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GREAT SANDY REGION

Management Plan 1994 -

Revised version September 2005

Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Note

This management plan is not a statutory management plan under the *Nature Conservation Act 1992, Recreation Areas Management Act 2006* or the *Marine Parks Act 2004*.

It is considered a management statement for the purpose of providing management direction for the region. This plan is currently being reviewed.

September 2011

This plan does not intend to affect, diminish or extinguish Native Title and associated rights.

It is envisaged that all of the provisions in this Management Plan will be able to be implemented by or before the year 2010, subject to approval within normal budgetary processes, or subject to special funding arrangements. Note that implementation of some management strategies might need to be phased in according to availability of resources.

In 1994 the indicative cost of implementation of this Management Plan was $220 million over 16 years. The level of funding allocated to implementation of the Plan ultimately depends on the budget priorities of the Commonwealth, State and local governments, the extent to which funding can be met from permit fees and other user charges, and the level of participation by the private sector.

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Minister's Message 1994

Fraser Island is the largest sand island in the world. The Island and the surrounding Great Sandy Region have been formed from sand deposited over more than a million years by the rivers of northern New South Wales and southern Queensland. These rivers continue to deposit sand, which migrates northward along the coast, with newer sand deposits being directed out to sea past Sandy Cape along Breaksea Spit due to the colossal mass of Fraser Island.

On a bed of sand, magnificent rainforests have grown, as well as massive trees with trunks nearly three metres thick that reach 50 metres in height. Crystal clear and tea coloured freshwater lakes lie perched above sea level, held in watertight basins of age-old plant material. Majestic sand dunes and spectacular sandblows tell the story of the ceaseless building and wearing away of the sandmass. The lazy Noosa River meanders its course to the sea through reminders of great landscape change.

All of these magnificent features proclaim the Great Sandy Region and Fraser Island to be a wonderful inheritance to humanity. At the same time, Fraser Island and the Great Sandy Region are a valuable tourist attraction and a fishing and recreation area for local residents, the communities of south-east Queensland and four-wheel-drive enthusiasts from all over Australia.

The present generation of Queenslanders has both a responsibility and an opportunity at the same time. Our responsibility is to pass on to future generations an environmental treasure undiminished by the enjoyment and use of our generation. The opportunity is to present that treasure for the appreciation and pleasure of not only Queenslanders and other Australians, but of people from around the world.

With the end to sand mining and logging on Fraser Island, the World Heritage listing of the Island, and the extension of national parks in the Region, the opportunity has been created to preserve the natural beauty and the essential evolutionary processes of the Region. That opportunity is grasped in the Great Sandy Region Management Plan, as implementation of the Plan will preserve this rich heritage and share it with all who would benefit, without diminishing the natural splendour and life of the Region.

The Plan envisages only a very limited range of future, environmentally responsible tourist developments on Fraser Island. These developments will cater and provide accommodation for high, middle and low income earners. Fraser Island will not become an exclusive playground for the wealthy but will be available to all Australians.

Beach camping and four-wheel-drive access will be controlled, however not with a view to eliminating these activities or curtailing them for the sake of curtailment, but to ensure that we pass on to our children an environmental asset which has been preserved. Certainly this is the wish of the residents of and visitors to Fraser Island who have come to love the place for its charm and natural beauty.

The great thrust of new commercial development for the Region is expected to occur in the Hervey Bay, Maryborough and Rainbow Beach areas. The Management Plan seeks to direct new tourist developments towards those areas where the economic benefit to the local population will be the greatest – away from Fraser Island.

So, by the year 2010, the vision of Fraser Island and the Great Sandy Region is for a place where nature's evolutionary processes can continue unimpeded, a bequest to all humanity, where the forests can regenerate and flourish, where the freshwater lakes contain pure unpolluted rainwater, where the sand dunes built up over the ages continue to tell their story of geological wonder, where Indigenous heritage and aspirations can find true expression, where residents can earn their living, and where tourists from Queensland, interstate and overseas can enjoy its splendour and tranquility and return home without having marred their priceless inheritance.

We have the power, the opportunity and the responsibility to secure our heritage for this and future generations. The Great Sandy Region Management Plan is designed to translate that great task into a reality.

The Honourable Molly Robson, MLA

Minister for Environment and Heritage

Minister's Message 2005

The Great Sandy Management Plan was prepared and approved in 1994 to protect natural, cultural and economic values of the Region. It is pleasing to reflect on the great progress made by everyone involved over the last 11 years towards achieving the Plan's desired outcomes for conservation and the community.

Since 1994, great strides have been taken to secure protected areas. The national park estate has increased from 140,000ha to 220,000ha through the creation of the Great Sandy National Park that includes Cooloola and most of Fraser Island. Proposals are well under way to amalgamate and extend the existing marine park to create the Great Sandy Marine Park. The Great Sandy Strait Ramsar Area was declared in 1999, recognising the international importance of the Region for migratory shore birds.

Opportunities for co-operative management and partnerships between Traditional Owners, government, industry and the community have greatly increased, with Advisory Committees taking on an important role in providing independent advice and assisting with good decision-making. The Queensland Government is committed to working with Traditional Owners in the management of land and water in the Region.

Tourism management policies for protected areas of the Region have been developed through the Tourism in Protected Area (TIPA) initiative. These policies provide the basis for positive partnerships between the Queensland Parks and Wildlife Service (QPWS) and commercial tourism operators who use the protected area estate.

Vehicular use of beaches will continue to be managed to balance access needs with environmental and recreation considerations. Road and beach closures have been implemented consistent with the zoning plan. No new road closures are proposed in this revised Plan.

Inskip Avenue on Inskip Peninsula has now been upgraded to an all-weather standard, and this area has been developed to include a sustainable and attractive camping area.

Camping facilities throughout the Region have been improved with substantial development at Central Station, Fig Tree Point and Harry's Hut.

Day use areas have been improved at several sites with the provision of car parks, boardwalks, viewing platforms and toilet facilities. Camping areas at Lake McKenzie and Indian Head have been closed, with the retention of the day use area at Lake McKenzie. The Fraser Island Great Walk, which was opened in June 2004, provides a continuous walking track and associated visitor facilities between Dilli Village and Happy Valley.

Community education and awareness have been a major emphasis in management of the Region, and a very high standard of information is available to all visitors and residents. Safety is a key concern, and a campaign has raised awareness, especially in relation to averting further problems with dingo attacks.

Long-term monitoring and research projects directed at natural resource status and conditions are being undertaken in the Region by a number of agencies. QPWS and the Fraser Island World Heritage Area Scientific Advisory Committee have prepared a research agenda for Fraser Island. The agenda aims to better link research projects with the Region's needs and to provide for a more co-ordinated approach with tertiary and scientific research institutions.

QPWS undertook a mid-term review of the Plan from 2001–2004. This review was a requirement of the 1994 Plan to ensure the Plan remained relevant to current conditions. The reviewers considered input and comments from government, industry and community representatives, Traditional Owners and other key stakeholders. The review did not alter the fundamental direction and desired outcomes of the 1994 Plan.

This revised Plan closely resembles the 1994 Plan, but includes updated information and reflects the current management context. It provides a framework for decision-making to continue achieving the desired outcomes from the 1994 Plan, and will be effective until 2010.

I look forward to the Plan's implementation continuing to be a co-operative effort by State, Federal and local government and Traditional Owners, as well as private industry and the community.

Desley Boyle

Minister for Environment

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Summary

Fraser Island, Cooloola, Hervey Bay and some adjacent areas in south-east Queensland form the Great Sandy Region of about 840,000ha (see Map 1).

In appointing a Commission of Inquiry into the conservation, management and use of the Great Sandy Region in 1990, the Queensland Government recognised an obligation to assist the community to direct the Region's future. In May 1991, the Commission recommended the Region's nomination for World Heritage listing to the Queensland Government, as well as preparation of a comprehensive management plan, and development of legislation to co-ordinate management for the Region with boundaries as defined by the Commission of Inquiry. Fraser Island was inscribed on the World Heritage List in December 1992 as Australia's tenth World Heritage Property.

The Great Sandy Region is close to major, rapidly growing population centres. At present about two million people live within four hours' travel time. The Region contains a patchwork of landholdings and tenures including national park, conservation park, State forest, marine park, fish habitat reserve, unallocated State land, leasehold land, townships and freehold properties.

This Plan was prepared and approved in 1994 to protect natural, cultural and economic values and to provide a framework for decision-making so that four outcomes could be achieved in the Great Sandy Region by or before the year 2010. These outcomes are:

- a secure future for the natural and cultural environment;
- a secure community setting for residents;
- community access to resources and opportunities; and
- a basis for sustainable use of renewable resources.

The year 2010 was selected as a medium-term planning horizon to allow time to undertake major works and actions and to evaluate performance.

A set of management purposes was developed to direct management and allow for proposals to be considered. These purposes are:

- to protect the natural and cultural features of the Region;
- to meet World Heritage obligations;
- to provide meaningful opportunities for Indigenous people to be consulted about and involved in planning and management;
- to foster a secure community setting for residents of the Region;
- to allow provision of utilities, services and structures for residents and visitors consistent with protection of natural and cultural values;
- to provide a diversity of recreation opportunities; and
- to ensure that development and harvesting activities are carried out in a sustainable manner.

A mid-term review of the Great Sandy Region Management Plan was a requirement of the 1994 Management Plan. The reviewers considered government, industry, community, Traditional Owner and stakeholder knowledge, comments and experience. The primary aim of the review was to ensure that the Plan remains relevant to current conditions and that background information, management guidelines and actions were updated where appropriate. This revised Plan is based on the review. Significant changes and new information from studies, research and monitoring activities have been incorporated, but the fundamental directions and desired outcomes of the 1994 Plan have not been altered.

Significant changes in circumstances in the Great Sandy Region in the period 1994-2004 include:

- significant increase in the protected area estate, including the increase in national park estate from 140,000ha to 220,000ha;
- declaration of the Great Sandy Strait Ramsar Area in 1999;
- declaration of the Inskip Peninsula Recreation Area;
- completion of the Cooloola Land Audit;
- a number of advisory committees formed for the Region and the Fraser Island World Heritage Area (WHA);
- a population increase well above the State average;
- a number of Native Title claims;
- new legislation including the *Aboriginal Cultural Heritage Act 2003*, *Torres Strait Islander Cultural Heritage Act 2003*, *Environment Protection and Biodiversity Conservation Act 999* (Cwlth), *Land Protection (Pest and Stock Route) Management Act 2002*, etc;
- application of the Integrated Development Assessment System (*Integrated Planning Act 997*); and
- commencement of preparation of *Integrated Planning Act* Planning Schemes by Local Authorities.

The mid-term review has not altered the fundamental direction and desired outcomes of the 1994 Plan. Revisions to the Plan include:

- Key points from the Fraser Island dingo management strategy are incorporated into the Plan;
- Strategies will be adopted to protect aquatic species and migratory wader birds from vessel activities. For example 'go slow' rules, speed limits, permit conditions and seasonal restrictions via temporary closures to camping during critical turtle nesting times will be investigated within the proposed Great Sandy Marine Park;
- Written authority for commercial fishers to use the Orchid Beach to Platypus Bay Road and the western beach between Wathumba Creek and Sandy Cape lighthouse will not carry over to new licence holders on a transfer or sale; and
- The Orchid Beach airstrip will remain open and be maintained by the local community.

Management strategies

Strategy 1: Natural and cultural resource management

Within the context of management of the Great Sandy Region, Fraser Island will be managed to meet Australia's obligations under the World Heritage Convention to protect, conserve, present, where necessary rehabilitate, and transmit the property undiminished to future generations. Other protected areas within the Region will be managed in a similar manner.

The protected area management arrangements within the Region have been rationalised by the creation of the Great Sandy National Park including Cooloola and most of Fraser Island, amalgamation of several environmental parks into conservation park or national park estate, the amalgamation and extension of existing marine parks and gazettal of a conservation park over most of the upper Noosa River.

Natural systems, processes, landscapes and wildlife within the Region will be protected to the greatest possible extent. Degraded landscapes will be identified and rehabilitated where appropriate. Weed and pest species will be controlled.

Historic sites and other cultural heritage within the Region will be assessed. Significant or representative sites will be protected and where appropriate presented to the community.

Action will be taken to recognise and respect the history, culture and aspirations of Indigenous people associated with the Region and to have Indigenous participation in ownership and management.

Water quality will be monitored and action taken to ensure water quality is maintained throughout the Region, including in marine areas. Integrated catchment management will be encouraged for river systems affecting the Great Sandy Region.

Noise nuisances will be minimised and impacts of proposed developments will be assessed and included in decision-making processes according to statewide legislation, policy and practice.

Scientific research focusing on species, sites and natural processes will be conducted to support management of natural and cultural resources within the Great Sandy Region.

Strategy 2: Community infrastructure and development

The small townships within the Region will have limited further development as small residential holiday communities. No further residential development is provided for at Orchid Beach or Teewah. IPA Planning Schemes should provide the basis for all further development decisions. Rainbow Beach/Inskip Peninsula is expected to grow substantially to a population of around 5000 to 8000, consistent with a detailed development plan for the area.

Commercial activity will be expected to focus on providing goods and services in the township areas and access to and within the Region.

The road network within the Region needs to be rationalised. Specific provisions include:

- exclusion of two-wheel-drive vehicles from Fraser Island; and
- maintenance of the Cooloola Way as a park road trafficable by two-wheel-drive vehicles in fair weather.

The preferred route selected to connect Boreen Road and Tin Can Bay Road generally follows existing roads due to environmental considerations, but no funding has been committed. The progressive upgrading of Inskip Avenue on Inskip Peninsula to an all-weather standard is now complete.

Vehicle use of beaches will be managed to balance access needs with environmental and recreational considerations. Of specific note, the following beaches will not be available for vehicle use:

- between the locations known as the First and Third Cuttings on the Noosa North Shore;
- between Middle Rocks and Waddy Point on Fraser Island (beyond a parking area to be designated on the beach at the end of the access track to South Waddy Beach);
- between the Sandy Cape Lighthouse and South Wathumba; and
- on the mainland boundary of the Region north of Woodgate township.

Inskip Avenue has been upgraded to an all weather road. The investigation of future beach closures will be carried out as part of the management planning process for Inskip Peninsula Recreation Area. The beach between Hook Point and Dilli Village will be closed to vehicular traffic once the mining haul road has been upgraded to a generally trafficable (four-wheel-drive) standard. Vehicular use between South Ngkala Rocks and the Sandy Cape Lighthouse will be managed according to management guidelines for semi-remote recreation areas, and vehicle use of the beach between Waddy Point and South Ngkala Rocks will be permitted.

The Boomanjin (Toby's Gap) and Wanggoolba airstrips will be retained while the Bogimbah airstrip will be closed and rehabilitated. The Noosa North airstrip will be closed and added to the Cooloola Section of the Great Sandy National Park, although continued use of the area by ultralight aircraft will be permitted. The Inskip Peninsula airstrip will be relocated.

Barge, ferry and aircraft services providing public access will be regulated to ensure regular and reliable transport services at a stable cost to users. Marina development will be assessed by a special purpose working group to ensure marine facilities are established on a planned rather than an ad hoc basis. Marine facilities will be managed to optimise sustainable commercial viability and minimise environmental and social impacts.

Community services and infrastructure will be provided, commensurate with statewide policies and local and regional requirements for:

- search and rescue;
- law enforcement;
- health and medical services;
- firefighting;
- school and environmental education;
- communications and navigation devices;
- electricity;
- water supply; and
- solid waste and sewage disposal.

The Region's surface and groundwater supplies will be used only for the needs of the local communities. These developments will be limited within the available sustainable supply of water under severe drought conditions.

Strategy 3: Recreation, tourism and visitor use

A major focus for management of the Region is visitor use including recreation and tourism. The Region is zoned under the following recreation classification system: remote, semi-remote non-motorised, semi-remote motorised, natural, intensive and urban.

Visitor safety actions are specified and provision is made for a wide range of opportunities. The special needs of disabled visitors are addressed.

The existing commercial tour operator system will be comprehensively reviewed and the adoption of environmental protection principles and practices will be encouraged. Protected area tourism management policies have been developed through the Tourism in Protected Areas (TIPA) initiative. These policies provide the basis for a partnership between QPWS and commercial tourism operators who use the protected area estate.

Community engagement activities and infrastructure will be developed for the Region, focusing on major points of entry and commercial tour operations. Overnight facilities to cater for the needs of all relevant visitor sectors, including backpackers, will be researched and developed.

Responsible four-wheel-driving will continue to be recognised as a legitimate recreational activity within the Region. Training and awareness programs will be introduced to increase responsible use of four-wheel-drive vehicles.

Changes to camping opportunities are provided for in this Plan. Of specific note are:

- four QPWS-managed fenced campsites including Lake Boomanjin, Waddy Point, Central Station and Dundabara;
- redevelopment of the Fig Tree Point and Harry's Hut camping areas on the Noosa River;
- improvement of camping facilities at Inskip Point;
- camping at Lake McKenzie has been discontinued, apart from a small hikers' camp – the remaining area will be redeveloped for day use only;
- camping at Indian Head ceased in March 2004 and will not be allowed in the future; and
- upgrading of the Waddy Point camping area will occur subject to an approved redevelopment plan.

The walking track system will be reviewed and expanded to provide a diversity of walking opportunities including pathways, graded tracks, rough tracks, trails, and routes. The 1994 Plan proposed a long-distance walking trail from the Noosa North Shore to Dundubara on Fraser Island. The Fraser Island Great Walk, opened in June 2004, provides a continuous walking track and associated visitor facilities between Dilli Village and Happy Valley.

Whale watching and turtle watching will continue to be carefully managed. Whale watching and turtle watching activities are currently required to comply with existing zoning plans for Hervey Bay and Woongarra Marine Parks. Vessels engaged in whale watching will be required to fit waste holding tanks. Undesirable effects caused by vessels using the Region's waters will be minimised especially in relation to pollution, wave-generated erosion, anchor damage, and associated impacts including conflict with other user groups. Recreational fishing will continue, consistent with the provisions of a detailed management scheme.

Commercial and recreational aircraft activity will be restricted to minimise impact on the Region's natural and social amenity, while hang-gliding will be provided for in Cooloola.

Strategy 4: Sustainable resource harvesting

Action will be taken to prohibit all mineral exploration and extraction within the Region, other than the possibility of hydrocarbon exploration and extraction outside the Fraser Island World Heritage roperty. The removal of existing stockpiles of processed minerals may be permitted where such action would contribute to the rehabilitation of the site or to mitigate a recognised health hazard, and sand may be used within the Region as landfill.

The Noosa North Shore quarry will eventually be closed and revegetated. Quarry operations at Mt Bilewilam will be limited to hard rock extraction subject to a detailed quarry plan including provision for rehabilitation.

Part A. Basis for Management

Note: This section of the 2005 Revised Plan has been substantially updated to reflect changes in legislation, land tenure and the management environment between 1994 and 2004.

Introduction

Fraser Island, the Cooloola sandmass, Noosa North Shore and the waters of Hervey Bay and Great Sandy Strait form the Great Sandy Region. The Region covers about 840,000 hectares of south-east Queensland and is shown on Map 1.

Until the 1990s the Region was immersed in controversy over the future of sand mining and logging. The decision by the Commonwealth Government in the mid-1970s not to issue export licences for mineral sands from Fraser Island was the first of many signals of profound change.

The Region's long history of timber-getting is over. What little remains of the Kin Kin Scrubs is represented in the Cooloola Section of the Great Sandy National Park; but the forests of the sandmass of Fraser Island and central Cooloola have been logged, though never cleared.

Indigenous cultural association with the Great Sandy Region remains. Gradually, recognition of and respect for the Region's Indigenous cultural heritage by non-Indigenous Australians is being achieved.

The Region's past has been challenged and transformed by a community desire to protect its natural qualities and values. The Region is the setting for the lives and activities of many people. Some have driven the process of change, some have been caught up and become a willing or unwilling part of the process, and some have been attracted by new opportunities emerging.

The Queensland Government recognised an obligation to assist the community to direct the Region's future. To resolve the many issues relating to the Region, a Commission of Inquiry was appointed in 1990 to report and make recommendations with respect to:

> *"... the conservation, management and use of Fraser Island and the Great Sandy Region, in the public interest, with due regard for environmental, recreational, cultural, social, economic, industrial and any other material considerations and the interests of potentially affected individuals."*

The final report of the Inquiry was presented to the Queensland Government in May 1991. It recommended that the Great Sandy Region be nominated for World Heritage listing, that a comprehensive management plan be prepared and that legislation to co-ordinate the management of the entire Region be developed.

The preparation of this Management Plan in 1994 was guided by information in the documents published and produced for the Commission of Inquiry, other published material, existing management arrangements and existing government policy. The aspirations of local communities and user groups assessed through extensive public consultation were also considered in the preparation of the 1994 Management Plan.

Plan review

Since the release of the Great Sandy Region Management Plan in 1994, management of the Region has been affected by many changes– including new legislation and government policy, changed patterns of use, advances in technology, improved management systems and structures, and changes in tenure.

A mid-term review of the Great Sandy Region Management Plan was a requirement of the 1994 Management Plan and was conducted between 2001 and 2004. The review's primary aim was to ensure the Plan remained relevant to current conditions: it did not alter the fundamental directions and desired outcomes of the 1994 Plan. Background information, management guidelines and actions were updated where changes in the management environment were significant, or where new information from studies, research and monitoring activities was available. This revised Plan incorporates the findings of that review.

It is proposed that a full review of the Great Sandy Region Management Plan will be conducted in 2010. There is an intention to establish the Great Sandy Region Management Plan as a rolling strategic plan to guide the management of the Great Sandy Region beyond the year 2010.

Understanding and implementing the Great Sandy Region Management Plan

The Plan defines the desired outcomes and actions for each of the 63 sub-strategies (subjects in the 1994 Plan) in four broad strategy areas. Over 550 actions outline the next level of planning and policy development or management activity.

Information within this document is presented in two parts. Part A provides a basis for management. Part B focuses on the four broad strategy areas:

- natural and cultural resource management;
- community infrastructure and development;

- recreation, tourism and visitor use; and
- sustainable resource harvesting.

Within each strategy area, each subject is dealt with in the following format:

Subject heading

Subject name and number for reference purposes.

See also: Specifies other subjects within the Plan that address similar matters.

Background information

Information that provides a context for the outcomes, guidelines and actions. The background to each topic has been updated to be current at 1 January 2005.

Desired outcomes

The desired condition of one or more specific attributes of the subject, to be achieved by or before 2010. These are unchanged from the 1994 Plan unless indicated by *.

Guidelines and actions

Guidelines to be followed and actions to be undertaken to bring about the desired outcome. These are unchanged from the 1994 Plan unless indicated by * for a new or substantially revised guideline or action.

Existing situation

The current condition relating to each strategy area. This section has been updated and indicates progress and changes since 1994

NOTE: To maintain the detail in the 1994 Plan and to ensure transparency to the community, this revised Plan shows almost all actions and guidelines from the 1994 Plan. (Actions and guidelines have been added or changed only to update current terminology or administrative arrangements.) This means that in many cases actions listed in this revised Plan have been partly or totally completed. Refer to the 'existing situation' section to see what has been achieved. Guidelines are generally policy statements which remain in force.

For ease of reading, actions and guidelines have been numbered and some similar actions have been consolidated.

Since the 1994 Plan was released, Queensland Parks and Wildlife Service (QPWS) has established two monitoring and reporting systems: the Great Sandy Implementation Database and a monitoring and management effectiveness project.

1) Great Sandy Implementation Database

The Great Sandy Implementation Database monitors the extent of implementation of the 1994 Plan. Reports regularly assess progress towards the actions in the 1994 Plan, based on information collected from relevant staff and management agencies. Actions have been categorised in relation to a number of attributes, including priority, action category and descriptor. The system has considerable potential as a planning tool for the preparation of work programs and budgets tied directly to actions in the Plan.

2) Monitoring and management effectiveness project

A monitoring and assessment project has been developed for the Fraser Island World Heritage Area. Management outcomes have been addressed through a series of monitoring programs that address the desired outcomes of the 1994 Plan. The 63 sub-strategies (subjects in the 1994 Plan) have been used as the basis for developing a broad outline for a comprehensive monitoring program. Specific monitoring projects have been developed for priority areas.

QPWS will take a lead role in managing both monitoring and reporting systems. Both systems require some improvements. In particular, the management systems will be linked with business planning, budgeting and reporting. A co-ordinated approach from all government agencies and management authorities is required to manage the monitoring and reporting systems, in particular the Great Sandy Implementation Database, and the workload involved in data collection and analysis will be shared.

Regular reports have been prepared as a result of both these monitoring and evaluation programs, allowing managers to track the extent of implementation at different levels or against different attributes. The information enables planners and managers to review management practices and resource allocation and provide feedback into different parts of the management cycle.

Management background and regional setting

Boundary

The Region's boundary in the 1994 Plan coincided with the core area identified by the Commission of Inquiry into the conservation, management and use of the Great Sandy Region in 1991. Freehold mainland coastal properties with boundaries extending below high watermark are excluded from the Region.

Boundaries of the Great Sandy Region and Fraser Island World Heritage Property are shown on Map 1.

It is now apparent that a number of protected areas (including recent gazettals) and other reserves adjacent to the Region contain fine examples of natural and cultural heritage values complementing those in the Region. It may be advantageous to adjust the Region's boundaries to include these areas. This will be further considered at the full Plan review in 2010.

Land tenure and management status

In 1994 the Region consisted of 230,000ha of terrestrial land, with the remaining 610,000 ha comprising marine and intertidal areas. The Region's 840,000ha included four national parks, eight environmental parks (now renamed conservation parks), seven portions of State forest, two marine parks, seven fish habitat reserves, two wetland reserves (now renamed Fish Habitat Areas B), six parcels of Commonwealth land, five townships, vacant Crown land (now known as unallocated State land), Crown reserves, leasehold land and more than 960 freehold properties. In the Great Sandy Region, several native title claims have been lodged. No native title determinations exist in the Region and mediation of these claims is expected to commence shortly.

Protected areas

The terrestrial protected area estate in the Region in 2004 totals over 240,000ha including tidal lands, foreshore unallocated State land and reserves. Many protected areas have been extended and/or amalgamated and the Great Sandy National Park, which has been created since 1994, covers approximately 220,000ha. Categories of protected areas have been altered consistent with the *Nature Conservation Act 992* and today the Region encompasses six conservation parks, two resources reserves, three State forests and one nature refuge (See Table 1).

Recreation area

The Inskip Peninsula Recreation Area has been declared under the *Recreation Areas Management Act 988.*

Great Sandy Marine Park

A proposal is under consideration to amalgamate the two existing marine parks Woongarra and Hervey Bay and to include these areas with all other appropriate tidal areas (land and water) within the Great Sandy Region into one marine park. The two marine parks currently have individual zoning plans to protect turtle nesting areas, and whales during their

Land type - terrestrial	Approximate area(ha)
National park	
Great Sandy National Park	220 000
Conservation park	
Mon Repos	45
Great Sandy Conservation Park	658
Sheep Island	6
Goat Island	20
Sandy Cape	3
Double Island Point	4
	736
Resources reserve	
Cooloola (Noosa River)	117
Great Sandy	58
	175
State forest	
Poona Creek Area (SF915)	35
Buttha Creek Area (SF915)	50
Fraser Island (SF3)	34
	119
Forest reserve	
Womalah Forest Reserve	193
Nature refuge	
Una Corbould	480
Freehold parcels (not including Una Corbould	
Nature Refuge)	370
Susan River mouth	250
Moon Point freehold	64
Kingfisher Bay	686
Tarangau	917
Noosa North Shore (total)	423
Other (unspecified)	2 710
Leased crown land	
Urangan Boat Harbour	37
Inskip Peninsula	266
Orchid Beach	8
Other (unspecified)	29
	340
Reserves	
Bingham reserves	700
Inskip Local Government sewerage reserve	43
Noosa North Shore aircraft landing reserve	430
Noosa North Shore quarry reserve	43
Inskip Point Harbour Purposes reserve	125
Urangan Foreshore Reserve	632
Other (unspecified)	127
	2 100
Unallocated State Land	
Inskip Peninsula/Rainbow Beach USL	2 113
Happy Valley USL	327
Eurong USL	268
Teewah USL	44
Noosa North Shore USL	125
Como USL	391
Mangroves, islands and tidal areas USL (mostly	10 630
covered by Fish Habitat Areas)	100
Other (unspecified) USL	14 000
Subtotal - terrestrial (including tidal lands, foreshore USL and reserves)	240 853
Land type - marine	**Approximate area (ha)**
Marine Park	
Woongarra	10 713
Hervey Bay	197 757
	208 470
Fish habitat areas	
Beelbi	1 416
Burrum	4 400
Susan River	4 497
Maaroom	22 857
Kauri Creek	7 010
Tin Can Inlet	1 442
Fraser Island	7 904
Elliott River	803
Kinkuna	136
	50 465
Unspecified marine areas	350 000
Subtotal marine	608 935
Total (Terrestrial and marine)	849 788

Table . Land status in the Great Sandy Region in July 2004.

migration. This proposal is subject to a separate planning process. It is consistent with the requirements of the 1994 Plan, the Queensland Government commitment to establish border-to-border marine parks along the Queensland coastline, and the need to review existing Marine Park zoning plans.

Dugong Protection Area

A Dugong Protection Area has been declared over the Great Sandy Strait and parts of Hervey Bay under the *Fisheries Act 994.* This action has given greater protection to protected species and critical habitat in the Region.

Fish Habitat Areas

Additional Fish Habitat Areas have been declared over parts of, and in the vicinity of the Theodolite Creek and Coonarr Creek estuaries (Kinkuna FHA-02); and over parts of, and in the vicinity of the Elliott River (Elliott FHA 052). The declared Fish Habitat Areas and the regional system of these areas are under an ongoing review within the DPI&F.

The status for land tenure within the Region at July 2004 is shown in Table 1 and Map 2.

Surrounding land uses

Land uses adjacent to the Great Sandy Region are an important consideration of management as they have the potential to impact significantly on the values of the Region.

A number of towns and other settlements are adjacent to the Region. Major centres include Noosa Heads, Noosaville, Tewantin, Tin Can Bay and Hervey Bay, which in addition to urban centres are tourist destinations of major regional significance. Numerous smaller townships are also located adjacent to the Region.

The Wide Bay Military Reserve occupies about 200sq km of coastal land adjacent to Tin Can Inlet. Land management has improved in the Wide Bay Military Training Area, through the implementation of an integrated environmental management program developed for the area.

Protected area estate and State forest pine plantations are also significant tenures adjacent to the Region. The remainder of the western boundary abuts rural properties including cane farms, mixed grazing, small crops including high value crops such as macadamia nuts and lychees, small hobby farms and rural allotments.

The entire northern and eastern boundary of the Region adjoins marine areas, where extensive commercial and recreational fishing occurs.

Land use in much of the Region has not changed dramatically since 1994. However, consistent with the trend in south-east Queensland, there has been a steady increase in population and residential development in parts of the Region, in particular the Rainbow Beach and Tin Can Bay locality and many of the coastal settlements adjacent the Great Sandy Strait and Hervey Bay. Consequently, community services and facilities and new industry to support development and meet demands are also increasing. This development places extra pressure on the natural and cultural resources and the unique scenic and recreation values of the Region.

The Cooloola State Land Audit project aims to analyse the capability and suitability of State land (unallocated, leasehold, reserve) in the vicinity of Tin Can Bay and Rainbow Beach on the Cooloola Coast, in order to provide recommendations to Government on the preferred future sustainable use of this land.

In the catchments of major rivers flowing into Great Sandy Strait and Hervey Bay, land use practices have been evolving to meet a combination of new economic, social and environmental demands.

The Department of Primary Industries and Fisheries (DPI&F) has issued a number of aquaculture authorities for areas in the Great Sandy Region and is assessing others. These authorities include oyster-farming areas that have existed in the Region for more than 100 years, a beche de mer sea ranching approval and a sea scallop sea ranching trial. Similar proposals are pending in several areas within the Region. It is anticipated that other land use and development proposals of this intensive nature will continue as the Region's growth trends continue.

Legislative requirements

State Legislation

The Queensland Government, through the Environmental Protection Agency/Queensland Parks and Wildlife Service (EPA/QPWS), seeks to manage and protect Queensland's natural environment and its associated ecological, economic and social values consistent with a number of statutory instruments.

Key legislation administered by the EPA/QPWS includes:

- *Nature Conservation Act 992*;
- *Environmental Protection Act 994*;
- *The Marine Parks Act 982*;
- *Coastal Protection and Management Act 995*;
- *Forestry Act 959*;
- *Queensland Heritage Act 992*; and
- *Recreation Areas Management Act 988*.

Regulations, policies, management and conservation plans and zoning plans have been prepared under this legislation.

Legislation administered by other State agencies also provides natural and cultural resource protection and a basis for sustainable development and resource use and includes:

- *Fisheries Act 994* (protects and manages aquatic resources);
- *Land Protection (Pest and Stock Route Management) Act 2002* (provides for the management of weeds and pest animals);
- *Water Act 2000* including Riverine Protection Provisions (provides a new legislative basis for the sustainable planning and management of the State's water resources);
- *Aboriginal Cultural Heritage Act 2003* (replaces the repealed *Cultural Record* [*Landscapes Queensland and Queensland Estates Act 988*] administered by the Department of Natural Resources and Mines [NR&M]); and
- *Vegetation Management Act 999* (makes vegetation clearing on freehold land an assessable development under the *Integrated Planning Act 997*).

The *Integrated Planning Act 997* (IPA) forms the foundation of Queensland's development assessment legislation. It combines approximately 60 separate approval systems into a single Integrated Development Assessment System (IDAS) that is jointly administered by State and local governments. Not all State legislation is integrated into this development assessment system, for example the *Marine Parks Act 982* and the *Fisheries Act 994*.

The current legislation above provides enhanced protection and a basis for management in the Region. Separate legislation to co-ordinate resource management and administration in the Region will not be drafted.

Commonwealth legislation

The *Environment Protection and Biodiversity Conservation Act 999* (EPBC Act) is administrated by the Australian Government Department of Environment and Heritage. This legislation is concerned with the management and conservation of matters of national environmental significance. Matters of national environmental significance include World Heritage Properties, National Heritage Places, Ramsar Wetlands, listed threatened species and ecological communities, migratory species, the Commonwealth marine environment, and nuclear actions. The Act outlines a number of management and administrative requirements that need to be met in response to this legislation.

The Act establishes an assessment and approvals process for actions that are likely to have a significant impact on matters of national environmental significance. Any action that is likely to have a significant impact on one or more of these matters should be referred to the Australian Government for approval. Actions listed in the management plan may fall into this category and will be referred.

The Act and its regulations also outline guidelines and principles for management and planning for World Heritage, National Heritage and Ramsar Wetlands, and provide for establishment of bilateral agreements between the State and Commonwealth Governments.

Management and administration

The Queensland Government, the Commonwealth Government and local governments are all involved in the management and administration of the Region. Within each level of government, individual management agencies have dedicated roles and specific responsibility for various matters. The 1994 Plan requires each agency to take a lead role in policy development, planning and day-to-day management, according to its responsibilities, either individually or in co-operation with other agencies.

QPWS will be responsible for the co-ordination and the monitoring of implementation of the Great Sandy Region Management Plan. The roles and responsibilities of key State and Commonwealth Government departments regarding management in the Region will be clearly identified in the Plan where appropriate.

The Great Sandy Region includes parts of seven local government areas: Noosa, Cooloola, Tiaro, Maryborough, Hervey Bay, Isis and Burnett. Further details on approximate land areas of local government authorities within the Great Sandy Region are provided in Table 2.

Local government authority	Approximate land area of local government authorities within the Great Sandy Region in hectares
Noosa Shire	16 712
Cooloola Shire	52 635
Tiaro Shire	77
Maryborough City	68 065
Hervey Bay City	108 630
Isis Shire	Intertidal and marine areas only
Burnett Shire	55

Table 2. Approximate land area of local government authorities within the Great Sandy Region.

Local governments are responsible for the development and administration of planning schemes under IPA. In many cases local governments have undertaken planning studies and developed management plans, as part of planning schemes, to deal with specific issues and areas of particular interest. Planning schemes are required to take into account policy, guidelines and actions identified in the Great Sandy Region Management Plan.

Under the IPA, the assessment system IDAS has been established. It is designed to provide a single legal administrative framework and step-by-step process for the assessment and approval of development applications in Queensland. Not all State legislation has been integrated into this common regulatory system.

There is now a greater recognition that management agencies and systems must recognise the rights and interests of Traditional Owners. Opportunities for co-operative management and partnerships between Traditional Owners, government, industry and the community are increasing throughout the Region. QPWS has a legislative obligation under the *Nature Conservation Act 992* to manage parks in co-operation with Traditional Owners.

New regional natural resource management arrangements include a government policy direction, which supports regional devolution and establishment of natural resource management bodies such as the Burnett-Mary Regional Body for Natural Resource Management. A network of regional NRM bodies has been established and is funded under the National Action Plan for Salinity and Water Quality (NAPSWQ) and the National Heritage Trust Extension programs to achieve healthy natural resource management regional arrangements. The regional body role has been to develop an NRM plan and to facilitate the implementation of the plan. These plans incorporate existing natural resource plans, fill planning and management gaps and contain targets for managing the condition of natural resources. Queensland and Australian Government accreditation of these plans requires the regional NRM bodies to gain collective agreement on plan implementation with relevant stakeholders. Landcare and catchment groups within the Great Sandy Region are actively involved in contributing to the Plan development and implementation. The Queensland Cabinet is reviewing the progress of these emerging arrangements (DNR&M 2004).

Regional Co-ordination Groups (RCGs) are composed of senior management level representatives from the core State Government agencies working to implement the NAPSWQ, the Australian Government Regional NRM Team plus other government agencies that have an interest in a particular region's NRM issues. The purpose of the RCGs is to foster strong community government partnerships, co-ordinate whole-of-government processes and policies and resolve policy inconsistencies at the regional level. National participants supporting Queensland's state and regional efforts in regional NRM are the Australian Government Department of Agriculture, Fisheries and Forestry and the Australian Government Department of Environment and Heritage (NRM&E, 2004).

Complementary planning

The 1994 Plan provides a combination of strategic and specific management prescriptions to guide management in the Great Sandy Region. The 1994 Plan also recommends the preparation of more detailed strategies, such as a walking track strategy and a fire management strategy, which represent the next level of planning. These planning instruments should provide more specific guidance for development, activities, regulatory matters and other management requirements.

The next level of planning has now been identified and highlighted more clearly. The next level of planning will include:

- other statutory plans, including State planning policies, management plans and planning schemes;
- region and area plans, including fire and visitor management strategies including

Regional Growth Management Framework planning, Local Government Regions of Councils (ROC) arrangements and regional arrangements including the Burnett- Mary Regional Body, etc; and

- issue-specific plans for smaller areas, for example pest species control plans, community fire protection plans and development plans for key recreation areas.

Management planning

Statutory management plans and zoning plans form part of the next level of planning in the Region.

Management plans are required for:

- protected areas declared under the *Nature Conservation Act 992*; and
- recreation areas declared under the *Recreation Areas Management Act 988*.

The *Marine Parks Act 982* provides for the development of zoning plans and management plans for a marine park or areas within a marine park. Statutory zoning plans are in place for the Hervey Bay and Woongarra Marine Parks.

Under the *Environment Protection and Biodiversity Conservation Act 999*, management plans should be prepared for:

- a World Heritage Property listed under the World Heritage Convention; and
- a Ramsar Wetland designated under the Convention on Wetlands of International Importance (also known as the Ramsar Convention).

These plans may be covered by one management document that addresses the issues specific to each listing.

A management plan under the *Nature Conservation Act 994* has been developed for the Great Sandy Conservation Park, an area of approximately 658ha incorporating a number of islands and headlands in the Great Sandy Strait. The current planning process for the proposed Great Sandy Marine Park (Northern Section) may develop statutory zoning and/or management plans. In the absence of a management plan for a specific protected area or recreation area in the Region, the management guidelines and actions in the Plan that relate to those areas will be used to guide management. Every attempt will be made to incorporate these into statutory management plans as they are developed under the respective legislation.

Marine area management and coastal protection

The *Marine Parks Act 982* gives statutory effect to the planning and management of existing marine parks and the proposed Great Sandy Marine Park.

The *Coastal Protection and Management Act 995* is the statutory instrument that describes how the coastal zone and its resources will be managed. From 20 October 2003, amendments to the *Coastal Protection and Management Act 995* have required coastal development applications to be assessed using IDAS within the IPA.

The amendments streamline approval processes for development applications in the coastal zone. Instead of needing separate approvals under the *Harbours Act 955*, the *Canals Act 958* and the *Beach Protection Act 968*, applicants can submit a single application dealing with the relevant planning, building and coastal management components of their development proposal. The assessment process also considers coastal management policies such as the *State Coastal Management Plan Queensland's Coastal Policy* (2001) and any applicable regional coastal management plans.

