to Moreton Island National Park, Cape Moreton Conservation Park and Moreton Island Recreation Area are minimised.

Background information

QPWS aims to minimise safety risks to visitors. Part of this risk reduction involves managing conflicting activities where there is the possibility of danger to user groups.

Visitor safety on Moreton Island depends largely on good visitor behaviour and general goodwill. One of the main threats to visitor safety arises from vehicle use along the beaches and inland tracks. Speed limits of either 30 or 40km/h apply to inland tracks. Speed limits are generally restricted to 60km/h on the beaches with some areas reduced to 30km/h. The danger arises where pedestrians forget about the use of vehicles on the beach and cross the sand absent-mindedly. Children are at particular risk. Likewise, some drivers appear to treat the beaches as freeway access. These behaviours, coupled with the ability of wind and water to drown out the noise of vehicles, create a potentially dangerous situation.

Another dangerous activity is sand tobogganing on the foredunes which end on the beaches. People who use these dunes endanger themselves in their rapid descent straight into the path of vehicles.

Beaches and lakes are not patrolled by lifeguards. The eastern beach is not suitable for swimming as there may be rips and sharks. Visitors to Cape Moreton also need to take care near cliff edges.

Wildfire poses some risk to park users, particularly off-track walkers and those using the inland tracks.

Emergency services on the island consist of a full-time ambulance service during peak visitor periods and a 24-hour honorary ambulance officer operating out of Cowan Cowan at other times. Patients can be airlifted as required. During the peak Easter and Christmas times, police from the mainland are stationed at Moreton Island to help deal with emergencies, inappropriate behaviour and traffic regulation. Options for locating a police station on the island are being investigated.

Access along the eastern side of the island is sometimes restricted when beach rock is exposed. An options paper prepared in August 2000 recommended scraping and filling exposed beach rock to provide low tide to mid tide access to vehicles. Opening the Rous Battery Track is not a consideration as it was the most expensive option with access being much slower and unstable. It would also result in the loss of a unique bushwalking experience.

Proposed policies, guidelines and actions

- Establish beach safety zones (as per above) at major campgrounds and barge landing points and introduce reduced speed limits and/or closures to maximise safety for beach users.
- Continue to highlight safety issues in visitor information.
- Prohibit sand tobogganing on the western facing dunes between The Wrecks and Ben-Ewa, for safety reasons, and provide regulatory notices to inform users of this restriction.
- Prohibit the use of wind-powered vehicles, hang gliders, parachutes and para-gliders.
- Liaise with police on speed limit enforcement on the island.
- Maintain distance markers on the eastern beach to assist visitors to identify their location.
- Use interpretive measures to increase the awareness of speed limits on the island.
- Advise visitors of safe practices and behaviour on the island.
- Restrict the use of camp fires to designated campgrounds. Develop a camping strategy which identifies campgrounds where fires can be lit.
- Continue to liaise with the Moreton Island Essential Services Group to maintain a safe environment on Moreton Island.
- Maintain low tide to mid tide vehicle access along the eastern beach.
- Close long distance inland walking tracks in times of high fire danger.

Visitor expectations

Desired outcome

Visitors are provided with information to guide their expectations of the island and comments from visitors are used to improve future management.

Background information

A survey of the visitors to Moreton Island started in December 2004. The results of the survey will be used to assist in future planning and management of the island and its visitors.

The survey asks visitors to the island for information on their activities, destinations, choice of accommodation, information sources, services used and satisfaction levels. It also requests suggestions on extra services and better ways to manage the island and meet the needs and interests of visitors.

From past experience most visitors appear to enjoy the relative peace and isolation which Moreton Island offers. They appreciate the opportunity to experience a clean, natural setting with minimal interaction with other visitors. During quieter times of year, visitors expect to find large areas of the coastal strip where there is little to no interaction with others. They may expect occasional interaction with other visitors in the high profile areas of the island, particularly on weekends. Regular peak season visitors to Moreton Island may have a different expectation from those who regularly visit at other times. They are likely to be satisfied with the peak time visitor experience as they are prepared for the greater interaction with other visitors.

Proposed policies, guidelines and actions

- Use the results of the recent visitor survey to refine future planning and management of the island and visitation.
- Conduct similar surveys on a regular basis to monitor visitor use and satisfaction.
- Provide visitors with information to guide their expectations and improve their satisfaction levels.