DPI&F is developing fisheries management plans for all of the State's fisheries as subordinate legislation to the *Fisheries Act 994.* The documents 'Conservation and management of whales and dolphins in Queensland 1997-2001' and 'Conservation and management of the dugong in Queensland 1999--2004' (which incorporates a recovery plan for the conservation of dugong in Queensland) have been prepared under the *Nature Conservation Act 992* and regulations under the Act. These conservation plans outline management strategies required to achieve the protection and recovery of the species groups.

The *Fisheries Act 994* provides for the management of the nine existing declared Fish Habitat Areas within the Management Plan area, and the protection of all marine plants within this area. Zoning plans are the principal tool of management used to achieve the objectives of conservation and reasonable use in a marine park through designating zones, special management areas and specifying which activities can occur 'with', 'without' a permit or are 'prohibited' in a particular zone.

Catchment management

A number of programs and initiatives address catchment and water resource management issues in the Region and provide a framework to co-ordinate work towards long-term sustainable use of natural resources on a catchment basis. In the 1990s, the Australian Government introduced Integrated Catchment Management (ICM), which recognised the necessity to involve community to achieve positive NRM outcomes.

Today regional arrangements supported under the National Heritage Trust and National Action Plan for Salinity and Water Quality builds on the recognition that positive NRM outcomes cannot occur without widespread community support and involvement. Both the Burnett and Mary Rivers have been identified as 'catchments of concern' and the Burnett-Mary Regional Body for Natural Resource Management has been established to achieve regional natural resource management arrangements. The regional body aims to gain collective agreement on NRM plan implementation with relevant stakeholders in the region. Catchment management strategies are being prepared, and development and monitoring activities are being implemented to better protect the major river catchments in the Region (NRM&E 2004).

Water resource plans are statutory plans under the *Water Act 2000.* Water resource plans provide a blueprint for the sustainable use of river water while ensuring that environmental needs are met. A water resource plan exists for the Burnett River catchment and planning has commenced for the Mary Basin Water Resource Plan.

Management and administrative advice

Advisory committees and reference groups play a very important role maintaining a balanced and participative approach to decision-making and strategic direction in natural resource management and presentation. Their terms of reference range from the provision of advice on technical and community matters, to the assessment of development applications. Groups include:

- Fraser Island World Heritage Area Management Committee;
- Fraser Island World Heritage Area Scientific Advisory Committee;
- Fraser Island World Heritage Area Community Advisory Committee;
- Great Sandy Region Heritage Advisory Committee;
- Hervey Bay Marine Park Permits Advisory Committee;
- Maritime Infrastructure Working Group; and
- Reference and working groups to assist with other planning tasks including the new marine park planning process.

Heritage registers

Register of the National Estate

The register lists natural and cultural heritage sites of significance and is administered by the Commonwealth Government. An assessment may be required for development activities that have the potential to impact on listed sites on Commonwealth land, or if the action is undertaken by a Commonwealth agency. Fraser Island, Great Sandy Strait, Woody Island and the Cooloola area are listed on the register as natural heritage sites. Nine Indigenous and five European/non-Indigenous) cultural heritage sites have also been listed in the Region.

A Commonwealth Government heritage legislation package has established a new national heritage system. The EPBC Act has been amended to include new provisions for the identification, protection and management of places of national heritage significance. The heritage values of these places will be protected to the limit of the Commonwealth's constitutional powers. Any action that is likely to have a significant impact on the National Heritage values of a National Heritage place will require assessment under the Act. Under these amendments, the Register of the National Estate will continue to exist in a modified form, which will allow for adding and removing places from the Register. Information about places on the Register will be maintained as a publicly accessible database of Australia's natural and cultural heritage places and will be used for the identification and protection of heritage.

Queensland Heritage Register

The Queensland Heritage Register (established under the *Queensland Heritage Act 992*) is a list of places, natural formations, buildings and sites of cultural heritage significance in and to Queensland. All works (other than minor maintenance works) undertaken within the boundary of places entered in the Queensland Heritage Register require approval from the Queensland Heritage Council.

Places entered in the Queensland Heritage Register are Woody Island Lighthouses and ancillary building site, Double Island Point Lightstation, Sandy Cape Lighthouse and the South Sea Islander Wall. Places identified during the Regional Forest Agreement process(but not yet entered) include Harry's Hut, Mill Point and Pettigrew's tramway complex. The National Heritage Trust also maintains a list of significant cultural heritage places.

As part of the South East Queensland Forests Agreement, a cultural resource assessment project identified a number of European/non-Indigenous cultural sites as meeting National Estate criteria. In the absence of a Regional Forest Agreement with the Commonwealth, these sites have not been listed, but they have been recorded in an interim register with the EPA.

International conventions

Australia is a signatory to a number of international conventions and agreements, including:

- World Heritage Convention;
- Ramsar Convention;
- Bonn Convention on migratory species,
- China and Australia Migratory Birds Agreement (CAMBA); and
- Japan and Australia Migratory Birds Agreement (JAMBA).

Under international convention, Australia has responsibilities in regard to these matters of international environmental significance.

World Heritage Convention

Australia, through the Commonwealth Government, has an international obligation under World Heritage Convention to ensure the protection, conservation, presentation and transmission to future generations of the natural and/or cultural heritage of Australia's World Heritage properties. These are sites recognised under the Convention as being of universal significance because of their outstanding natural and/or cultural values.

Fraser Island is a World Heritage roperty. It is one of 16 such properties in Australia, five of which are totally or partially located in Queensland. Fraser Island is recognised for the outstanding universal value of its ancient and magnificent sand dune systems (ongoing geological and biological processes), and its spectacular forests and fresh water lakes (superlative natural phenomena).

The current Fraser Island World Heritage Area property is listed under the previous criteria for World Heritage assessment (currently summarised in the 1994 Plan). The World Heritage Area is more extensive than the Fraser Island Section of Great Sandy National Park. It incorporates the whole island to high water mark plus a marine component to a distance of 500 metres offshore.

The criteria for World Heritage assessment have been modified since the original nomination of the Great Sandy Region and the subsequent listing of Fraser Island. A recent scientific review considers that Fraser Island demonstrates 'outstanding universal value' within all four of the new natural heritage criteria for World Heritage listing (FIWHASAC 2003). The four new natural heritage criteria for World Heritage listing include;

1) ongoing geological and geomorphic processes,
2) ongoing ecological and biological processes,
3) natural phenomena and areas of exceptional natural beauty and
4) biodiversity and threatened species.

A separate review also concluded that the Cooloola section of Great Sandy National Park also meets these four criteria (FIWHASAC 2003). A World Heritage nomination is presently being prepared with the object of extending the present property to include the Cooloola area and certain adjacent areas.

Management of World Heritage areas

The Queensland Government, through the EPA/ QPWS, manages the Fraser Island World Heritage property. Certain funding assistance for strategic and priority projects is provided by the Commonwealth from the Natural Heritage Trust.

In addition to the obligations under the World Heritage Convention, the EPBC Act encourages management plan preparation for World Heritage Properties. The Act requires that the Commonwealth use its best endeavours to ensure the preparation and implementation of a management plan that is not inconsistent with Australia's World Heritage management principles, which were established by regulation under the EPBC Act.

The Great Sandy Management Plan, in conjunction with management strategies and guidelines relating to the Fraser Island World Heritage Property, will be used to guide management there until a property-specific management plan is prepared.

A Fraser Island World Heritage Community Advisory Committee and Scientific Advisory Committee have been established to provide advice on a wide range of issues to the Management Committee and, where appropriate, to Ministerial Council. Committee members represent a range of stakeholders and the scientific community and voluntarily contribute their time to assist management at all levels. The Management Committee includes representation from two local governments, the tourism industry, the Commonwealth and QPWS, plus the Chairs of the two advisory committees.

Convention on Wetlands of International Importance (Ramsar Convention)

Ramsar Wetlands are sites recognised under the Convention on Wetlands of International Importance (Ramsar Convention) as being of international significance in terms of ecology, botany, zoology, limnology or hydrology. This international treaty encourages the wise use of wetlands to ensure their conservation.

The Great Sandy Straits, Tin Can Bay and parts of Hervey Bay were listed under the Ramsar Convention in 1999, primarily for the protection and conservation of waterfowl and wader habitat. Under the international convention, Australia has a number of responsibilities in regard to Ramsar areas.

The EPBC Act encourages (State) management plan preparation for inclusion in Ramsar management plans. The Act requires that the Commonwealth use its best endeavours to ensure the preparation and implementation of a management plan that is not inconsistent with Australia's obligations under the Ramsar Convention or the Australian Ramsar management principles (also in regulations to the EPBC Act).

Management strategies, guidelines and actions in this Plan relating to the Ramsar Wetlands will be used to guide management until an accredited Ramsar management plan for the property that incorporates those elements is prepared.

Native title and Indigenous rights

The Queensland Government recognises that native title interests may exist over many areas in the Region, including protected areas. Native title is recognition in Australian law of Indigenous Australians' rights and interests in land and waters according to their own traditional laws and customs. The *Native Title Act 993* (C'wlth) provides a process where Traditional Owners can apply to the Federal Court to have their traditional rights recognised by law. The *Native Title Act 993* was declared in 1993 but not enacted until after the 1994 Plan was released.

Where a native title claim is lodged, the Queensland Government is committed to working with the claimants to reach a mediated resolution. In the Great Sandy Region, several native title claims have been lodged. No native title determinations exist in the Region and mediation of these claims is expected to commence shortly. There is an overlapping claim over one section of the Mary River and over some intertidal areas in the Great Sandy Straits.

Notification and a negotiated agreement with claimants may be required for certain activities over land and water. The Queensland Government has processes in place to meet these requirements. The Queensland Government is committed to working with and involving Traditional Owners in the management of land and water where native title rights or Indigenous interests exist. Traditional Owners' aspirations regarding their involvement in management of public lands are yet to be fully determined.

Regional values

Natural values

The Region's extent, diversity, isolation and relative freedom from disturbance allow for the continuation of interrelated and interdependent ecosystem components required for viable populations of species and for continued maintenance of all biological, ecological and evolutionary processes.

The Great Sandy Region contains the oldest and largest number of independent coastal dune systems recorded in the world, as well as the oldest known time sequence of soils (podzols) with giant profiles more than 25m thick. The major vegetation patterns change with increases in soil leaching and progressive and retrogressive vegetation successions are evident. The Region preserves and demonstrates the active processes where dunes form, soils develop and vegetation changes.

The Region has many lakes including the world's largest and highest perched dune lakes, and the outstanding Noosa River system, all relatively undisturbed by development.

The Great Sandy Strait is one of the few passage landscapes in Australia. Passage landscapes occur where offshore islands are sufficiently close to the mainland to block the outflow of a substantial river system. This forms a double-ended estuary, characterised by shifting patterns of mangroves, sandbanks and mud islands. The lower Noosa River is a comparatively rare example in the subtropics of a choked coastal lagoon system developed entirely on sand.

The coral reefs of the Woongarra coast are the most southerly coastal fringing coral reefs on the eastern Australian mainland. They are remarkable because of the highly turbid situation in which they exist. They support a high diversity of nudibranchs (colourful marine snails without shells).

The habitats of a number of internationally and nationally threatened terrestrial and marine animals and plants occur within the Region. The marine areas and associated tidal wetlands of Hervey Bay, and the Great Sandy Strait and adjacent beaches support and harbour a diversity of marine life. Species include seasonal populations of humpback whales, dugong, dolphins, turtles, and trans-equatorial migratory wading birds which depend upon the Region for roosting and staging during their

annual migrations. The Great Sandy Strait is recognised as a Ramsar Wetland of International Importance. Woodlands and forests provide habitats for several species of migratory and sedentary birds.

Other rare, endangered or threatened species within the area include but are not limited to the ground parrot *Pezoporus wallicus*, the false water rat *Xeromys myoides*, Mangrove butterfly *Acrodipsas illidgei*, several species of acid frogs *Litoria spp.*, the shrub *Boronia keysii* and the climber *Glycine argyrea*. Also of particular conservation value in the Great Sandy Region are stands of satinay *Syncarpia hillii*.

Cultural heritage values

Indigenous heritage values

Acknowledgement. This revised information relating to the Indigenous and cultural heritage sections of this Plan has been prepared with the help of many of the Traditional Owners in the Great Sandy Region. It is their country, their law and their story.

It is recognised there are two distinct groups of Indigenous people in Queensland; Aboriginal people and Torres Strait Islanders. For the purposes of this text, Aboriginal people (including native title holders and native title claimants in the absence of a native title determination) of the Great Sandy Region will be referred to collectively as Traditional Owners.

Indigenous people in the Region are the custodians of their cultural heritage. Indigenous cultural heritage in the Region is made up of both the physical and intangible (spiritual) elements. These elements combine to explain traditional law and cultural links to the past and to guide social and lifestyle activities and custodial obligations. There are many significant sites in the Region, containing material items, stories and spiritual ownership, linked to traditional laws, custom and spiritual connection and a continued responsibility towards the maintenance of land and sea resources.

Considerable archaeological research has been conducted throughout the Great Sandy Region, particularly along the coastal fringes. In a number of areas research has been limited and further work is needed. Recent archaeological work on Fraser Island indicates that Indigenous people have lived and used the area continuously for more than 6000 years. According to Traditional Owners, connection to country extends well beyond 6000 years to the time of dreaming, since time began. A diverse range of archaeological material has been found in the Region. This material left behind by past traditional and lifestyle activities is the physical evidence of continuous cultural connection to the Region.

Archaeological sites are only one component of cultural heritage, as values extend beyond the physical remains of the past and include non-archaeological values such as places of great spiritual significance. An example of a place of great spiritual significance to the Traditional Owners of Fraser Island is Indian Head. Cultural heritage also includes the present day concerns of Traditional Owners regarding recognition of knowledge about key species and their management, as well as concerns regarding development and resource use, and impacts on key species, etc.

The Region contains a number of places listed in the Register of the National Estate as being of Indigenous significance. Most of these are located on the coastal zone of the ocean beach and include:

- Bogimbah Mission site;
- Canoe tree (western side of Fraser Island);
- Lake Bowarrady and surrounds;
- Lake Wabby and surrounds;
- Mannann Beach midden complex;
- South Teewah Beach shell middens;
- Booral midden fish trap site complex;
- Poyungan midden; and
- Corroboree Beach midden complex.

The Region contains 450 to 500 recorded archaeological sites of Indigenous significance, including numerous shell midden sites, stone artefact scatters, burial sites, scatted trees, stone quarries, grinding grooves, stone-walled fish traps and ceremonial bora rings.

Sites are considered of national significance, as they provide valuable insight into the hunter-gatherer lifestyle of Indigenous people in the area. These sites and the stories associated with them are significant also in the sense that they exist as important connections to traditional law and culture for Indigenous groups in the area. The significance of many known Indigenous sites is yet to be fully identified and assessed.

A number of very significant sites are found along rivers and the coastal zone of the mainland. Although they do not technically lie within the Great Sandy Region, they should be seen in the context of values within the Region. These sites also represent the important links between Indigenous lifestyle and connection to aquatic resources and other values in the Region. Bool Creek on Fraser Island is the site of the first recorded encounter between the Indigenous people of the Great Sandy Region and Europeans (Matthew Flinders) in 1802.

The Queensland Government recognises Indigenous people's traditional rights to land and has endorsed policies and enacted legislation to facilitate the grant of land title under the *Land Rights Act 99* . Under the *Native Title Act 993,* the Commonwealth Government recognised Indigenous people's rights and interests to areas of land or water that are significant to them.

The Queensland Government has introduced a new heritage regime in respect to Indigenous cultural heritage (the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003*), which provides greater recognition to Indigenous assessment of significance and involvement in decision-making in regard to cultural heritage management.

Non-Indigenous heritage values

Evidence of European activity over the past 200 years is an important component of the cultural value of the Great Sandy Region. It is estimated that logging in the Region began in the 1840s. It was not until after Fraser Island was declared a forest reserve in 1908 that logging began in earnest, both on Fraser Island and in the Cooloola area. The history of logging and associated facilities and activities is illustrated by the remnants of timber cutting camps, sawmills, tramways, jetties, wharves, log dumps and hundreds of other miscellaneous and isolated items.

Sites relating to agricultural and pastoral pioneering activities in the area are locally important. During the 1880-90s, Pacific Islander (Kanaka) people were brought to the Port of Maryborough, which had its quarantine station on Fraser Island, to be used as labourers to clear land and work the sugar plantations in the Region. Conditions for these workers were hard, with regular reports of inadequate food and medical attention. In 1901, legislation was passed prohibiting the entry of any further Islanders into Australia. Kanakas were repatriated to their islands of origin from 1906, although some stayed in the area. Several historical features within the Region can be traced to this group of people, including an historic basalt stonewall at Mon Repos Conservation Park.

The North White Cliffs and Bogimbah localities on Fraser Island have significant post- contact cultural importance for Indigenous groups in the Great Sandy Region and throughout Queensland, as well as for many European activities in the past. The secret World War II 'Z Force' commando training site at North White Cliffs on Fraser Island is of national significance.

The remains of sand mining operations, which occurred during the 1960s and 1970s, provide evidence of a time when the Great Sandy Region was one of the world's leading producers of mineral sands such as rutile and zircon.

The Region contains more than 50 shipwrecks of varying significance (including the *Maheno* and *Cherry Venture*), together with five lighthouses and two light stations dating from 1866 that are considered to be of State significance and are on the Register of the National Estate.

Recreation values

The Great Sandy Region is recognised as an area which provides recreational opportunities ranging from the regionally significant urban-social experiences of the townships and resorts to the solitary natural experiences of the remote beaches, forests, lakes and streams.

Fraser Island and Cooloola provide some of the best areas for coastal four-wheel-driving in eastern Australia. The Great Sandy Strait, Hervey Bay, the Noosa River system and the ocean waters from Sandy Cape to Noosa are regarded as recreational fishing areas of national significance. These waterways offer a range of boat-based recreation opportunities including sailing, sail boarding, pleasure boating, skiing, canoeing and boat-based camping.

Opportunities exist for scuba diving on coastal fringing reefs of the Woongarra coast, coral beds, sponge gardens, rock shelves around the islands at the northern end of the Great Sandy Strait and on the artificial reef off Woody Island. People can witness the behaviour of marine mammals at close quarters including the nesting and hatching of turtles at Mon Repos and the behaviour of humpback whales in the Hervey Bay Marine Park.

Some locations within the Region are highly regarded by local communities for the recreation opportunities they provide. The Region is also valued for its opportunities for picnics, short walks, photography, relaxation and nature appreciation.

The Region has the potential to provide bush walking opportunities and other specific activities such as hang-gliding over coastal sandmasses, which are generally not available elsewhere.

Economic values

Commercial tourism and commercial fishing within the Great Sandy Region are important to the economic base of the Great Sandy Region, providing direct and indirect employment. Tourism in the Region generates substantial economic benefits and employment, particularly

in adjacent communities and throughout the tourism and travel industry.

The Region provides opportunities for honey production and recreational fishing and associated activities also make a significant contribution to the regional economy. Honey production is limited to areas other than national parks.

Located towards the northern limit of the Region is the Port of Bundaberg. Commodities of regional economic importance are shipped through the Port, principally sugar and petroleum.

The known mineral sand and timber resources of the Region are no longer available for exploitation in response to major environmental decisions following exhaustive inquiry processes.

Research and education values

Natural processes are able to continue relatively undisturbed within the Great Sandy Region providing opportunities for research, the results of which are in some cases of international significance.

Opportunities to share the increased awareness and understanding resulting from this research are significant at the local, state, national and international level. Opportunities are available for formal and informal education using the Region as a natural museum and classroom.

Scenic and aesthetic values

Within the Region, outstanding landscapes of exceptional beauty include long uninterrupted sweeps of ocean beach. The spectacular dune landscape is interspersed with numerous sandblows. With more than 40 freshwater dune lakes of diverse size, elevation, shape, depth and colour, and surrounding vegetation, Fraser Island is regarded as a 'lakeland' of remarkable beauty and interest. The extensive wallum and heathland communities, the calm dark waters of the Noosa River and the estuarine environments of Great Sandy Strait are significant scenic attractions adding to the value of the Region.

Existence, bequest and inspiration values

People derive satisfaction from simply knowing that places such as the Great Sandy Region exist, even though they may never visit it. Bequest values are motivated by benevolence and relate to the satisfaction individuals derive from the transfer of the values of the Great Sandy Region to future generations. The outstanding beauty and natural forces of the Region are inspirational for people throughout the world and allow for contemplation of humanity's place in nature.

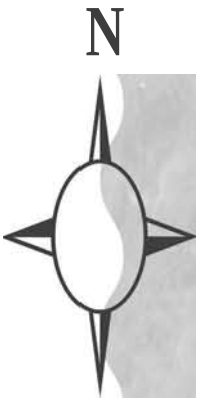
Water catchment values

The sandmasses of Fraser Island and Cooloola contain extensive reserves of high quality groundwater. The townships and areas of settlement within the Region depend upon these groundwater supplies. The interaction between surface and groundwater has a fundamental influence on the ecological and geomorphological processes of the Region.

Purposes of management

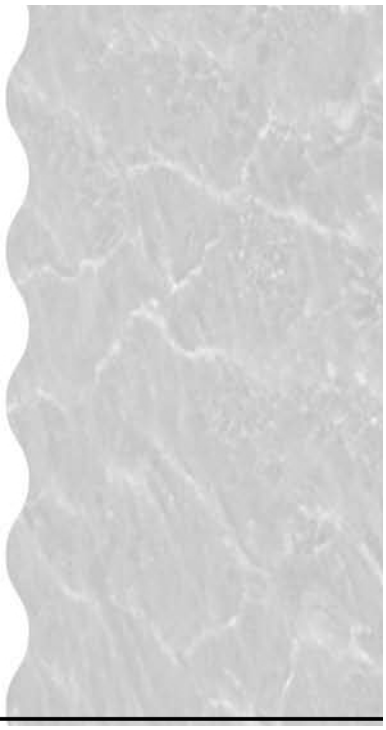
The Great Sandy Region will continue to be managed for the following purposes:

- to protect, conserve, present, rehabilitate and transmit to future generations the physical landscape, biological, cultural heritage and other significant values of the entire Great Sandy Region, together with the components and processes required for their continuance;
- to meet Australia's international obligations under the World Heritage Convention for the protection, conservation, presentation, rehabilitation and transmission to future generations of the Fraser Island World Heritage Property;
- to provide meaningful opportunities for Traditional Owners to be involved in and consulted about the planning and management of the Great Sandy Region;
- to foster a secure community setting for people living in the Region;
- to allow for the provision of essential and appropriate public utilities, services and structures for the residents of, and visitors to, the Great Sandy Region consistent with the protection of the Region's values;
- consistent with the protection of values, to provide a diversity of high-quality recreation opportunities to ensure that the widest possible cross-section of the community is able to experience and appreciate the Great Sandy Region, commensurate with their needs, interests, capabilities and expectations; and
- to ensure that development and resource harvesting activities occurring within the Great Sandy Region are conducted in an ecologically, economically, socially and culturally sustainable manner.



Strategy 1

Natural and cultural resource management



Strategy 1

Natural and cultural resource management

1.01 Natural and cultural resource management

Background information

The need to clearly define the meaning of 'conservation' is central to the understanding of natural and cultural resource management. The 1983 National Conservation Strategy for Australia defined the term 'conservation' based on the definition contained in the World Conservation Strategy, published by IUCN – the World Conservation Union (1980). The definition of conservation adopted in the Nature Conservation Strategy is:

> *'The management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations whilst maintaining its potential to meet the needs and aspirations of future generations.'*

The positive features of this definition are that it embraces sustainable use, maintenance, preservation, restoration and enhancement of the natural environment plus the 'management of the human use of the biosphere'. This definition was developed in the context of use of all natural resources across Australia.

Within the Great Sandy Region, the Commission of Inquiry into the Conservation, Management and Use of Fraser Island and the Great Sandy Region and subsequent decisions of the Queensland Government have established that uses such as logging and sand mining are inconsistent with the area's conservation. The Commission of Inquiry recommended that the purpose of managing the Region be 'the permanent preservation of the Region to the greatest possible extent'.

The evaluation of natural and cultural resources for protection and conservation can be based on criteria including rarity, diversity, extent and fragility. The existence of these types of characteristics helps to determine appropriate management.

Nature conservation management is the protection of the natural processes, which provide for the existence of plant and animal communities by allowing natural changes in communities and for the evolutionary forces to continue to operate on species.

This part of the Management Plan seeks to protect, conserve, present, rehabilitate and transmit to future generations the physical landscape, biological, cultural heritage and other significant values of the entire Great Sandy Region and the components and processes required for their continuance.

1.02 Fraser Island World Heritage Property

See also: 1.05 Landform and soil forming processes
1.07 Landscape
1.14 Impact assessment procedures
3.07 Community engagement

Background information

In September 1991 the Australian Government nominated an area of approximately 860,000ha for World Heritage listing. The nominated area included the Fraser Island and Cooloola sandmasses, the Wide Bay Military Training Area, the waters of Hervey Bay and Great Sandy Strait and associated tidal shallows.

In December 1992, Fraser Island was inscribed on the World Heritage List. The listed area covers about 181,000ha and includes all of Fraser Island and a number of small islands off the west coast of Fraser Island including Stewart, Dream and small unnamed islands between Dream Island and the mouth of Yankee Jack Creek and including Boonlye Point. The boundary follows an imaginary line 500 metres seaward of the high water mark on Fraser Island and these smaller islands and is shown on Map 1.

The Queensland Government is committed to protecting the outstanding values of the remaining areas of the Great Sandy Region and will continue to press for World Heritage listing of the Cooloola Section of the Great Sandy National Park, the Great Sandy Strait and Hervey Bay.

World Heritage values of Fraser Island

The World Heritage Bureau supported the nomination of Fraser Island for World Heritage listing on the basis of its values relating to the second and third criteria set by the World Heritage Committee. The values of Fraser Island relating to these criteria are summarised below. Further information on these values is set out in the formal nomination of Fraser Island and the Great Sandy Region for World Heritage listing. Since Fraser Island's nomination, the World Heritage Committee has adopted new World Heritage listing criteria (summarised in Part A of this Plan).

The natural processes at work in the Great Sandy Region have occurred over a number of geological periods. Discussion of natural processes within this document makes reference to various stages of this history. Figure 1 indicates the geological systems and their approximate duration and sequence.

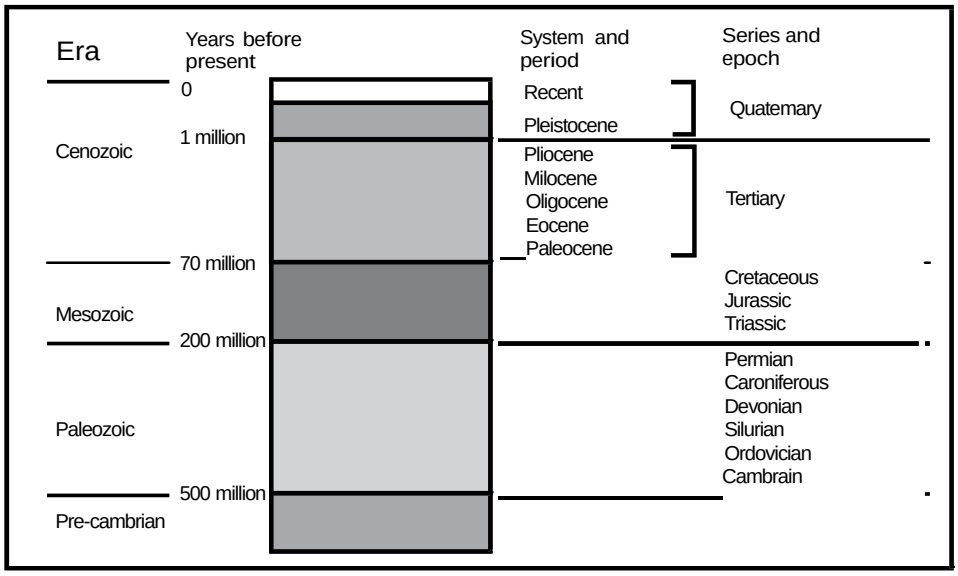


Figure 1. Geological time scale generalised.

Ongoing geological and biological processes

This criterion requires that the area contain outstanding examples representing significant ongoing geological processes, biological evolution and human interaction with the natural environment. The integrity condition attached to this criterion requires that the sites described should have sufficient size and contain the necessary elements to demonstrate the key aspects of the processes and be self-perpetuating.

The Fraser Island and Cooloola sandmasses are vast deposits of dominantly quartz sands that have accumulated episodically during the Quaternary Period (last two million years) forming a sequence of overlapping dune systems. Sizeable areas of at least six of these dune systems were not buried by the successively younger deposits and have been exposed continuously to weathering, soil development, plant colonisation and succession, and water erosion since deposition. These form a unique time sequence that provides nine stages of soil development, forest succession and dune denudation from the bare mobile parabolic dunes (time zero) to old degraded sandhills (more than 700,000 years of exposure). This is the longest time sequence (chronosequence) that has been recorded in coastal dunes.

Across this time sequence, the soils (podzols) are seen to progressively change from profiles less than 0.5m deep on the younger dunes to giant profiles more than 25m deep on the old sandhills. Major changes are also evident in the structure and floristics of the vegetation with increasing dune age. Both progressive and retrogressive plant succession can be demonstrated in the sclerophyll vegetation related to depth of soil development and access to nutrient supply. Sizeable areas of dense subtropical rainforest have developed on the quartz sands in dune corridors where they are protected from desiccating winds.

The bare mobile dunes demonstrate the geological processes whereby the sandmasses have been constructed by onshore winds blowing sands from the beach inland into woodlands and forests to form parabolic dunes. The progressive degradation of these dunes, due to water erosion, to form whaleback sandhills is clearly evident in the age sequence of vegetated dunes.

The coastal sandmasses receive 1250mm - 1750mm of rain annually. There is little runoff and both Fraser Island and Cooloola have large unconfined aquifers. In both areas, dynamic relationships are evident between rainfall, soils, aquifers, lakes, springs and streams. Both clear (white) and organic-stained (brown/black) waters occur and processes whereby each is formed can be demonstrated.

Variations in the diversity and population characteristics of the indigenous species occur on the sandmasses reflecting differences in habitat due to nutrient supply, available sunlight, frequency and intensity of fires and drainage patterns. Examples include the acid frogs in the acidic wet heathlands and species of earthworms confined to particular dune systems. Fraser Island and Cooloola are of sufficient size, integrity and diversity to maintain the geomorphological (landform building and eroding), pedological (soil forming) and biological processes necessary to ensure the persistence and continual natural evolution of the Region's ecosystems.

Natural phenomena

This criterion requires that the area contain superlative natural phenomena, formations or features. The integrity condition attached to this criterion requires that the sites described should contain those ecosystem components required for the continuity of the species or the other natural elements or processes to be conserved.

Fraser Island is the largest sand island in the world. It is made up of an age sequence of dune sands that reach a maximum elevation of 240m and in places extend to 100m below sea level. Nine separate dune systems have been recognised above sea level and most of these can be correlated with those of the nearby Cooloola sandmass, where the oldest sequence in coastal dunes (approximately 500,000 years) in the world has been recorded. Both Fraser Island and Cooloola preserve magnificent examples of coastal parabolic dunes; both bare mobile forms (with various stages of plant colonisation) and very large vegetated dunes (in different stages of reduction by water erosion) form diverse and attractive scenery of important scientific and social interest.

Both sandmasses are also well known for the spectacular colours of sand beds exposed by the erosion of sea cliffs along the coastal margins. The sea cliffs preserve evidence of the last two high sea levels (the last interglacial, about 100,000 years ago, and the Holocene approximately 6000-3000 years ago). The sands of the sea cliffs are various shades of yellow, brown, red, white and black.

Fraser Island contains one of Australia's few 'lakeland' landscapes with about 40 freshwater lakes including Lakes Boomanjin and Boomerang Lakes, which are the largest and highest-known perched lakes respectively. Lakes Wabby (Fraser Island) and Freshwater (Cooloola) are spectacular examples of barrage lakes. Clear (white) and coloured (various shades of brown) waters in adjacent lakes or streams, or flowing into the same lake, add a further dimension to the hydrological phenomenon of the sandmasses.

Patches of subtropical rainforest on Fraser Island and Cooloola are outstanding additions to the diversity of the vegetation and scenery of the coastal dunes. These appear to be survival centres for species whose previous distribution has been markedly reduced by changes in both climate and the position of the coastline over the last two million years. Such changes have led to disjunct distributions of several species. For example, isolated populations of the primitive fern *Angiopteris evecta* are known only from a few isolated locations in Queensland and northern New South Wales including Wanggoolba Creek (Fraser Island), Cooloola and Carnarvon Gorge (central Queensland). Another fern *Lindsaea repens* has been recorded in Australia only at Fraser Island and in north-east Queensland. Several other rare plants also occur in the eucalypt forests and woodlands. *Glycine argyrea* is known only from Cooloola, just south of Rainbow Beach.

The satinay/brush box forests of Fraser Island and the blackbutt/bloodwood forests of Fraser Island and Cooloola contain giant trees up to 50m in height with diameters at chest height of up to three metres. These are spectacular examples of subtropical sclerophyll forests that provide scenic diversity and arouse scientific curiosity about the development of such large biomasses on nutrient-poor quartz sands.

Fraser Island and Cooloola are sufficiently large, diverse and free from major disturbances to retain viable populations in all of the major ecosystems and to allow the continuing evolution of the main natural phenomena. While some of the forests have been modified by logging, most of the areas have the capacity to gradually recover their previous structure although their floristic composition may remain somewhat altered for a long time.

Desired outcomes

By or before 2010, to have established a legislative and administrative framework that ensures Australia's international obligations under the World Heritage Convention for the protection, conservation, presentation, rehabilitation and transmission of the natural and/or cultural values to future generations of the Fraser Island World Heritage Property are met.

Proposed guidelines and actions

1 Management of Fraser Island will meet Australia's international obligation under the World Heritage Convention for the protection, conservation, presentation, rehabilitation and transmission of natural and/or cultural values to future generations of the Fraser Island World Heritage Property.

This will require:

- *protection* of the World Heritage values of Fraser Island by developing and implementing strong long-term legislative, regulatory and institutional arrangements and unified community support;
- *conservation* of values through increased understanding, active management and control of processes threatening the long-term integrity of the Fraser Island World Heritage

Property and its capacity for ongoing evolution;

- *presentation* of the Fraser Island World Heritage Property and the World Heritage concept to local, national and international communities to create a greater understanding of and support for its outstanding universal values;
- *rehabilitation* of degraded areas of Fraser Island to a natural condition through the identification of degraded areas, removal of threatening processes and active rehabilitation of sites as necessary to re-establish natural conditions and processes; and
- *transmission* of the outstanding universal values of the Fraser Island World Heritage Property to future generations through the successful protection, conservation, rehabilitation and presentation of values.

2 Any decisions in relation to the Fraser Island World Heritage Property must give due regard to Australia's obligations under the World Heritage Convention.

3 The Fraser Island World Heritage Property will be a major focus within the proposed Great Sandy Region community engagement program.

4 Further research will be required to increase understanding of the values of the Great Sandy Region and methods for mitigating impacts and protecting values.

5 The Queensland Government and the Australian Government will pursue World Heritage listing of the Cooloola Section of the Great Sandy National Park and other areas in the Great Sandy Region.

Existing situation

Under the World Heritage Convention, Australia has an obligation to consider Fraser Island's geological processes and natural phenomena values when undertaking development. Decisions made in relation to the Fraser Island World Heritage Property consider these values. Existing legislation also allows consideration of the impact on World Heritage values of proposed changes of land use.

A number of advisory committees made up of key stakeholders and local community members and experts have made a major contribution to the management of Fraser Island, and have provided advice for the Great Sandy Region. These arrangements still continue for the Region.

The World Heritage values of Fraser Island have been identified and described in the nomination document for its World Heritage Listing. The Fraser Island World Heritage Area Review of Outstanding Universal Value report provides an account of a re-evaluation of the World Heritage Value of Fraser Island (FIWHASAC 2004).

The Queensland Government continues to work towards the nomination of the Great Sandy Region under the new World Heritage Area listing criteria. The report 'Cooloola, Assessment of potential Outstanding Universal Value' (FIWHASAC 2004) contains an assessment of the potential World Heritage value of the Cooloola Section of Great Sandy National Park and is being used as a tool to guide the nomination of Cooloola as an extension of the Fraser Island World Heritage Area.

Most of Fraser Island is now included within the Fraser Island Section of the Great Sandy National Park. With the exception of small areas committed to residential, commercial or public purposes, or areas potentially made available to Traditional Owners, the whole Island has been gazetted as a national park under the *Nature Conservation Act 1992*.

Government, conservation and commercial interests continue to recognise and promote the values of Fraser Island and adjoining areas within the Region. Research is increasing the knowledge and understanding of World Heritage values, and is determining the methods used to minimise impacts and protect values in the Great Sandy Region

1.03 Indigenous interests

Note – This section has been updated.

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.08 Cultural resources (Indigenous and non – Indigenous)
1.09 Fire
3.07 Community engagement
3.10 Tourism
4.01 Sustainable resource harvesting
4.02 Traditional hunting and gathering

Background information

At the time of first European settlement, several Indigenous groups lived in the Region with traditional association over their ancestral country, the land, waters and sea in the Region. These groups included Butchulla, Gubbi Gubbi, Kabi Kabi, Bailai, Gooreng Gooreng, Taribelang Bunda and the Gurang people and associated clans.

Indigenous groups from throughout the Region and beyond have been known to get together for regular gatherings and ceremonies. Other traditional activities including trading and family

business also occur and maintain connection between groups.

Captains James Cook and Matthew Flinders both recorded sightings of Indigenous people on the coast of what is now known as Fraser Island (K'gari to the Butchulla). The first recorded contact between the local Indigenous people and Europeans occurred in 1802 when Flinders, botanist Robert Brown and six naturalists landed from the *Investigator* at Bool Creek.

Until European pioneers arrived and settlement began in the 1840s, contact with local Indigenous people was restricted to escaped convicts and shipwreck survivors, most notably Captain James Fraser and his wife Eliza. A number of these Europeans took part in the community life of the local Indigenous groups. Expanding European settlement during the 1840s and 1850s resulted in conflict between Indigenous people and Europeans.

During the late1890s when Indigenous people in Queensland were removed from their country to mission reserves throughout Queensland, many from the Great Sandy Region and close by were taken to Fraser Island. In 1897 the first group of 51 travelled on the steamer *Llewellyn* to a new Indigenous reserve at the site of the old quarantine station at North White Cliffs (originally established in 1874). The reserve camp was relocated to the north at Bogimbah Creek in the same year. It is here, at Bogimbah, that the government sent Indigenous people from other areas of Queensland, particularly those branded trouble makers and 'a source of possible danger to the white population' (Butchulla people *pers. comm.* 2001).

In 1900 control of the reserve was transferred to the Anglican Church but the mission was closed in 1904. Most of the Indigenous people from the mission were transported to other mission reserves in Queensland including Yarrabah near Cairns, Palm and Phantom Island, Woorabinda and Cherbourg. Others were sent to Durundur near Caboolture.

During this time the lives of Indigenous people on reserves were strictly regulated by legislation. Indigenous people had no choice in where they lived or worked, how their savings were allocated, whether they could travel, or who would receive their money when they died. They were prohibited from holding property in their own names, conducting bank accounts outside the Government system, making wills or gifts without permission and marrying without consent. Indigenous people who remained on their country were ever mindful not to draw undue attention to their day-to-day activities and traditional ceremonies. They feared upsetting others in the community, being labelled as troublemakers and increasing the risk of being moved to a reserve.

On these reserves, food was in short supply, accommodation was substandard, children were separated from their parents, families were broken up, and traditional activities and ceremonies were not regularly practised according to traditional custom and law. In their own country, people often carried out customary activities and ceremonies after dark or in secret away from authority.

Indigenous people in the Region are responsible for the management of the area's cultural resources. These custodial obligations are recognised as being integral to the Indigenous living culture and their connection with the area's natural and cultural resources. Indigenous people wish to continue this involvement in the management of natural resources over the land and water in cooperation with land management agencies in the Region. Land and resource management is about 'looking after the land, looking after its resources is about maintaining connection and about common sense' (Butchulla *pers. comm.* 2002).

Desired outcomes

By or before 2010 to have:

- the responsibilities, interests and aspirations of Indigenous people recognised and respected in relation to their country;
- opportunities for Indigenous people to own and manage land and resources and enterprises in the Region; and
- meaningful involvement of Indigenous people in the management of public lands within the Region.

Proposed guidelines and actions

The actions below summarise the broad aspirations of the local Indigenous people in the Great Sandy Region. These were compiled by Traditional Owner representatives in 2003 and are substantially different from the 1994 Plan.

[1]

*1 Traditional Owners will be involved in the management and decision-making over their country and the natural and cultural resources in the Great Sandy Region, particularly in those areas where native title rights and interests have been determined. This will include meaningful involvement in the preparation of management plans, Local Government planning schemes and other Region and local planning exercises.

[1] Note * denotes a new or substantially changed action.

*2 Formal notification and consultation with Traditional Owners in line with Queensland Government native title work procedures will be followed for all major development work in the Region. Indigenous peoples' aspirations will be considered.

*3 State Government management agencies and local authorities will involve Traditional Owners in the protection, management and presentation of their cultural heritage and other interests. Involvement mechanisms, meaningful partnerships, management arrangements and protocols will be established to facilitate Traditional Owner involvement in the Region, to protect, conserve and manage their heritage.

*4 A regional advisory group on cultural heritage management, comprising EPA staff (including Indigenous field staff or liaison officers as required) and representatives of Indigenous groups from the Great Sandy Region, will be established. Representation will be made up from native titleholders or claimants as the case may be in the absence of a determination, and Indigenous representations on the Fraser Island Community Advisory Committee will be maintained.

*5 Recognition will be given to the value and importance of Indigenous management practices and the complementary role they have in natural and cultural resource management in the Region and Indigenous rights, including intellectual property rights and responsibilities for cultural heritage management presentation will be recognised.

*6 Traditional Owners, in particular the elders and their knowledge in the tourism industry, will be recognised and respected.

*7 Indigenous heritage sites in the Great Sandy Region, including archaeological and contemporary sites of significance and traditional law and lores (stories), and the heritage of descendants of Indigenous people from the Great Sandy Region will continue to be recognised.

*8 Arrangements for direct Indigenous involvement including employment, consultation and training programs in the management of public lands within the Great Sandy Region will be established. Indigenous people will be employed to be involved in the day-to-day management and monitoring of Indigenous cultural heritage in the Region and liaison between the broader Indigenous and non-Indigenous community and in other levels of management. Employment opportunities will include positions as rangers, project or liaison officers and technical and administrative officers.

9 Opportunities for Indigenous people to be involved actively in cultural tourism and land management in the Great Sandy Region will be encouraged, including providing support and advice to establish commercial operations and developing partnerships with existing businesses.

10 The use of traditional resources for food, medicine and artefact manufacture as an integral component of Indigenous culture and heritage in the Great Sandy Region will be recognised and managed within the limits of sustainability.

*11 The aspirations and needs of the local Indigenous people will be determined. The Indigenous community will be involved in a way that meets their needs and aspirations. It is important that protocols for communication and involvement in management be established with the Indigenous community.

*12 This management Plan, subsequent government policy and planning initiatives developed as a result of this management Plan will be prepared and administered so as to ensure its provisions do not unintentionally diminish or extinguish any native title that exists in the Region.

13 Discussions and negotiations will continue with Indigenous groups who potentially have traditional affiliation or historical association with the Great Sandy Region, to identify areas of interest or desired involvement in management of the Region.

Existing situation

Traditional Owners have been managing cultural resources within their ancestral country (since time began) as part of an ongoing obligation and practice of culture. This involves the relationship between their country (the land and water) and its resources (State Coastal Management Plan 2001). Currently Traditional Owners have varying levels of involvement in the management of their ancestral country, depending on ownership, tenure and the existence of formal and informal management arrangements. Following determination of native title over Indigenous land and cultural heritage, it is anticipated that further Indigenous aspirations towards management will be clearer.

Indigenous people in the Great Sandy Region retain strong traditional connection to country despite the impacts and change brought about by non-Indigenous settlement, land and resource use, and development. Management of

natural and cultural resources on land and water where Indigenous groups have native title rights and interests is recognised as a cornerstone of the wellbeing, identity, cultural significance and economy to Indigenous communities.

Indigenous people ask to be recognised as custodians of their country and to be recognised and respected for the knowledge they hold and experience they have needed to look after their country. They find it hard to understand the thinking behind past development activities and destruction of their country, the pollution in rivers and estuaries generated from industry and development and the impact on the coastal resources by over-fishing. They are very upset when they see these trends continuing.

The Queensland Government recognises Indigenous traditional custom and the rights of Indigenous people. It is committed to involving Indigenous people in the conservation of their cultural heritage and to working towards opportunities for joint management of this heritage. The Queensland Government recognises that employment, training and the co-operative involvement of Indigenous people are essential to the effective conservation of the natural resources and cultural heritage in the Region. The Queensland Government has endorsed policies and enacted legislation to facilitate these commitments.

Many Indigenous groups from the Region are represented on the Great Sandy Region Heritage Advisory Committee. The group has met on a regular basis and has contributed valuable and meaningful input into management direction and decision-making within the Region. A person representing the Butchulla people (Indigenous interests) is one of the 15 members of the Fraser Island Community Advisory Committee.

Several other organisations represent Indigenous people with traditional associations to the Great Sandy Region, including land councils and representative bodies. Indigenous people are employed as rangers and as members of field crews, involved in day-to-day operational activities on protected areas and as part of a range of specific employment and training initiatives.

It has only been recently that Indigenous knowledge and skills in conservation and resource management have been used in educational and interpretive displays and other activities that promote community understanding of their culture and heritage.

1.04 Protected area status and planning

See also: 1.03 Traditional Owner interests
2.02 Residential development
Strategy 4 Sustainable resource harvesting

Background information

The *Nature Conservation Act 1992* provides the basis for planning and managing protected areas in Queensland. For the purpose of this section, protected areas are those areas defined under the *Nature Conservation Act 1992*.

Management plans for protected areas are required under the *Nature Conservation Act 1992*. They must be consistent with the management principles for the class of the area and specify management outcomes for the protection, presentation and use of the area and the policies, guidelines and actions to achieve the outcomes. Management plans provide consistency in management approaches over time.

Under the *Nature Conservation Act 1992* a national park is to be managed to:

- provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values;
- present the area's cultural and natural resources and their values; and
- ensure that the only use of the area is nature-based and ecologically sustainable.

Desired outcomes

By or before 2010, to have the protected area estate in the Great Sandy Region consolidated. Detailed management plans for specific areas and conservation plans will be in place.

Proposed guidelines and actions

1 The protected areas in the Region other than Mon Repos Environmental Park will be amalgamated into one national park and one conservation park under the *Nature Conservation Act 1992* and one marine park under the *Marine Park Act 1982*. These protected areas will be named Great Sandy National Park, Great Sandy Conservation Park and the Great Sandy Marine Park. The existing names of parks or areas will be retained as the names of sections of the Great Sandy National Park, the Great Sandy Conservation Park and the Great Sandy Marine Park.

2 Subject to the resolution of Indigenous land interests following consultation with relevant Indigenous people, vacant Crown land on southern Fraser Island will be added to the existing national park.

3 Subject to agreement between the DPI (Forestry) and the QPWS, part of State Forest 1004 (Toolara) in the area north of the Rainbow Beach road will be added to the Cooloola Section of Great Sandy National Park subject to resolution of fire, recreation and landscape management matters together with available Crown land north of the Rainbow Beach Road between the State forest and the existing section of national park.

4 South Head Environmental Park and Turkey Island Environmental Park and Kauri Creek Environmental Park, together with possible future acquisitions of similar areas, will be amalgamated and included within the Great Sandy Conservation Park.

5 Mon Repos Environmental Park will be gazetted as Mon Repos Conservation Park.

6 Subject to consultation with relevant interest groups, that section of the Noosa River south of the existing Cooloola Section of the Great Sandy National Park boundary (approximately Campsite 3) to just south of the Kinaba Information Centre will be added to the Great Sandy Conservation Park.

7 Existing marine parks will be extended to include all appropriate tidal lands and waters in the Region and zoned in consultation with user and interest groups. Within this process, the possibility of declaring protected areas under the *Nature Conservation Act 1992* will be investigated. As far as practicable, management of the entire marine component of the Region will be complementary to the management of the Great Barrier Reef Marine Park to the north.

8 A co-operative management arrangement will be implemented for that part of the river between the approximate locality of the Kinaba Information Centre to the mouth of the Noosa River.

9 Subject to agreement with the Department of Transport and NR&M, the Inskip Point Harbour Purposes Reserve and all those areas directly adjacent to Fraser Island and the mainland sections of the Region between high water and low water, will be considered for addition to Great Sandy Conservation Park subject to a planning study to determine access and future development requirements.

Existing situation

Mon Repos has been declared a conservation park. Most other terrestrial protected areas in the Region have been amalgamated into Great Sandy National Park (which includes Cooloola and most of Fraser Island) and Great Sandy Conservation Park. The old Orchid Beach Resort site was purchased and the land added to the Fraser Island Section of the Great Sandy National Park. Sandy Cape Lighthouse and Double Island Point Lightstation have been purchased and dedicated as conservation parks (see Table 1 for details).

Planning, including community involvement, to create the Great Sandy Marine Park (Northern Section) for appropriate tidal lands and waters in the northern section of the Region has commenced. Zoning plans and management plans may be prepared as a result of this exercise.

Protected area management issues have been identified, including fire management, recreation and education. Policy, strategies, guidelines and actions have been identified to address these issues. Management guidelines for eight key areas of management on Fraser Island: tourism, camping, dingoes, weeds, road classification, walking tracks, monitoring and backpacker communication are also well developed.

The draft *Noosa River Plan 2003* seeks to provide a vision and framework for a co- ordinated and consistent approach to the planning, development and management of the Noosa River system, including its waterways and tidal lands. The draft 2003 Plan reviews and updates the actions and background information in the *1997 Noosa River Plan*, which was first prepared through a co-operative process involving all stakeholders, including government agencies, Noosa Council and the community. The draft 2003 Plan has regard to the policies of the *State Coastal Management Plan – Queensland's Coastal Policy* (2001) and other management strategies relating to the river system.

1.05 Landform and soil forming processes

See also: 1.02 Fraser Island World Heritage Property
1.07 Landscape
1.14 Impact assessment and procedures
3.07 Community engagement

Background information

The Great Sandy Region is dominated by four geological components: the Triassic/Jurassic sandstones of the upper Noosa River and Tin Can Bay areas; the Cretaceous mudstones and shales of the Mary River Heads and Woody Island; the large Quaternary sandmasses of Fraser Island and Cooloola; and the Quaternary alluvium of the coastal plains such as the Noosa Plain. Also, there are four small rocky headlands of interbedded volcanic and sedimentary rocks of Tertiary age (Double Island Point, Indian

Head, Middle Rocks and Waddy Point). Quaternary aeolienite (windblown sand cemented by calcium carbonate) forms part of three low hills at Double Island Point.

The various landscapes formed on the sandmass of Fraser Island are outstanding examples of major stages in the development of coastal dunes in the subtropics during the Holocene and Late Pleistocene. As at Cooloola, they also provide a chronosequence in soil development and in dune degradation by water erosion. Coeval with the dune formation is the formation of many of the freshwater lakes. This process resulted in numerous dune lakes, probably half of the world's complement, many of which are perched. In the west of the island, there are excellent examples of at least two stages in the degradation of vegetated dunes by

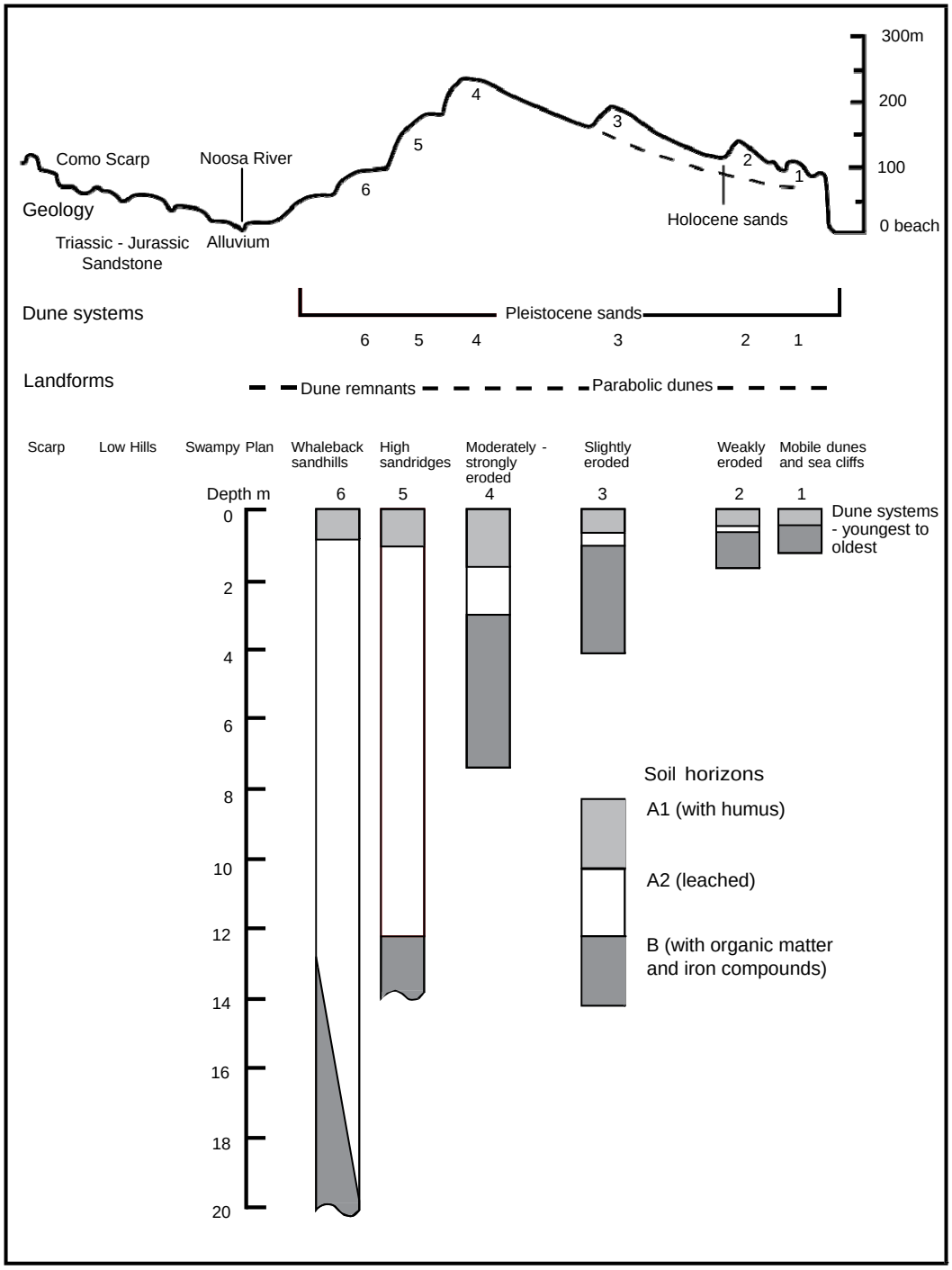


Figure 2. Cooloola cross-section. *Thickness of podzol profile development at selected sites on crests of trailing arms and sand ridge remnants in dune systems of increasing age at Cooloola. Variations in depths to B horizons are indicated by diagonal lines. The differences in depth of soils within a dune system are due to variations in moisture regime of the geomorphic components making up parabolic dunes (based on Thompson 1983, Thompson and Moore 1984).*

water erosion and the development of a fluvial drainage net. All of the processes are ongoing and Fraser Island exhibits several stages in their development.

The Cooloola sandmass holds a landscape that is an outstanding example of the major stages in the formation and stabilisation of coastal dunes and their long-term reduction by water erosion during the Quaternary era.

The sandmass, above sea level, comprises at least six stages of coastal dune-building during the Late Pleistocene and Holocene geological periods. These overlie older sandbeds and estuarine deposits to at least 35-55m below sea level where they rest on an eroded Mesozoic sandstone basement. A single thermoluminescence (TL) date from what appears to be the oldest of the dune systems above sea level yielded an age of approximately 500,000 years BP. Surface wash has induced gullies and fans in young dunes and raindrop-splash has worn older dunes down to convex sandhills with long colluvial slopes. Such raindrop splash slopes are very rare in nature and those at Cooloola are probably the best examples on record. The studies carried out at Cooloola provide an unparalleled description and some measurements of these geomorphological processes. The age sequence of sand dunes provides a unique opportunity to observe the processes and rate of long-term soil formation on vegetated coastal dunes in the subtropics and the research that has been carried out at Cooloola is probably unmatched for podzol soils elsewhere in the world.

The Noosa River catchment lies to the west of the sandmass and drains from it and from low sandstone hills further to the west. It is a low gradient coastal stream with a wide range of geomorphic features induced by changes in sea level over the past 160,000 years. These include a broad channel cut during low sea levels and shorelines, deltas, delta lakes, tidal lakes and estuarine deposits associated with high sea levels. There is also an illustration of potential stream capture along part of the interfluve between the Noosa and Mary Rivers. Many of the processes are ongoing. The river is a 'black' water stream but has both 'black' and 'white' water tributaries.

Marine, fluvial (related to rivers and water flow) and aeolian (wind movement of soils and sand) processes have been involved separately or jointly in producing the array of landforms making up the present landscape. As a result, there are many examples of different landforms which can be seen in different stages of development or degradation. The outstanding example of these is the ongoing construction of parabolic dunes by the onshore winds, their stabilisation by plants and when vegetated their progressive degeneration.

Coastal processes can be seen bringing sand onto the beach, moving sand between the beach and the surf zone, working the sand northwards along the shore and around headlands, and depositing it either on the coast or in the sandy shoals of Breaksea Spit off the northern tip of Fraser Island. Coastal processes can also be seen in the deposition of intertidal deposits in the mangrove fringes of Tin Can Inlet estuary and Great Sandy Strait.

The offshore geology of the Great Sandy Region is important as it is a foundation for growth of marine organisms, provides a source of sand for coastal sandmasses, and has an influence on and is a reflection of past and present coastal processes and tidal hydraulics. The offshore sediments of Hervey Bay vary in grain size, proportions of sand, gravel and mud, degree of sorting, origin and composition. Active sedimentation is taking place with material derived from fluvial and offshore shelf sources.

Landforms in the area provide a record of many of the climatic and environmental changes that have occurred during the Quaternary Period. Their integrity should be maintained so they can continue to contribute to knowledge of the natural processes responsible for their development and natural degradation.

Desired outcomes

By or before 2010, to have established a management regime for the Great Sandy Region that ensures the preservation of all landforms and soils to the greatest possible extent, with particular attention given to key areas that illustrate landform and soil forming processes.

Proposed guidelines and actions

*1 Impact assessment and development approval through the IDAS and other legislative requirements will be required for all proposed developments, including minor works that may disturb geomorphological processes.

2 Significant or representative sites of geomorphological or pedological significance will be identified and management strategies implemented to prevent, reduce or remove threats to these areas.

3 Visitor use of sensitive or significant sites will be controlled and the effects of use will be monitored.

Existing situation

The potential exists for human activities to substantially affect the landform

(geomorphological) processes of the Region. Such activities include dredging of bars, construction of groynes, marinas, seawalls, dams and changes in use within the catchment of rivers flowing into the Region.

1.06 Marine and terrestrial wildlife (including vegetation)

See also: 1.02 Fraser Island World Heritage Property
1.09 Fire
1.11 Land rehabilitation
1.12 Introduced pest species

Background information

The Great Sandy Region is very important for the maintenance of biodiversity as many species are endemic to the Region and the diversity of plant communities and species is very high. The tall rainforests, which have developed on sand dunes in the Region, are not known to have developed elsewhere in the world. More than 870 species of flowering plants and ferns including a number of rare and endemic plants have been identified on Cooloola. Fraser Island has at least 625 native species. Satinay *Syncarpii hilli* is one of the largest and most outstanding of the trees found in the Region, and is confined largely to the Region. Vegetation distribution is shown on Map 3.

Undisturbed estuaries are of major importance in maintaining the diversity and health of marine ecosystems. The Great Sandy Strait is one of the least disturbed large estuaries in southern Queensland comprising one-third tidal mudflats and sandflats with the remainder consisting of mangroves, seagrass, saltmarsh, sandy spits and forested islands. It is recognised as one of the three most important summer stopovers for trans-equatorial migratory wading birds in Australia. Map 4 shows the distribution of marine vegetation.

The unique Woongarra rocky shoreline habitat makes up approximately 2% of the entire shoreline habitat classifications of the Great Sandy Region. The rocky shoreline supports many tidal pools with rich marine flora and fauna diversity. Much of the Woongarra ecology is not formally studied, although the Woongarra Marine Park Monitoring and Education Project and Rocky Reef Watch have undertaken some work on invertebrates, with studies on coral, water quality and tide pools.

In December 1998 a detailed survey of the seagrass in Hervey Bay and the Great Sandy Strait estimated 2307ha of seagrass in the Region with meadows extending from intertidal and shallow subtidal areas to a depth of 32m. In February 1999 a major flood of the Mary River contributed to the loss of around 50% of intertidal seagrass within the Great Sandy Strait. Subsequent surveys and monitoring in conjunction with community groups from Seagrass-Watch have documented the recovery of this seagrass over three years. Twelve species of mangroves are present in the Great Sandy Strait, Tin Can Inlet and Hervey Bay.

Additional Fish Habitat Areas have been declared over parts of and in the vicinity of the Theodolite Creek and Coonarr Creek estuaries, and over parts of and in the vicinity of the Elliott River. The declared Fish Habitat Areas and the regional system of these areas protects and manages aquatic resources (including marine plants) under the provision of the *Fisheries Act 1994* and its associated policies.

Terrestrial wildlife

The Great Sandy Region is the most important remaining habitat for the disjunct northern populations of the ground parrot *Pezoporus wallicus*, a species listed as rare. The Region also provides habitat for raptors of conservation concern, including the peregrine falcon, osprey and white-breasted sea-eagle. The endangered black-breasted button-quail *Turnix melanogaster* and marbled frogmouth *Podargus ocellatus* also occur in the Region.

Eighteen of the 24 migratory wader species listed under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA) use the Region. The continued ecological integrity of Great Sandy Strait is essential for the survival of a number of these species. Australia is a signatory to the Ramsar Convention (The Convention on Wetlands of International Importance, 1971). The Great Sandy Strait was declared a Ramsar site in June 1999.

The Fraser Island dingoes are potentially the purest strain of dingoes in eastern Australia. The vulnerable false water-rat *Xeromys myoides* is found on Fraser Island and a number of mainland localities within the Region, in its favoured habitat of coastal wetlands including melaleuca and mangrove communities, sedgelands and saltmarsh.

The grey nurse shark *Carcharia Taurus* is listed as critically endangered under the EPBC Act 1999 and as endangered under the *Nature Conservation Act 1992*. The Queensland Government has implemented a number of management initiatives to provide for greater protection of the grey nurse shark from threats such as commercial and recreational fishing, shark finning, shark control devices, ecotourism and the aquarium trade. The grey nurse shark has recently been recorded in the Great Sandy

Region year round at Wolf Rock offshore from Double Island Point. To reduce the risk of harm or disturbances to the sharks, fishing and diving restrictions apply to key aggregation sites in south-east Queensland waters of Wolf Rock, Flat Rock, Henderson Rock and Cherub's Cave.

The Great Sandy Region contains one of the very few specialised habitats for the vulnerable Illidge's ant-blue butterfly *Acrodipsas illidgei*. The Region also supports an extraordinary array of primitive insects of outstanding significance to science. The Region's freshwater lakes contain significant fish fauna such as the Oxleyan pygmy perch *Nannoperca oxleyanna* and honey blue-eye *Pseudomugil mellis*.

Marine Wildlife (including vegetation)

Six species of turtle are found in Hervey Bay and the Great Sandy Strait: the endangered loggerhead *Caretta caretta*, the vulnerable green *Chelonia mydas*, the vulnerable hawksbill *Eretmochelys imbricata*, flatback *Natator depressa*, Pacific ridley *Lepidochelys olivacae* and leatherback *Dermochelys coriacea*. Virtually all the known courtship and mating of the loggerhead turtle population of the south-west Pacific area occurs in Hervey Bay. Moreton Bay is just as important as Hervey Bay for the feeding population loggerhead turtles. Mon Repos and the adjacent beaches of Woongarra Coast are the significant rookery sites for the species in the South Pacific. Post-hatchling turtles move into oceanic waters for a period of 15 to 20 years and then return to coastal waters to continue growing.

Hervey Bay is an important stopover for humpback whales *Megaptera novaeangliae* on their annual southern migration. The humpback whale is a vulnerable species. Hervey Bay appears to be an important staging area for a consistent sub-group of migrating humpback whales including mothers with calves and sub adults.

Many other species of cetaceans have been recorded in Hervey Bay. Whales observed include minke, pilot, melon-headed, false killer, pygmy sperm and rare sightings of two southern right whales in 2000 and 2002. Dolphins recorded include spotted, common, bottlenose, inshore bottlenose and Indo-Pacific humpback. Comprehensive surveys are required to determine the extent of species diversity and habitat use of cetaceans in the Great Sandy Region.

Seagrass beds in Hervey Bay and the Great Sandy Strait, which in 1992 covered almost 100,000ha and extended to depths of about 30m, are significant habitat for dugong *Dugong dugon*, a vulnerable mammal. Hervey Bay contains the largest seagrass bed in Eastern Australia. This area is considered critical to the south Queensland dugong population. The seagrass beds of Great Sandy Strait and Hervey Bay are ephemeral and subject to considerable variation in density and spatial distribution. Natural and human induced changes contribute to significant fluctuations in distribution and abundance of seagrass and influence seagrass dependent species. A significant depletion of seagrass beds in the Region in early 1992 resulted in a reduction in the dugong population from an estimated 1800 in 1988 to about 200 in 1992. Since then aerial surveys have recorded the slow recovery of the dugong population. A survey in 1999 estimated the population in Hervey Bay at approximately 1600 (Lawler and Marsh 1999).

Desired outcomes

By or before 2010, to have established a management regime for the Great Sandy Region that ensures the maintenance of its biological diversity, including regional diversity, ecosystem diversity, species diversity and genetic diversity, through the maintenance of ecological integrity and control of threatening processes. The processes of evolution and natural change of communities and populations of individual species will be allowed to continue without human interference, except where intervention is required to ensure the survival of species or ecological communities jeopardised by human activity, or where a specific management program is necessary in relation to a problem species.

Proposed guidelines and actions

1 All available information on vegetation and fauna for the Region will be collated. This will include the creation of uniform vegetation mapping for the Region on a computerised geographic information system.

2 An assessment of current knowledge about rare, vulnerable and endangered species will be undertaken to determine future research requirements.

*3 High-priority research and monitoring programs will be undertaken and outside agencies will be encouraged to undertake research within the Region. Projects need to follow guidelines, to test hypotheses, answer questions and solve issues for specific species, communities and the like. Research and monitoring programs need to be linked to management needs.

*4 Management practices will be modified in line with research results. Management is to be linked to research findings.

5 Disturbance of wildlife populations or communities by future development such as tourist routes or changes to management practices including fire management will be avoided, except where such disturbance is required for the survival of species of conservation concern (e.g. maintenance of ground parrot habitat).

*6 Residents and visitors will be discouraged from feeding wildlife in the Region. The feeding of native wildlife is prohibited, unless authorised under relevant legislative provisions. Dingoes will be managed in line with the strategies outlined in the Fraser Island Dingo Management Strategy.

7 Fauna habitat(s) will be maintained through control of introduced species of fauna and flora, appropriate fire management regimes and the control of recreation-related impacts.

8 A management presence capable of ensuring compliance with regulations and the ability to meet broader monitoring, interpretation and natural resource management needs in the area will be provided.

9 A public education and information program will be developed and implemented to foster an appreciation and understanding of the conservation, cultural importance, threats and impacts and management of the wildlife of the Region.

*10 Strategies to manage recreation and commercial activities to minimise impacts on protected aquatic species, such as the turtle, will be developed. For example, strategies will be developed and implemented to manage vessel activities around important roosting sites for migratory wading birds during certain periods of the year.

Existing situation

Terrestrial wildlife (including vegetation)

A vegetation and fauna monitoring program is undertaken for both Fraser Island and Cooloola. Many monitoring and research projects with important management implications have been conducted in co-operation with tertiary and other scientific institutions. Research, while often directed to management outcomes, has lacked a clear overall agenda or program. Long-term and regular monitoring is necessary to ensure that desired outcomes are being achieved. The Fraser Island World Heritage Area Scientific Advisory Committee has developed a prioritised research agenda for Fraser Island.

Existing information about most of the Region's flora and fauna has been collated regarding Fraser Island and the Cooloola Section of the Great Sandy National Park; however, little research has been carried out on Inskip Peninsula. Data on vegetation and other natural attributes has been developed into layers and integrated into a geographic information system. Staff and researchers have many new records of species for Fraser Island (one species is endemic). Many studies have been conducted into endangered and restricted species, including distribution studies of frog species and the false water rat (water mouse), the turtle, macro-invertebrates, and fish species.

A detailed research and monitoring project on dingoes has commenced. QPWS, other government agencies, and universities are involved. The Fraser Island Dingo Management Strategy presents the key strategies that make up a comprehensive dingo management program on Fraser Island. It incorporates recommendations from a risk assessment report produced by EPA in 2001.

Some wildlife species in the Region pose a threat to human life and safety. These include, but are not limited to, venomous snakes, spiders and stonefish, some shark species and some animals habituated to human contact.

Marine Wildlife (including vegetation)

Hervey Bay Marine Park (Map 2) was proclaimed in 1989 over approximately 170,000ha of the eastern half of the Bay to manage use consistent with conservation of the area and to ensure the protection of humpback whales. Between August and November each year a whale management and monitoring area is designated over the marine park to manage and monitor human activities in the vicinity of humpback whales. Primary management action has been to limit the number and activities of commercial whale watching vessels to avoid harassment of the whales.

In 1992, Woongarra Marine Park of 10,300ha (Map 2) was proclaimed over the tidal land of the Woongarra coast and its adjacent waters to protect unique coral reefs built on basalt, basalt boulder foreshores and to provide for reasonable use while excluding extractive activities from some areas. The zoning plan for Woongarra Marine Park makes specific provision for the protection of turtle rookeries and turtle habitat.

A management system for cetacean strandings has been developed for the Fraser Coast. It includes staff training, contingency planning and basic autopsy procedures. Many public education and information programs focus on wildlife management in the Region. Many estuarine environments in Great Sandy Strait are protected by fish habitat areas. These protect

the habitat of fish and other fauna and include areas such as mudflats, sandflats, seagrass beds and mangrove swamps. Marine plants associated with these areas are protected under the provisions of the *Fisheries Act 1994* and its associated policies.

In conjunction with the Australian Marine Conservation Society, extensive surveys of Fraser Island hummock wetlands (fens) and their fauna, including acid frogs, have occurred. Wader distribution in relation to traffic and camping along the east coast of Fraser Island has been mapped for a number of years.

Studies of turtle ecology centred on Mon Repos have been continued through the life of the Plan, providing critical information for turtle conservation and education programs. Also a phase-out dolphin feeding program operates at Tin Can Bay under agreement with the QPWS. A number of requirements must be adhered to as part of this program, including limiting the amount of food provided daily. (Two dolphins were being hand fed under this agreement, now only one of these dolphins continues to come in.)

Although programs are in place, more detailed management strategies to protect fauna habitat are needed. The current state of knowledge does not allow a realistic assessment to be made of the long-term viability of all plant and animal species and communities within the Region. While current management practice is based on present understanding of species and community requirements, long-term and regular monitoring is necessary to ensure that desired outcomes are being achieved.

1.07 Landscape

See also: 1.02 Fraser Island World Heritage Property
1.05 Landform and soil forming processes
1.14 Impact assessment procedures
2.02 Residential development
2.04 Roads
2.16 Electricity
4.08 Extraction of quarry materials

Background information

The Great Sandy Region is recognised as having areas of outstanding landscape value. The Region's scenic beauty is inspirational and provides themes for works by artists and writers. The variety of attractive patterns of land, water and vegetation reflects the consistently underlying themes of wind, water and sand. The natural beauty of the area is largely derived from the naturalness, uniqueness, diversity and spatial relationships of landform and vegetation.

The description of discrete elements of the Great Sandy Region's natural environment in terms of scientific importance and heritage significance should not obscure an overall impression of integrated landscape character.

The Region includes more than 250km of sandy beaches with long uninterrupted sweeps of ocean beach, more than 40km of strikingly coloured sand cliffs of ancient origin and a large number of magnificent sandblows. The rocky headlands of Double Island Point, Waddy Point, Middle Rocks and Indian Head contrast with the extensive ocean sand dunes and beaches.

Fraser Island contains one of Australia's few 'lakeland' landscapes with its dune lakes occurring in a rich variety of settings from rainforest to colourful heaths. Lake Wabby on Fraser Island is one of the most spectacular and scenic barrage lakes in Australia.

The Noosa River and associated lakes are impressive landscape features of the Region. The upper Noosa River flows through the expansive treeless Noosa Plain, then through various forest communities that fringe its banks and reflect in its peaceful waters.

The estuarine areas of the Great Sandy Strait have great aesthetic appeal and landscape value with their mosaic of islands, mangrove forests, mudflats, sandbanks and waterways. The open waters of offshore Hervey Bay, Fraser Island and Cooloola provide extensive coastal vistas.

Management considerations regarding landscape and scenic values are essentially concerned with viewfield management. The form and contrast of any disturbance, its distance from the observer and the location of the observer are all factors that influence the impact of any intrusion on the landscape.

The range of viewfields from distant vistas to foregrounds must be managed carefully. Views from the Region, as well as within it need to be considered and require co-operative management with neighbours. The visual impacts of all types of developments – from signs, walking tracks, shelters and toilets to roads, carparks and other major developments – need to be determined. Assessments need to consider factors such as siting, design and materials used in construction.

Desired outcomes

By or before 2010, to have all developed areas or areas disturbed by human activity within the Region visually integrated with the surrounding natural landscape.

Proposed guidelines and actions

1 Rehabilitation will be undertaken where the visual impact of existing intrusions is inconsistent with the visual quality objectives determined for each area. Areas inconsistent with the visual quality objectives for their recreation management class will be rehabilitated. Subject to protection of significant cultural and other values, rehabilitation may include reforming land eroded by human activity, stabilisation of slopes, revegetation of scarred areas and measures to reduce changes to impacts upon the scenic quality of water bodies.

2 Prepare general visual quality objectives for each recreation management class specifying objectives for high-use vantage points, significant remote areas, and other sensitive sites.

3 Viewfield protection guidelines for future developments in each recreation management class will be prepared. These guidelines will include prescriptions for siting, design, and construction materials for approved developments ranging from signs and walking tracks to roads and buildings.

4 Protection and rehabilitation of landscape qualities at and along access points including barge landing facilities are required.

5 Authorities will be encouraged to reduce the visual impact of highly visible scars within and outside the Great Sandy Region because they detract from the view from high-use vantage points within the area. Also, the QPWS will consult with other government agencies, local authorities and private organisations regarding future developments outside or within the Region that are likely to impact upon landscape viewfields in the Region, especially from high-use vantage points.

6 It is proposed that the powerline across the Noosa Plain be relocated underground in areas where it impacts significantly on landscape values.

7 Mt Bilewilam will be screened from the Rainbow Beach Road and other vantage points through revegetation works.

Existing situation

The natural landscapes of the Region have essentially been protected but some temporary scars have resulted from previous activities – including grazing, mining, logging, airfields, and the construction of facilities. There is a need for such sites to be rehabilitated. Some townships, areas of development and a number of roads intrude on landscape values.

The screening of Mt Bilewilam quarry through revegetation of its road frontage has lessened its impact on the landscape. However, infrastructure such as the powerlines across the Noosa Plain continues to impact on the landscape and intrude upon the natural setting of the surrounding area.

Many beach foredune areas and numerous degraded beach camping sites have been closed to vehicles and regenerated, and rehabilitation projects including revegetation have been implemented in degraded areas surrounding popular lakes and along the Noosa River. Orchid Beach Resort has been demolished and rehabilitation is under way. Rehabilitation at several non-essential roads and other disturbed areas is also under way.

Viewfield protection guidelines and visual quality objectives (although not specifically developed for the Region) are factored into local area planning schemes to ensure the desirable character of areas is maintained. Planning schemes outline criteria for siting design and material used in construction. As part of planning scheme development and IDAS opportunities to make submissions and comment as an interested stakeholder regarding developments that are likely to impact upon landscape, viewfields in the Region are presented.

The State Coastal Management Plan identifies the Great Sandy Region as an area of State significance (scenic coastal landscapes). These areas of outstanding and distinctive scenic quality are high priority areas for scenic landscape management within Queensland. The State Coastal Management Plan makes provision for the protection of 'areas of State significance', as identified by a regional coastal management plan in regional planning strategies and local government planning schemes. These areas with coastal landscape values are to be protected from incompatible land uses.

1.08 Cultural resources (Indigenous and non-Indigenous)

See also: 1.03 Indigenous interests
1.16 Research, monitoring and scientific sites
3.07 Community engagement
3.10 Tourism

Background information

The Indigenous cultural heritage of the Great Sandy Region includes an enormous range of places, sites, artefacts and other associations of archaeological, social or spiritual significance and cultural value. Indigenous cultural heritage

is now viewed as more than the tangible sites and objects, extending to the landscape and spiritual connection. It 'reflects' a continuous Indigenous custom and activity in the Region.

Archaeological research (tangible evidence) indicates that Indigenous people have occupied south-east Queensland for at least 20,000 years. Fraser Island and Cooloola have existed in their present form for approximately 6000 years following the establishment of present-day sea levels. Archaeological research to date indicates that Indigenous people have lived in the Great Sandy Region for more than 6000 years. According to Indigenous tradition, law and lores (stories), Indigenous people have been in the area since the time of dreaming, since time began (for example when the Hummock near Bundaberg was a volcano).

Shell middens, stone artefact scatters, fishtraps, scarred trees, bora rings, stone quarries and burials are of archaeological, social and spiritual significance within the Region. Large and complex shell midden sites contain the remains of seafood feasting as well as indications of activities associated with food preparation. There is evidence that camps were established in more sheltered locations and that these places were used repeatedly over extended periods.

Archaeological sites are only one component of cultural heritage resources, as values extend beyond the physical remains of the past and include non-archaeological values such as places of great spiritual significance, such as Indian Head. Many natural features and landscapes are of social and spiritual significance. They bear witness to the traditional lifestyle and custom of the Indigenous people of the area and their relationship with the surrounding environment. Cultural heritage also includes the present day concerns of Traditional Owners regarding recognition of knowledge about key species and their management, as well as concerns regarding development and resource use, and impacts on key species, etc. There are at least 26 sites and places of contemporary significance to Indigenous people for a variety of socio-cultural reasons.

The *Aboriginal Cultural Heritage Act 2003* seeks to provide effective recognition,protection and conservation of Aboriginal cultural heritage. Aboriginal cultural heritage is defined as anything that is:

(a) a significant Aboriginal area in Queensland; or

(b) a significant Aboriginal object; or

(c) evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland.

Sites and artefacts found on protected areas are also protected by the *Nature Conservation Act 1992*. The accepted history of European involvement in the Great Sandy Region commences with its sighting and exploration by Captain James Cook in May 1770 and Captain Matthew Flinders in 1799, but may go back as far as a voyage by the Portuguese explorer de Menonca around 1521. Clay pipes found in middens at Indian Head on Fraser Island are thought to be evidence of undocumented visits to the Region by Dutch navigators in the 17th Century.

A variety of structures, items and sites within the Region provide an insight into the activities of Europeans since settlement. Timber-cutting camps, sawmills, tramways, jetties, wharves, log dumps and hundreds of miscellaneous items are evidence of European activity. Some of the more notable sites include the secret World War II 'Z Force' commando training site on Fraser Island, several historic sawmills including the Elanda/Mill Point complex, the two lighthouses on Woody Island and Pettigrew's railway in Cooloola. A number of historical features within the Region are relics of Pacific Islander (Kanaka) involvement in the Wide Bay-Burnett agricultural industry during the nineteenth century.

Threats to the long-term integrity of significant heritage sites within the Region include erosion (natural and human induced), visitor use, vandalism, wildfires, weathering, firewood collection, four-wheel-driving and the construction of facilities such as roads.

Desired outcomes

By or before 2010, to have a detailed and comprehensive understanding of the range, type, extent, history and significance of cultural sites within the Region and to have protected identified sites to the greatest practicable extent.

Proposed guidelines and actions

Note: Changes have been made to this section in accordance with the wishes of Traditional Owners and in the context of current cultural heritage management.

General cultural heritage

1 Indigenous and non-Indigenous cultural heritage sites and places within the Great Sandy Region will be managed in accordance with the principles of the Burra Charter

(Charter for the Conservation of Places of Cultural Significance prepared by the International Council on Monuments and Sites, ICOMOS) and within a statewide framework of cultural heritage conservation).

2 A cultural heritage management strategy will be developed for cultural and historical resource management, and will include an area, place and object inventory, priority actions, work program management recommendations and photographs. The management strategy will include other actions and priorities contained in the Great Sandy Region Management Plan.

*3 Management planning will acknowledge heritage sites of significance and as far as is practicable guide their management in accordance with the wishes of the respective cultural groups and relevant members of the community.

*4 Access to sites with potential significance will be restricted or be actively managed through the management plan to minimise disturbance and damage. Fire management programs and activities will be developed in consideration of cultural heritage values.

*5 An attempt will be made to geographically represent known areas with cultural heritage values to help predict and prioritise areas where further surveys are needed.