Camping

Desired outcome

A range of camping opportunities consistent with the protection of Moreton Island’s natural ecosystems is provided.

Background information

Camping opportunities vary from well developed sites with facilities such as showers, toilets and interpretive displays and which are capable of taking large groups, to isolated individual sites which have no facilities. The collection of firewood is not permitted. The use of camp fires at some camping locations creates a risk of wildfire and needs to be better managed. The transport of firewood to the island poses a risk of introducing weeds, cane toads and fire ants. This risk needs to be communicated and visitors encouraged to take precautions.

Camping on Moreton Island is restricted by limited availability of suitable sites and some management fencing and signs. At peak times, designated campsites are in strong demand and in the absence of a site booking system, campers must take what is available when they arrive on the island. Peak periods can see popular sites overwhelmed and the creation of campsites ad hoc. This activity is routinely discouraged by rangers and campers are moved on. The formation of new campsites and new access routes causes environmental damage to sensitive ecosystems. There is also a danger of incremental erosion and enlargement of some designated campsites. The development of a campsite booking system will ensure campers have access to a designated site and reduce problems associated with ad hoc site creation and expansion. A campsite condition monitoring program has commenced and this will enable objective assessment of site quality over time and provide a basis for remedial action.

Camping on Moreton Island has become more popular each year since at least 1998. Table 1 shows that the annual total of camping permits issued increased from 5756 in 1998/99 to 9918 in 2003/04 (an increase of 72%). During peak periods, this resulted in overcrowding at campgrounds, overuse of the facilities and the formation of undesignated campsites at inappropriate locations. Analysis of the camping statistics from 1998 to 2004 shows four peaks of visitation– in January, April (Easter), September and December– with moderate visitation over the remaining summer months and lowest visitation in winter.

	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
98-99	344	358	482	575	508	467	463	323	559	1054	253	370	5756
99-00	326	389	779	698	607	613	893	442	616	385	350	242	6340
00-01	472	416	912	572	577	1316	1143	452	658	765	383	466	8132
01-02	448	573	836	721	721	1415	1150	650	944	586	440	412	8896
02-03	518	466	1005	657	476	1643	1314	308	413	1271	427	431	8929
03-04	594	288	1087	702	647	1744	1248	507	527	1623	331	620	9918
Draft Plan	450	450	950	700	620	1000	950	450	650	1000	350	410	7980
Final Plan	620	620	1240	930	930	1240	1240	930	930	1240	620	620	11160

Table 1. Number of camping permits issued per month from July 1998 to June 2004, with the proposed monthly limit from the draft management plan and the revised plan.

	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Campsites available per night	180	180	360	270	270	360	360	270	270	360	180	180
Maximum campers per night	720	720	1440	1080	1080	1440	1440	1080	1080	1440	720	1080

Table 2. Seasonal variation in the number of campsites available and maximum number of campers allowed at any one time.

Providing seasonal variation in camping capacity on Moreton Island is necessary to maintain the social characteristics associated with having a range of visitation levels available. Visitors who wish to have a sense of isolation and seclusion can choose an appropriate time of year to visit, while a busier, more social environment is available at peak times.

Seasonal variation in visitation levels will also reduce visitor impacts on wildlife, particularly shorebirds that are adversely affected by beach camping and beach driving.

Maintenance of the campgrounds (mowing and weed control) and campground infrastructure (toilets and signage) also requires quiet periods to allow access by park rangers or contractors. Furthermore, toilet facilities in the campgrounds cannot cope with peak usage all year. The water supply for showers and toilets is also limited and may not be sustainable at peak levels throughout the year.

Seasonal variation in camping levels is also required to allow resting of campsites for ecological regeneration and to allow rangers to perform other duties such as prescribed burning and other conservation and cultural heritage management programs.

All campsites on Moreton Island have been mapped and a total of 360 sites identified. Camping will be managed to ensure that the carrying capacity of the island is not exceeded during peak times and that there are times of the year when visitation is well below maximum capacity, to provide a range of visitor experiences and ensure that use of the island is ecologically sustainable. A campsite monitoring program has been initiated to record changes in the extent of disturbance of selected camp sites. This includes photographic monitoring in selected campgrounds and regular assessment of size of the site and condition of shade trees.

In order to maintain the seasonal variation in visitation, campsite carrying capacity will be set at 100% during January, April (Easter), September and December; at 75% during February, March, October and November; and at 50% during May, June, July and August. The proposed pattern of seasonal variation provides for visitation to be reduced in peak times, but increased in off-peak times, with an overall increase of 12.5 % compared to the 2003-4 season.