*6 All historic sites will be included in the historic site register maintained by the QPWS and heritage conservation plans for known sites of historic or cultural significance within the Great Sandy Region will be developed and implemented.

7 An investigation into reducing and preventing erosion of representative or significant examples of coastal middens will be undertaken, as well as the means, effectiveness, feasibility and impact on other values and historic sites within the Region.

Proposed guidelines and actions

Indigenous cultural heritage

*1 A detailed inventory of known Indigenous heritage sites, both traditional and contemporary will be prepared in consultation with Traditional Owners in the Region. The inventory will include a level of significance, threatening processes, management guidelines and other requirements. A detailed inventory of contemporary sites of significance to Indigenous people in the Great Sandy Region will be prepared through interviews with appropriate Indigenous people and on-site recordings and assessments.

*2 Heritage conservation plans for significant Indigenous heritage sites within the Great Sandy Region will be developed and implemented. Each plan will include recommendations based on site significance.

*3 Indigenous rights (including intellectual property rights) and traditional responsibilities will be recognised. Traditional Owners will be involved to the greatest possible extent in the management and presentation of Indigenous heritage places within the Region.

*4 All Indigenous skeletal remains will be treated with respect and will not be disturbed until and unless suitable arrangements have been made with appropriate Indigenous representatives.

*5 Public access to Indigenous heritage places will only be promoted if in accordance with the wishes of Traditional Owners and where adequate site protection measures have been taken. Access to places with potential significance will be restricted or be actively managed to minimise disturbance and damage.

*6 The right of Indigenous people to control information and interpretation relating to their heritage will continue to be recognised; and, with the assistance of Traditional Owners and respecting intellectual property rights where appropriate, oral histories of Indigenous cultural heritage in the Region will be recorded.

*7 Research will be encouraged and undertaken to gain a characterisation and assessment of the Indigenous archaeological record of the Great Sandy Region including documentation of the range, location and antiquity of archaeological materials. Research will focus on the following priority assessments:

Priority 1 assessments: Areas exhibiting observed or expected high site densities, and sites exhibiting high scientific or Indigenous significance whose integrity status is either under major threat or unknown:

- east coast Fraser Island;
- mainland coast from Dayman Point to River Heads and south to Tinnanbar;
- west coast Fraser Island;
- eastern Fraser Island sandblows;
- Teewah Beach;
- eastern Cooloola sandblows; and
- Woody Island;

Sites identified for assessment are:

- Double Island Point Aboriginal cemetery;
- Booral shell midden and fish trap site complex;
- Bogimbah Creek Aboriginal Mission site; and
- Double Island Point quarry.

New sites:

- Balarrgan (White Cliffs Area)
- Bargara fish trap;

- Burnett River fish trap;
- Barolin Rocks;
- Mon Repos shell middens (outside Region boundary); and
- Burnett River shell middens (outside Region boundary).

Priority 2 assessments: Areas that have a high potential for archaeological remains and are currently being examined for large-scale residential and commercial development):

- the mainland coast between Burnett Heads and the Mary River;
- Rainbow Beach and Inskip Peninsula; and
- the mainland coast of Great Sandy Strait and Tin Can Inlet.

Noosa Council has advised that Noosa North Shore (upstream of Tewantin), Noosa River (land fronting Noosa North Shore) and Lake Cootharaba, (other than existing developed areas), are no longer directly the subject of such proposals. However, archaeological surveys should still be undertaken if development projects are planned in future.

Priority 3 assessments: Areas that have never been surveyed systematically for Indigenous archaeological sites and require investigation):

- inland central Fraser Island; (achieved in part during Great Walks project)
- inland north and south Fraser Island; (achieved in part during Great Walks project)
- inland Cooloola sandmass
- the islands of Great Sandy Strait (in progress); and
- the western catchment of the Noosa River.

*8 A series of information programs to inform local Indigenous people about the nature of archaeological research and Indigenous heritage management in the Great Sandy Region will be developed and initiated.

*9 Fire, weed and other natural resource management programs and activities will be developed in consideration of Indigenous heritage values.

*10 A long term monitoring program will be established to assess the effects of human and natural processes on a full range of Indigenous heritage sites in conjunction with Traditional Owner interests.

*11 A generic site recording and condition reporting process for QPWS staff will be incorporated into the inventory to effectively assess and update data. This will be linked to a statewide recording process and Indigenous heritage place database.

12 Research into the economic and social dimensions of traditional resource use in the Great Sandy Region will be encouraged.

*13 Natural resources of significance to Indigenous people in the Great Sandy Region will be listed. The ecology of these resources will be investigated to allow for the development of long-term management arrangements for the sustainable use of these resources for traditional purposes such as for food, medicine or artefact manufacture.

*14 Management plans and other levels of planning will acknowledge significant Indigenous places and as far as is practicable allow for management in accordance with the wishes of Traditional Owners.

Proposed guidelines and actions

Non-Indigenous cultural heritage

*1 Communities or groups of people having an affiliation or association with sites of historic or cultural significance will be involved to the greatest possible extent in determining the management and presentation of historic and cultural sites within the Great Sandy Region.

2 Historic items and structures may be used for management or interpretation where such use is compatible with their conservation and their historic or cultural significance.

*3 A thematic study and inventory of non-Indigenous cultural sites will be undertaken to identify sites and areas in terms of significance within each theme. Short-term management guidelines will be identified to protect each site until more detailed strategies are in place.

4 A detailed inventory of historical and contemporary sites of significance to Pacific Islander (Kanaka) people in the Great Sandy Region will be prepared through examination of historical documents, interviews with appropriate Kanaka descendants and on-site recordings and assessments. A preliminary assessment will be made of the possible Kanaka transit dump on the western coast of Fraser Island.

*5 A detailed inventory of non-Indigenous heritage sites will be prepared with particular emphasis on the range, location, extent, distribution, history and relative significance of these sites. Also a detailed site location and sensitivity model, which can be used to ensure the protection of non-Indigenous heritage sites and allow efficient planning of developments in the Great Sandy Region, will be developed.

6 Research will be encouraged and undertaken to assess non-Indigenous cultural sites. Research will include site survey, integrity status, threats and management guidelines.

Priority 1 assessments:

- Elanda Point sawmill complex;
- Woody Island Lighthouse complex;
- Cooloola Creek sawmill;
- Pettigrew's railway;
- Thannae Waterhole logging camp, Cooloola;
- Tewantin sawmill;
- Carland Creek wharf;
- Corduroy Causeway, Tin Can Bay;
- World War II 'Z Force' commando school site;
- McKenzie's sawmill complex; and
- North White Cliffs Quarantine Station

Priority 2 assessments:

- Dipuying forestry camp, Fraser Island;
- Bogimbah Creek sawmill;
- Urang Creek tramway;
- McKenzie's tramway;
- Wanggoolba tramway;
- Ungowa tramway;
- Poverty Point jetty;
- Colloy Wharves, Noosa River;
- bullock-drawn timber trailers, Tin Can Bay;
- Nugent beekeeping camp, Lake Cootharaba;
- Mon Repos international sea cable site;
- Sandy Cape Lighthouse complex;
- Double Island Point Lighthouse complex;
- Hook Point Light Station; and
- Inskip Point Light Station.

Priority 3 assessments: Sites or site complexes that are potentially significant but whose specific location, integrity and significance are currently unknown.

- Dugong rendering and butchering stations, Tin Can Bay and Great Sandy Strait;
- oystering camps, Tin Can Bay and Great Sandy Strait;
- World War II RAAF plane wrecks, Great Sandy Strait;
- Log haul site north of Wabby Lake;
- Wathumba sheep property;
- Wathumba shark factory;
- Telegraph line from Bogimbah to Sandy Cape;
- Cooloola telegraph line; and
- Woody Island fishtrap complex.

7 An assessment will be undertaken of the historical significance and cultural heritage values of the shipwrecks of the Great Sandy Region. This will include archaeological survey work detailing the location and range of cultural materials at the most historically significant sites and an assessment of conservation needs and management requirements.

8 The Woody Island lighthouses will be managed according to recommendations from a management/conservation plan, including conservation work, visitor access and interpretation, while the Mill Point Heritage Conservation Plan will be implemented.

9 Liaison will occur with the DPI (Forestry) to identify significant sites for protection and interpretation of forestry heritage. These and other new sites will be included in the management strategy and the heritage value of the site of the last logging on Fraser Island will be assessed.

Existing situation

Currently Traditional Owners have varying levels of involvement in the protection and management of their heritage.

Knowledge and understanding of Indigenous heritage values within the Region is not complete. As a consequence unidentified sites may be under impact, or threat of damage. Many sites, especially midden complexes, are under threat from natural and human processes including erosion, vegetation advances and visitor use.

The Master Plan for Queensland's Parks System presents a statewide framework for cultural heritage conservation to identify, protect and present Indigenous cultural heritage values on protected areas in the Region.

The integrity of some non-Indigenous sites may have been compromised through inappropriate additions, modifications and treatments.

1.09 Fire

See also: 1.05 Landform and soil forming processes
1.06 Marine and terrestrial wildlife (including vegetation)
1.08 Cultural resources (Indigenous and non-Indigenous)

Background information

QPWS is one of the main agencies actively involved in fire management in Queensland. Protection of life and property in and around settlements and areas of concentrated recreation use must be the first priority. However, maintenance of the Region's conservation values, including fulfilling the

ecological requirements of flora, fauna and other natural assets, and maintaining cultural resources and practices, must also be ensured.

Wildfire response, both on and off protected area estate as required, is conducted in accordance with approved area wildfire response procedures. For some areas, these procedures need to be updated in line with requirements of the fire management system developed by QPWS in 2003. Previously, fire management strategies on Fraser Island have been co-ordinated by successive management plans prepared jointly by DPI&F (Forestry) and QPWS.

Fire management strategies are the principal components of a fire plan for protected areas within the Region. The other components of the fire plan are the wildfire response procedure and the planned burn program. The planning, approval, implementation and reporting processes for fire management within protected areas follow the QPWS fire management system, which also includes operational guidelines for matters such as such as fire behaviour, risk management and training.

Fire management strategies provide the overall framework and direction for fire management on protected areas. They detail the values of the protected area and surrounding lands, the long-term fire management aims and how these relate to on-ground management. Management practices that involve the use of fire, for example planned ecological burning, hazard reduction burning, wildfire suppression activities, or burning for weed control and site rehabilitation, are subject to the requirements of these strategies.

Although the principles of fire management strategies relate directly to the protected area estate, they may also be applied to other land tenures adjacent to protected areas if the fire operation is conducted under the control of a QPWS staff member or if the responsible agency wishes to adopt this system.

Desired outcomes

By or before 2010, to have fire managed for the protection of life and property, and to ensure the maintenance of biodiversity through continued natural processes.

Proposed guidelines and actions

1 Further research will be undertaken to determine the most suitable fire regimes, fire frequency, fire intensity and season of occurrence for all natural communities within the Great Sandy Region.

2 Fire management will seek to maintain the full range of biodiversity rather than maintain species-specific habitat conditions. Existing fire exclusion zones and variable fire regimes will be maintained to provide benchmarks for fire management research and program implementation and monitoring.

3 Traditional Indigenous use of fire will be investigated to gain a greater understanding of the historic relationships between fire, vegetation and soil patterns. Investigations will include oral statements from Indigenous people and charcoal and pollen counts from cores obtained from swamps within the Great Sandy Region.

4 The established program of mapping of fire events in Cooloola will be extended to cover the whole Region. Data will be included on the Great Sandy Region geographic information system.

5 When necessary, fire-fighting efforts of government agencies and community groups will be co-ordinated within the Region.

6 Fire management in the Region will be reviewed to allow for the change in management objectives from timber production to nature conservation on the southern end of Fraser Island and central Cooloola.

*7 A Fire management plan, including a fire management strategy, wildfire response procedure and a planned burn program is required for each section of the Region (Fraser Island, Cooloola and marine areas). Planning will be in accordance with the QPWS Fire Management System.

*8 A firebreak classification system and inventory will be included in the fire management strategy.

*9 QPWS district staff will have an appropriate level of training in fire suppression and management (using methodology to balance the protection of life and property with the maintenance of biodiversity).

10 In the absence of logging, a suitable management regime will be developed to ensure regeneration and long-term viability of satinay-brush box forests.

11 A public education program will be prepared and implemented to raise public understanding and acceptance of the role of fire in the management of the Great Sandy Region.

Existing situation

A fire management workshop involving QPWS staff, Traditional Owners, external experts and guest community representatives has provided a basis for strategic fire management, including

the preparation of fire management strategies, and operational planning in the Region. Planned burns on Fraser Island and Cooloola are guided by reference to the Fraser Island Fire Management Strategy. Work has commenced on fire management strategies for both the Woody Island and Cooloola Sections of the Great Sandy National Park.

A number of public education projects, including fire management interpretation display panels, have been implemented to promote fire as an important management tool in the Region. The Rural Fire Service has also produced pamphlets and videos relevant to fire management. The Fraser Island Fire Management Strategy identifies key elements that could be used as an integrated educational program.

Queensland University is currently undertaking a number of fire related monitoring projects on Fraser Island, with the intention of adding to the knowledge base needed to manage fire in the coastal environment.

Fire fighting efforts in the Region are not formally co-ordinated, however good working relationships exist between QPWS, Department of Emergency Services and other fire management agencies.

1.10 Water quality

See also: 1.15 Catchment management
2.17 Water supply
2.19 Sewage

Background information

Freshwater dune lakes within the Great Sandy Region are generally acidic and have low conductivity (dissolved ions), but vary in their pH levels (level of acidity or alkalinity), dissolved organic matter, ionic composition, and colour. Factors contributing to these variations are age, formation, layers of low permeability and peats, proximity to the sea, surrounding vegetation, and the extent to which leaf litter accumulates and decays in the lake.

The creeks and swamps associated with humus podzol soils are important sources of dissolved organic acids (humic acids), which give the waters their dark brown colour, low pH (acid conditions) and low silica content. "Black water" is also typical of perched groundwater, whereas water emanating from deep-seated major regional aquifers is clear and colourless ("white water") and has higher levels of pH, silica and aluminium.

The sandmass water bodies are usually well oxygenated but highly oligotrophic (low nutrient levels due to the surrounding infertile sands) and of low biological productivity. Oligotrophic lakes are unusual both in Australia and in the world generally.

Although barrage lakes are generally clear and perched lakes tend to have low transparency and high colour, exceptions and differences occur, associated with variations in the input of organic leachate. In some lakes such as Lake Wabby and Ocean Lake, low transparency appears to be caused in part by algae in the water rather than humic staining.

The outflow from the Mary River and other major streams has a substantial influence on the water quality of Great Sandy Strait.

Desired outcomes

By or before 2010, to have the water quality of all water bodies within the Great Sandy Region within limits necessary for maintenance of natural processes, biodiversity and ecological integrity.

Proposed guidelines and actions

*1 Water quality should meet the minimum ANZECC (Australian and New Zealand Guidelines for Fresh and Marine Water Quality) (2001) water quality guidelines for the protection of aquatic ecosystems. All lakes and creeks where swimming occurs should meet ANZECC water quality guidelines for primary contact. Where water is extracted for drinking, it will meet ANZECC water quality guidelines for potable water (ANZECC guidelines for remote areas).

*2 Water quality management strategies will be prepared for all key areas in the Region. They are to include standards, indicators and a monitoring plan for the estuarine areas, surface bodies and ground water supplies in each area. Standards can be set for specific sites or areas to meet ecological objectives that protect the international and national environmentally significant values (e.g. World Heritage Areas) in the Region where appropriate.

3 Studies aimed at understanding the processes occurring in the lakes will be undertaken and appropriate management strategies developed and implemented to maintain water quality within predetermined acceptable levels.

4 All water bodies and ambient water quality data will be monitored regularly and analysed to determine long-term water quality trends as a basis for adjusting monitoring guidelines (e.g. frequency and level) and determining standards. Management strategies will be reviewed and adapted in order to ensure long-term water quality is maintained as determined by the Australian Water Resources Council.

*5 Water quality studies will be undertaken in co-operation with the statewide ambient water monitoring program being undertaken by the EPA and DPI&F. The monitoring program needs to have the flexibility to target new areas of concern or areas of potential impact and attributes. Sites used for water quality monitoring will remain constant to the greatest possible extent to allow for long-term comparison of data, with information stored in a statewide database.

6 Nutrient inputs to lakes, streams and groundwater will be minimised. Camping areas, toilets, waste disposal facilities and similar facilities will be sited to minimise impact on water quality.

Existing situation

QPWS monitors water quality in lakes and streams on Fraser Island only. Detailed ambient water quality monitoring of estuarine and river tidal waters in Great Sandy Strait and Hervey Bay is conducted by EPA on a quarterly basis. Drinking water supplied to staff and the public is tested quarterly against the Australian Drinking Water Guidelines.

Recent studies and reports make recommendations and suggest guidelines to improve water quality in the Region. Water quality standards and guidelines need to be applied to both the broad regional level and local site level. Unless managed appropriately, increased development in the coastal zone on acid sulphate soils could seriously affect water quality throughout the Region, with sulphuric acid leaking into waterways and the estuarine community.

Although Queensland Water Quality Guidelines (QWQ) and ANZECC water quality standards are applied, no standards have specifically been determined nor has a water management strategy been prepared for the Region. Environmental values and water quality objectives are being developed by the EPA as part of a government planning process for the Mary Basin Water Resource Plan and the Burnett Mary Regional Natural Resource Management Plan, in line with the requirements of the Environmental Protection (Water) Policy 1997. An extension of this work also proposes to develop and schedule environmental values and water quality objectives for estuaries and embayments with high aquatic ecosystem values and human use values within the Region, including Great Sandy Straits and estuaries and southern Hervey Bay.

Currently monitoring for compliance purposes takes place at point sources within the Region. A more rigorous monitoring program is required to measure and report on nutrient input into surface and ground water supplies from effluent, other waste disposal and development impacts.

1.11 Land rehabilitation

See also: 1.05 Landform and soil forming processes
1.06 Marine and terrestrial wildlife (including vegetation)
1.07 Landscape
1.12 Introduced pest species
2.04 Roads
2.07 Aircraft
3.12 Camping
3.18 Motorised water activities
4.08 Extraction of quarry materials

Background information

Natural erosive processes occur within the Great Sandy Region today, as they have over geological periods. Active sandblows and continuing coastal processes are examples of these processes. At times, these processes may threaten significant natural or cultural resources, particularly along coasts, rivers and near sandblows. These natural erosion processes and implications of management interference in these processes must be investigated carefully before deciding whether or not to intervene.

Human and animal activities can lead to accelerated rates of erosion. Examples of such activities include boat landing sites along the Noosa River and other waterways

and foreshores, camping on foredunes, clearing of vegetation, major earthworks and the movement of feral horses and pigs.

The aim of rehabilitation is to stabilise the land and to recover the condition which would have existed had erosion not occurred. This may involve beach nourishment, drains or diversion banks and reshaping the land etc to establish a permanent cover of vegetation. Rehabilitation can restore localised visual amenity and landscape values.

Desired outcomes

By or before 2010, to have land eroded by non-natural activities and sites of significant or representative cultural or archaeological value stable, safe from further erosion and restored as closely as possible to their original condition.

Proposed guidelines and actions

1 A priority list of areas requiring rehabilitation will be prepared based on location, area of damage and significance. Rehabilitation works will be undertaken progressively.

2 Rehabilitation methods will be researched and trials conducted to identify the most suitable ways of rehabilitating the various types of disturbed land within the Great Sandy Region. Monitoring to evaluate the success of rehabilitation work will be undertaken and results will be taken into account for future rehabilitation projects.

3 Rehabilitation work will be in a manner that when carried out will not threaten significant or representative natural or cultural features.

4 Plans for development sites will be prepared to ensure areas of disturbance are minimised and rehabilitation work is conducted in the most efficient and effective manner.

5 Some areas within the Great Sandy Region are inherently unstable and are exposed to potent erosive forces. Proposals to stabilise and or rehabilitate areas where significant or representative natural or cultural resources are threatened by natural erosive processes will be subject to a thorough investigation of the implications of such works in relation to the values that may be affected.

6 To the greatest extent possible, plant species and soil used for rehabilitation will be sourced from the locality of the rehabilitation work. The use of fertilizers and the impact of their use on native vegetation establishment and growth will be investigated and the results applied to management.

7 The revegetation program for Elanda Plains at southern Cooloola will continue.

8 No stabilisation works will be undertaken on natural mobile sand sheets unless other significant natural and cultural resources are threatened or the loss of property is likely.

9 Eroded or erosion-prone sections of stream banks and camping areas along the Noosa River north of Kinaba will be stabilised and revegetated.

10 Old logging roads no longer required for management or public access will be allowed to revegetate or will be actively rehabilitated.

11 Seed banks of local native species will be established for revegetation and rehabilitation works.

12 The assistance of recreation user groups and special-interest groups may be enlisted to help revegetate degraded sites.

13 Rehabilitation of the Noosa River bank between Lake Cooroibah and Lake Cootharaba will be investigated and action taken as necessary.

14 Once operations cease, the quarry on the Noosa North Shore will be closed, then added to the Cooloola Section of Great Sandy National Park and rehabilitated.

Existing situation

Numerous places within the Great Sandy Region have been disturbed by past activities such as grazing, forestry, mining, agriculture, recreation, road construction, building, clearing of weed infestation and urban settlement.

Sand mined areas and mineral sand storage areas on the Noosa North Shore, along Teewah and Cooloola Beach, and substantial areas on Inskip Peninsula and on Fraser Island have been disturbed by mining activity. Landforms and vegetation types on some of these areas have been altered almost irreversibly. Log dumps and disused forestry camps, logging tracks, haul roads and airstrips that are no longer used are scattered throughout the Region. Mt Bilewilam is used for quarry purposes.

Roads that have broken through to the watertable suffer serious erosion damage. Sites along the Upper Noosa River require rehabilitation to protect the environment and the quality of the recreation setting.

Many rehabilitation projects have been undertaken both on and off protected areas estate, especially critical areas within major river catchments (many are still ongoing). All old logging roads on Fraser Island and Cooloola that are no longer needed are closed and left to revegetate naturally. Take-off points are rehabilitated to hide old tracks. Some tracks are deep ripped and washouts receive active work to improve drainage.

Elanda Plains was cleared extensively for grazing purposes before its addition to the Cooloola Section of Great Sandy National Park. Its rehabilitation, through revegetation works using plants raised from local seed stocks, is continuing.

1.12 Introduced pest species

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.07 Landscape
1.09 Fire
1.11 Land rehabilitation
2.02 Residential development

Background information

The *Land Protection (Pest and Stock Route Management) Act 2002* and its Regulation took effect on 1 July 2003, replacing the *Rural Lands Protection Act 1985*.

Pest plants

Pest plant species have the potential to affect the conservation values of the Region significantly through displacement of native species and destruction of habitat. Pest plants also degrade the aesthetic and recreational values of the Region.

Introduced pest plants occurring in the Region include bitou bush *Chrysanthemoides monilifera* ssp. *rotundata*, groundsel *Baccharis halimifolia*, sisal *Agave sisalina*, lantana *Lantana camara*, annual ragweed *Ambrosia artemisiifolia*, slash pine *Pinus elliottii*, prickly pear *Opuntia* spp. and some ornamental garden escapees such as *Cassia sp.* and grasses. *Phytophthora cinnamomi*, an introduced fungal disease, has been found in restricted areas throughout the Region.

Bitou bush is a declared weed under the *Land Protection (Pest and Stock Route Management) Regulation 2003*. It has been recorded in the Cooloola Section of Great Sandy National Park, on Inskip Peninsula and on the southern end of Fraser Island. Of the weed species, bitou bush poses the most significant threat to the long-term integrity of the nature conservation and landscape values of the Region.

Groundsel is a common weed that has been recorded throughout the mainland sections of the Great Sandy Region as well as numerous sites along the west coast of Fraser Island and between Hook Point and Eurong. Control of this weed has been restricted to control of infestations in intensively used areas and along major access routes. Several biological control insects have been released in the Region but their effect so far has been limited. In accordance with the *Land Protection (Pest and Stock Route Management) Act 2002*, reasonable steps will be taken to manage groundsel, including strategic control on accessible sites, etc.

Slash pine seedlings (wildlings) are a major problem in the Cooloola Section of Great Sandy National Park. A native vegetation buffer strip between the national park and the introduced pine plantations is burnt regularly to reduce the number of wildlings, while removal of surviving wildlings by hand is labour-intensive.

Pest animals

Brumbies frequenting the foredunes on Fraser Island and the grassy woodlands in the Cooloola Section of the Great Sandy National Park have caused damage through trampling and selective grazing resulting in increased erosion of these areas. Brumbies spread the seed of weed species on their coats and through faeces.

Feral pigs have been recorded in the southern part of the Cooloola Section of the Great Sandy National Park and evidence suggests that they are moving north into heathland around the Noosa Plain. Feral pigs are a direct threat to the vulnerable false water-rat *Xeromys myoides* and cause damage by digging for tubers and roots for food. They probably transport fungal pathogens.

Feral dogs are a threat to the genetic purity of the Fraser Island dingoes. There is the potential threat of local dogs introducing Parvovirus. Feral dogs and cats are predators of native fauna, and feral dogs can be a threat to visitors. The *Recreation Areas Management Act 1988* restricts the introduction of domestic dogs and cats to Fraser Island. Domestic cats and dogs are not permitted on protected areas.

The cane toad *Bufo marinus*, is common throughout the Region. The species is not considered to be a serious threat to the ecology of the Region.

The mosquito fish *Gambusia holbrooki*, a potential threat to native fish, is known to occur in a few lakes and streams on Fraser Island and Cooloola but the extent of its occurrence is unknown.

Desired outcomes

By or before 2010, to have the conservation values of the Region largely free from the effects of introduced pest species.

Proposed guidelines and actions

1 To prevent introduction of species not currently found on Fraser Island and to minimise introduction of pest species, appropriate quarantine arrangements will be investigated and implemented. Signs advising limitations on introduction of materials that may transport pest species will be placed at access points to the Region.

*2 Where the introduction of species into the Great Sandy Region is to be prevented,

appropriate amendments to the animal and plant schedules under the *Land Protection (Pest and Stock Route Management) Act 2002* may be considered.

Pest Plants

*1 An inventory of weed populations and sources in the Region will be undertaken. A weed management strategy will be developed and implemented for all declared (economic, social and environmental) pest species in the Region. Management strategies may also be required for specific management areas. The strategy will contain an inventory, control methods, control programs and action plans, plus other elements consistent with the QPWS Weed Management System.

*2 The possibility of establishing a weed control program that can be implemented through the help of volunteers will be investigated. Postgraduate tertiary studies into the control of weeds on protected areas, in particular Great Sandy National Park and other areas where appropriate, will be encouraged.

3 The impact of herbicide treatments on native plants will be monitored and the use of herbicides modified in light of research findings. The impact of fire on the control of weed species will be investigated.

4 Plant, gravel and soil material introduced or used within the Great Sandy Region but especially on Fraser Island will be screened to ensure that it is free of *Phytophthora* fungi and weed seeds. Introduction of pot plants, gravel and soil material to Fraser Island will be restricted. The practicality and likely effectiveness of checking vehicles at ferry points to minimise weed introduction will be investigated.

5 Non-endemic and introduced plants will be managed subject to a pest species/weed management strategy, and removed if possible. The management effort to eliminate bitou bush from the Region will be maintained at a high level.

6 Native pine plantations on Fraser Island will be left to revert to natural conditions. Co-operative arrangements will be developed between QPWS and DPI&F (Forestry) for the control of introduced pine seedlings throughout the Region.

7 A community education program will be developed and implemented to raise awareness of the effect of garden species becoming weeds.

Pest animals

1 A survey will be undertaken to determine the extent and impact of feral animal populations in the Region.

*2 A feral animal management strategy will be developed and implemented for all declared (economic, social and environmental) pest species in the Region. Management strategies may also be required for specific management areas. The strategy will contain an inventory, control methods, control programs and action plans.

3 The population of mosquito fish in the water bodies of the Great Sandy Region will be monitored and control strategies implemented as necessary.

4 Postgraduate tertiary studies into the control of feral animals in the Great Sandy Region will be encouraged.

5 Feral horses will be removed from Fraser Island and Cooloola.

*6 Management effort to control feral cat, dog and pig numbers in the Great Sandy Region will be maintained at a very high level, consistent with a feral animal management strategy.

Existing situation

A pest management strategy is currently being developed for Fraser Island and annual pest management programs are being implemented.

Pest plants

Several weed species pose a significant threat to the values of the Region. Other species are recent introductions or garden escapees and their potential to invade and colonise within a sand environment is unknown.

Work has commenced on a weed management strategy for Fraser Island. Major weeds species for both Fraser Island and Cooloola have been identified and their general distribution mapped. Detailed weed management programs are in place for two management units on the Island.

Recreation groups, including 4WD groups, volunteer groups, conservation groups, community groups, and the Australian Defence Force, periodically help with weed control activities. Co-ordinated weed control activities involving local and State government agencies are conducted in and around townships in the Region. Information sheets are distributed with rates notices by local authorities.

The Pandanus leafhopper is a new species for the Region and has been responsible for the dieback and death of many pandanus in south-

east Queensland. It has had a very severe impact on the pandanus along the Cooloola foreshores but has so far not been noted on Fraser Island.

Pest Animals

Fraser Island is one of the few places in the world where the common house mouse *Mus musculus* and the rat *Rattus rattus* are not found. Periodic checks are carried out for bulk materials (firewood and gravel) being introduced onto protected areas, in particular Fraser Island, to help control the introduction of pest species.

A comprehensive feral animal control action plan is not in place for the Region. Cane toad numbers on Fraser Island are monitored as part of an amphibian monitoring program. A feral pig and fox impact survey has been conducted for the Kauri Creek Section of the Great Sandy Conservation Park. QPWS undertakes regular surveys of the mosquito fish population, and control strategy options are being researched.

Expressions of Interest to remove the remaining feral horses on Fraser Island have been finalised, and their removal to the mainland has begun.

1.13 Noise pollution

See also: 2.07 Residential development
2.07 Aircraft landing facilities
2.16 Electricity
3.20 Recreational aircraft activities

Background information

Noise can be created naturally (wind, sea, animals) or by commercial, industrial or domestic activities. Noise has the potential to affect the wellbeing of the community and of individuals, decreasing the opportunity for sleep and relaxation. Everyone generally appreciates the benefits of a quiet, peaceful environment, especially those exposed to noisy workplaces or to stress. Tension, irritation and annoyance often result from noise pollution.

Excessive noise can seriously affect the quality of visitor experiences. Minimising unnecessary noise to provide a quiet community environment requires the co-ordination of many factors including planning, public awareness and education, traffic and air transport management, consumer demand for quieter services and general consideration for others. Maintaining a quiet environment is the joint responsibility of the Queensland Government, local authorities, private organisations and individuals.

The Great Sandy Region is outside major air traffic corridors because of overflight restrictions in the vicinity of the Wide Bay Military Training Area.

The *Environmental Protection (Noise) Policy 1997* deals with the assessment of certain development activities. Noise complaints are investigated under the *Environmental Protection Regulations 1998*. All industries, business and government agencies that undertake environmentally relevant activities (ERAs) require development approval, are regulated under the *Environmental Protection Act 1994*, and can be subject to monitoring and compliance by EPA. Local authorities are also required to address potential noise issues under the *Integrated Planning Act 1997* when assessing new developments in their planning scheme areas.

Desired outcomes

By or before 2010, to have noise emissions in the Great Sandy Region managed within acceptable environmental and social standards.

Proposed guidelines and actions

1 Local authorities will be encouraged to address potential noise issues in IPA Planning Schemes by providing adequate buffer zones between noise generators and receptors, and having requirements for insulation, silencers and barriers for refrigeration and air-conditioning units.

2 Industry and commercial businesses are required to operate according to EPA environmental guidelines. These cover industries and sites such as extractive industry, construction sites and concrete batching plants. Regulations will be developed to control noise generated by recreation activities in the Region.

3 Investigations will be undertaken, where necessary, to assess the noise emitted by various activities to determine whether further action to manage noise emissions is required. Where required, site-specific noise emission standards will be developed and implemented.

4 Liaison will occur with the Civil Aviation Safety Authority to designate appropriate areas within the Region as 'sensitive areas' and associated over-flight restrictions will be implemented and enforced.

5 A code of ethics for the operation of generators within townships will be developed and promoted. The QPWS will investigate the feasibility and effectiveness of soundproofing its pumps and generators in areas of quiet public use and enjoyment.

Existing situation

The quiet solitude of the Great Sandy Region may mean that activities that would be acceptable in developed urban areas are considered excessively disruptive to visitors and residents of the Region.

Protected area, recreation area and marine park legislation can regulate noise from recreation and development activities to some extent. For example, recreation activities such as power boating, four-wheel-driving and generators and radio noise at campsites on Fraser Island and Inskip Peninsula can be controlled by park rangers operating under the regulations of the *Recreation Areas Management Act 1988*. EPA liaison with the Civil Aviation Safety Authority is considering a statewide approach to restrict aircraft activities over 'sensitive areas'. Due to their shallow draft and light weight, personal water craft can use waterways not available to other motorised craft. Many people find them intrusive and annoying in an otherwise quiet and peaceful setting.

Improvements have been made in the technology and design of power generation and motorised equipment. The installation and operation of modern plant and equipment, such as hybrid power generators and new commercial vessels in the Region, have reduced noise emissions. QPWS generator sheds at Central Station, Eurong and Waddy Point have been soundproofed to create suitable work environments and reduce impact on visitor enjoyment. Other plant is located or soundproofed where appropriate and where resources allow.

1.14 Impact assessment procedures

See also: 1.02 Fraser Island World Heritage Property
1.05 Landform and soil forming processes
1.06 Marine and terrestrial wildlife (including vegetation)
1.07 Landscape
1.08 Cultural resources (Indigenous and non-Indigenous)
2.02 Residential development
3.10 Tourism
4.01 Sustainable resource harvesting

Background information

Careful planning including the assessment of potential impacts is required to ensure that new developments and activities or the redevelopment of existing facilities does not result in the loss of important natural or cultural values or produce costly management problems. There is an international obligation that developments and actions will not have an unacceptable impact on the World Heritage values of listed areas. A systematic approach to effectively evaluate proposals is required.

Marine park permits are required for particular activities within marine park areas in the Region. Marine park permit applications are required to detail the proposed activity and provide an assessment as to how the activity will be conducted and managed to ensure conservation values of the marine park will not be adversely affected.

Desired outcomes

By or before 2010, to have developments or actions occurring within and adjacent to the Great Sandy Region without significant adverse impacts on the values of the Region.

Proposed guidelines and actions

*1 Operational guidelines will be developed and implemented for authorities, agencies and contractors doing works in the Region. Proponents of assessable development activities will be required to submit a development application under the *Integrated Planning Act 1997* (IPA) and to meet other requirements under existing legislation, planning schemes and government policy. Any person proposing to take an action that will have, or is likely to have, a significant impact on a matter protected by the EPBC Act must submit a referral to the (Commonwealth) Department of the Environment and Heritage for assessment.

2 A set of guidelines will be prepared to explain the process and criteria for assessment of proposed activities or developments that may impact on World Heritage values, the Great Sandy Strait, a Ramsar Wetland, and any other matter of national environmental significance. The relationship between developments and impacts on World Heritage values needs to be made and built into planning schemes and the Integrated Development Assessment System (IDAS).

3 If there is any doubt about the potential impacts of a proposal on World Heritage values or any other matter of national environmental significance, approval authorities shall adopt a precautionary approach. In cases where proposals have included approval conditions to minimise or contain impacts detrimental to World Heritage values or other matters of national environmental significance, monitoring will be required to identify and if required, rectify any adverse impacts. Such actions will be the responsibility of the proponent or subsequent owner.

*4 Proposed development work to be undertaken by government departments (including QPWS) will be subject to the IPA, the IDAS and other impact assessment systems.

Existing situation

The EPBC Act establishes a national process for environmental assessment and approval of proposed actions that are likely to have a significant impact on matters of national environmental significance. These matters include World Heritage Properties, National Heritage Places, Ramsar Wetlands, listed threatened species and ecological communities, listed migratory species, the Commonwealth marine area and nuclear actions. Actions likely to have a significant impact on any of these matters should be referred to the Australian Government (Department of Environment and Heritage) for a decision on whether it is a controlled action which requires approval under the EPBC Act.

The IPA forms the foundation of Queensland's planning and development assessment legislation. It combines approximately 60 separate approval systems into a single IDAS that is jointly administered by State and local governments.

This development assessment system has brought together all the past approval processes into a streamlined package. The relevant management or regulatory agencies are involved depending on the type of development – for example, developments that involve environmentally relevant activities, contaminated land assessment and coastal development are referred to EPA. As not all State legislation is integrated into this system, the provisions of relevant outstanding legislation (also considered to provide environmental protection and a basis for sustainable development and resource use within the Region) should be considered.

Where the EPBC Act and IPA do not apply for development on protected areas, QPWS operates to guidelines and standards contained in the internal project proposal assessment process. This process identifies potential impacts on natural and cultural values. Independent assessments have been undertaken for most developments.

Impact assessments for major capital developments are dealt with under the *State Development and Public Works Organisation Act 1971.*

1.15 Catchment management

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.10 Water quality
1.12 Introduced pest species
4.07 Grazing and agriculture

Background information

A number of major river systems flow through or into the Great Sandy Region including the Noosa, Mary, Susan, Burrum, Elliott, Burnett, Gregory and Cherwell Rivers. Numerous small creeks and streams flow into the Region between Tin Can Inlet and Burnett Heads. Most of the catchment of the upper Noosa River is protected within the Cooloola Section of the Great Sandy National Park and this catchment is relatively safe from degradation.

A variety of land uses occurs within the catchments of other river systems. The ability of land and water resources to meet future needs is threatened by continuing degradation and increasing demands on these resources for a range of uses. As a result, problems such as soil erosion, salinity, siltation of creeks and rivers, flooding, drainage, water logging, polluted water supplies and damage to terrestrial and aquatic ecosystems arise.

A link between the quality of outflow from the Burrum, Gregory and other rivers and the health and survival of the Great Sandy Strait dugong population has been identified through several studies. The flood plume from the Mary River has been identified as a major threat for dugongs due to siltation and death of seagrass within the Great Sandy Straits and southern Hervey Bay. In 1992 and again in 1999, extensive flooding caused the death of extensive seagrass beds. DPI-F has been monitoring this situation and documented the recovery of seagrass beds over a three year period. A joint EPA/DP-F and community group monitoring project "Seagrass Watch" was formed to monitor the health of seagrass within the Great Sandy Straits. Several studies on the level of pesticides in dugongs and seagrass in the Great Sandy Straits (as a result of catchment sediment outfall), identified levels of chemicals as being 'of concern' (McMahon *et al.* 2003). These chemicals are used on sugar cane and pine plantations within the Mary catchment.

Catchment groups have identified diffuse source pollution due to the lack of riparian vegetation in the Mary catchment, and consequent stream bank erosion and deposition of silt in the Great Sandy Straits, as a major issue to be addressed. 'Sednet' models for the Mary catchment are being revised by NRM to help identify stream

bank erosion and priority areas for riparian/ catchment rehabilitation.

Natural Resource Management (NRM) Arrangements

Many problems affecting land and water resources are interrelated and need to be considered together to be solved effectively. In the 1990s, the Australian Government introduced Integrated Catchment Management, which recognised the necessity to involve community to achieve positive NRM outcomes. The regional arrangements supported under the National Heritage Trust and National Action Plan for Salinity and Water Quality (NAPSWQ) builds on the recognition that positive NRM outcomes need widespread community support and involvement (NRM&E 2004).

The Queensland and Australian Governments signed the bilateral agreement for the NAPSWQ in March 2002. This agreement encourages governments and regional communities to work together to prevent, stabilize and reverse dry land salinity and to improve water quality in Queensland. It has been a driving force for the larger process of regional arrangements (NRM&E 2004).

The Queensland and Australian Governments signed the bilateral agreement for the Natural Heritage Trust – Extension (the Trust) in June 2004. This agreement encourages community, local government and industry stakeholders to continue to work together, through the regional bodies, to address natural resource management issues. The Trust relates to water and vegetation management, coasts, wetland and marine areas, World Heritage Areas, threatened species/communities and threatening processes, reserve systems, and property rights. A State level NRM Regional Advisory Group, composed of nominated members of peak stakeholder groups, will provide strategic policy advice and work collaboratively to develop strategies to aid effective regional NRM planning.

Desired outcomes

By or before 2010, to have integrated the management of land, water and related biological resources within the catchments of rivers flowing through or into the Great Sandy Region to ensure that these rivers do not diminish the sustainability of the biodiversity, natural processes and ecological communities of the Region.

Proposed guidelines and actions

1 The activities and efforts of existing and future Landcare groups, local authorities, river improvement trusts and community groups to protect river catchments will be supported.

2 Catchment management strategies for each of the rivers flowing through or into the Great Sandy Region will be prepared. These strategies will assess the priority of land and water issues in the catchments and contain recommended actions to address particular issues.

3 Indicators for measuring the health of river catchments within or adjacent to the Great Sandy Region will be developed. A regular monitoring program will be developed and implemented to measure the health (including water composition, quantity and quality) of each of the rivers flowing through or into the Great Sandy Region.

4 When considering development proposals, which are likely to affect water quality in the Great Sandy Region, local authorities will be encouraged to require proponents to prepare soil and water management plans. Such plans would detail means for minimisation of soil erosion and impact on water quality. Regarding impact assessable developments, the *Water Act 2000* requires "Land and Water Management Plans" to be prepared for transferring water allocations.

5 A campaign to raise community, government and industry awareness of the importance and aims of integrated catchment management will be developed and implemented, with particular emphasis on practical steps that can be taken by groups and individuals to protect river catchments.

*6 All levels of government are to support strategies and actions identified in individual river and other regional catchment strategies. Resources will be required to develop policy, undertake planning and research, carry out ground work and monitor progress.

Existing situation

Community awareness of catchment management issues and current programs has been increased through the efforts of volunteer community groups and extension staff from government management agencies. Activities including riverine regeneration and soil conservation projects are being undertaken with the community and groups associated with the Natural Heritage Trust.

The Burnett-Mary Regional Body for Natural Resource Management, comprising landowners, industries, non-government organisations, local and State government and other interested parties has formed and is developing a regional plan, which will determine the most important natural resource management issues for action

and funding in their planning area, which includes the Great Sandy Region. This plan will incorporate existing natural resource plans, fill planning and management gaps, contain targets for managing the condition of natural resources and aim to improve sustainable natural resource utilisation, conservation, management and preservation within the regions. Landcare and catchment groups within the Great Sandy Region are actively involved in contributing to the plan development and implementation. The Queensland Government is reviewing the progress of these emerging arrangements.

The Mary and Noosa River catchments have detailed strategic plans for their management, with the current focus on implementation. Both the Mary and the Burnett catchments have been identified as 'catchments of concern' in the National Action Plan Salinity and Water Quality (NAP). Fraser Island and the Cooloola Sandmass are excluded from this area. The NAP plans to reorganise the management and administration of catchment management and conservation programs and has implications for how government and community deal with catchment management and natural resource management issues. Regional Groups for Natural Resource Management will be required to assess, approve programs and monitor funding and implementation of these programs.

The EPA, in consultation with community groups, is developing the Environmental Values and Water Quality Objectives Project for the Mary River Basin/Great Sandy Region. This project will help identify the key point source discharges to address water quality issues in the Mary, Burrum and Great Sandy Strait catchments and provide some guidelines in relation to diffuse sources.

The EPA undertakes regular estuarine and marine ambient water sampling in mainland river systems within the Region and Hervey Bay, while NR&M undertakes freshwater water quality monitoring.

1.16 Research, monitoring and scientific sites

See also: 1.02 Fraser Island World Heritage Property
2.04 Roads
3.06 Recreation research and monitoring

Background information

In the Region many sites including fire management blocks, forestry trial and forestry research plots, sand dune test plots, oil drilling sites and seismic test bores are used for research, monitoring or scientific purposes. Existing data for some sites are very extensive, though some are incomplete or new. Although the functional purpose of some of these sites has been served, these sites remain valuable for further investigation of ecosystem processes, hydrology and dune formation.

Access is still needed and will continue to be needed in the future to many scientific sites of special importance– for example, the dune sequence and podzol chronosequence sites at Cooloola that are of outstanding international scientific importance.

Research and monitoring are not always site specific. Research actions may focus on broad areas, particular species or widespread natural processes.

Desired outcomes

By or before 2010, to have significant and representative research and scientific sites protected and available for continuing use to add to existing knowledge relating to natural processes occurring within the Great Sandy Region.

Proposed guidelines and actions

1 An inventory of existing sites will be prepared, including an assessment of their values for continued use for scientific purposes. This will be amalgamated with other data stored on the Great Sandy Region geographic information system. Postgraduate and tertiary studies into natural resource and disturbance and recovery processes following various uses will be encouraged.

2 Guidelines for the conduct of scientific research including criteria for allowing access to sites will be prepared in consultation with relevant scientists, the Great Sandy Region Scientific Advisory Committee and the Great Sandy Region Community Advisory Committee.

3 Sand dune study areas will be protected to the greatest possible extent.

4 Preservation zones where natural processes may continue free from development and recreation activities will be established. Appropriate management activities will be permitted, such as fire management and cultural site protection.

*5 Opportunities to research and monitor whales in their natural environment in areas free from whale watching activities will be considered.

6 Investigate the possibility of establishing a scientific research station within the Region when and if a proposal is received from a sponsoring academic or scientific organisation.

Scientific research sites at the end of their useful life will be rehabilitated where necessary.

7 Existing fire exclusion zones and variable fire regimes will be maintained to provide benchmarks for fire management research and monitoring.

Existing situation

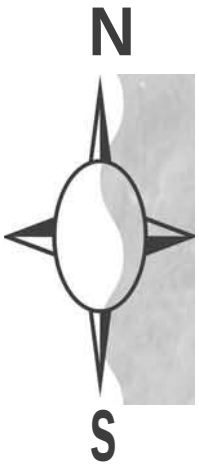
QPWS and the Fraser Island World Heritage Area Scientific Advisory Committee have drafted a research agenda for Fraser Island. The agenda aims to better link research projects with the Region's needs and to provide for a better working and co-ordinated approach with tertiary and scientific research institutions.

An improved statewide system, with clearer standards and processes, has been developed to track and assess returns for research and scientific permits. A list of research and monitoring sites for past and present projects in the Region has been compiled.

Research by tertiary institutions is supported in the Great Sandy Region. The University of the Sunshine Coast has established a research station at Kingfisher Resort, which is being used in conjunction with the university's other facility on Fraser Island at Dilli Village. The Partners in Parks Project has recently been launched to enhance co-operation between QPWS and universities and to and ensure research is outcome-based.

Biennial vegetation monitoring is undertaken on Fraser Island and at Cooloola by permanent reference plots to assess plant succession. Photographic monitoring records both vegetative responses to fire and fuel loads of plant communities. Biennial fauna surveys and vegetation monitoring occur on Fraser Island and a number of other research and monitoring projects are currently undertaken in the Region concerning nature conservation, environmental protection and recreation impact. For example, the Mon Repos turtle rookery remains a critical site for monitoring and research of nesting turtles, particularly loggerhead turtles.

A range of long term monitoring and research projects directed at natural resource management conditions are being undertaken by agencies within the Region. For example, Department of Primary Industries and Fisheries (DPI&F) programs which encompass the Region include reviews of catch-and-effort trends and long-term monitoring programs for a range of commercially important species.



Strategy 2

Community infrastructure and development

Strategy 2

Community infrastructure and development

2.01 Community infrastructure and development

Background information

The Great Sandy Region extends over, or is adjacent to, the local government areas of Noosa Shire, Cooloola Shire, Tiaro Shire, Hervey Bay City, Maryborough City, Isis Shire and Burnett Shire.

The major service centre for Cooloola is Rainbow Beach, with Noosa North Shore and Teewah depending on services and utilities provided at Noosa. Fraser Island residents are supported by the cities of Hervey Bay and Maryborough and the township of Rainbow Beach.

The number of people living permanently in and adjacent to the Region is increasing, particularly in the townships of Rainbow Beach and Cooloola Cove and other Great Sandy Strait communities.

Planning schemes developed under the *Integrated Planning Act 997* plan for and regulate development activities in the Region. The community is involved in planning for development control in the Region.

High-quality community infrastructure and services have been provided to residents and visitors to the Region without compromising the area's values, in particular world heritage, recreation and community values.

The purpose of this part of the Management Plan is to address community infrastructure and development with the aim of fostering a secure community setting for people living in the Great Sandy Region, and consistent with the protection of values, to allow for the provision of essential and desired public utilities, services and structures for residents and visitors to the Region.

2.02 Residential development

See also: 1.07 Landscape
1.12 Introduced pest species
1.13 Noise pollution
1.14 Impact assessment procedures
2.17 Water supply

Background information

Towns and townships in the Great Sandy Region include Orchid Beach, Happy Valley, Eurong, Kingfisher Bay Resort and Village, Rainbow Beach, Teewah and the Noosa North Shore, and other small areas of settlement, particularly along the eastern beach of Fraser Island. For the purposes of this section, the Region has been divided into three broad geographic areas: Fraser Island, Rainbow Beach/Inskip Peninsula, and Noosa North Shore.

Fraser Island

The townships of Happy Valley and Eurong are primarily holiday communities with small permanent populations providing accommodation and support services for visitors to Fraser Island. Each township includes a tourist resort and associated facilities such as restaurants, general stores and vehicle service facilities, with a number of freehold blocks in various stages of development for residential purposes. Orchid Beach is a larger township with similar facilities, but no resort or restaurant. Cathedral Beach Resort and Camping Park is a privately operated camping area with a general store and a peak capacity of approximately 400 people.

Kingfisher Bay Resort and Village is an integrated resort development providing hotel and villa accommodation, some private residences, a conference centre, restaurants, bars and shops.

Rainbow Beach/Inskip Peninsula

Rainbow Beach is the largest township in the Great Sandy Region with a population of approximately 1000 people.

Inskip Peninsula, north of the Rainbow Beach township, was declared a Recreation Area in 1996 and is managed by QPWS. Areas of the Peninsula are included in the Cooloola State Land Audit. This project aims to analyse the capability and suitability of State Land (unallocated, leasehold, reserve) in the vicinity of Tin Can Bay and Rainbow Beach on the Cooloola Coast, in order to provide recommendations to government on the preferred future sustainable use of this land.

Part of the Peninsula has been mined for mineral sands. Areas on the Peninsula are used for sewage treatment and disposal, an aircraft landing ground, navigational aids and barge landings.

Proposals for resort and residential developments cover substantial areas of the Peninsula under development leases. These

leases were granted in compensation for surrendered sand mining interests on Fraser Island, Moreton Island, Cooloola and on the central Queensland coast.

The Draft Cooloola Coast Development Control Plan (Draft IPA Planning Scheme) was never adopted by Council or other departments. Reservations have been expressed about the extent and type of development proposed for Inskip Peninsula. Key areas of concern relate to the supply of water, disposal of sewage and waste, traffic management issues and the impacts of the projected population and proposed development on the values of the Region, including fragile sand dunes and erosion-prone areas and the area's fisheries. Council intends to develop Local Area plans, including foreshore management plans for Cooloola Coast.

Future land use on Inskip Peninsula will have a major influence on the future management of the Region. The population of Rainbow Beach/ Inskip Peninsula is expected to continue to grow, making the centre a substantial holiday destination and the southern gateway to Fraser Island.

The primary limiting factors on future growth of development at Rainbow Beach, on Inskip Peninsula and at Tin Can Bay and Cooloola Cove are the availability of water and land. The current population of the area is approximately 4100 people. The 1994 Management Plan proposed that existing water supply licences could support a permanent residential population of approximately 16,500 people based on the water consumption rates at that time.

The 1994 Plan did not identify separate population limits for each community, nor did it identify which of the existing licensed supply points served which community. The 1994 Plan indicated that the projected population could be considered only if water supply and demand strategies demonstrated that this population could be supported, either within the existing Order in Council approval limits or from additional sources outside the Region.

Studies have been undertaken to assess groundwater as a potential future urban water source for Rainbow Beach. Cooloola Shire Council has indicated that existing Order In Council water supplies would support an ultimate population of approximately 24,000 equivalent persons, in accordance with Council's 1997 Strategic Plan (see section 2.17 water supply for details).

Noosa North Shore

Noosa North Shore is generally regarded as that area immediately north of the lower reaches of the Noosa River up to the township of Teewah. Teewah is a small township accessible only by four-wheel-drive vehicle along Teewah beach and has no major support services or facilities. Land tenures include national park, conservation park, recreation reserve, quarry reserve, unallocated State land and freehold land. Past years have seen considerable controversy arising from numerous development proposals for resort accommodation and associated commercial and recreational uses. Some of these have been of an extraordinary scale including up to 3500 hotel rooms and units, a jet standard airport and a bridge over the Noosa River.

In the face of these proposals, the Noosa Council prepared an IPA Planning Scheme for the Noosa North Shore, with a principal aim of maximising conservation and minimising development. While the planning scheme envisaged an acceptable level of development in terms of the findings of the Commission of Inquiry, several important continuing management issues remain to be addressed and are appropriate for consideration by this Management Plan.

On 4 September 2003, Noosa Council adopted a Management Strategy for the Noosa North Shore. The primary aim of the Management Strategy is to promote the appropriate management of Noosa North Shore as a significant Regional Landscape Area.

Visitor accommodation and minor commercial development to service visitors are provided for in suitable areas. These include the Wilderness Camp on the beachfront and the Lake Cooroibah Visitor Area in a central location on elevated land.

Decisions have been taken to add various Crown lands and Council-owned freehold land on the Noosa North Shore to the Cooloola Section of the Great Sandy National Park. This action will extend the national park to the Noosa River at Noosa Heads, Noosaville and Tewantin. Noosa Council has acquired a further 500 hectares on the Noosa North Shore. Council has also joined with the EPA to purchase approximately six hectares of land at the north head of the Noosa River for addition to the Great Sandy National Park.

Extensive areas of the Noosa North Shore come under the control of a single management body, QPWS. These areas are partly fragmented. In many instances they adjoin private lands. Existing development is on small lots that are

generally well maintained. Future development options for these lots are limited by the Council's planning and subdivision controls. The future management to protect the natural character of private lands is significant in terms of protecting the long-term ecological and scenic integrity of the Noosa North Shore. Current thinking suggests that areas of open space unsuitable for development will be retained and future development will be in keeping with the natural setting.

Desired outcomes

By or before 2010, to have a secure community setting for people living in the Region and a level and style of development consistent with the protection and preservation of the Region's values.

Proposed guidelines and actions[2]

1 The size of the Happy Valley and Eurong township reserves will be reduced to cover the existing area of development, including freehold and leasehold lands. This will provide for appropriate future development and essential services such as rubbish collection recycling areas, sand borrow pits, sewage disposal systems and water collection areas. Areas in excess of these requirements will be gazetted national park. Appropriate future development could include development required to serve the visitor population and the residential community associated with visitor activity. It would not include residential development unrelated to economic activity generated by Fraser Island. Similar action will be taken in relation to Orchid Beach and Teewah. However, no further land will be made available for residential development in these areas.

2 The adjustment of township reserve boundaries or the availability of land for community facilities such as fuel supply, groceries, workshops and rural fire brigade stations will be based on detailed investigation of the reasonable future requirements of these communities.

3 Planning studies will be conducted for Fraser Island and the Rainbow Beach/Inskip Peninsula/Tin Can Bay/Cooloola Cove area for the purposes of preparing IPA Planning Schemes. The studies will include an assessment of the following matters:

- topography;
- natural and/or built environment;
- fire risk;
- regional land-use patterns;
- public utility infrastructure systems and transport systems;
- regional or local economic and employment factors;
- the social and cultural features of the populations including housing;
- any constraints and opportunities in respect of development; and
- other matters where required.

4 QPWS, relevant government departments and respective local authorities will jointly review and where necessary prepare IPA Planning Schemes for Fraser Island and the Rainbow Beach/Inskip Peninsula area. These planning schemes will direct the future level and style of development with the aim of developing and maintaining the desirable character of the area. Standards of design, themes, character and future direction for the township will also be considered after consultation with community organisations, residents and landholders.

5 The resulting IPA Planning Schemes will include the following provisions:

- a statement of preferred land uses, commercial services and facilities desired;
- preferred construction styles for buildings, including building height and setbacks;
- preferred types or styles of advertising material (sign design, construction, location and use) to ensure they are unobtrusive, consistent with the character of the area and appropriate to the setting;
- guidelines to ensure that all facilities within a Coastal Management District comply with the conditions set by the EPA;
- strategies to ensure that domestic animals are confined to approved areas (also a Local Law issue);
- minimisation of earthworks associated with building, access and
- service provision;
- provision to minimise the visual impact of developments;
- provisions to upgrade electricity supply to and within Rainbow Beach using underground power reticulation;
- provision of bikeways in Rainbow Beach and along Inskip Peninsula;
- protection for existing native vegetation; and
- guidelines for landscaping.

6 All future IPA Planning Schemes will be required to comply with the Great Sandy Region Management Plan. The proposed planning schemes will contain appropriate standards for permissible environmental, social and economic impacts. Subsequent development applications

[2] Note * denotes a new or substantially changed action

will be required to indicate compliance with these standards. Where compliance can be proven, further impact assessment may be waived as provided for under the *Integrated Planning Act 997* (or relevant legislation). The planning scheme for the Rainbow Beach/Inskip Peninsula/Tin Can Bay/Cooloola Cove area will pay particular attention to the implications for local fisheries resulting from development in this area.

7 The design population for the Rainbow Beach/ Inskip Peninsula/Tin Can Bay/Cooloola Cove area will be limited to 16,500 people, subject to water supply demand management strategies capable of supporting a greater population within existing water supply entitlements from the Region, or availability of additional water supply from outside the Region.

*8 Orchid Beach Resort buildings and facilities at the end of their serviceable lives have been demolished, with sound building materials reused for management purposes and the remainder removed from the Island.

9 Further developments adjacent to the Noosa River upstream from the North Shore ferry in Great Sandy Strait, between south of River Heads and the southern bank of Kauri Creek, and to the greatest possible extent, Tin Can Inlet south of Tin Can Bay township should not be visible from water level.

10 In relation to the Noosa North Shore, the report of the Commission of Inquiry recognised the necessity of appropriate development. However, it is the prerogative of local authorities to determine through established town planning processes what appropriate development actually entails. Development within the provisions of the Noosa North Shore Planning Scheme does not exceed the maximum type and level of development, which could be considered appropriate in the context of the findings of the Inquiry.

11 This Management Plan therefore generally endorses the aims and objectives and the future land-use type and scale envisaged by the Noosa North Shore Planning Scheme.

12 National park is considered the most appropriate use of the open space lots and larger landholdings on the Noosa North Shore that are unsuitable for development. Subject to the availability of funds, continued consideration will be given to acquisition and addition to Great Sandy National Park when the land is offered for sale.

13 A development masterplan will be prepared prior to approval of further development on Inskip Peninsula.

Existing situation

A planning scheme developed under the IPA is in force for the Maryborough local government planning area. It is anticipated that planning schemes for the remaining local government areas in the Region will be completed and in force by mid 2005.

Planning schemes and future development in the Region should be consistent with this Plan. Other relevant planning policies such as the State Planning Policy for Mitigating the Adverse Impacts of Flood, Bushfire and Landslide will be developed into planning scheme codes where relevant. In addition to these requirements, the State Coastal Management Plan and the provisions of the *Coastal Protection and Management Act 995* also regulate coastal development. The proposed Wide Bay Coast Regional Coastal Plan will influence the regulation of coastal development.

NR&M is currently finalising the recommendations of the Cooloola State Land Audit for unallocated State land in the Rainbow Beach/Tin Can Bay area (total area 2800 hectares).

A groundwater extraction trial has been undertaken for the Rainbow Beach Road section of the Cooloola Sandmass. The study included groundwater flow modelling to assess the sustainability of groundwater supply in the area. The study indicated that an equivalent groundwater supply should have less ecological impacts than the existing surface water extraction regime. Consultation between Cooloola Shire Council, EPA and NR&M is continuing to consider potential options for appropriate use and regulation of the groundwater resource.

Studies have been undertaken to assess groundwater as a potential future urban water source for Rainbow Beach. Cooloola Shire Council has indicated that existing Order In Council water supplies would support an ultimate population of approximately 24,000 equivalent persons, in accordance with Council's 1997 Strategic Plan. The EPA agrees 'in principle' to the proposal to extract groundwater from Cooloola Sandmass (in replacement of surface water) pending agreement and resolution of a number of matters (see section 2.17 water supply for details).

Residential area boundaries in the Region have been maintained as required by the 1994 Management Plan. Generally the small townships of the Region consist of holiday houses of varying styles and levels of maintenance. Private generators supply household power. On-site effluent systems are

the most common method of sewage disposal. Water is generally obtained from bores and/or water tanks.

The Inskip Peninsula Management Group (QPWS, Cooloola Shire Council, Queensland Transport and NR&M) have approved a detailed site plan for the interim development of the recreational activities on Inskip. QPWS is in the process of developing a management plan for the recreation area.

2.03 Commercial enterprises

See also: 3.10 Tourism
3.20 Recreational aircraft activities
3.21 Hang-gliding

Background information

Commercial activity is necessary within the Great Sandy Region to provide visitors and residents with goods, services and employment and to enhance their recreational use of the Region.

The level and type of goods and services provided should not be permitted to adversely impact on the environmental and cultural values of the area or diminish the quality of experience offered. To this end, commercial activity developments will be consistent with planning schemes and relevant legislation to ensure the protection of regional values.

Commercial and recreational aircraft activities will be limited within the Region until a risk assessment and safety audit is complete, and activities will be subject to permit conditions.

Desired outcomes

By or before 2010, residents and visitors to the Great Sandy Region should have access to a range and standard of goods and services commensurate with their needs and the protection of the Region's values.

Proposed guidelines and actions

1 Commercial enterprises will be required to meet requirements set out by the relevant local authority and to conform to all appropriate legislative requirements.

2 Outlets for food, drink, liquor, fuel, gas, souvenirs and recreational equipment (sale or hire) will be confined to the main commercial centres and be subject to the normal requirements of the local authority, as well as statewide legislation and policy. All outlets will be encouraged to provide and use dingo safety bins.

3 Dilli Village will be redeveloped to provide facilities including economical family holiday accommodation.

4 Commercial concessions, franchises and vendors will be permitted within major commercial centres. They will not be permitted outside these areas on Fraser Island. Mobile food vendors will be allowed on Teewah/ Cooloola Beach and Rainbow Beach under licence or permit or in accordance with local authority and legislative requirements.

5 Commercial public transport will be managed within the proposed guidelines and actions outlined in section 2.09 Public transport services. Commercial tours will be managed within the proposed guidelines and actions outlined in section 3.10 Tourism.

6 Commercial hire of four-wheel-drive vehicles and other recreational equipment within the Region will be subject to approval by QPWS, in addition to normal local authority and Queensland Government requirements. QPWS approval will be subject to compliance with standards adequate to ensure that hire vehicles are properly equipped and that all equipment is adequate for the purpose for which it was hired and is in a serviceable condition.

7 QPWS may enter into negotiations with commercial operators to enable such operators to act as agents for the issue of visitor permits.

8 Commercial tow truck operations will be allowed under permit subject to relevant legislative requirements. Mechanical and breakdown repair services will be permitted in major commercial centres subject to local authority and legislative requirements.

9 Commercial and recreational aircraft activities will be limited and licences or permits issued will be subject to conditions dealing with approved areas for beach landings, times of operation and limits on flight heights over sensitive areas. Commercial hang-gliding may be conducted only in Cooloola.

10 Other commercial enterprises will be restricted to community areas subject to the requirements of local authorities and legislation. Such activities must not adversely impact on the natural and cultural values of the area.

Existing situation

The main commercial centres within the Great Sandy Region are Rainbow Beach, Lake Coorooibah Holiday Park, Elanda Point, Eurong, Kingfisher Bay Resort and Village, Happy Valley, Cathedral and Orchid Beach. A small tourist commercial area exists along Beach Road on the Noosa North Shore.

Several commercial activities or enterprises exist within the Region. These include:

- shops, outlets for sale of food, drinks, souvenirs, recreational equipment and licensed liquor sales
- outlets for sale of fuel and gas;
- hire of recreational equipment including four-wheel-drive vehicles;
- rental accommodation;
- commercial tours;
- taxi services;
- aircraft charter;
- tow truck services and mechanical repairs; and
- mobile food vendors along Teewah Beach and Rainbow Beach in Cooloola.

Commercial tours and public transport operating within protected and recreation areas are managed within QPWS guidelines and a number of agents currently issue camping and vehicle permits under the *Recreation Areas Management Act 988.*

Regular public transport services are provided at a very minimal level within the Region, however concessions, franchises and mobile vendor operations are not permitted within the Fraser Island Recreation Area.

Dilli Village was redeveloped in 2004 and it now provides accommodation.

2.04 Roads

See also: 1.07 Landscape
2.05 Vehicular use of beach
2.06 Barge and ferry facilities
3.09 Recreational driving

Background information

The existing road network within the Region was established largely to meet sand mining and timber industry needs. This network has been adapted by the tour industry and government agencies as use of the Region has changed.

Department of Main Roads has completed investigation of the Tewantin–Tin Can Bay–Rainbow Beach road. A bridge link across Tin Can Inlet was not part of the investigation.

In 1998 Main Roads completed a road needs assessment (PLI McInnes Van 1998). This study concluded that there was a need for a direct "road connection between Boreen Road and Tin Can Bay Road to provide improved economic linkages (tourist, sugar cane, forestry and local agricultural production) and a local travel function. This would be consistent with a District Road under Main Roads Road Network Strategy" (PLI McInnes Van 1998). The study also noted that using existing road corridors wherever possible would have the least environmental impact.

Main Roads completed a second study in 2002 to determine a preferred route for the road from Boreen Road to Tin Can Bay Road (Mausell 2002). The study recommended a route that generally follows existing roads, with deviations for a new crossing of the Noonan Range and the settlement at Coondoo. The southern section is on roads controlled by Noosa Council. The middle part follows a short section of state controlled road, while the northern section is on roads controlled by Cooloola Shire Council and DPI (Forestry). No funding commitment to the project has been made for either the State-controlled or local government controlled sections of the preferred route.

Desired outcomes

By or before 2010, to have the road network surrounding and within the Region consolidated with roads maintained to ensure appropriate levels of access to and within the Region while protecting the Region's values.

Proposed guidelines and actions

1 In consultation with Main Roads, the current investigation of design, construction and maintenance techniques for sandy roads, with a view to minimising visual intrusions and impact on landscape and values, will be continued. This investigation will take into consideration the views offered by private enterprise and community groups. Results as they become available are to be reviewed and applied to the entire Region.

2 Detailed construction and maintenance standards for roads in the Great Sandy Region will be developed. Each existing and proposed road is to be classified according to these standards. Regular monitoring of road conditions is to be undertaken and roads maintained to predetermined standards.

3 Planning for the future demands on the road network in the Great Sandy Region has identified the possibility of constructing a high standard road linkage between Tewantin and Rainbow Beach including a bridge link across Tin Can Inlet.

4 Management strategies will be adopted to ensure that motorised vehicles are not used within areas classed as remote and semi-remote, non-motorised recreation areas. Provision will be made to ensure that the Police, Boating and Fisheries Patrol, Emergency

Services and other agencies are not restricted in the conduct of their official duties.

5 Operational guidelines will be prepared for the construction and maintenance of roads and tracks within the Region.

6 In high-use areas, where possible, one-way access roads will be provided with sufficient buffer distances to maintain the character of surrounding areas and to minimise canopy opening, which encourages drying out of roads. Road design will protect scenic amenity and minimise the risk of collisions.

7 Where prudent alternatives exist, roads near lakes will be realigned to minimise potential environmental, scenic and social impacts.

8 On Fraser Island, the use of mainland materials for road base is to be minimised. Where mainland material is used, it will be screened for foreign matter and injurious elements such as the fungal root disease *Phytophthora*.

9 Within remote and semi-remote, non-motorised recreation class areas, roads will be maintained only for essential management purposes such as firebreaks and to allow continuing approved non-conforming uses. Management strategies will be implemented to ensure that motorised vehicles are not used in the remainder of these areas. Approval for current conforming uses will not automatically carry over to new licence holders on a transfer of sale.

10 The undeveloped road from Kin Kin Creek to Kinaba will be degazetted and added to the national park. The bypass road behind South Ngkala Rocks will not be upgraded. This road will be closed periodically when beach conditions make access to the road dangerous.

11 In conjunction with the extension of the Cooloola Section of the Great Sandy National Park, the number, location and standard of roads on the Noosa North Shore will be consolidated. Roads not required will be allowed to revegetate naturally, or be actively revegetated using a mix of local seed stock. Road reserves through existing or proposed national park areas not required for park management purposes will be closed.

12 The road access system within the former forestry production zone on Fraser Island and Cooloola will be consolidated. Roads not required for approved recreational use or essential management purposes including scientific research will be allowed to revegetate naturally or be actively revegetated using a mix of local seed stock and the undeveloped road from Teewah township to Teewah Landing will be degazetted and the area added to the Cooloola Section of the Great Sandy National Park.

13 Two-wheel-drive vehicles will not be permitted on Fraser Island. In Cooloola, the Freshwater road to Bymien will be suitably maintained for two-wheel-drive access in fair weather, while the road from Bymien picnic area to Freshwater campground will not be available for use by two-wheel-drive vehicles.

14 That part of the Freshwater road following the old boundary between State Forest SF451 (Womalah) and the Cooloola Section of the Great Sandy National Park will be realigned to achieve easier grades and improve safety and ease of maintenance.

15 Inskip Avenue will be progressively upgraded to a standard and an alignment to be determined during preparation of the planning scheme.

16 A bridge across the Noosa River between Tewantin and the Noosa North Shore will not be constructed, nor will a bridge between Fraser Island and the mainland..

17 The Cooloola Way will be maintained as a park road trafficable by two-wheel-drive vehicles in fair weather pending further investigation of the road network for the Great Sandy Region.

18 Roads required to provide dedicated access to any area over which deed of grant, which might be issued as a result of the Indigenous land claim process, will not be closed.

Existing situation

Access to most of the major tourist, commercial and residential areas in the Region, and along its boundaries can be achieved by two-wheel-drive vehicle. Two-wheel-drive access is available to Noosa North Shore, Rainbow Beach, Inskip Point (Inskip Avenue has been upgraded to an all weather sealed road), Elanda Point, Harry's Hut camping area, Bymien picnic area and various points along the coastal boundary of the Region from Tin Can Bay to Bundaberg.

Most of the Great Sandy National Park is accessible by four-wheel-drive vehicle only. Two-wheel-drive vehicles are not used on Fraser Island. An integrated tourist access and transport study is being developed for Fraser Island and draft construction and maintenance standards for sand roads are being applied in the Region. The monitoring of vehicle impacts and controls is undertaken – trials have been conducted with Queensland Transport and independent QPWS trials continue.

Some roads on Fraser Island and Cooloola have been closed and rehabilitated consistent with actions and recreation opportunity zones outlined in the Great Sandy Region Management Plan (1994). Others have been upgraded or realigned to protect area values and/or to minimise maintenance costs in line with current draft standards, and as priorities and funding allow.

Motorised vehicles are not used in areas classed as remote and semi-remote non-motorised recreation (emergency services and official management duties and special access for commercial fishers excluded). Apart from the zoning plan, management strategies are not yet developed to manage vehicle access in these zones.

One-way access is being promoted between Central Station and Lake McKenzie, with partial closure of the vehicle track closest to Lake McKenzie, improving both conservation and the recreational experience. A new section of one-way road has been completed at Middle Rocks and the rehabilitation and upgrade of the Kingfisher Bay Resort and Village access road has been completed. Extensive track palleting to minimise erosion at key destinations is continuing.

The high-tide access road to Moon Point barge landing, improvements to major access roads from Middle Rocks to Orchid Beach and the Waddy Point high-tide track are now complete.

The Orchid Beach to Platypus Bay Road has been closed (to recreation vehicles). However, commercial fishers who demonstrate historical use of the area in accordance with a fishing licence under the *Fisheries Act 994* have been given written approval to use the road. Access is permitted only under specific conditions and a code of conduct.

The Cooloola Way is currently accessible to two-wheel-drive vehicles in fair weather. An investigation and assessment into the feasibility of improved access between Noosa and Tin Can Bay has been carried out and a corridor determined. A bridge link across Tin Can Inlet was not part of the investigation. No funding commitment to the project has been made for either the State-controlled or local government controlled sections of the preferred route.

The Wide Bay Integrated Transport Plan and the Southern Integrated Transport Study have mentioned the need for a direct road connection between Noosa and Cooloola in addition to the existing route via the Bruce Highway.

2.05 Vehicular use of beaches

See also: 1.06 Marine and terrestrial wildlife
2.04 Roads
2.06 Barge and ferry facilities
3.09 Recreational driving

Background information

Fraser Island has about 210km of trafficable beach. The ocean beach provides the main north-south transport route between Hook Point and Sandy Cape. Vehicle use of the Region's beaches is tide dependent. The opportunity to drive on ocean beaches is highly valued by local, interstate and international visitors to the Great Sandy Region. Driving on beaches can be an activity in itself or can be a convenient and practical method of transport.

Beaches between the Noosa River and Inskip Point are heavily used by four-wheel-drive vehicles. The level of traffic on these beaches causes safety problems and impacts on the amenity of the beaches for recreational use, creates conflicts between user groups seeking different experiences and may have ecological impacts.

Desired outcomes

By or before 2010, to be managing vehicle use of the Region's beaches to provide a balance between (1) the practicality, comfort and convenience of driving on beaches with (2) the physical and ecological protection of the beaches and their wildlife and (3) the use of the beaches for non-motorised recreational and tourism purposes.

Proposed guidelines and actions

1 Vehicle use of the beach between the North Head of the Noosa River and the first cutting will be allowed, as will vehicle use of the beaches between the third cutting on the Noosa North Shore and the township of Rainbow Beach. Monitoring and investigations will be conducted and management options determined to maintain safe access and suitable recreation opportunities in keeping with the maintenance of the area's values. Vehicle use of the beach between the first and third cutting on the Noosa North Shore will not be permitted.

2 Inskip Avenue has been upgraded to an all weather road and the beach will be progressively closed as the need to drive on this beach is overcome by development of Inskip Peninsula, providing alternative access as demands for vehicle-free recreational use of the beach increases. The investigation of future beach closures will be carried out as part of the

management planing process for Inskip Peninsula Recreation Area.

3 The beach between Hook Point and Dilli Village will be closed to vehicle use when traffic can be redirected to the old mining road. Such action will be subject to the road being repaired and upgraded to a standard capable of safe travel for the required volume of traffic.

4 Vehicle use of the beaches between Dilli Village and Indian Head and between Indian Head and Middle Rocks will be allowed.

5 Vehicle use of the beach between Middle Rocks and Waddy Point is not permitted beyond a parking area to be designated on the beach at the end of the access track to South Waddy Beach. Vehicle use of the beach between Waddy Point and South Ngkala Rocks will be permitted.

6 Vehicle use of the beach between South Ngkala Rocks and the Sandy Cape Lighthouse will be allowed subject to guidelines consistent with management of the area as a semi-remote motorised recreation class area.

7 The western beach between Sandy Cape Lighthouse and South Wathumba will not be available for vehiclular use, unless subject to action 6 and 11 in 2.04 Roads, which allows for use by essential management, emergency services and approved non-conforming uses.

8 Vehicle use of the beach between the Moon Point barge landing site and south Wathumba will be permitted.

9 The beach adjacent to the Kinkuna Section of the Burrum Coast National Park, on the mainland, will be available to general vehicle traffic. Vehicle use of the beach on the mainland between Burrum Point campsite and the southern end of Woodgate township will be permitted.

10 The use of the track behind the frontal dune south of Indian Head will not be permitted.

11 A monitoring program to assess the impact of vehicles on beach fauna will be developed and initiated.

Existing situation

The western beach between Coolooloi Creek and Moon Point is generally not trafficable. The section between McKenzie's Jetty and North White Cliffs is closed to four-wheel-drive vehicles but is maintained as a fire access trail. The beach between Wathumba Creek and Rooney Point is presently closed to vehicle traffic.

From the ferry crossing at Tewantin, there is beach access to Noosa North Head, Teewah, Double Island Point, Rainbow Beach and Inskip Point. Noosa Council's adopted Noosa North Shore Management Strategy outlines strategies for access arrangements on the Noosa North Shore.

A section of beach in front of the Rainbow Beach township is closed to vehicle traffic, the remainder of beach remains open to vehicular traffic. Inskip Avenue has been upgraded to an all-weather road. The investigation of future beach closures will be carried out as part of the management planning process for Inskip Peninsula Recreation Area.

Vehicle access is no longer permitted on South Waddy Beach between the beach access point at the northern end and Middle Rocks and no longer permitted on the western beach between Wathumba Creek and Sandy Cape lighthouse. In addition, the track behind the frontal dune south of Indian Head has been closed to vehicle access.

The western beach between Wathumba Creek and Sandy Cape lighthouse in the northern section of Fraser Island has been closed to recreational vehicles. However, commercial fishers with a demonstrated historical use of the area (in accordance with a fishing licence under the *Fisheries Act 994*) have been given written approval to use the beach. Access is permitted only under specific conditions and a code of conduct.

Initial monitoring and assessment of the impact of vehicles on beach fauna commenced in 1995-1996. Monitoring by field staff continues and has been extended to include terns on Fraser Island.

2.06 Barge and ferry facilities

See also: 2.04 Roads
2.05 Vehicle use of beaches
3.09 Recreational driving

Background information

Owing to the geography of the Great Sandy Region, barges have a major role in providing access to Fraser Island and to Cooloola via the Noosa North Shore.

Desired outcomes

By or before 2010, to have barge access across the Noosa River at Tewantin and to Fraser Island providing safe, convenient and reliable services to the public at a reasonable and stable cost to users.

Proposed guidelines and actions

1 Barge access points on Fraser Island will be limited to the Moon Point locality, Kingfisher Bay Resort and Village, Wanggoolba Creek and Hook Point.

2 Where barge or ferry services provide public access, negotiations will be conducted with private sector operators to establish licence arrangements which ensure regular and reliable transport services within safe operating guidelines and at a reasonable and stable cost to users.

Existing situation

The four barge access points to Fraser Island have been maintained and deeds of agreement for the operation of barges to and from Fraser Island exist between QPWS and the barge operators for Hook Point and Moon Point. Similar agreements will be negotiated for Wanggoolba Creek. Kingfisher Bay ferry is a private operation.

The Noosa River Ferry Service operates two ferries and provides a daily service for four-wheel-drive and other vehicles between Tewantin and the Noosa North Shore (10-minute crossing). The operation of this service is regulated by the Noosa Council.

Barges operate between Inskip Point and Hook Point, River Heads and Wanggoolba Creek, Urangan Boat Harbour and Kingfisher Bay and Urangan Boat Harbour and Moon Point. These services are regular but generally confined to daylight hours.

The Moon Point area is subject to onshore winds at certain times of the year, making barge operations difficult and unreliable. Development of a permanent barge landing facility in the vicinity of Moon Point was originally deferred. Now a less costly alternative has been developed, which includes relocation to a more suitable nearby landing site, new access road and modifications to barge design by the operator. These developments are working well and barge services to Fraser Island and Cooloola operate within existing compliance requirements of the Queensland Transport.

2.07 Aircraft landing facilities

See also: 3.20 Recreational aircraft activities

Background information

Air access is required by the resorts on Fraser Island and for management purposes including aerial ignition of prescribed burns, emergency evacuation of sick or injured persons, and for emergency landing of aircraft. Existing airstrips have been established for one or more of these reasons or to support previous logging operations.

Desired outcomes

By or before 2010, to have access for small, fixed-wing aircraft and helicopters to and within the Region for emergency, public safety, commercial, management, tourism and recreational purposes, consistent with the protection of the Region's values.

Proposed guidelines and actions

1 The landing reserve on the Noosa North Shore will be rescinded and added to the Cooloola Section of Great Sandy National Park. Continued use of the area by ultralight aircraft will be permitted.

2 The future desirability and management requirements for helicopter services to Fraser Island will be investigated.

3 The airstrip on Inskip Peninsula will be closed and a new airstrip developed in a location to be determined in the course of preparation of the planning scheme for Inskip Peninsula. Co-location of the airstrip with the Rainbow Beach sewage treatment plant and the proposed golf course would enable treated effluent to be used to maintain the airstrip and golf course while providing land-based disposal of the effluent (see note above).

4 The Boomanjin (Toby's Gap) and Wanggoolba airstrips will be retained.

*5 The Orchid Beach airstrip will remain open and be maintained by the local community.

6 The Bogimbah airstrip will be taken out of service and all other disused airstrips will remain out of service and closed or disused airstrips will be allowed to revegetate naturally or be actively revegetated using a mix of local seed stock.

7 Where aircraft provide public access other than on a charter basis, negotiations will be held with private sector operators to establish licence arrangements which:

- ensure regular and reliable transport services within safe guidelines; and
- are at a reasonable and stable cost to users.

8 The Civil Aviation Safety Authority will be requested to prepare and circulate an en-route supplement for pilots on the subject of landings in the Great Sandy Region.

*9 Aircraft landing will only be permitted at designated landing sites in accordance with operational guidelines, risk management

assessment and an aircraft management plan developed between QPWS, the Civil Aviation Safety Authority and the industry.

Existing situation

Light aircraft currently use a number of landing areas on Fraser Island. These include a grass strip at Orchid Beach, Wanggoolba airstrip and the beach areas in front of Eurong, Happy Valley and Cathedral Beach. Helipads are located at several sites including Eurong, Waddy Point and Dundubara on Fraser Island and at Freshwater and Harry's Hut camping area on the Cooloola Section of the Great Sandy National Park.