Some user groups have a tendency to tie up favourite campsites (usually those with facilities available) at the exclusion of others. These campsites can be occupied with tents for considerable periods without personal occupation. They are commonly referred to as “ghost camps”.

A new campground at North Point on the former squatters’ site has been developed. The establishment of the campground will allow for the closure of some campsites at Yellow Patch and Heath Island. The campground has been designed to minimise ecological impacts and maintain the natural qualities of the area. Sustainable waste-water treatment and use of solar technologies for water pumping are key design features. QPWS has worked closely with the Quandamooka people to develop the campground design and reduce its impact on the environment and cultural heritage values of the area.

Proposed policies guidelines and actions

- Ensure that camping opportunities are confined to the camping areas as outlined in the zoning scheme.
- Implement a campsite booking system with seasonal variation in campsite capacity as per Tables 1 and 2. Allocate seasonal variation in carrying capacity evenly across all camping locations or precincts. Bookings will be made for a camping location rather than for a particular site.
- Designated camping locations and campsites will be named and/or numbered to facilitate the booking system and increase safety for visitors.
- Dedicate some campsites as “group sites” which can be used by commercial operators or other organised groups.
- Designate campgrounds where camp fires will be permitted and ban camp fires in other locations.
- Advise visitors that the transport of firewood to the island poses a risk of introducing weeds, cane toads and fire ants and encourage them to take precautions.

- The use of generators is not permitted in developed campgrounds.
- Remove ghost camps and camps set up for more than 30 days in line with provisions under the *Recreation Areas Management Act 1988* where required to rest campgrounds or make the site available for other visitors.
- Maintain the campsite condition monitoring program to record changes in the extent of disturbance of selected campsites. This may include photographic monitoring in selected campgrounds and regular assessment of size of the site and condition of shade trees.
- Camping areas which show signs of detrimental impacts should be closed for rehabilitation.
- Keep artificial site definition at bush campsites to a minimum in order to protect the naturalness of the island's remote settings.
- Provide visitors with information on minimal impact camping.
- Prepare a camping management plan to refine and co-ordinate all of the above actions.

Commercial operations

Desired outcome

Commercial tour operations provide quality experiences and respect the integrity of the island's natural and cultural resources and other visitors' rights and needs.

Background information

Commercial activities are those that are conducted by any person, company or organisation for financial reward. Commercial activities within recreation areas and national parks require permits or deeds of agreement and commercial operators must abide by the specified conditions.

Commercial tour operator permits are presently issued to twenty commercial operators on Moreton Island. These operators vary from a large resort to smaller operators who offer guided day tours or camping.

Existing commercial activities offered on the island are varied and include:

- four-wheel drive tours with cultural and natural interpretation;
- camping with provision for large groups including schools;
- whale watching;
- four-wheel drive hire;
- picnic day trips;
- sand tobogganing;
- fishing; and
- scuba diving and snorkelling.

Commercial operators derive financial reward from the island. In return they assist island management by passing on park information to their clients, encouraging good client behaviour and providing assistance in emergency situations.

Commercial operators currently provide for the majority of day-use visitation to the protected areas of Moreton Island. Day-use visitation with commercial tour operators increased from 19,904 in 1998-99 to 45,160 in 2003-04.

The level of independent day-use of the island is not well known, but is likely to include boat-based visitation (private and charter) and visits by township residents and guests and by time-share owners and some resort guests. Better information on independent day-use should be sought.

Commercial operators also provide camping tours and contribute significantly to the use of the available camping opportunities on the island. This use varies seasonally and the ratio of commercial visitors to independent visitors varies throughout the year and is generally lowest during periods of peak visitation. The Traditional Owners of Moreton Island have expressed the desire to develop indigenous tourism ventures and also to spend more time on the island. These uses will also need to be considered in the allocation of site capacity to commercial operators.

Tour operators mainly use four-wheel drive vehicles to transport their clients around the island. Some operators use buses for large groups. There are currently eight commercial operators conducting large group day-use tours and eight commercial operators conducting large group overnight camping tours. A large group is defined as 15 or more persons and a bus (or large vehicle) is defined as having capacity for 15 or more. There are currently 13 buses and 46 smaller vehicles (capacity fewer than 15 persons) with permits to operate on the island.