A landing strip is located on Inskip Peninsula. A landing reserve with three airstrips on the Noosa North Shore is used primarily by recreational aircraft. Bogimbah Airstrip has been taken out of service. All other disused airstrips are also out of service. Closed or disused airstrips are allowed to revegetate naturally or are actively revegetated using a mix of local seed stock.

QPWS, the Civil Aviation Safety Authority and a commercial operator have developed co-operative guidelines for safe aircraft landings on certain beaches of Fraser Island. Although approval to land on both Teewah and Rainbow Beach is within the jurisdiction of NR&M, an understanding with QPWS ensures that landings are not permitted under normal circumstances.

Consensus has been reached between the Queensland Government and the community that the Inskip Airstrip will remain at present. Irrigated treated effluent is used for maintenance. The action to take the Orchid Beach Airstrip out of service was reversed by a decision of Government. The airstrip has been reinstated and is managed by a local incorporated body under a lease agreement.

2.08 Marine infrastructure

See also: 3.18 Motorised water activities
3.19 Non-motorised water activities
4.08 Extraction of quarry materials

Background information

Marina developments are located at Tin Can Bay, Noosa River (Tewantin area) and Urangan. Snapper Creek and Urangan are State Boat Harbours under the control of Queensland Transport. These boat harbours have been provided primarily for recreational boating activities. Marinas and associated facilities concentrate visitor use to suitable locations, may provide an avenue for collecting rubbish, sewage and sullage and are a means of providing goods and services such as fuel, food and boat maintenance. To be economically viable in the longer term, marina developments need to be linked to other associated land-based developments or facilities. Development proposals have been made for several other sites within the Region.

Numerous boat ramps, jetties and pontoons for small craft are located throughout the Region. Where facilities are owned by Queensland Transport, local governments are the managing authority. NR&M manages Bullock Point Jetty, and the department has recently requested engineers to investigate and report on the potential future use and appropriate actions for the jetty.

Operational work involving the disposal of dredge spoil or other solid waste in tidal water is deemed assessable development under the IPA. Proposals will be assessed against the *Coastal Protection and Management Act 995*, the provisions of the State Coastal Management Plan and relevant regional coastal management plans.

Dredging and spoil dumping occurs according to development approval permit and licensing conditions. If dredging is required in a Fish Habitat Area when undertaking marine development, a permit under the *Fisheries Act 994* is required.

Desired outcomes

By or before 2010, to have marina facilities developed within the constraints of environmental protection, compatibility with other uses and management and private sector ability to provide and maintain such facilities.

Proposed guidelines and actions

1 A working group will be established with representatives from NR&M, DPI&F, State Development and Innovation, Queensland Transport, the EPA, relevant local authorities and other applicable agencies to:

- identify the market requirements for marine activities and facility development in the Great Sandy Region;
- identify social, environmental and economic factors requiring consideration in the context of marine activities and facility development;
- identify areas that are appropriate for the development of marine activities and facility development;
- establish requirements for environmental impact statements dealing with marine activities and facility development proposals;
- call for expressions of interest in the development of marine activities and

development facilities within guidelines established by the working group;

- identify the proposals, if any, which optimise social and economic benefits with a minimum of environmental damage; and
- recommend and have authorised those developments, if any, which achieve the maximum social and economic benefit with a minimum of environmental damage

*2 Among other things, all marinas should provide sewage, sullage and wastewater pump-out facilities, separate paint and antifouling bays, gross pollution traps and booms on site to minimise the possible spread of fuel and oil spills. Local authorities are to establish disposal and treatment facilities for such purposes.

3 Development of marina facilities within the central section of the Great Sandy Strait between south of River Heads and the southern bank of Kauri Creek will not be permitted. Primarily, marinas will cater for shallow draft vessels to avoid the need for extensive and repeated dredging. This will be taken into account in the overall assessment of proposals.

4 The frequency and extent of dredging channels, marinas and boat harbours will be scheduled to minimise environmental impacts whilst maintaining the facilities for safe navigation according to remedial dredging guidelines. The proposals in this Management Plan are not intended to impede or constrain the operation of the Bundaberg Port Authority pursuant to the amended *Coastal Protection and Management Act 995*.

*5 Operational work applications involving the disposal of dredge spoil or other solid waste material in tidal water will be assessed against the *Coastal Protection and Management Act 995*, the provisions of the State Coastal Management Plan and relevant regional coastal management plan. Dredge spoil disposal approvals will include conditions requiring the proponent to monitor spoil disposal activities and to ascertain the destination and impact of disposed materials on coastal resources and their values.

6 Spoil disposal activities, excavation of new channels and maintenance of existing channels will be co-ordinated with management of commercial fishing to avoid conflict.

*7 When planning and undertaking excavation of new channels or maintenance of existing channels, operators are required to consider potential impacts on coastal resources and their values and potential conflict with commercial fishing.

8 New channels will be considered only where there is a demonstrated need and benefit to the community and/or if associated with other marine developments, and will be subject to environmental impact assessment and specific requirements of the Marine Infrastructure Technical Working Group.

Existing situation

A Marine Infrastructure and Technical Working Group has been established and meets on average every four months to discuss marine and infrastructure proposals of relevance to the Region. These meetings ensure whole-of-government advice is provided when assessing authorities and applicants in regard to proposals that are not consistent with the Plan.

Noosa River and Urangan marinas provide pump-out facilities for vessels. Urangan pump-out facilities are not operational because of inadequacies in local treatment processes. The Tin Can Bay marina does not have a pump-out facility and does not accept vessel-based sewerage.

Dredge spoil dumping and disposal proposals have been endorsed for the Tin Can Bay and Urangan harbours. Long-term disposal strategies have been endorsed for these areas and land has been set aside for this purpose.

Marine infrastructure (including dredging and spoil disposal) proposed within marine park areas of the Great Sandy Region must be consistent with the intent of the zone in which it is proposed and a marine park permit must be obtained.

2.09 Public transport services

See also: 3.10 Tourism

Background information

Public transport services are distinguished from tour operations primarily by the operation of such services according to a regular schedule regardless of patronage on any trip, and by enjoyment of the trip being incidental to the primary purpose of reaching a destination. Proposals to conduct public transport services include bus and tram services to operate on Fraser Island.

Desired outcomes

By or before 2010, to have reasonable opportunities for visitors to have access to the values, opportunities and facilities of the Region without having to own or rent a vehicle, to a degree and in a manner consistent with protection of the Region's natural and cultural heritage values.

Proposed guidelines and actions

1 The existing and potential demand for public transport services within the Region will be investigated. If required, following investigations of existing and potential demand, expressions of interest will be called to develop a public transport system to achieve the desired outcomes.

2 Any service provided should be financially viable, provide flexible pick-up and set-down locations, be capable of handling the transport of visitors, camping gear and baggage and be cost-effective for the visitor.

3 If and when public transport services are established, negotiations will be held with public transport operators to establish licence arrangements which ensure regular and reliable transport services safe operating guidelines; and a reasonable and stable cost to users.

4 Consideration of public transport establishment proposals will include consultation with community interest groups.

Existing situation

Existing and potential public transport service demand for Fraser Island has been determined from visitor surveys and other investigations. These are being considered as part of a sustainable transport strategy. Commercial tour and other activity permits for Fraser Island are still under review. The moratorium on the issue of new commercial operation permits has been lifted for the Cooloola Section of the Great Sandy National Park.

Ferry and barge operations provide adequate and suitable access services in Great Sandy Strait and Hervey Bay. Opportunities exist in the Region for current tour operators to supply transport services that meet many visitor needs. Existing tour buses provide some public transport to Eurong and Happy Valley for workers, residents and some visitors.

A taxi service operates on Fraser Island. Taxis are available at Rainbow Beach and on the Noosa North Shore. The Rainbow Beach Taxi service is permitted to drop off passengers on Fraser Island but is not permitted to pick up passengers on the Island. No other public transport systems operate in the Region except for a daily coach service to Rainbow Beach. Proposals have been made to establish bus and light rail public transport systems on Fraser Island concentrating on the natural recreation and intensive recreation class areas.

2.10 Search and rescue

See also: 2.12 Health and medical
2.15 Ccommunications and navigation devices
3.02 Visitor safety and risk management

Background information

From time to time, incidents and accidents involving missing and injured persons occur in the Region. There is a public expectation and management requirement that adequate resources and procedures will be in place to respond to search and rescue situations.

Many visitors to the Region have little experience with four-wheel-driving in sand environments and may lack knowledge of the Region's hazards. These factors contribute to the number of search and rescue operations required.

Desired outcomes

By or before 2010, to have search and rescue operations conducted efficiently and co-operatively.

Proposed guidelines and actions

1 Comprehensive incident response procedures and local counter disaster plans will be prepared for the Region. A clear command structure for incident response procedures will be developed co-operatively by all organisations involved and available resources will be used to best advantage.

2 Possible ways of improving marine-based search and rescue within waters on the ocean side of Fraser Island and Cooloola will be investigated.

3 Communication systems are to be integrated across emergency response agencies to improve communications during emergency situations.

4 Regular search and rescue training will be conducted in conjunction with the Queensland Police Service, QPWS and Department of Emergency Services.

Existing situation

Responsibility for all marine and air rescue in the Region has been vested to the Queensland Police Service by the Commonwealth Government. Hervey Bay Police is the Search and Rescue Mission Co-ordinator (SARMAC) for the Region. Responses also rely heavily on the Coast Guard (Tin Can Bay and Boonooroo), Volunteer Marine Rescue (Hervey Bay) and the Department of Emergency Services.

Construction of police accommodation at Eurong has been completed, so a permanent police

presence now exists on Fraser Island. This presence has paved the way for the Queensland Police Service to assume the lead role in co-ordinating a response to emergency incidents.

An ambulance facility is available at the township of Happy Valley during school holiday periods and an emergency service helicopter is now permanently based at Bundaberg. The Fraser Island and Cooloola Sections of the Great Sandy National Park have detailed emergency incident response procedures, which involve other emergency services agencies as required. Queensland Police Service has responsibility, although QPWS is often the initial point of contact.

Local counter-disaster plans are adequate and are updated on a regular basis. A reasonable level of pre-planning and co-operation exists between the responsible agencies within the Region and investigations have been conducted to improve the UHF communications on Fraser Island.

2.11 Law enforcement

See also: 2.15 Communications and navigation devices
3.02 Visitor safety and risk management
3.07 Community engagement

Background information

Maintaining law and order is important for landholders, residents and visitors to the Region. This involves protecting personal rights, personal safety and ensuring the security of possessions and property. Communicating appropriate behavioural expectations, respect for other people and their property and enforcement of laws and regulations are fundamental to maintaining law and order.

The primary responsibility for ensuring law and order within the Great Sandy Region lies with the Queensland Police Service and officers of QPWS through powers delegated under the *Recreation Areas Management Act 988.*

A permanent presence is required to manage the Hervey Bay and Woongarra Marine Parks. This need will expand as other areas of marine park are declared in the Region.

Desired outcomes

By or before 2010, to have the Great Sandy Region maintained as a safe and secure setting for residents, visitors and their property.

Proposed guidelines and actions

1 A permanently staffed police station will be established at Rainbow Beach and at Eurong on Fraser Island.

2 Frequent patrols on the Noosa North Shore by police officers from the Noosa Heads Police Station will be continued.

3 QPWS officers within the Great Sandy Region will have law enforcement powers and training relevant to their management duties. Consideration will be given to extending throughout the Region those enforcement arrangements which currently exist on the Fraser Island Recreation Area.

4 The Queensland Police Service will continue to develop and trial alternative policing strategies, such as cluster policing and sector patrols, which provide a flexible and effective police response without the need to establish permanent facilities to service a particular area.

5 In conjunction with future marine park declarations, a community engagement program focusing on the legal implications of marine park declaration will be developed and targeted towards marine park users. A permanent marine park management presence, with appropriate equipment including a vessel, will be established within the Region.

Existing situation

QPWS officers receive formal law enforcement training relevant to their management duties on protected and recreation areas, specifically in relation to the *Nature Conservation Act 992* and *Recreation Areas Management Act 988*. The ability to issue infringement notices under the *Nature Conservation Act 992* has greatly enhanced law enforcement capabilities for protected areas, bringing enforcement arrangements more in line with those of the *Recreation Areas Management Act 988*.

During the 2002-2003 financial year, 190 infringement notices were issued on Fraser Island under the *Recreation Areas Management Act 988*. During the same period, police officers were required to deal with a number of vehicle and traffic related offences including drink-driving.

Water Police are based at Hervey Bay police marine areas within the Great Sandy Region and it is anticipated that in the coming years their duties will increase. QPWS staff are responsible for the day-to-day management of marine areas and conduct regular patrols as part of this management. Boating and Fisheries Patrol officers also patrol the area and are responsible for enforcing the *Fisheries Act 994*.

A police station has been constructed at Eurong on Fraser Island, providing a permanent law enforcement presence for Island residents and visitors. It is anticipated that policing in the

Region will be further assisted by ongoing improvement to communication systems for the northern area of Fraser Island, and the proposal that all commercial tour operators have radio communications.

There is no permanent police presence on the Noosa North Shore or at Rainbow Beach. The law enforcement needs of these communities are provided through patrols conducted by police from nearby centres at varying levels of frequency and regularity, usually during peak-use periods such as holidays, busy weekends and special events, as many law enforcement activities are related to vehicle infringements.

2.12 Health and medical

See also: 2.07 Aircraft landing facilities
2.10 Search and rescue
2.15 Communications and navigation devices
3.02 Visitor safety and risk management

Background information

Resources and systems to deal with medical emergencies and the everyday health and medical requirements of residents and visitors to the Region are required.

Desired outcomes

By or before 2010, to have effective responses to medical emergencies and adequate facilities available within the Region to deal with the health and medical requirements of the Region's residents and visitors.

Proposed guidelines and actions

1 The possibility of establishing a permanent health and medical facility (with the ability to dispense required pharmacy items) on Fraser Island at Eurong and at Rainbow Beach on the mainland will be investigated.

2 Existing health and emergency services including the helicopter rescue service will be supported so that standards of service are maintained. Where appropriate, first aid stations will be upgraded and maintained at major QPWS offices within the Region.

3 Selected QPWS staff working in the Region will be trained in first-aid to a level consistent with their responsibilities and duties. First-aid kits will be carried by all government vessels and vehicles.

4 All resort operators will be encouraged to have a trained first-aid officer on site at all times. Tour operators will be required to have a trained first-aid officer present at all times.

5 Visitors will be informed of the limited availability of health and medical facilities and services within the Region and advised of specific places where medical assistance can or cannot be obtained. Visitors will be encouraged to carry first-aid kits and be aware of first-aid procedures.

*6 All emergencies in the Region are to be reported through the emergency '000' telephone system or the '112' system as a secondary emergency service from some mobile phones. This information is to be widely publicised.

7 Helipads suitable for day and night use will be constructed or maintained at all key management centres and at other strategic locations to provide for medical evacuation. Sites will be selected with respect to management requirements, travel time, alternatives, topography, landscape values and the recreation area classification of the site.

Existing situation

The Queensland Ambulance Service has responsibility for initial responses to medical emergencies within the Great Sandy Region. Four-wheel-drive ambulances are based at Pomona, Tin Can Bay, Hervey Bay and Maryborough and may be used when required. Vehicular ferries are available for vehicle-based after-hours medical evacuations.

While an effective response capability for medical emergencies is in place, inadequate communications and the remoteness of parts of the Region may delay action. An Emergency Services helicopter now permanently based at Bundaberg provides added capabilities for emergency incidents. Helicopter medical evacuations are required especially in cases of multiple or serious accidents or in remote, inaccessible areas. Helipads suitable for day and night use have been constructed and are maintained at key management centres (Eurong, Dundubara and Waddy Point). Other possible landing points have been identified with Police and Emergency Services.

The Queensland Ambulance Service has a centre at Happy Valley and the St John Ambulance Service has a station at Eurong although this is no longer staffed. The one ambulance service centre at Happy Valley operates for approximately 10 weeks of the year, primarily during Queensland school holidays

There is no full-time medical practitioner on Fraser Island or at Rainbow Beach. This matter is of concern to local communities. Visitors, in particular to Fraser Island, receive information about medical emergency response with their permit are encouraged to carry first-aid kits.

QPWS ranger staff in the Region are trained in first aid. All ranger stations and QPWS vehicles contain first-aid kits. Rangers respond to many emergency incidents, in particular on Fraser Island. Staff assist existing health and medical services and enjoy a good working relationship with health and medical emergency staff.

2.13 Fire-fighting

See also: 1.09 Fire
2.15 Communications and navigation devices

Background information

Minimising the risk of damage to life and property from fires and in and around community settlements is an important management consideration within the Great Sandy Region. Minimising the risk of fires is far more cost-effective and efficient than fire suppression.

While protection of life and property in and around settlements and areas of concentrated recreation use must be the first priority, maintenance of the Region's conservation values, including fulfilling the ecological requirements of flora, fauna and other natural assets, and maintaining cultural resources and practices, etc. must also be ensured. Fire management away from population concentrations should be directed towards ecological objectives.

The anticipated population increase in permanent and holiday settlements in the Region will demand an increase in preparedness and fire-fighting capabilities.

Desired outcomes

By or before 2010, to have fire protection strategies in place to avoid loss or damage to life or property resulting from fires in the Great Sandy Region.

Proposed guidelines and actions

*1 Management staff will promote and encourage fire control measures in settled areas.

2 Community bushfire protection plans for each area of settlement within the Great Sandy Region will be prepared. Plans will co-ordinate the activities of landholders, residents, local authorities, Emergency Services including Queensland Fire and Rescue Service, local rural fire brigades and QPWS. The plans will focus on preventive education and actions, such as establishing and maintaining fire access trails and hazard reduction to protect local communities.

*3 Detailed fire reports will be registered on Parkinfo, a geographic information system managed by the QPWS. Fire reports include information such as location, time, resources required conditions, circumstances of ignition, damage caused and effectiveness of control. This information will be used to evaluate performance and amend preparedness and fire-fighting systems where possible.

4 Wildfire response procedures will be regularly updated to indicate relevant contact persons, a clear command structure and an inventory of equipment and resources available for fire-fighting.

5 A public education program will be developed and implemented, highlighting the risks of fire and the actions which visitors, absentee landholders and residents should take to minimise risks.

6 Rural fire brigades operating within the Region will be supported in their efforts to obtain facilities and train staff.

*7 All officers of QPWS, rural fire brigades and other agencies undertaking incident control and frontline activities are to undergo training consistent with national and state competencies for fire-fighting.

Existing situation

Managing fires on national parks and other protected areas within the Great Sandy Region is primarily the responsibility of QPWS. In the case of major fires, assistance may be obtained from other government agencies such as DPI (Forestry), Department of Emergency Services, and rural, auxiliary and urban fire services in and adjacent to the Region. Many planned burns and wildfire mitigation activities are undertaken co-operatively.

A Fire Management System for Queensland protected areas was adopted by QPWS in 2003. This system applies to all fire management for which QPWS is the responsible agency. Wildfire suppression activities, hazard reduction, ecological burning and burning for weed control are all covered by this system.

The system provides for the development of a fire plan, fire strategy, planned burning program, wildfire response procedure, community bushfire protection plan and fire reporting and monitoring. Fire management strategies have been completed and approved for Fraser Island and Cooloola. Strategies are currently being developed for Great Sandy coastal and island areas.

Rural fire brigades exist on the Noosa North Shore, at Kingfisher Bay Resort and Village,

Cathedral Beach and within the townships of Eurong, Happy Valley, and Orchid Beach. The Rainbow Beach and Tin Can Bay communities have auxiliary fire stations, with extra assistance available from the Noosa and Gympie rural fire services.

Community bushfire protection plans have been developed for Kingfisher Bay Resort and Village areas, the Orchid Beach township and Rainbow Beach. The Noosa North Shore plan is currently being finalised.

Authority to ensure control of fire hazards under the *Fire and Rescue Services Act 990* rests with the District Inspector/Commissioner. The Rural Fire Service has the delegation to undertake hazard reduction burning on vacant blocks, however where practicable such activities should be co-ordinated and undertaken by District Inspectors.

2.14 Schools and environmental education

See also: 2.02 Residential development
3.07 Community engagement

Background information

In Queensland, environmental education is acknowledged as the process of recognising values and clarifying concepts to develop skills and attitudes needed to understand and appreciate interrelatedness among people, their culture and surroundings.

Environmental education allows students to develop:

- a sensitivity to the intrinsic value of social and natural communities;
- an awareness of the interactions between individuals and their social and physical environments;
- an awareness of the effects of technology on social and natural communities;
- an awareness that the capacity to change the environment is accompanied by a responsibility to that environment; and
- an ability to enhance awareness by drawing upon fieldwork skills such as observing, sampling, examining, analysing and collating.

Education Queensland has established a sound philosophic and strategic base for the full-scale implementation of environmental education in schools and has instituted mechanisms to support school communities in devising and presenting effective programs for all learners.

Desired outcomes

By or before 2010, to have school education and environmental education opportunities available for residents and visiting students.

Proposed guidelines and actions

1 The possibility of re-orienting the existing Noosa North Shore Wilderness Camp towards becoming an environmental education centre will be investigated.

2 Environmental education programs regarding the World Heritage, Ramsar, cultural and natural values of the Region will be developed.

3 The feasibility of establishing environmental education oriented camping or accommodation areas will be investigated in consultation with current and potential user groups.

4 The special needs of Island residents relating to education will be investigated.

Existing situation

Rainbow Beach has a primary school. There are no other schools within the Region and, given the small permanent population of Fraser Island and the Noosa North Shore, no further school development is proposed. Neighbouring Tin Can Bay has a P–10 State School. A variety of public and private providers of vocational education training are available in major centres neighbouring the Great Sandy Region. A number of schools and other learning institutions use the Great Sandy Region as a setting for education-based programs.

School-based and environmental education information and links to other organisations for similar information is available on the EPA website. There is a co-ordinated approach to school-based environmental education across Fraser Island, Cooloola and the marine areas and a survey of teacher requirements for Fraser Island has been completed.

After consideration of expressions of interest for the redevelopment and management of Dilli Village on Fraser Island, QPWS approved an option that provides for environmental education and accommodation. Dilli Village was redeveloped in 2004 by the University of the Sunshine Coast and now provides accommodation facilities. The university has been granted a 15-year lease to manage Dilli Village for secondary and tertiary environmental education and research purposes.

Indigenous groups are considering the possibility of redeveloping K'gari (Thoorgine) to offer a cultural education camping and accommodation experience to visitors.

2.15 Communications and navigation devices

See also: 1.07 Landscape
10.10 Search and rescue
10.11 Law enforcement
2.12 Health and medical

Background information

An effective communications system operating throughout the Region is central to providing efficient and effective health and medical, law enforcement, fire fighting, search and rescue and emergency services and day-to-day management activities. An effective system is also important for the residents of the Region.

Commercial shipping and recreational boating depends upon navigational aids for convenient and safe operation. Navigational aids are located throughout the Region and include lighthouses, leads, channel markers and buoys. Responsibility for managing these facilities rests with the Commonwealth Government's Australian Maritime Safety Authority and Maritime Safety Queensland.

Desired outcomes

By or before 2010, to have an efficient and effective communication system including navigation aids sufficient for commercial shipping and recreational boating available to management agencies, emergency services, visitors and residents within the Great Sandy Region without adversely affecting the Region's values.

Proposed guidelines and actions

*1 All commercial tour vehicles and vessels are required to have radio communications and must have access to emergency call channels.

2 Where extensions to protected areas would include navigation aids, these facilities will be included in the protected area where possible and agreement reached about maintenance, upgrading or replacement. Such agreements will be reviewed as required.

3 The feasibility of repositioning the Australian Overseas Telecommunications Corporation Limited repeater on Fraser Island to improve and extend coverage will be investigated.

4 The feasibility of establishing further CB UHF repeater stations in the northern and western sections of the Great Sandy Region will be investigated. The existence of UHF repeater facilities will be widely publicised. New repeater facilities will be installed on existing towers where possible.

*5 Communication systems and facilities will be rationalised across emergency response agencies to improve communication capabilities.

Existing situation

Telephone communications are available via Telstra radio communication towers on the Island. There are public telephones at Kingfisher Bay Resort and Village, Waddy Point campground, Dundubara campground, Indian Head, Central Station, Eurong, Happy Valley and Cathedral Beach. Mobile phone coverage in the Region is improving and a new repeater is planned for the north of Fraser Island. A mobile phone tower has been installed at Orchid Beach and the coverage for Eurong will be improved with a new tower on Eurong Ranger Base planned in future.

Radio communication networks are operated by DPI (Forestry) and QPWS. The major resort operators operate private radio communication facilities and most commercial tour operators have radios installed to vehicles.

Listening services are provided by mainland volunteer Coast Guard and Air Sea Rescue organisations (marine bands) and the Tin Can Bay Ambulance Centre (CB repeater). An Australian Overseas Telecommunications Corporation Limited repeater station on Fraser Island relays marine VHF transmissions. Repositioning may be desirable to improve and extend coverage. Improvements to the VHF communication system are currently being investigated. Investigations include new repeaters to improve coverage. Following investigations to improve UHF radio communications in the area, approval for two new repeaters for northern Fraser Island has been given.

Several navigation aids are located on unallocated State land proposed for addition to the national park estate. Under the current zoning plans for existing marine parks, navigation aids can be maintained and new facilities constructed subject to prior agreement. An agreement exists between QPWS and the Australian Maritime Safety Authority regarding maintenance and upgrade programs for Double Island Point and Sandy Cape navigation facilities. Navigation aids are proposed for Waddy Point/Middle Rocks area and Rooney Point on Fraser Island.

While several systems are operated by various agencies, the lack of co-ordination and integration hampers co-operative operations. To assist this concern, radio communication systems are being linked across agencies as

resources allow. The rescue helicopter, the Police Service and a number of rural fire brigades are linked to the QPWS VHF radio system.

2.16 Electricity

See also: 1.07 Landscape
1.13 Noise pollution
2.02 Residential development

Background information

The lifestyles of many residents and the activities of businesses operating in the Great Sandy Region depend largely on a reliable supply of electricity. In 1994, the then Wide Bay-Burnett Electricity Board and the South East Queensland Electricity Board indicated that extension of the reticulated power supply to Fraser Island was not envisaged as part of their 10-year plans.

Today the responsibility to investigate, co-ordinate investigation and guide development of power supplies and alternative operating system options rests with the local electricity suppliers for the Region: Ergon and Energex.

Desired outcomes

By or before 2010, to have a reliable, clean and efficient supply of electricity for residents and visitors to the Great Sandy Region, consistent with the protection of the Region's values.

Proposed guidelines and actions

*1 The possibility of developing partnerships between government and industry to design and supply sustainable generation systems and power supplies will be investigated. The application of alternative forms of energy generation within the Region, including solar and wind generation, will also be investigated. Results will be made available and the use of alternative power technology that does not impact on the values of the Region will be encouraged.

*2 The feasibility of establishing centralised power generation systems for townships within the Region will be investigated. This will include an assessment of environmental, economic and social impact criteria.

3 Energy-saving practices will be encouraged among residents, visitors and business operators within the Region.

4 A code of ethics for the operation of generators within townships will be developed and promoted and generator sets will be baffled underground wherever possible to minimise noise pollution.

5 All future power lines within the Region will be underground where practicable. On Fraser Island only underground power will be permitted. Existing aboveground powerlines will be placed underground if upgraded or replaced. The feasibility of reticulating underground electricity on the Noosa North Shore will be investigated.

Existing situation

Reticulated power is currently available to the township of Rainbow Beach and to the Noosa North Shore. The aboveground 11,000-volt lines to Rainbow Beach have only minor residual capacity. Kingfisher Bay Resort and Village has been connected to mains supply.

Mains power to Teewah has been connected, but the power supply on the Noosa North Shore currently terminates at the Wilderness Camp. Noosa Council continues to support this management plan's objective of providing underground electricity connections on the Noosa North Shore.

For the townships of Orchid Beach, Cathedral Beach, Happy Valley, Eurong, Teewah and major QPWS management centres, power is supplied by local power-generating plants.

Sandy Cape's power needs are met through a sustainable remote area power system (RAPS), and proposals are in place to install similar systems on other stations according to replacement schedules and as funding allows.

A core role of the EPA is to promote more sustainable and environmentally responsible power systems. An investigation of alternative energy supply for remote sites has been undertaken.

2.17 Water supply

See also: 1.02 Fraser Island World Heritage Property
1.05 Landform and soil forming processes
1.07 Landscape
1.10 Water quality
1.14 Impact assessment procedures
1.15 Catchment management
2.04 Roads
2.18 Solid waste disposal

Background information

Water is fundamental to the survival of all forms of life. It is the basic requirement for all plant and animal communities. Human communities rely on a clean, regular supply of fresh water for a variety of human consumption, household requirements, irrigation, fire fighting, industry, cleaning, swimming and sewage transport. Water is a primary factor limiting future growth

of development at Rainbow Beach, Inskip Peninsula ,Tin Can Bay and Cooloola Cove.

Groundwater supplies

The Fraser Island sandmass lies on bedrock, which in places is more than 30 metres below present sea levels. The permeable sandy substrate of the Island ensures that most of the area's rainfall infiltrates the sandmass and is stored in the regional aquifer (the permanent body of stored water) above the bedrock. The watertable is the upper surface of the regional aquifer and its depth below the surface varies according to topography and seasonal fluctuations.

Several smaller local aquifers are perched at levels above the regional aquifer on Fraser Island. Perched aquifers appear to occur only on that part of the Island south of Wyuna Creek and may not be isolated from the regional aquifer.

The high dunes of the Cooloola sandmass function as an unconfined aquifer. A second, smaller aquifer system is the source of the Noosa River and possibly other black water creeks. The western part of the Great Sandy National Park (Cooloola Section) and most of the Wide Bay Military Training Area overlie extensive sedimentary deposits known as the Myrtle Creek sandstones which form another major aquifer.

The 1994 Management Plan proposed that existing water supply licences (Order in Council) could support a permanent residential population at Rainbow Beach on Inskip Peninsula and at Tin Can Bay and Cooloola Cove of approximately 16,500 people based on the water consumption rates at that time. The 1994 Plan indicated that the current population could be reviewed if water supply demand strategies demonstrated that greater populations could be supported either within the existing Order in Council approval limits or from additional sources from outside the Region.

Cooloola Shire Council commenced trials of the extraction of groundwater in 1999 to assess groundwater as a potential future urban water source for Rainbow Beach. NR&M reviewed the results of Council's groundwater assessment at the request of EPA and the Fraser Island World Heritage Advisory Scientific Committee. A report entitled "Rainbow Beach Water Supply Upgrade Numerial Groundwater Modelling" prepared for the Cooloola Shire Council was completed in 2002. NR&M concluded that an equivalent groundwater supply should have less potential ecological impacts than the existing surface water extraction regime.

Cooloola Shire Council has indicated that existing Order In Council water supplies would support an ultimate population of approximately 24,000 equivalent persons, in accordance with Council's 1997 Strategic Plan. The EPA recognises potential comparative benefits of groundwater extraction from Cooloola Sandmass, if this results in the cessation of surface water extraction from the Cooloola Section of the Great Sandy National Park and reduces impacts on significant wetlands on unallocated State land. The EPA has advised Cooloola Shire Council that it endorses NR&M's recommendations and advised that it supports the proposal to extract groundwater for the Cooloola Sandmass pending agreement and resolution of the following matters:

- conversion of existing surface water Order in Council approvals to groundwater extraction approvals;
- management of pumping impacts by setting annual total pumping volumes and maximum daily pumping limits;
- implementation of a monitoring regime to monitor groundwater levels, water quality and ecological indicators and pumping volumes;
- implementation of measurable water demand and re-use management strategies;
- rehabilitation of disturbed existing infrastructure sites on the national park once surface water infrastructure has been removed; and
- a goal to achieve 'best practice water use' including through the building code or a local by-law implemented by Council.

A groundwater extraction agreement between the EPA and Council is to be finalised.

Groundwater quality

The National Health and Medical Research Council standards for grade 'A' quality water recommend a pH level of between 6.5 and 8.5.

Water filtered through siliceous sand is generally of high quality but may be organically stained (black water) or relatively colourless (white water). A preliminary examination of aquifer water quality within the Great Sandy Region generally indicated a high standard requiring minimal treatment before use.

The Water Resources Commission completed a study of water supply schemes on Fraser Island used by QPWS. Investigations were conducted on water supply schemes for the centres of Eurong, Central Station, Dilli Village, Ungowa, Dundubara and Waddy Point.

Potential impacts of groundwater extraction

The greatest concern in considering groundwater extraction from natural systems is extraction during drought periods when demand by the

community is highest but availability is lowest. Extraction at such times is likely to increase ecological stress within the natural system by reducing already diminished ground and surface water levels below those necessary for plant and animal survival. Continual use of groundwater at a rate greater than the rate of natural recharge of the aquifer may be expected to result in a lowering of the watertable. In the long term, clearly this would have a direct impact on lakes and swamps, as well as reducing the depth and the total area of wetlands. Fauna and flora would be affected adversely. Even extraction at levels less than the rate of recharge may have far-reaching effects on the ecosystem.

Over-extraction of water could also affect the position of the boundary between fresh water in the aquifer and the sea. The continuous outflow of fresh water through the sandmass usually prevents intrusion of salt water into the aquifer. If the watertable were lowered below sea level, the dynamic balance between fresh and seawater would be disturbed permitting seawater to invade the aquifer. Most plant species cannot tolerate even brief exposure to salt water.

Short-term excessive use of groundwater has negative local impacts. The temporary drying of a swamp could allow the invasion of species, which once established could remain in the swamp. For example, paperbarks require drier conditions for seedling establishment but can tolerate greater waterlogging as mature plants. Such events may modify local community structure and species composition.

The drawdown effects of groundwater extraction in the localised areas surrounding extraction bores may include lowering the watertable below the level of roots, potentially leading to death of vegetation. However, drawdown can be minimised at any point through judicious selection of pumping rates, pumping periods and bore spacing.

Desired outcomes

By or before 2010, to have a clear potable supply of water for residents and visitors to the Great Sandy Region. Any use of groundwater and surface water resources within the Region should be within limits set by ecological sustainability criteria.

Proposed guidelines and actions

1 The Region's surface and groundwater supplies will be used only for localised extraction for individual houses, small areas of settlement and for use in Tin Can Bay, Rainbow Beach, Cooloola Cove and the Inskip Peninsula area.

*2 Owing to the current lack of information and the uncertainty relating to the potential impacts of water extraction, any proposals to increase or modify water extraction must be considered with extreme caution. All information relating to the extraction of groundwater and surface water from the Cooloola Sandmass, including the report prepared by NR&M in 1995 and the 2002 study prepared for the Cooloola Shire Council, should be included in considerations.

*3 A water supply management plan will be established for all areas (including QPWS management areas) in the Region. The plan will include a detailed and rigorously structured monitoring program. Water supply planning will be conducted to identify water supply areas that can be protected from possible contamination.

4 The level of development in areas using water from the Great Sandy Region will be constrained within the available, sustainable supply of water. In particular, the extraction of water within the Region for use in Tin Can Bay, Rainbow Beach, Cooloola Cove and the Inskip Peninsula area will be limited to the volumes specified in the water extraction licences in force on 1 January 1993.

5 Community education programs to increase awareness of the need to protect the water supply will be developed and implemented.

*6 Residents and visitors to the Region will be actively encouraged to reduce their demand for reticulated water supplies through the use of alternative technologies, effluent re-use, rainwater tanks and water use minimising strategies. The feasibility of using rainwater storage tanks for domestic water supply will be investigated.

7 Water meters will be installed for each dwelling with reticulated water within the Region as a means of measuring water consumption and regulating levels of use.

8 The feasibility and desirability of establishing centralised water extraction and storage systems for townships within the Region will be investigated. The establishment of water supply points for beach campers will be investigated.

9 Water quality monitoring will be carried out for all QPWS management bases on Fraser Island with samples taken quarterly for testing for contamination by bacteria and for chemical analysis. A water quality monitoring program (that includes treatment) will be developed and implemented for all QPWS bases on Fraser Island and Cooloola.

10 Treatment of ground and surface water supplies used for QPWS bases will be according to government recognised and approved water quality standards and guidelines (biological and biochemical parameters). Water supplies will be treated for pH, bacteria, chemical balance and the like.

11 Monitoring of groundwater will continue where there is possible contamination from wastewater disposal systems.

12 A water monitoring program will be implemented for water used frequently by visitors as drinking water. These water supplies will be treated to agreed standards for potable water. The program will include an inventory of sites, site condition and trends over time, monitoring and water quality criteria.

*13 All taps where the public gain access to a water supply that may be unsuitable for drinking should be clearly labelled to advise visitors not to drink or to treat the water before drinking. Visitors to the Region will be advised to boil all drinking water taken from lakes and streams.

14 Staff responsible for the operation, monitoring and treatment of water supplies and treatment facilities on QPWS bases and in visitor areas will be trained appropriately.

Existing situation

Water demand in the Region has increased substantially. Local authorities and other management agencies have investigated the feasibility of alternative technologies to minimise water use, re-use and recycle water. All local authorities have implemented wastewater and stormwater re-use schemes. However, more needs to be done to increase water conservation measures by residents and visitors.

Cooloola Shire Council currently has Order in Council approvals from the Queensland Government for surface water supply for the Rainbow Beach area, Tin Can Bay and Cooloola Cove. Surface and groundwater taken from protected areas to supply communities in the Cooloola area is monitored and treated by the Cooloola Shire Council.

The Cooloola Shire Council has accepted the EPA's conditions 'in principle' for the extraction of groundwater, and in the interim the Council currently abides by the following conditions:

- It does not utilise Cameron or Seary's Creek surface water unless there is a bore failure;
- It will not pump from groundwater sources in excess of 1700Ml pa as per licence limit for Cameron and Searys Creek;
- It will continue to monitor water table levels in the existing monitoring bores; and
- It will continue to extract from Teewah Creek within the Order in Council approval, as this remains the only water supply for Tin Can Bay and Cooloola Cove.

Groundwater monitoring from the Cooloola sandmass has been undertaken and alternative options for water supply to these areas is being investigated. Support for advancing this proposal was conditional on pending agreement and resolution between the EPA and Council of a number of matters including the conversion of existing surface water Order in Council approvals to groundwater extraction approvals.

The Mary Basin Water Resource Plan Area includes the coastal streams north of the Noosa River mouth. The preparation of a Water Resource Plan aims to provide a framework for the allocation and sustainable management of water to meet future requirements, including water for the protection of natural ecosystems and the security of supply to water users.

There is no reticulated water supply to southern Cooloola (including Teewah township and Noosa North Shore) and residents currently obtain domestic water supplies from private bores and rainwater tanks.

Freshwater camping area, south of Double Island Point, obtains its water supply from a small creek draining the sand dunes. Lakes and creeks also supply water to QPWS camping areas and management bases.

Not all water supplies are being treated to the full extent. Chlorination of some supplies continues. Drinking water sources used by staff and visitors to protected areas are also monitored. Visitor information, signs and tap labels advise visitors not to drink water or how to treat water before drinking.

2.18 Solid waste disposal

See also: 1.10 Water quality
2.02 Residential development

Background information

Rubbish is a by-product of human activity and includes food scraps, recyclable materials and a broad range of waste materials including discarded machinery. Options for the management of solid waste include reduction of waste produced, recycling or dumping and combinations of these methods.

Each method of waste management has its positive and negative implications. Reduction of waste, recycling of materials and the transfer of non-recyclable materials to landfill sites out of sensitive areas is considered the most appropriate and sustainable approach. The key

to recycling and waste reduction programs lies with educating or obtaining the assistance of residents and visitors and introducing management actions to facilitate recycling, such as separate bins for different materials at popular use sites.

Problems associated with open dump sites within the Region include increased fire, loss of scenic amenity, spread of material by scavenging animals, increased unnatural communities of animals and the possible contamination of the watertable, which is required by natural ecosystems and for human use.

Desired outcomes

By or before 2010, to have the Great Sandy Region clean and free from litter and solid waste with no threat from solid waste to water quality or other values of the Region.

Proposed guidelines and actions

1 A detailed assessment of existing refuse disposal sites within the Region and the costs and methods of removal and rehabilitation will be undertaken. Based on this assessment, a plan for the excavation and removal of buried wastes will be prepared. Priorities will be determined based on a detailed risk assessment of health and environmental issues.

2 All existing refuse tip sites will be closed and revegetated.

3 Transfer stations that include separation facilities will be established for each area of settlement. Visitor and community education programs will be developed to encourage the re-use and separation of recyclable solid waste material.

4 All rubbish will be removed from protected areas within the Region and dumped in line with agreed conditions at appropriate sites outside the Region.

5 Building contractors will be responsible for removing all waste building materials.

6 A strategy will be developed where the 'pack it in, pack it out' philosophy can be applied to specific areas or zones in the Region. Rubbish facilities are not provided in those areas.

*7 Households within the Region will be encouraged to compost organic matter. Commercial enterprises will be encouraged to use dingo safety bins.

Existing situation

All landfill sites on Fraser Island have been closed. An arrangement between QPWS and the Hervey Bay and Maryborough City Councils has allowed the implementation of a waste management system for Fraser Island residents and visitors. Fraser Island refuse is collected at transfer stations, and then removed from the Island and the Region.

The refuse disposal area located along Teewah Beach Road serves the whole of the Noosa North Shore, including Teewah, except for the commercial properties which arrange their own refuse service. There is no rubbish facility close to the beach and some day-trippers and campers discard their rubbish in the bush.

Visitors to the southern Cooloola Section of the Great Sandy National Park, including the upper Noosa River, must remove their own rubbish as no bins or collection service are provided. This system works well.

Solid waste from the northern Cooloola Section of the Great Sandy National Park is collected by QPWS, in bulk containers at campgrounds and along the beach and taken to the Rainbow Beach landfill site. Refuse from the Rainbow Beach township and Inskip Peninsula is collected by the Cooloola Shire Council and dumped at the Rainbow Beach landfill site.

Cooloola Shire Council is currently undertaking an impact assessment for a new landfill site outside the Region. No licences exist for landfill sites on Great Sandy National Park (Fraser Island or Cooloola Sections), however there is an expectation that a landfill may be built in future outside the Region to meet the waste disposal needs of the local community.

A number of sites previously used for rubbish dumps are located in close proximity to townships. This situation is of concern as leachates from the dumps may enter the water table. There has been no detailed assessment of the costs to remove contaminants and rehabilitate existing and old landfill sites. The EPA is interested in prioritising priority toxic sites for remedial work.

Community recycling and rubbish transfer stations have been established for each area of settlement in the Region and recycling bins provided for beach campers. Residents in the local community are encouraged to use and recycle building materials and rubbish from development projects.

2.19 Sewage/wastewater

See also: 1.10 Water quality
2.02 Residential development

Background information

Whether in residential or natural environments, sewage must be treated and disposed of safely and in an environmentally acceptable manner. Effective sewage treatment protects public health by preventing the spread of infectious disease, which can be carried in human wastes, prevents nuisances such as bad smells and breeding flies, protects the environment from pollution and protects aquatic life. There is ongoing concern in the community about the effect of increased effluent within the marine areas and groundwater in the Region.

The increase in water entry to the soil following urban development along the coast, from gardens, septic tanks and pools, is also a concern as it can significantly raise the local watertable and increase flow to the adjacent beach. This can increase erosion rates of the sea cliffs such as at Rainbow Beach.

Most residents in townships on Fraser Island use septic systems to dispose of household sewage and sullage. Private bores are commonly used for water supplies. Owing to the relatively small size of residential lots and the close proximity of water intake points to septic outflow points, there is concern about the potential seepage of effluent directly into groundwater, polluting present and future water supplies.

Desired outcomes

By or before 2010, to have wastewater treatment systems in the Great Sandy Region discharging effluent subject to the best available treatment economically achievable.

Proposed guidelines and actions

1 Existing information will be reviewed and, if required, research will be undertaken on the treatment and disposal of wastewater in sandy environments such as those in the Great Sandy Region.

*2 Acceptable standards for effluent discharge produced by the wastewater treatment systems in the Great Sandy Region will be determined, implemented and monitored regularly. A working group will be convened to determine guidelines and acceptable standards for effluent discharge and to develop a monitoring program to address issues such as human waste disposal practices at beach camping sites.

3 The quality of uptake water into sewage treatment systems operating in the Region will be monitored.

4 Systems will be upgraded to the best available treatment economically achievable as soon as possible. Such treatment will involve land application where practical and removal of biological nutrients. In particular, all systems discharging effluent to Great Sandy Strait, Tin Can Bay or the Noosa River will be required to be upgraded to tertiary treatment standard as soon as possible.

5 Treated sewage may be used for irrigation purposes in townships subject to public health and amenity considerations and determination that disposal of effluent by irrigation will not increase the nutrient content of groundwater resources.

6 Guidelines will be developed for separation distances between septic tanks and spears and bores to prevent contamination of water supplies. The feasibility of establishing centralised sewage treatment systems for each area of settlement within the Region will be investigated.

*7 A schedule of existing treatment systems will be developed and included in a review of existing licences. A program to upgrade sewage treatment and disposal systems is to be developed to meet regulations. All new wastewater treatment systems will conform to licence conditions and specified standards determined in action 2.

*8 An integrated wastewater management strategy is needed to maximise efficiency, improve disposal and treatment systems, provide standards and conditions of discharge and to promote the use of new technologies.

*9 Solid waste pumped out from primary treatment systems is to be removed to an appropriate registered handling facility on the mainland.

Existing situation

Although it has been recommended that centralised treatment systems be required for townships in the Region, no feasibility studies have been prepared.

An effective framework for licensing sewerage treatment plants on protected areas within the Region will result in compliance with legislation and consistency across the region in terms of licensing conditions. The framework will demonstrate the application of best practice management in the treatment and re-use of waste, and will ensure that staff are trained to collect samples and to analyse results.

QPWS has undertaken an audit of toilet facilities and waste disposal systems on protected areas throughout the Region (no designated pit toilets now exist on protected areas in the Region). The inventory includes site and facility description, assessments and recommendations.

The EPA has prepared guidelines and standards for sewage treatment systems and effluent discharge for the Fraser Island World Heritage Area and protected areas in the Great Sandy Region and the Wide Bay District. The EPA has proposed a planning study to determine a long term strategy for effluent management for effluent disposal on Fraser Island.

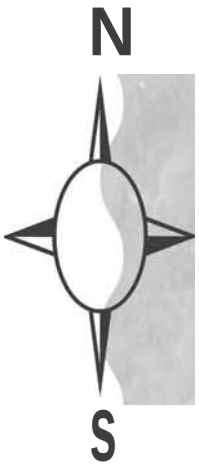
The range of toilet systems available to cater for different situations and levels of use has increased in recent years. Facility designers and suppliers have worked closely with QPWS, resulting in the installation of improved systems. Tertiary systems have been installed or upgraded at Eli Creek, Boomanjin (Toby's Gap) and Kinaba and composting and hybrid pump-out systems are being upgraded or installed across the Region as priorities and funding allow.

A wastewater treatment facility has been developed by Toyota Corporation at Orchid Beach for the annual fishing competition. QPWS also utilises this facility to manage Waddy Point effluent. Kingfisher Bay Resort and Village uses a system that achieves tertiary level sewage treatment, with treated effluent discharged into Hervey Bay.

Sewage treatment and disposal in the Cooloola Section of the Great Sandy National Park is by septic tanks and composting toilets. In some visitor use locations, no toilets are provided. Development approval licences have been issued for all facilities on protected areas in the Region. QPWS is compliant with requirements under the *Environmental Protection Act 994*.

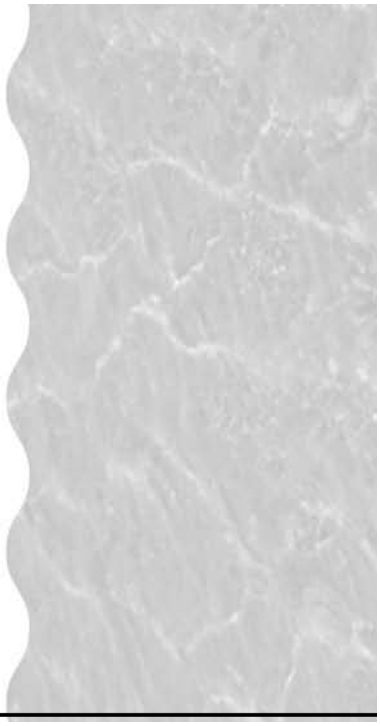
There is no reticulated water or sewage system at Noosa North Shore. All properties rely upon some method of on-site effluent disposal, rainwater collection and/or bores. Sewage treatment plants operate at Tin Can Bay, Cooloola Cove and Rainbow Beach. The capacity of these plants to handle anticipated increases in visitor and residential population numbers has been investigated by Cooloola Shire Council, with plants being upgraded and designed to cope with the expected increase in population.

The Hervey Bay and Maryborough areas are currently implementing wastewater re-use schemes on the mainland. The schemes use treated sewage on sugar cane and other cultivated crops.



Strategy 3

Recreation tourism and visitor use



Strategy 3

Recreation, tourism and visitor use

3.01 Recreation, tourism and visitor use

See also: 3.06 Recreation, research and monitoring

Background information

The Great Sandy Region offers a diversity of recreation opportunities, from the urban social experiences of the townships and resorts, to the solitary natural experiences of the remote beaches, forests and dunes. The Queensland Government and the community have recognised this diversity as one of the greatest values of the Region and have expressed a strong commitment to its maintenance in perpetuity. The obvious threat to the achievement of this broad goal is unmanaged development driven by increased demand for living spaces and developed recreation settings.

Local and international experience has demonstrated that the areas most vulnerable to developmental pressures in regions experiencing rapid population growth are those that are most sensitive, most valued and scarcest. In the Great Sandy Region, these are the remote beaches, forests, lakes and dunes; those natural assets that define the unique character of the Region, and that support natural, remote recreational experiences.

This section outlines strategies relevant to the management of recreational activities in the Region. Guidelines for related matters, such as emergency response and licensed commercial activities, are dealt with separately in other elements in this Plan.

Recreation opportunity classes

The spectrum of descriptive classes or recreation management units used in this Plan vary with regard to biophysical, social and managerial attributes, and span the broad diversity of opportunities available within the Great Sandy Region.

This spectrum provides a broad framework that reflects not only the current state of the Region in recreational terms but also provides a vision for the future management of the type and level of recreational use and development in the respective classes. An important principle behind the management of recreation opportunities within the Great Sandy Region is the protection of the special values of the Region. Where appropriate and consistent with this principle, of the available range of recreation opportunities could be expanded.

The recreation classes for the land areas of the Great Sandy Region are: remote, semi-remote non-motorised, semi-remote motorised, natural recreation, intensive recreation and accommodation nodes, and places of urban recreation (see Table 3 and Map 5).

Remote: An area classed as remote is generally a very large area with very little or no evidence of previous human activity, and which provides remote or primitive style recreation opportunities. Only pedestrian access is permitted and other land use activities are restricted to maintain the isolated and primitive character of this area class.

Semi-remote non-motorised: The semi-remote non-motorised class generally includes very natural and remote areas with evidence of only minor previous human activity such as old access tracks or firebreaks. Only pedestrian access is permitted.

Semi-remote motorised: The semi-remote motorised class is generally very natural providing remote recreation opportunities for four-wheel drivers and other approved motorised uses. As a consequence, the remote character of areas in this class is reduced. Management input and control are required to protect the semi-remote nature of the class.

Natural recreation: The natural recreation class is characterised by areas of relative naturalness with evidence of previous activities. Motorised access to this class of area may or may not be permitted. Management control and input are evident. Roads are signposted and maintained and some facilities such as picnic tables, toilets and campgrounds are provided.

Intensive recreation: The intensive recreation and accommodation class includes areas of major development, recreation and accommodation nodes including small townships, camping areas, picnic sites and recreational scenic drives, and motorised access routes and transport corridors.

Urban recreation: The urban recreation class includes areas for regulated recreation activities provided in town areas. Urban open space, playing fields, urban parks and built recreation facilities characterise these areas.

Much of the Great Sandy Region comprises marine and intertidal areas, which provide a wide range of marine-based recreation opportunities. These areas should be classified for appropriate uses including recreation as part of the preparation of marine park zoning plans.

Inevitably any recreational use will affect the nature and quality of the recreation setting in some way. Uncontrolled use can threaten the natural values of a site and the quality of recreation opportunities provided.

To ensure the long-term integrity of the recreation classes, settings and sites, appropriate biophysical, social and managerial conditions and the level of acceptable change resulting from recreational use must be determined. These conditions and limits of acceptable change must be quantified to facilitate continued monitoring and evaluation of the condition of recreation setting attributes.

Desired outcomes

By or before 2010, to have a diversity of high-quality recreation opportunities consistent with protection of the natural and cultural values of the Region.

Proposed guidelines and actions

1 The intent and management guidelines for the recreation opportunity classes shown in Table 3 and on Map 5 will be implemented. Recreation opportunities available within the Region will be based on the special features of the Region and will take into account opportunities not available elsewhere in south-east Queensland.

2 Recreation activities will be planned and managed to minimise environmental damage and conflict between participants in different activities or pursuits. Visitor numbers and behaviour will be managed where natural, social or cultural values of the area are threatened or in order to retain the predetermined range and quality of recreation opportunities.

*3 Accurate information will be provided to potential visitors regarding the recreation opportunities and experiences available in the Region, and research will be undertaken to measure visitor expectations and needs and monitor visitor satisfaction. Recreation management policies will be modified as necessary, as demands for particular recreation activities change, or as additional information is obtained.

4 An inventory of recreation settings within the Great Sandy Region will be conducted to collect base-line data on biophysical, social and managerial attributes of those recreational settings. The inventory will include the use of photographs, video and other site survey techniques.

5 Indicators by which changes in recreation settings can be measured over time will be identified and standards to be maintained will be established to protect environmental quality and to maintain the type and quality of recreation opportunities on offer.

6 A regular program to monitor recreation setting conditions and adjust management to maintain the desired standards will be implemented. Differences between the current standard of recreation settings and the desired standards will be identified and quantified.

7 The road and vehicle track system within the Region will be categorised and carrying capacities will be defined for each destination to establish a basis for management of tourist and recreational use of the Region.

8 Day use areas to Middle Rocks will be formalised by provision of car parking, boardwalks and a viewing platform.

9 The Lake Birrabeen and the Ocean Lake day use areas will be upgraded. (*This has been undertaken.*)

10 Lookouts/viewing platforms will be provided at Lake Allom, overlooking Lake Wabby and at Mt Mullen and Mt Bilewilam. (*Viewing platforms have been built at Lake Allom and Lake Wabby.*)

11 Consideration will be given to the occurrence of disease carrying-pests and their breeding sites (including the salt marsh mosquito *Aedes vigilax*) when locating recreation facilities.

Existing situation

A diversity of recreation opportunities is available within the Region including scenic driving, beach activities, surfing, swimming, bushwalking, hang-gliding, non-motorised and motorised water activities, picnicking and camping. The range is predominantly vehicle-based and there is scope to expand the range of opportunities.

Management and development guidelines for each of the six recreation opportunity classes are being adhered to and recognised in all planning, design and management activities, particularly on Fraser Island.

A review of tourism activities in the Great Sandy Region was completed in 1998. Visitor needs in the Region are evolving: for example, the Region is experiencing an increase in backpacker groups, an increase in vehicle numbers accessing protected and recreation areas and a decrease in the average length of stay.

Management criteria	Class 1 Remote	Class 2 Semi-remote non-motorised	Class 3 Semi-remote motorised
Description	Generally areas of very large size of primitive, remote non-motorised recreation.	Generally a large natural-remote area for non-motorised recreation with evidence of minor previous human activity.	This classification provides natural-remote opportunities for four-wheel drivers.
Access Remoteness from settlement and major access routes, road standards and type of transport used.	At least 2km from settlement and/or motorised access routes. 'Walking routes' and 'unmarked trails' provide the only access.	At least 1km from settlement and/or motorised access routes. No mechanised access is allowed. However, some roads remain open for essential management purposes.	At least 1km from settlement and/or major motorised access routes. Mechanised access is allowed. Management actions aim to protect the semi-remote nature of the area.
Site Modification Extent, type, and design of infrastructure, facilities, amenities and the style of accommodation provided.	No facilities provided.	Minor modification of some sites but only for essential management purposes. Unmarked vehicle tracks, fire-breaks, walking 'trails' and 'routes' may be evident. Toilets may be provided at sensitive or high-use sites. Undeveloped camping sites only.	Minor modification of some sites but only for essential management purposes. Access roads, fire breaks, 'rough tracks' and 'walking trails' are used. Toilets may be provided at sensitive or popular sites. Undeveloped camping sites only. No other facilities are provided.
Social interaction Density of users, degree of social interaction and opportunities for solitude.	Interaction between users is very low with usually less than two parties a day encountered on the route and no other parties within sight or sound at campsites.	Interaction between users is usually low with usually less than four parties within sight or sound at campsites.	Interaction between users is usually low with few parties encountered on roads and trails and no more than two other parties within sight or sound at campsites.
Probable recreation experiences	Isolation from the sights and sounds of humans. Opportunities for independence closeness to nature, tranquillity and self-reliance through the application of outdoor skills in an environment that offers a high degree of risk and challenge.	Isolation from the sights and sounds of human activity, though minimal contact with other visitors will occur. Opportunities for independence, closeness to nature, tranquillity and self-reliance in an environment that offers a high degree of risk and challenge.	Isolation from the sights and sounds of human activity infrequent contact with other visitors will occur. Opportunities for closeness to nature, tranquillity and self-reliance through the application of outdoor skills in a natural environment.
Degree of self-reliance Level of support services provided.	Visitors must be totally self-reliant. No support services provided.	Visitors must be almost totally self-reliant. Very few support services available.	Visitors are generally vehicle dependent. Very few support services available.
Style of visitor management Level of on-site management, site constraints and regulations.	Very little on-site management. Focus on establishing appropriate expectations and standards of behaviour by off-site means. Permit systems may be used.	Minimal on-site management which may include ranger patrols and occasional signs.	Minimal on-site management which may include ranger patrols, directional signs and occasional management signs. Management of roads will be evident.

Table 3. Recreational management units

Note: Additional criteria will need to be used to determine the appropriateness of specific uses or developments within each recreation management class.

While a study of the visitor site capacity for most destinations on Fraser Island and Cooloola has been completed, stakeholder input is necessary. The Fraser Island desired site capacity study was commissioned to provide much needed data on visitor use on the Island and to establish desired site capacities, upon which transport options could be modelled. The study also aimed to establish a simple and repeatable methodology for determining desired site capacities. The capacity study indicates that existing and predicted use levels exceed the capacity of some visitor destinations at peak times only. These include several key locations on Fraser Island.

Visitor impacts relate to water quality, effluent disposal, crowding and noise, as well as erosion of tracks, paths and parking areas by vehicles and humans. These are, in some cases, inconsistent with World Heritage Area values and require actions to reduce or minimise impacts.

The recently completed Cooloola and Fraser Island Values Reviews contain observations based on broad scientific consensus that have a bearing on visitor management issues. These include the need to determine carrying capacities to reduce detrimental visitor impacts, and the need to research visitor needs and monitor visitor satisfaction.

Class 4 Natural	Class 5 Intensive	Class 6 Urban
Includes areas of relative naturalness, with evidence of previous activities. Motorised access may or may not be provided.	Includes major developments, recreation and accommodation nodes including townships, camping and picnic areas, scenic drives and major access routes.	Includes regulated recreation activities provided in town areas, such as open space playing fields, local parks and built recreation facilities.
Up to 1km away from major access routes where provided. Roads are maintained for heavy recreational use and are well signposted.	Includes accommodation nodes, recreation nodes and corridors, scenic drives and access routes. Two-wheel-drive access may be provided in appropriate locations.	Includes major urban settlements. Two-wheel-drive access usually provided.
Predominantly natural or natural appearing environment. Some modifications may be evident at specific sites. Four-wheel-drive tracks and 'graded walking tracks' allowed. Minor facilities to service recreational use and protect the environment. Camping areas, picnic areas, toilets, signs are acceptable.	Substantially modified natural environment and/or areas of intensive recreation use. Resources are managed to enhance specific recreation activities and protect the environment. Resort and accommodation facilities, Information centres, picnic areas, camping areas, lookouts, signs, toilets, 'graded tracks' and 'pathways' are acceptable.	Substantially urbanised environment although background may have natural appearing elements.
Frequency of contact and social interaction is moderate on roads and camping areas and low on walking trails and away from roads.	Large numbers of users on-site and in nearby areas with continuous human occupation and interaction.	Very large number of users onsite and in nearby areas. Extensive and continuous human occupation and interaction.
Opportunities include closeness to nature and tranquillity. There is an opportunity to enjoy a high degree of interaction with the natural environment.	Opportunities for social interaction with other users of the site. Group or family activities are an important part of the recreation experience. Recreation experience in natural setting is important but in the security of a safe and managed setting.	Opportunities for constant interaction with other users. This interaction forms part of the overall recreation experience. Opportunities for competitive and spectator sports and for passive uses of open spaces and urban parks are common.
Support services and facilities are provided. There may be a perception of self-reliance novice users.	A low degree of self-reliance is required. A high level of support services and facilities is provided.	A very high level of support services and facilities is provided. A very low degree of self-reliance is required.
Moderate level of on-site control. Interpretive, managerial and directional signs on-site ranger presence may be evident. Emphasis is placed on establishing appropriate visitor expectations and behaviour.	Very high degree of on-site control including use of physical barriers. Vehicle and pedestrian movement is regimented. Booking may be necessary for accommodation or activities. Length of visit may be restricted.	Almost total on-site control. Vehicle and pedestrian movement highly regimented. Booking systems most likely to operate for accommodation and facilities. Restrictions on length of visit may apply.

Table 3. Recreational management units (continued)

3.02 Visitor safety and risk management

See also: 2.10 Search and rescue
2.12 Health and medical

Background information

For some people, risk and challenge are integral parts of their chosen activity. The risk of such calculated danger is not accepted as a reason for management to interfere in the visitor's pursuit of that activity. For other people, commonplace activities become dangerous through their lack of experience or preparation for the activity. Visitor safety is a very important management consideration.

The common law duty of care requires management to address the safety of people entering and using the land, water and facilities within the Great Sandy Region. Visitor safety is given a very high priority in all park management activities and facilities. Management must consider what measures can and should reasonably be taken in different circumstances to try to prevent harm occurring.

A Workplace Health and Safety Management Plan developed by the EPA establishes a framework to integrate Workplace Health and Safety into workplace practices and the EPA's strategic planning process. The plan outlines staff and agency responsibilities and

establishes a structural framework, which covers all employees and workplaces. The plan is also supported by standard Risk Management Procedures (to identify and assess risks and decide and implement controls) and an Incident Reporting and Investigation Procedure.

Measures to reduce risks to visitors include public education, signage, some fencing, a high standard of safety in all built facilities, and lack of access to more potentially dangerous sites. It is impossible to sign or fence every potential risk in the Region, and this would greatly detract from the natural beauty. An important consideration in considering appropriate safety measures is the recreational 'setting' or zone. In the more remote zones, visitors are expected to have a high degree of responsibility for their own safety and to be prepared for isolation and lack of signage, facilities and assistance; while in the recreation zones, visitors are more likely to find safety signage and structures to protect them from some risks.

A proportion of visitors remains very resistant to safety messages and enjoy taking risks, especially involving driving and water.

Desired outcomes

By or before 2010, to have minimised risk to visitors and public liability. As far as practicable, damage, deaths or injuries associated with recreation activities will be limited to those caused by wilful misbehaviour or unforeseeable accidents.

Proposed guidelines and actions

1 A comprehensive visitor safety and risk management plan will be prepared for the entire Great Sandy Region in co-operation with all agencies with management responsibilities within the Region.

2 As far as practical, previous incidents involving injury to visitors together with the first-aid facilities and emergency response plans in use will be reviewed and assessed. A central standardised register of incidents involving injury to visitors occurring anywhere in the Region will be developed and updated regularly. Information on 'near misses' will also be included on the register.

3 Facilities provided for visitors will be designed so that they are structurally safe for their designated purpose.

4 Areas where injuries occur will be assessed in relation to safety aspects. Measures recommended to rectify safety problems must be undertaken as soon as possible. Where such measures cannot be carried out in a short time period, consideration will be given to closure of the area or facility until remedial action can be taken.

5 Training will be provided to enable staff to identify features requiring the adoption of safety measures and to adopt appropriate methods to reduce, control or remove threats to visitor safety. Visitor safety awareness programs will be developed as part of day-to-day field staff activities.

6 Access to natural features will not be obstructed by items such as safety fencing, except in heavily used areas or where visitors are likely to be exposed to serious risks that they cannot reasonably anticipate and avoid.

7 All park visitor infrastructure will be maintained to QPWS maintenance standards and, where not already established, a schedule will be prepared for maintenance and repair of all publicly managed structures and facilities.

8 Unusual natural features, which call for the warning or protection of visitors, will be identified and appropriate responses initiated. These include signposting, barriers, location or relocation of features such as tracks and lookouts, visitor registration forms incorporating information relating to visitor safety, closure of park areas in extreme circumstances and prohibition of some activities.

*9 The Fraser Island Dingo Management Plan will be implemented and all necessary measures undertaken to minimise negative interactions while promoting dingo conservation.

*10 Community engagement programs and materials will continue to promote safety messages to all user groups using a variety of effective messages.

Existing situation

Standard risk assessments of potentially dangerous areas have been completed and appropriate measures put in place to minimise risk. Workplace Health and Safety procedures have also been instigated in the Great Sandy Region to assess risks and report and register visitor injuries. All new visitor facility designs meet Australian Standards and all accidents and near-miss incidents on protected areas are now reported and recorded on a central register.

Visitor safety awareness programs have been developed, covering many aspects including interaction with dingoes and safe beach driving. Safety signage has been installed in many locations and a range of other media has been used to communicate with visitors and tour operators. Special measures have been taken to communicate with young travellers to ensure they are aware of potential risks and especially of safe driving techniques on Fraser Island.

A number of dingo attacks occurred on Fraser Island during the 1990s and the death of a child on Fraser Island in April 2001 dramatically redefined the risk that dingoes pose to people in the Region, particularly on Fraser Island. Strategies to manage dingoes on Fraser Island are being implemented, including research and monitoring, public awareness programs and measures to minimise interaction between humans and dingoes. Four QPWS managed campsites have been fenced: Lake Boomanjin, Waddy Point, Central Station and Dundubara.

Other serious accidents have included vehicle accidents and water-related accidents. A thorough coverage of these risks has been included in public safety campaigns, videos, brochures, displays and other media aimed at key target audiences.

3.03 Opportunities for people with a disability

See also: 3.07 Community engagement
3.10 Tourism

Background information

Equity of access to recreation opportunities and the natural values of the Region is required in accordance with the Queensland Government's social equity policies. Designs for recreational facilities on protected areas cater for access for people with a disability. However, provision of access for people with limited mobility to all sites in the Region may not be possible or appropriate.

Desired outcomes

By or before 2010, to have opportunities for people with a disability to have access to a representative range of the opportunities available within the Region.

Proposed guidelines and actions

1 QPWS will liaise with relevant agencies to determine reasonable requirements for disabled access to the Great Sandy Region. Guidelines will be established to provide for a range of opportunities, settings and experiences for people with limited abilities.

2 Where appropriate, access to recreational sites in the Region will be modified or upgraded to accommodate the special requirements of people with a disability and, where possible and appropriate, new recreation developments will be designed to provide access for people with a disability.

3 Visitor information will be updated to include details of availability of access to the Great Sandy Region for people with a disability and tour operators within the Region will be encouraged to cater for the requirements of these people.

Existing situation

Recreation opportunities and access for visitors with disabilities, in particular mobility, are provided at a number of destinations within the Region. These include Central Station, Lake Cootharaba, Fig Tree Point, Freshwater Lake, Rainbow Beach and various sites along the Region's western boundary between Tin Can Bay and Bundaberg. Additional developments and upgraded facilities in protected areas include boardwalks at Middle Rocks and Seary's Creek and improved access to the information centre and other visitor facilities at Mon Repos.

Freshwater Campground provides adequate access to some camping sites for people with limited mobility. Fraser Island resorts, in particular Kingfisher Bay Resort and Village, and some local community areas also provide access and recreation opportunities for people with limited mobility.

Isolation, the general nature of protected areas and the poor standard of many of the roads to recreational destinations pose major challenges to providing access to people with disabilities. Given the sand environment, a number of sites and facilities can only allow for access with considerable modification. There is presently no provision for disabled access to the beach from camping areas on Noosa North Shore or from Teewah.

Tourism Queensland has produced a travel information guide specifically for tourists with disabilities.

3.04 Permit arrangements

See also: 3.05 Charges for access and use
3.06 Recreation research and monitoring
3.10 Tourism

Background information

Several permit systems operate within the Great Sandy Region. The objective of most systems is to manage user activities so that the natural and cultural values of the Region are protected to the greatest possible extent. Permits provide a method of collecting important data on visitor characteristics and facilitate collection of funds to assist with the provision of recreational opportunities and services, and protection of natural and cultural values.

Vehicles entering Fraser Island require a vehicle service permit (with the exception of

landholders' vehicles and other specially exempt vehicles) and must be registered under the *Transport Infrastructure (Roads) Act 99* .

Vehicle and camping permits for Fraser Island and Inskip Peninsula are issued under the *Recreation Areas Management Act 988*. Visitors are required to obtain permits in advance of their visits, though permits may be purchased on Fraser Island at a higher price. Camping permits on other protected areas in the Region are issued under the *Nature Conservation Act 992.*

Commercial activity permits are issued for commercial tours operating on Fraser Island under the *Recreation Areas Management Act 988* and in Cooloola under the *Nature Conservation Act 992*.

A permit is required under the *Marine Parks Act 982* for commercial whale watching activities in Hervey Bay.

Desired outcomes

By or before 2010, to have a system in place that provides a mechanism for visitor management to control visitor numbers, to collect money in a cost-effective, simple and convenient manner, and to collect visitor use data.

Proposed guidelines and actions

1 All existing permit systems for the Great Sandy Region will be reviewed. The investigation will identify the various shortcomings or benefits of existing systems and means by which permittees may be provided with greater security. Alternative permit systems will be evaluated in order to develop a system that achieves the desired outcome and is consistent with statewide QPWS permit systems.

2 Information about permit requirements will be included in visitor information.

3 The issue of vehicle permits by private sector agents such as barge, ferry and resort operators will be investigated.

Existing situation

The issue of permits through Smart Service Queensland has been introduced to the Region. This is a whole-of-government system online, by phone, or by visiting selected customer service counters, which enables the community to access government services including vehicle licensing systems and permits for protected areas,. The need for permits, and arrangements for obtaining these, is widely promoted in brochures, signs, displays and through media.

A permit system is currently in place for the two existing marine parks at Woongarra and Hervey Bay for activities such as whale watching.

Noosa Council's Noosa North Shore Management Strategy proposes an investigation into a beach permit system for Teewah beach whereby funds collected from such permits would be applied to improvements in the Noosa North Shore locality.

QPWS has agreements with operators under the *Recreation Areas Management Act 988* which allow them to land barges at Hook Point and Moon Point. Operators are required to carry only those vehicles issued with QPWS permits.

Permit systems for the Great Sandy Region have been reviewed. Through the Tourism in Protected Areas (TIPA) initiative, QPWS will continue to work with commercial operators to achieve sustainable tourism within the Region and to develop best practice guidelines for activities.

3.05 Charges for access and use

See also: 3.04 Permit arrangements

Background information

Fees are collected for camping and vehicle permits and for commercial activity permits and agreements in the Region. Money collected is used to manage the RecreationArea, to provide facilities for visitors, and to help protect the Island's natural and cultural features.

At Mon Repos Conservation Park, a fee is charged for visitors to enter the park and participate in guided tours during turtle breeding season.

Desired outcomes

By or before 2010, to have permit fees which reflect the cost of providing recreation opportunities available to visitors to the Region and which should not adversely affect access by any particular social group.

Proposed guidelines and actions

1 A simplified charge system that reflects the opportunities provided in the Region but allows equitable community access to the Region will be investigated.

2 Charges collected within the Great Sandy Region will be applied to management of the Region.

Existing situation

Visitor fees from Fraser Island vehicle and camping permits are returned to the area to

manage recreation on the Island and improve and service facilities for visitors. Fees from Mon Repos are also returned to the Mon Repos area and the remaining revenue contributes to the cost of management in the Region. Fees from commercial whale watching activities are used to conduct the whale management and monitoring program. Most revenue from Cooloola is returned to management and operations in the area.

Camping and vehicle permit fees are increased in line with the consumer price index.

3.06 Recreation research and monitoring

See also: 1.16 Research monitoring and scientific sites

Background information

Effectively managing recreation and providing quality opportunities requires an understanding and appreciation of the characteristics, behaviour and preferences of the various groups using the Great Sandy Region. Changes in visitor use may be attributable to specific events but without frequent and regular data it is difficult to associate cause and effect of such changes.

Recreation-oriented research includes the undertaking of visitor surveys and the collection of visitor use data, as well as research and monitoring of the environmental and social impacts of particular recreation activities and facilities. This information is essential in order to protect the natural and cultural values of the Region and to maintain or improve the quality of the recreational opportunities provided.

Visitor information is vital in formulating recreation strategies that will cater for current and future recreation demands. Research and monitoring may seek a range of information depending on particular management requirements. Such information may include visitor profile data, market segmentation, information requirements, recreation needs and expectations, attitudes and visitors' appraisal of their stays. The information sought may be of a general nature, specific to a particular locality or development, or confined to participants in a particular recreation activity.

Desired outcomes

By or before 2010, to have strategies in place that provide information on visitor characteristics, behaviour and preferences to assist management in the provision of high-quality recreation opportunities.

Proposed guidelines and actions

1 Available information relating to the recreational use of the Region will be collated and information requirements relating to visitor use of the Region for improved park management will be identified. Areas where information is needed will be systematically researched.

2 A standardised system for collecting and processing information about levels and patterns of visitor use and public perceptions and preference will be developed and implemented. This undertaking will require regular and consistent research and surveys to keep abreast of changing human use and visitor expectations in the Region.

3 Field staff in the Great Sandy Region will be involved as much as possible in implementing a research and monitoring program. This involvement is seen to be more efficient, provides an avenue to increase skills training of park managers and increases sensitivity to and understanding of visitors.

4 User groups will be encouraged to participate in approved research and monitoring programs relating to recreational use of the Region. Academic institutions will be encouraged to undertake recreation-related research and monitoring projects in the Region. Opportunities for visitors to provide input into management of the Region such as post-visit evaluation will be provided.

5 Monitoring programs to assess the impact of recreational activities on the Region's natural environment will be implemented and limits of acceptable change criteria will be determined for all recreation opportunity classes, settings and sites within the Region.

6 As opportunity and funding permit, research will be conducted to determine the environmental and social effects of visitor use. Uses to be investigated include:

- informal beach camping;
- recreational use of lakes and foreshores; and
- beach driving.

Existing situation

A number of visitor surveys conducted in the Region have measured visitor needs and expectations. However, there remains a need for more research into visitor expectations and basic needs. There is also a need to monitor visitor satisfaction and to address issues relating to visitor experiences and management.

A statewide standard for monitoring visitor characteristics has been developed in conjunction with other agencies and the University of Queensland. Information from Tourism Queensland's Regional Tourism Activity Monitor (R-TAM), and working partnerships with research institutions, assist in understanding visitor characteristics.

As part of a number of research studies, tourism and recreational impacts are continually assessed at key sites. Research on visitor information requirements, motivation and preferences for beach camping has been undertaken for planning and interpretive services. Visitor attitudinal studies have also been conducted as part of the Fraser Island Sustainable Transport Management Study. Specific topic visitor surveys have included feedback from visitors on whale watching vessels, surveys of people visiting Mon Repos Conservation Park, and evaluations of the effectiveness of the dingo education program.

Information from research and surveys provides valuable input into the development of effective information and interpretation strategies to improve recreation management in the Region.

3.07 Community engagement (public contact)

See also: 1.02 Fraser Island World Heritage Property
3.06 Recreation research and monitoring
3.08 Signs
3.10 Tourism

Background information

Community engagement is about providing information, education, interpretation, promotion and publicity with the aim of increasing awareness, encouraging appropriate behaviour and enhancing the quality of visitor experiences. Interpretation facilities, materials and programs are provided primarily to enrich the experience of visitors. Interpretation services also help to shape the public image of an area and support the protection and conservation of the Region by influencing visitor behaviour and engendering public support for management objectives.

The Fraser Island Public Contact Plan was accepted in principle and a strategy was developed for implementing appropriate sections. A community engagement plan for the Cooloola Section of Great Sandy National Park is being developed.

Visitor information, particularly before or during a visit, is important to:

- assist people to choose where, when and how to visit the Great Sandy Region;
- establish appropriate visitor expectations;
- identify recreational and educational opportunities available in the Region;
- identify relevant regulations that affect visitor activities; and
- encourage appropriate behaviour.

Objectives of the QPWS community engagement program are:

- to promote a conservation ethic in the Queensland community, which will be reflected in community support for and commitment to national park and wildlife management, heritage protection and nature conservation through planned education and information services; and
- to enrich the national park experience for park visitors by providing information and education services and facilities.

In 1989, the Fraser Island Recreation Management Board commissioned consultants to prepare the Fraser Island Public Contact Plan, which identified objectives for a public contact program on Fraser Island. The objectives were:

- to enhance public understanding and interest in the physical, biological, historical and cultural processes which have shaped the environment of Fraser Island;
- to promote public awareness, understanding and confidence in island management objectives and programs; and
- to enhance the capacity for Island visitors to participate in a high quality recreational experience.

Desired outcomes

By or before 2010, to have:

- an appreciation within the wider community of the World Heritage and other values of the Region such as recreational, cultural, educational, scientific and economic values;
- public understanding and appreciation of the physical, biological, historical and cultural processes that have shaped and continue to shape the Great Sandy Region;
- public awareness, understanding and support for the actions of management and the benefits of conservation in general, reflected in environmentally responsible visitor behaviour;
- assistance provided to visitors to obtain the greatest possible benefit, satisfaction and enjoyment from their visit while gaining an understanding and appreciation of the Region's values; and

- public awareness and understanding of the safety risks associated with living and visiting natural areas in the Region, and all visitors adopting responsible behaviour.

Proposed guidelines and actions

1 An interpretation program will be developed to focus on the outstanding universal values cited for the area's inscription on the World Heritage List.

2 Community engagement programs will include Indigenous cultural content. The K'Gari (Thoorgine) Aboriginal Cultural and Education Centre and the Wondunna Aboriginal Corporation will promote awareness of Indigenous culture.

3 Interpretation/community engagement options will be investigated for:

- Rainbow Beach (central gateway to the Region);
- Carlo Sandblow;
- Hervey Bay (northern gateway to the Region);
- Double Island Point and Sandy Cape Lighthouses;
- Mon Repos;
- 'Z Force' training site;
- Mill Point sawmill complex;
- Great Sandy Strait; and
- the Indian Head, Middle Rocks and Waddy Point area.

*4 The internet will be promoted as a major source of information for visitors, and as the primary source of pre-visit information.

5 Promotional print material will be prepared, which identifies the recreation opportunities within the Region, with emphasis on appropriate visitor responsibilities and behaviour.

6 A full range of pre-visit and on-site information will continue to be provided. Other forms of interpretive material and visitor information and orientation will be provided for all main access points to the Great Sandy Region. These facilities will seek to develop a sense of arrival for the visitor.

7 Regular evaluation of programs, assessment of visitor information requirements and review of management messages will be undertaken to ensure that community engagement objectives are achieved.

8 Interpretation training for commercial tour operators will continue and minimum training accreditation requirements for commercial tour operators within the Region will be established.

9 QPWS staff in the Region will be trained in effective communication techniques.

*10 Visitor safety awareness programs will be incorporated into community engagement efforts in the Region. Programs will include pre-visit information, printed material, signage, and staff guided activities. Safety in relation to dingoes will remain a key theme, while safe camping, driving and behaviour around water will also be emphasised. Minimal impact visits will also be promoted.

11 Interpretation of the Woody Island site is to be consistent with a conservation plan for the site. Where possible the proposed interpretation program will focus on the heritage values of the lighthouses and associated structures.

Existing situation

High quality community engagement facilities and visitor information centres have been developed at Tewantin and Central Station (un-staffed, walk-in display area). Rainbow Beach, Kinaba and Eurong also remain major centres for public contact, with Rainbow Beach now offering after-hours information displays. Minor information and interpretive centres are located at Central Station, Dundubara and Waddy Point. The Mon Repos visitor centre is a major centre for interpretation of marine turtle ecology. Staff assisted by trained volunteers guide visitors and deliver information.

Interpretive display shelters and signs have been installed at numerous destinations throughout the Region including Wanggoolba Creek, Eli Creek, Red Canyon and Ocean Lake on Fraser Island and at Bymien and Seary's Creek within Cooloola. These signs focus on natural and Indigenous history. Displays are also located at many of the entry and access points to the Region including key vessel launching areas.

The internet is now used as a major source of information for visitors before they reach their destinations. Critical pre-visit and important on-site information is made available to all free and independent visitors to Fraser Island before arrival. Commercial operators and accommodation centres, including backpacker hostels on the mainland, assist in distributing QPWS materials to customers. Recreation opportunities are identified and appropriate visitor behaviour is stressed.

Critical information is reviewed regularly and updated as required. Information brochures are available for Cooloola, Fraser Island and Mon Repos, and a mangrove self-guiding trail has been developed adjacent the Kinaba

Information Centre. Several detailed publications are also available for sale.