Large vehicles offer economy of scale and provide opportunities for large groups to visit the island's attractions. They do, however, cause damage to sand tracks, especially during periods of dry weather, and can leave deep wheel ruts which may cause difficulties for other vehicles. Buses can also dominate parking bays and create difficulties for passing traffic on narrow two-way roads. Future commercial tour operator agreements will be used to negotiate criteria for vehicle specifications for sand island use and to prescribe designated routes.

Large vehicles and large groups of people can also detract from the visual and social amenity of the island for independent visitors.

For these reasons it is necessary to limit the number of large vehicles, large groups of people and overall visitation levels, so as to retain the island's regionally unique visitor setting and protect its natural, cultural and recreational values. Equity of access for commercial and independent visitors and Aboriginal people needs to be provided for, in conjunction with determining the physical and social carrying capacities of the various sites and zones on the island.

Commercial operators should be encouraged to provide added value to their tours, particularly in relation to providing additional educational programs which present the island's natural and cultural values and support their conservation.

Proposed policies, guidelines and actions

- Extend the carrying capacity study for camping locations to day-use destinations and undertake Sustainable Visitor Capacity assessments for Premium Visitor Sites in accordance with the Tourism in Protected Areas policy. Use the results to determine an appropriate balance between commercial, independent and Aboriginal use of camping and day-use facilities.
- Monitor independent day-use of the planning area and include independent day-use levels in the carrying capacity study and allocation of equitable access to day-use sites.
- Replace commercial operator permits with commercial agreements which take into account the carrying capacity of individual sites and equity of access for all users.
- Ensure that commercial use of the island continues to be appropriate to its largely natural and tranquil setting.
- Protect scenic amenity and landscape settings by limiting commercial operations to the current levels until the Sustainable Visitor Capacity assessments are completed, which is planned to be within two years of the commencement of this plan.
- Ensure that all commercial vehicles, including buses, are suitable for use on the narrow winding roads on the island and are capable of operation on a sand island environment.
- Future commercial tour operator permits or agreements will establish criteria for vehicle specifications for sand island use and will prescribe designated routes.
- Monitor and regularly assess the compatibility of tour operator activities with the management of conservation and recreation values of the island.
- Ensure that the information commercial operators give to clients in relation to the protection of natural and cultural resources, history and visitor behaviour is appropriate and engenders protection of the island.
- Encourage value-adding to commercial operations, particularly in relation to educational programs which present the natural and cultural values of the island and support their conservation.

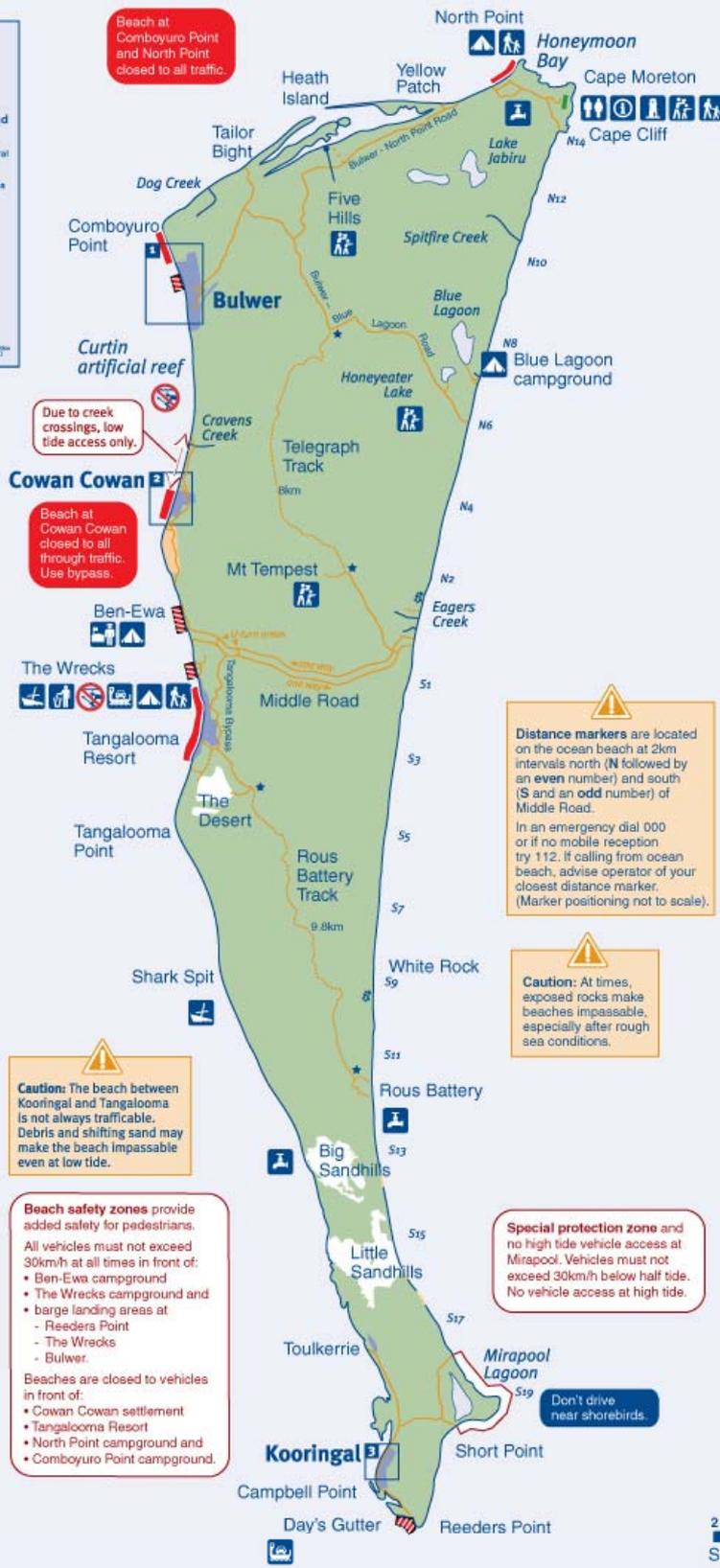
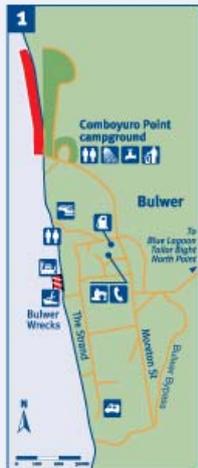
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Moreton Island National Park and Recreation Area



Legend

- Conservation park
- Settlements
- Sand
- No vehicle access
- 30km/h zone
- Special protection zone and low tide access only
- Vehicle track
- Walking track
- Creeks
- Rocks, intermittently exposed
- Amphitheatre
- Distance (kilometres)
- Parking
- Camping area
- Ranger station
- Toilets
- Showers
- Water (treat before use)
- Walking track
- Lookout
- Bins
- Information
- Telephone
- Fuel
- Accommodation
- General Store
- Vehicular ferry
- Wreck
- Airstrip
- Lighthouse
- Speafishing prohibited
- Emergency Services helpad
- Distance markers

Beach at Comboyuro Point and North Point closed to all traffic.

Due to creek crossings, low tide access only.

Beach at Cowan Cowan closed to all through traffic. Use bypass.

Distance markers are located on the ocean beach at 2km intervals north (N followed by an **even** number) and south (S and an **odd** number) of Middle Road. In an emergency dial 000 or if no mobile reception try 112. If calling from ocean beach, advise operator of your closest distance marker. (Marker positioning not to scale).

Caution: At times, exposed rocks make beaches impassable, especially after rough sea conditions.

Caution: The beach between Koorlingal and Tangalooma is not always trafficable. Debris and shifting sand may make the beach impassable even at low tide.

Beach safety zones provide added safety for pedestrians. All vehicles must not exceed 30km/h at all times in front of:

- Ben-Ewa campground
- The Wrecks campground and barge landing areas at
 - Reeders Point
 - The Wrecks
 - Bulwer.

Beaches are closed to vehicles in front of:

- Cowan Cowan settlement
- Tangalooma Resort
- North Point campground and
- Comboyuro Point campground.

Special protection zone and no high tide vehicle access at Mirapool. Vehicles must not exceed 30km/h below half tide. No vehicle access at high tide.

Don't drive near shorebirds.

For a more detailed map of the roads, walking tracks and highlights to see, purchase the Sunmap Tourist Map for Moreton Island. Available from barge operators, selected outdoor stores and Natural Resources, Mines and Water (07) 3408 2358, www.nrm.qld.gov.au. Topographic maps (1:25 000) for the island are Moreton 9543-11, Mount Tempest 9543-12 and Koorlingal 9543-21.