Commercial guided tours account for a large proportion of all face-to-face contact with the visiting public. Training courses have been conducted for tour operators on Fraser Island, in the Hervey Bay Marine Park and in the Cooloola Section of Great Sandy National Park. Through the Tourism in Protected Areas (TIPA) initiative, QPWS will continue to work with commercial operators to achieve sustainable tourism within the Region by improving public awareness.

High quality community engagement programs have been implemented by QPWS throughout the Region with many focusing on World Heritage Area values. Interpretive programs aim to raise public awareness and understanding and give an appreciation of the Region's natural and cultural values and the management issues. Safety issues are also highlighted. A major public education campaign in relation to dingo-safe behaviour has been implemented and evaluated, and was rated as among the best of its kind in the world.

A range of target audiences is reached, including local residents and different categories of visitors. Communication methods include internet, face-to-face activities, media profiles, videos, brochures, displays and signs. Tour operators have also made important contributions to interpretation. Rangers are increasingly accessible to visitors with patrols, talks, walks, audio-visual shows and family activities, particularly during peak visitor periods.

The next phase in the community engagement plan is to further develop programs and guidelines for commercial tour operators in conjunction with the industry and customer needs.

3.08 Signs

See also: 2.02 Residential development
3.07 Community engagement

Background information

Signs play an important role in the management of natural areas such as the Great Sandy Region. This communication tool provides an important link between the management authority and the visiting public. Signs can be used to orientate visitors (directional), inform them about their surroundings (interpretive), or influence their behaviour (managerial).

Signs may function individually or form part of an overall communication system, which includes the use of other signs, brochures, maps, guides, and personal contact with staff. The improper, inconsistent or excessive use of signs may weaken their value as a means of communication and adversely affect the scenic amenity of the area and the quality of visitor experiences. Uniform sign design including appearance, construction and placement contributes to a recognisable identity for the management authority.

Many styles of signs are used in the Great Sandy Region including those provided by QPWS, DPI (Forestry), local authorities, Queensland Transport, commercial businesses, private individuals and community organisations.

Desired outcomes

By or before 2010, to have the use of signs in the Great Sandy Region characterised by:

- a system of indoor and outdoor signs for managerial, interpretive and directional purposes, which clearly and effectively communicates messages to visitors travelling to and within the Great Sandy Region; and
- sign design, including appearance, construction and placement, appropriate for the environment in which signs are located.

Proposed guidelines and actions

1 All signs on public lands within the Great Sandy Region will be designed, constructed, sited and maintained in accordance with the QPWS sign manual.

2 A comprehensive system of roadside signs that direct visitors to and within the Great Sandy Region will be developed.

3 The use of signs will be restricted to those situations where other means of communicating messages such as brochures, maps and guides are either impractical or less effective than signs. However, directional signs will be placed at all vehicle track intersections. The use of signs in remote areas will be minimised.

4 Signs with historical value will be assessed as to their functional role and cultural significance in the context of their current setting. Some will remain while others will be used in interpretive displays.

5 Dependent on the category of road, QPWS will consult with either Queensland Transport or a local authority regarding the provision of distance and direction signs.

6 The possible use of alternative materials such as recycled plastic for sign construction will be investigated.

Existing situation

Signs on protected areas in the Region are in accordance with the QPWS sign manual. This manual provides directions and guidance on standards of design, content, presentation, materials, construction techniques and maintenance for signs. The manual also aims to ensure effective use of signs and to maintain uniform sign standards on land and waters statewide.

Management and directional sign plans exist for Cooloola and some areas on Fraser Island. High quality interpretive signs have been installed at important visitor sites throughout the Region. Signs are upgraded and replaced as required by maintenance programs, through risk and liability assessment reviews or as resources become available.

3.09 Recreational driving

See also: 2.04 Roads
2.05 Vehicular use of beaches
2.06 Barge and ferry facilities
3.01 Recreation, tourism and visitor use
3.07 Community engagement
3.08 Signs
3.14 Walking
3.15 Picnicking

Background information

Driving for pleasure and sightseeing using public roads within the Great Sandy Region is an important recreational pursuit for many visitors and local residents. This form of recreation is often combined with activities such as short walks and picnicking and requires a number of facilities including roadside directional and interpretive signs, roadside viewing bays, short walks, picnic and barbecue facilities, toilets and lookouts.

Recreational driving opportunities and uses can be broadly classified by type of vehicle – conventional two-wheel-drive, four (or more)-wheel-drive, motorcycles and other off-road vehicles including trikes.

The Great Sandy Region is a major attraction for four-wheel-drive enthusiasts. For some people, four-wheel-driving is an activity in itself. For others, it is a means by which to access otherwise remote locations to undertake other recreation activities such as fishing, camping, sightseeing, photography and bushwalking. Four-wheel-drive vehicles also provide access to remote areas for people who are not able to walk into or otherwise reach these areas.

Vehicles in the Region must be registered and drivers must be licensed. Recreational driving activities in the Region are also required to comply with traffic signs and requirements under traffic, recreation area management and nature conservation regulations

Potential impacts of recreational driving and associated roads include modification of natural drainage patterns, intrusion on visual amenity, the spread of weeds and disease, erosion and conflict with other users of the area.

A significant part of the existing network of roads and tracks within the Region was developed for forestry, sandmining and oil exploration activities. As recreational use of the Region has increased, use of these roads has changed to cater for tourist needs.

There is potential demand to stage competitive car rallies and other motorised competitive activities within the Region. The impact of competitive motor sports on the physical environment and on the experience and enjoyment of other visitors to the Region is potentially significant.

Some people visit the Great Sandy Region as part of a social or non-competitive car rally. These rallies usually involve driving over a pre-planned route past selected checkpoints, generally within a specified period of time. Provided road traffic regulations are adhered to and the roads are open to public use by vehicles, social non-competitive vehicle rallies are a legitimate use of public roads and there is limited need to control or regulate the activity.

Desired outcomes

By or before 2010, to have opportunities for recreational driving and sightseeing that provide access to a wide variety of the values and environments of the Great Sandy Region without diminishing those values or the quality of other visitors' experiences.

Proposed guidelines and actions

*1 Fundraising motor vehicle activities may be allowed subject to a permit and regulatory requirements. Groups wishing to conduct social, non-competitive rallies will be encouraged to contact QPWS staff within the Region to determine safe and appropriate routes and appropriate management guidelines which may be required to minimise impacts on other users and the environment.

2 The Rainbow Beach road will be identified, promoted and managed as a scenic drive providing access to the Cooloola Section of the Great Sandy National Park.

3 Potential sites for short walks, picnic areas, viewing bays and other appropriate developments along the Rainbow Beach road will be identified and assessed.

4 Only vehicles registered under the *Transport Operations (Road Use Management) Act 995* may be used within the Great Sandy Region.

5 Two-wheel-drive vehicles will not be permitted on Fraser Island, while on Cooloola, two-wheel-drive use will be permitted only on those roads marked as two-wheel-drive access roads on Map 6. All-terrain vehicles will not be permitted in the Region, unless required for specific management purposes and registered for such by the Department of Transport.

6 Research will be conducted into the impacts of vehicle activity within the Region, and will identify possible methods for mitigating impacts.

7 Responsible four-wheel-driving will continue to be recognised as a legitimate recreational activity within the Region and a minimal impact code for four-wheel-driving will be developed and promoted with particular emphasis on sand driving within the Region.

8 Roads, tracks and beaches within the Region will be classified according to pre-determined standards reflecting driving conditions and maintenance requirements. A maximum speed limit of 80km/h on beaches will apply to vehicles used within the Region. Appropriate speed limits will be investigated in future and drivers will be encouraged to reduce speed in response to prevailing driving conditions and the safety of other users.

*9 Use of motorcycles will not be encouraged. Motorcycles and other registered off-road vehicles will be restricted to formed roads or tracks and beaches open to vehicle traffic.

Except in very special circumstances and after consultation between QPWS and the Police, quads and trikes will not be permitted for use in either protected areas or the recreation area due to the conditions and requirements of conditional registration.

10 Driver training and education programs to promote appropriate sand driving will be encouraged and appropriate self-guided drives will be developed and promoted within the Region.

11 Vehicle access points across foredunes will be constructed and maintained where necessary.

12 All government officers, emergency service personnel and tour operators engaged in activities in the Region involving the operation of four-wheel-drive vehicles will be trained in four-wheel-drive vehicle operation and responsible environmental behaviour.

Existing situation

Recreational driving (both two-wheel-drive and four-wheel-drive) continues to be recognised as a legitimate recreational activity. There has been an increase in the numbers of independent visitors in private and hire four-wheel-drive vehicles to Fraser Island and Cooloola. Many of these people are unfamiliar with the driving skills required and have limited awareness of the hazards and driving conditions that prevail in the Region. Although backpacker visitors are provided with pre-visit education video produced by QPWS on 4WD driving within the Region, some visitors suffer serious accidents.

Four designated tourist routes, including the Rainbow Beach road, are maintained and signposted. These are identified in visitor information material.

Two-wheel-drive vehicles cannot be used on Fraser Island, but have access to a broad range of locations within and adjacent to the Region. Accessible areas include the southern bank of the Noosa River at Noosa Heads, Noosaville, Tewantin, Boreen Point, Elanda, Harry's Hut camping area and areas on the Noosa North Shore. Access is also available for two-wheel-drive visitors to Rainbow Beach, Inskip Peninsula, Seary's Creek, Bymien picnic area (off Rainbow Beach Road) and numerous areas adjacent to the intertidal and marine areas along the Region's mainland boundary from Tin Can Bay to Bundaberg.

Four-wheel-driving opportunities are available on most roads and beaches within the Region. Appropriate and minimal impact sand driving techniques are promoted and a road classification system currently being developed includes road and track standards. On Fraser Island, vehicle activities and impacts on road surfaces and elements of the environment are monitored.

Research into impacts of vehicle activity has been undertaken by the Queensland University of Technology and as part of the development of the Fraser Island Sustainable Transport Management Strategy.

3.10 Tourism

See also: 1.08 Cultural resources (Indigenous and non-Indigenous)
3.02 Visitor safety and risk management
3.03 Disabled access
3.04 Permit arrangements
3.05 Charges for access and use
3.07 Community engagement
3.16 Whale watching
3.17 Turtle watching
3.23 Horse and camel riding

Background information

The Great Sandy Region is an important tourism destination with a significant role in the Queensland tourism industry. The Region provides natural settings for tourism, which are outstanding on a world scale. In terms of economic development, tourism has the potential to be the most significant industry in the Region.

From the time of first European settlement, the residents of Maryborough and the surrounding area have been visiting Fraser Island. The 1930s saw the first commercial tours operating on the Island as well as between Noosa and the coloured sands on Teewah Beach in Cooloola. The current era of tourist and recreational use began in the late 1950s and has grown since. Between the end of the 1960s and the mid-1970s, the annual number of visitors to Fraser Island increased from 5000 to 20,000.

Use of the Great Sandy Region for commercial tourism must be integrated into the area's long-term protection both for the good of the natural environment and for the long-term viability of the tourism industry. Protected area tourism management policies have been developed through the Tourism in Protected Areas (TIPA) initiative. These policies provide the basis for a partnership between QPWS and commercial tourism operators who use the protected area estate. It is in the mutual interest of nature conservation and tourism that client service and satisfaction be second only to the protection of that which tourists have come to visit and enjoy.

The TIPA initiative and its recommendations are likely to influence tourism management, including permit arrangements on Fraser Island and the Region generally. The aim of this initiative is to develop a more efficient, effective and equitable system of sustainable tourism management in protected areas.

Tour operators provide opportunities for people who are otherwise unable to see the area to visit, appreciate and learn about the values of the Region. Well-trained, properly informed tour operators have the potential to promote a conservation ethic and provide high-quality visitor experiences.

The Region is promoted regionally, nationally and internationally through Tourism Queensland, a statutory authority of the Queensland Government, and local tourism boards. Nature-based and cultural tourism opportunities are promoted and marketed by Tourism Queensland, whose responsibilities include tourism planning and destination marketing and development.

The existing tourism industry within and adjacent to the Great Sandy Region consists of three main elements: tours, accommodation and support services.

On Fraser Island there are four main types of commercial tours: day tours, accommodated tours, safari tours and special group tours. Tours of Cooloola include primarily day tours and a small proportion of safari and special group tours, while whale watching tours are a major activity in Hervey Bay.

Many overnight visitors in the Region are campers, but a significant number seek other accommodation, which tends to be low-key reflecting the type of tourism experience sought. Types of accommodation include resorts, holiday flats, cottages, private houses, units, private and government campgrounds, caravan parks, informal beach or bush camping and houseboats.

Service facilities provide the goods and services demanded by visitors and, in the case of the Great Sandy Region, include shops and the hire of four-wheel-drive vehicles. Mainland areas adjacent to the Region are major providers of visitor support services and facilities.

The 2004 Australian Government's 'Tourism White Paper – Tourism and Conservation Initiatives' intends to facilitate the development of nature-based tourism attractions, while increasing capacity to protect and conserve the environment. This paper identified accreditation as a mechanism for improving the quality of the tourism product. Tour operator accreditation systems have been investigated, with further work likely to occur now the Ecotourism Australia, Eco Guide Certification Program is in place. Tourism Queensland supports the Eco Certification Program and has launched the Queensland Ecotourism Plan 2003–2008, which has actions that relate to Fraser Island.

'Steps to Sustainable Tourism' is a publication developed by the Australian Government with the assistance of the tourism industry, academics and heritage managers. This

document aims to assist in developing tourism strategies and is designed to take readers through a series of steps to help them better understand and identify ways of working together to achieve a range of sustainable benefits for tourism, communities, the environment and heritage.

Desired outcomes

By or before 2010, for tourists to have access to the Region's natural and cultural heritage for appreciation and enjoyment consistent with the sustainable use, protection and presentation of the Region's heritage.

Proposed guidelines and actions

*1 Representatives from the tourism industry will be involved during the planning stages for new visitor facilities.

2 An assessment of tourism demand focused on the Great Sandy Region will be undertaken with the Regional Tourism Organisation and a program for provision of adequate visitor facilities will be developed. This will include an analysis of historic and future visitor markets.

3 Tourism activities must be conducted in co-operation with relevant management agencies and in a manner consistent with the management principles for protected areas and the sustainability of the natural and cultural assets on which tourism is based.

4 Information will be made available to local, national and international tourists about the availability of tourism opportunities within the Region, the availability of facilities, services and permit requirements.

5 Marketing and promotion of nature-based and cultural tourism opportunities in the Region will be encouraged to broaden the market appeal of the Region's tourism product and to spread the benefits of tourism more evenly through the Region and adjoining areas.

6 Tourism Queensland and QPWS will work with the tourism industry, conservation groups, Indigenous groups and the general community to produce guidelines for the development of nature/culture tourism operations, a code of practice for tourism operators in the Great Sandy Region and a survey of the industry's training needs and how best to meet them.

7 QPWS and Tourism Queensland will work with industry to produce interpretive training courses and interpretation manuals for tour operators to ensure that tour guides and tour operators are well informed and provide visitors with an accurate, informative and enjoyable experience. Consideration will be given to the involvement of local Technical and Further Education (TAFE) colleges in conducting training courses for tour operators and guides.

8 A system of accreditation for tour operators will be investigated and industry accredited programs will be recognised and rewarded in any new tourism management system for protected areas.

9 An accreditation or recognition scheme will be developed for use by commercial tour operators on approved promotional material where the operator's guides have undertaken a tour operator's course and the operation meets QPWS agreed standards.

10 Development of cultural tourism opportunities will be encouraged. Opportunities to cater for the backpacker market within the Region will be developed.

11 The existing Fraser Island and Cooloola commercial activity permit arrangements will be thoroughly reviewed. New arrangements will be consistent with statewide policy.

12 As a basis for assessing existing and proposed commercial tour operations, nature-based and cultural destinations within the Great Sandy Region will be characterised according to the intent of their recreation zoning, site characteristics, and the type and extent of management input required to sustain a defined tourism opportunity. Site characterisation will include the physical and visitor experience dimensions and the relative availability of comparable opportunities.

13 Within the Great Sandy Region, certain areas will be developed and promoted for use by commercial tour operators, and other areas for primarily local and private visitors.

14 In assessing new or extended tour proposals, the precautionary principle will be applied. This means that proposals will be approved only when, following thorough assessment, no significant concern remains about the possible impacts of the proposal on the site or the quality of the recreation opportunity on offer.

Existing situation

Tourism numbers to the Region have increased significantly over the last decade. Total visitor numbers to the Fraser Coast Region during the year 2000 were estimated at 1.2 million. Information about tourism opportunities, service and facility availability and permit requirements is made available to all levels of the tourism industry.

As a basis for assessing existing and proposed commercial tour operations on Fraser Island,

nature-based and culture-based destinations have been characterised according to the intent of their recreation zoning, site characteristics and the type and extent of management input required to sustain a defined tourism opportunity.

Much of the approved capacity of existing Fraser Island tour operators is used during peak periods. Substantial unused capacity exists at other times. Existing visitor facilities could not cater for existing tour capacity approvals if full capacity was constantly achieved.

Protected area tourism management policies have been developed through the Tourism in Protected Area (TIPA) initiative. These policies provide the basis for a partnership between QPWS and commercial tourism operators that use the protected area estate.

A moratorium on the issue of new commercial activity permits (in place since the enactment of the plan) has been lifted for the Cooloola Section of the Great Sandy National Park. A review is complete and recommendations regarding issuing of permits have been made, with permits issued for specific activities that meet site constraints (such as. hang-gliding and kayaking). Commercial activity permits for Fraser Island will be reviewed in accordance with the Tourism in Protected Area (TIPA) initiative.

Recent developments and current site planning for a number of destinations provides separation between commercial tour groups and local and private visitors, including parking, day use facilities and site access points. The backpacker market is catered for with accommodation and services.

The Fraser Island Great Walk provides a continuous walking track and associated visitor facilities between Dilli Village and Happy Valley. Walkers can choose a route tailored to their timeframe, interests, and physical abilities, with the option of entering and exiting the track network at a variety of locations.

Mon Repos Conservation Park receives approx 35,000 visitors per annum (2001-02). A booking system has been introduced to ensure a better quality experience for visitors during the turtle nesting season.

The whale watching industry is regulated under a policy model that balances environmental and economic needs. Interpretation standards and criteria have been established and programs are assessed against these criteria. Passenger numbers on commercial whale watching vessels operating in the Hervey Bay Marine Park reached 82,000 in 1996. Since then passenger numbers have declined to some extent, but Hervey Bay as a whale watching destination remains internationally renowned.

The Eco Certification Program has been launched to recognise tourism operators who meet or exceed industry standards for ecotourism.

3.11 Recreational fishing

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
4.01 Sustainable resource harvesting
4.05 Commercial fishing

Background information

The Great Sandy Region has been identified as one of the most important recreational fishing areas in Queensland and ranks second only to Moreton Bay in terms of recreational fishing effort and production.

Recreational fishing occurs on most beaches and in most sheltered waterways of the Region at some time of the year. Distribution of angling effort varies depending primarily on the species targeted and occurrence of seasonal spawning aggregations.

The main elements of the recreational fishery within the Great Sandy Region are:

- an ocean beach line fishery for tailor, dart, whiting, bream and jew;
- a shallow water fishery (boat and shore) for whiting, flathead and bream;
- a boat fishery for demersal reef and pelagic fishes;
- a bait fishery for beach worms, eugarie, yabbies and hardiheads;
- a trap fishery for sand and mud crabs; and
- a freshwater line fishery for bass.

Recreational fishing is an important component of the regional economy, with many local residents fishing on a regular basis and tourists travelling large distances specifically for the excellent fishing opportunities offered by the area. The Fraser Island tailor fishery and the Noosa River system bass fishery are well recognised among recreational fishing circles Australia-wide.

Fisheries in the Region are managed under the *Fisheries Act 994* and its associated regulations and policies. The Department of Primary Industries and Fisheries (DPI&F) is responsible for research, management and enforcement for all recreational fisheries in Queensland. A range of statewide management arrangements aimed at sustaining fish stocks apply to the area. These include restrictions on fishing apparatus, minimum size limits on fish and crabs,

protection of female crabs, bag limits, seasonal and area closures and total protection for some species.

Fisheries habitat protection is also afforded through Fish Habitat Areas and the protection of all marine plants. Fisheries management plans are subordinate legislation to the *Fisheries Act 994*. Plans relevant to the Region need to consider the EPBC Act. All fisheries management plans in Queensland are currently being assessed under the EPBC Act, in particular impacts on the Fraser Island World Heritage Area and the Great Sandy Strait as a Ramsar Wetland.

Due to the fact that recreational and commercial fishers often target the same species in the same areas, there has been some conflict between the user groups. The question of allocating fisheries resources between recreational and commercial fishers is a perennial issue. However, the end result of exploitation by either or both groups is ultimately the same in the sense that a renewable resource is harvested. Unless management based upon considerable professional expertise is applied, the long-term survival of fish species and their habitat may not be assured.

Concern has been expressed that some fisheries resources within the Region are currently overfished and will be not be sustainable under current management arrangements. They will be even less sustainable if the expected increase in recreational fishing effort associated with expanding population and tourism occurs.

Desired outcomes

By or before 2010, to have a diverse range of recreational fishing opportunities available that are ecologically and socially sustainable.

Proposed guidelines and actions

1 DPI&F and QPWS, in consultation with Sunfish and relevant government agencies and interest groups, will develop a detailed management plan for the recreational fisheries of the Region. Actions for consideration include:

- undertake further research into the state of fish stocks and levels of exploitation to determine the sustainability of fishing activities within the Region;
- investigate the feasibility of incorporating recreational fishing catch and effort data returns or a logbook system into permit requirements for the Region;
- conduct a major review of the appropriateness of all management arrangements that apply to the Region's recreational fisheries including minimum and maximum size limits, bag limits, seasonal and area closures, and restrictions on fishing apparatus;
- identify and quantify issues of conflict between recreational and commercial fishers and implement measure to reduce the potential for conflict and to resolve conflicts when they occur; and
- investigate opportunities for restocking of areas where there is evidence that restocking is required and creation of habitat such as artificial reefs, which aggregate populations to make them more accessible to fishing.

Existing situation

Fishing is generally not permitted on protected areas in the Region. Some estuaries on the west side of northern Fraser Island are exempt from this ruling, as is fishing from the beach, and in the lower reaches of the Noosa River.

There is uncertainty about the sustainability of recreational fishing activities as there is a lack of data on recreational fishing effort and catch rates. Detailed stock assessment is not available for many species. There are some indications that species such as tailor may be overfished.

Potential for conflict exists between recreational and commercial fishers as they often target the same species in the same area.

Fraser Island Toyota fishing competition will continue until 2005, as part of a Queensland Government policy decision. The activity and permit conditions will then be reviewed.

New fishing regulations, which include new minimum size and bag limits, have been introduced for a number of popular recreational fish species. There are also permanent and/or seasonal closures to fishing areas and for certain species. These regulations will contribute to maintaining sustainable fisheries in the Region.

3.12 Camping

See also: 3.04 Permit arrangements
3.09 Recreational driving
3.14 Walking

Background information

Camping provides an opportunity to experience tranquillity, natural beauty and other elements of the environment in a way that is not possible through a day visit. It is also a low-cost form of accommodation. A variety of camping opportunities is provided in the Region ranging from developed sites including showers and toilets to areas with no facilities, isolated from other visitors. The level and style of facilities

provided must be consistent with the relevant recreation management classification.

From time to time there is a need to separate different types of users at camping areas to minimise the potential for conflict. Bush camping is an established form of recreation in the Region allowing for off-track walking in the more isolated parts of the Region. This activity is being actively promoted through the Great Walks program.

Desired outcomes

By or before 2010, to have a range of camping opportunities within various settings within the Region consistent with protecting the Region's values and the quality of other visitors' experiences.

Proposed guidelines and actions

1 Where possible, separate camping areas will be provided for potentially conflicting user groups. A campsite booking system will be established for camping areas throughout the Region.

2 The need for and feasibility of establishing a camping area for two-wheel-drive access in the vicinity of the existing Noosa North Shore Wilderness Camp will be investigated.

*3 Vessel-based and pedestrian access will continue to be provided in the Fig Tree Point locality subject to site assessment.

4 Bush camping will be allowed, subject to permit conditions, in zones other than intensive recreation zones, but not within 2km of designated camping areas.

5 Vehicle-based camping at Harry's Hut will continue with recommended access by four-wheel-drive. Educational groups will be directed toward Harry's Hut camping area.

6 The boundaries of Campsite Three on the Upper Noosa River will be defined to cater for a maximum of 30 people at any time. Areas not required for camping purposes will be revegetated.

7 Small wooden landing facilities will be established at Campsites One and Two on the upper Noosa River. Beyond Campsite Three, toilet facilities and unobtrusive landings will be constructed or upgraded at the upper Noosa River campsites only where no other prudent alternatives exist and only where they will not compromise the recreation opportunities provided.

8 Subject to a development plan, Inskip Point campground will be upgraded. Most camping nodes will continue to cater for two-wheel-drive vehicle-based camping.

9 The old Freshwater camping area will be redeveloped and opened for use during peak periods.

10 Camping at Lake McKenzie will be phased out with the existing site rehabilitated for day use only.

11 The future of the Poverty Point camping area will be examined in consultation with existing users, Indigenous groups and other interested groups.

12 Portable generators, motorised battery charging units, and air compressors will be limited to specified sites and times of operation within designated sites.

13 The campground at Central Station will be redeveloped according to an approved plan. Group camping opportunities will still be provided and upgrading of the Waddy Point camping area will occur subject to an approved redevelopment plan.

14 Camping at Indian Head will be discontinued.

15 Camping areas exceeding site condition limits will be temporarily closed and rehabilitated as required and an inventory of campsite conditions throughout the Region will be established and the condition of campsites monitored regularly. A set of criteria will be developed to assess the impacts of beach camping.

16 Environmental and social standards for all campsites consistent with the intent of recreation classes will be developed and actions taken to ensure that standards are maintained.

*17 The use of non-wood burning fuel stoves within the Region will be encouraged. A fuel-stove-only zone will be established on the Noosa River above Harry's Hut camping area and along the Cooloola Wilderness Trail. Freshwater camping area is a fuel-stove- only area. Other fuel-stove-only zones will be identified and enforced. QPWS will prohibit open campfires except in provided fire rings, cease providing firewood to Fraser Island and allow, but review open campfires at Inskip Point and Teewah Beach (Cooloola Section only).

18 Guidelines for minimal impact camping will be established and promoted for the Great Sandy Region. This will include developing guidelines for minimising damage to beach camping sites by vehicles.

19 Appropriate sites will be identified for the development of basic beach camping support facilities. Such facilities will include toilets and washing tubs for use by beach campers. Camping will not be permitted immediately adjacent to these facilities.

20 The need and appropriateness of providing toilets at Lake Wabby and Ocean Lake will be investigated and the Dundubara camping area facilities will be upgraded.
(Toilets have been provided at forest and lookout track entrances to Lake Wabby.)

21 The Lake Boomanjin camping area/day use area will be redeveloped. An alternative camping site is to be developed close by and day use facilities will be developed on the current site. New toilet facilities will be provided at Lake Allom and Garry's Anchorage.
(New toilet facilities have been built at Lake Allom.)

22 Conditions will be developed and implemented for the use of camping sites on the upper Noosa River by school and other organised groups and conditions will be developed and implemented for the use of the Great Sandy Region by groups from the defence forces.

*23 Some beach areas will be temporarily closed to camping during critical nesting times for turtles and shorebirds, and for rehabilitation.

Existing situation

A range of camping experiences is available within Cooloola Section of Great Sandy National Park and in private camping areas throughout the Region. Camping is not permitted on the beach between Double Island Point and the Rainbow Beach township.

The Fraser Island World Heritage Area Camping Management Plan identifies four strategies for camping management on Fraser Island:

- reduce the environmental impacts of beach camping;
- improve camping management;
- diversify the range of camping opportunities; and
- improve camping facilities.

An inventory of campsite conditions and an ongoing monitoring system has been established. On Fraser Island, campground facilities have been improved and upgraded at Waddy Point and Central Station. Camping at Lake McKenzie has been discontinued, apart from a small hikers' camp. The remaining area is being redeveloped for day use only. Camping at Indian Head was closed in March 2004 and will not be allowed in the future. The area is being rehabilitated.

Following environmental and cultural heritage assessment, many beach camping areas have been closed and rehabilitated. Some camping sites in the Dundubara management area have been temporarily closed and are undergoing rehabilitation.

New toilet facilities have been built at Lake Allom and at forest and lookout track entrances to Lake Wabby.

The Queensland Recreation Areas Management Board has a policy that the maximum length of stay for beach camping sites on Fraser Island is 28 days with a maximum of 14 days for inland camping areas. This policy may be changed at the discretion of the Board if necessary to meet a special management need or to accommodate special situations. Education and enforcement are undertaken in relation to camping guidelines and minimal impact camping, particularly in areas where non-compliance and impacts are greatest (rehabilitation areas and within 50m of creek lines).

Campground rangers have been successfully employed in many designated camping areas in the Region to manage visitors and promote minimal impact guidelines. QPWS has successfully implemented the 'Fraser-friendly (minimal impact) camping competition' during the Toyota Fishing Expo each year.

The Inskip Point development plan has been completed and the camping areas upgraded. Continual improvements being identified will be investigated further through the Management Plan for Inskip Peninsula Recreation Area.

The Freshwater camping area at Cooloola has been upgraded.

Visitors are encouraged to bring and use their own fuel or gas camping stoves. Individual open fires are prohibited at most QPWS-managed areas in the Region. This policy aims to reduce injuries, minimise the risk of wildfires caused by campfires, help create a clean-air camping experience and reduce damage from firewood and kindling collection.

QPWS provides designated communal fire rings at selected sites and gas barbecues at some developed campgrounds and major day use areas (as demand and funding determines). Campers who want a campfire in the communal fire rings must bring their own firewood. The commercial provision of firewood will be promoted in the Region, possibly at barge entry points

3.13 Backpacking

See also: 3.09 Recreational driving
3.10 Tourism

Background information

In recent times backpackers (including Australians and overseas tourists) have made increasing use of the Great Sandy Region. Backpackers are defined as those visitors characterised by having:

- a preference for budget accommodation;
- an emphasis on meeting other travellers;
- an independently organised and flexible travel schedule;
- long rather than brief holidays; and
- an emphasis on informal and participatory holiday activities.

Desired outcomes

By or before 2010, to have opportunities for backpackers to enjoy the values of the Great Sandy Region without adversely affecting these values or the quality of the experiences of other visitors.

Proposed guidelines and actions

1 Liaison will occur with four-wheel-drive hire centres to develop and implement pre-visit briefing of backpackers about expected behaviour.

2 Development of facilities to cater specifically for the needs of backpackers will be investigated.

Existing situation

Most backpackers visiting the Region, in particular Fraser Island, use hired four-wheel-drive vehicles. They generally have little experience of driving in sand conditions. Good communication and regular briefing sessions have ensured that backpackers are provided with up-to-date visitor and safety information.

Commercial business, services and support industries have been developed or modified to cater for the changing market and growth in the backpacker industry. Several management issues relating to the use of the Great Sandy Region by backpackers have arisen, including conflict with other user groups and residents. To help address this situation, a backpacker industry liaison group has been established with QPWS and industry representatives. This relationship has made considerable progress in meeting backpacker expectations, minimising safety risks, and improving visitor behaviour. The Fraser Island World Heritage Area Camping Management Plan caters for backpacker needs, including preferred destinations and campground design. Additional management strategies for backpackers visiting Fraser Island may be developed in the future.

3.14 Walking

See also: 1.12 Introduced pest species
2.10 Search and rescue
3.02 Visitor safety and risk management
3.09 Recreational driving
3.12 Camping

Background information

Bushwalking can be enjoyed by people of varying ages, interests and levels of physical fitness and mobility. In its various forms, bushwalking can encompass everything from a short, leisurely stroll or a more strenuous hike of several hours duration to a major trek lasting days or even weeks. In comparison with motorised or other assisted types of access, bushwalking enables visitors to explore and appreciate the natural environment at close quarters.

Within the Great Sandy Region, most recreational use is vehicle-based. Roads are often seen as a means of getting from one place to another, which results in many people driving past scenic and natural attractions. Well located parking areas with short walks allow ready access to many scenic sites without causing vehicle related damage to lake shores and other sensitive areas.

QPWS is progressively moving towards compliance with the Australian Walking Track Standard, which identifies six categories of walking tracks and the types of signage and other safety measures to be installed in each category. Walking tracks are classified in the Standard in terms of their physical attributes, skills and abilities required by the user and the types of experiences users can anticipate. They range from class one (broad, level, hard-surfaced tracks) to class six (unsigned, remote rough trails requiring bushwalking experience and navigational skills).

A potential long-term threat to maintaining a diversity of walking opportunities in the Great Sandy Region is the unplanned incremental upgrading of less-developed walking tracks such as routes and unmarked tracks.

The impact of bushwalking on the physical environment, while generally low, can be variable depending on soil conditions, landform, vegetation type and intensity of use. Where use levels are high, bushwalking can lead to the loss of vegetation as well as localised loss of soil

cover leading to loose sand or soil compaction and erosion problems. Other potential impacts include the introduction or spread of weeds and plant diseases and the escape of fires from overnight campsites. Usually these problems can be minimised through the sensitive location and design of walking tracks, the careful selection of bushwalkers' campsites and appropriate visitor education.

Also of concern are the potential safety problems associated with long-distance hikes through primitive or remote areas. In the event of a wildfire or a walker becoming lost or injured, resulting search and rescue operations could lead to more substantial environmental impacts. Such problems can be overcome largely by providing a self-registration system and visitor information programs designed to ensure walkers are adequately informed about the conditions they will encounter and the equipment and skills required.

Desired outcomes

By or before 2010, to have a diverse range of walking opportunities available in the Great Sandy Region consistent with protection of the Region's values. Walking tracks will be managed to meet pre-determined standards.

Proposed guidelines and actions

1 A walking track management strategy will be prepared for the Great Sandy Region to include an inventory of the condition of the main walking tracks and assessments of use levels, trends in use, projected changes in track conditions and appropriate management responses.

2 Recreation opportunities provided by the existing tracks will be reviewed and opportunities not provided in the Region will be identified and provided if possible.

3 All walking tracks will be classified according to predetermined standards and a track management register will be developed to assist with ongoing management of walking tracks within the Region.

4 In consultation with relevant bushwalking groups, a long-distance walking trail from the Noosa North Shore in Cooloola to Dundubara on Fraser Island will be developed and minimal impact and safe walking practices will be promoted.

5 As part of the project to develop long distance bushwalking opportunities within the Region, a permit and booking system for overnight walkers and campers will be established.

Existing situation

Walkers in the Region use many forestry tracks, fire access trails, beaches and a large network of designated bushwalking tracks. Many walking tracks in the Region have been upgraded, including tracks at Lake Wabby, Pile Valley, and the Forest Lakes Trail on Fraser Island. New boardwalk developments have been completed at Seary's Creek and Champagne Pools at Middle Rocks and all Great Sandy National Park tracks are maintained to a safe standard. Interpretive material includes safety messages and detailed walking track maps and information.

The Great Walks of Queensland concept is a Queensland Government initiative to develop a series of iconic walking tracks that present and promote the astounding natural and cultural values of Queensland's protected areas and State forests. The Fraser Island Great Walk opened in June 2004 and provides a continuous walking track and associated visitor facilities between Dilli Village and Happy Valley. Walkers can choose a route tailored to their timeframe, interests, and physical abilities, with the option of entering and exiting the track network at various locations. Hikers must pre-book camps along the route.

There was Indigenous community consultation and involvement in the planning and construction of the Great Walk and Valley of Giants campground. This occurred through formal committees, on-site assistance with cultural heritage surveys and involvement in the construction and design of the cultural heritage interpretive material relating to Great Walks.

A Draft Walking Track Strategy for Fraser Island identifies a standard for existing walking tracks and recommends the development of an extended network of long distance tracks. The strategy sets out the requirements to establish a classification system, a track register and a monitoring and reporting system.

3.15 Picnicking

See also: 3.03 Disabled access
3.07 Community engagement
3.08 Signs
3.09 Recreational driving
3.14 Walking
3.18 Motorised water activities
3.19 Non-motorised water activities

Background information

The opportunity to relax and socialise with family or friends over an outdoor meal in a natural setting has become a tradition for many

Australians. The bush picnic or barbecue often provides the central focus for other nature-based leisure activities such as driving for pleasure, sightseeing, bushwalking, fishing and beach activities.

If unmanaged, picnicking and barbecue activities can result in localised impacts including the trampling and loss of understorey plants, soil compaction and erosion, littering and removal of live and dead vegetation for cooking fires and camp fires. These impacts can be eliminated or minimised through careful site selection, facility placement or design and by providing alternative cooking facilities such as gas or electric barbecues.

Desired outcomes

By or before 2010, to have a range of picnicking opportunities in a diversity of natural and built settings within the Region consistent with protection of the Region's values.

Proposed guidelines and actions

1 The appropriateness of developing picnic facilities on the Noosa North Shore will be investigated.

2 The appropriateness of developing picnic facilities on Inskip Peninsula will be investigated. Planning and development will be implemented providing all consultation and impact studies identify that use is sustainable.

3 The need for picnic facilities in the Region will be identified. Priorities will be set and facilities developed as demand grows and funding becomes available.

Existing situation

Picnic facilities are being maintained as required and upgraded as the need arises, and new picnic facilities have been developed at Lake Garawongera, Seary's Creek. New picnic facilities at Inskip Point are being considered as part of the planning process. Toilets provided there for campers are being heavily used by day visitors, including people passing through from the Fraser Island ferry.

Fences have been constructed around Lake McKenzie and Waddy Point day use areas to minimise the risk from dingoes and other more developed picnicking opportunities are provided by local authorities along the esplanades on the western shore of Hervey Bay, along the lower Noosa River and at Rainbow Beach.

3.16 Whale watching

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.16 Research, monitoring and scientific sites
3.07 Community engagement
3.10 Tourism

Background information

In 1993, eastern Australia's humpback whale population was estimated at between 1500 and 1800. This is two to three times the number believed to have been left when commercial hunting of humpbacks in Australian waters was stopped in 1963. At that time the species was under threat of extinction.

In response to protection, the humpback population is increasing gradually. The east Australian population based on land-based observational studies from Point Lookout, North Stradbroke Island in 1999 was estimated at 3600, with a rate of recovery around 10.6% per annum. The number of humpback whales from the east coast population entering Hervey Bay on their southern migration was estimated at approximately 1600 in 1999.

Hervey Bay is among the best places in the world to observe humpback whales. The peak period is the September school holidays, which coincides with the arrival in Hervey Bay of the most sensitive and critical segments of the whale population – lactating females with calves. The Hervey Bay commercial whale watching industry is an important segment of the tourism industry contributing around $30 million a year to the regional economy.

Whale watching activities in Hervey Bay are controlled by the provisions of the Hervey Bay Marine Park Zoning Plan, the Nature Conservation (Whales and Dolphins) Conservation Plan and a code of practice developed for commercial whale watching operators. The Hervey Bay Marine Park Permits Advisory Committee ensures a balanced and participative approach to decision-making and strategic direction occurs in relation to humpback whales in Hervey Bay.

In 1989, Hervey Bay Marine Park was established to conserve the natural resources of the tidal lands and waters of the eastern part of Hervey Bay and to manage whale-watching activities. Between 1 August and 30 November each year a 'designated area' is brought into effect over the marine park to manage human activities in the vicinity of humpback whales and to monitor the effects of such activities to ensure protection of the whales.

In 2002, approximately 62,500 passengers were carried on whale watching tours. The current

total permit capacity significantly exceeds the level of passengers being carried.

The objectives of the Hervey Bay Whale Watch management program are to:

- conserve the humpback whales in Hervey Bay;
- maintain the Hervey Bay ecosystem required for the long-term survival of humpback whales;
- maximise the number of visitors;
- reduce overcapacity of commercial whale watching operations;
- increase (maximise) whale watching industry income;
- provide local employment in the whale watching industry;
- reduce conflicts between park users;
- improve the quality of whale watching as a tourism product; and
- generate revenue for marine park management activities including patrols, training, whale monitoring and research.

Desired outcomes

By or before 2010, to be managing whale watching to protect the whales, ensure their ongoing use of the area and provide opportunities for public enjoyment of whale watching in Hervey Bay. Strictly enforced management strategies should ensure the protection and safety of the whales by minimising the impact of tourists on whales. Well-developed interpretive programs should be a key tool for enhancing visitor enjoyment and understanding of the annual whale migration and in ensuring operator compliance with the legislation.

Proposed guidelines and actions

1 Tour boat operators are to abide by the code of practice and other regulatory requirements to protect whales from harassment.

2 Researchers will be encouraged to investigate matters including the acoustic impact of vessels on whale movements through the area and the movement of whales in the area during the day and night. Research activities must not unreasonably interfere with commercial whale watching activities.

*3 The whale watching management model (including the permit system) will be reviewed and updated every six years, with the next review in accordance with TIPA guidelines.

4 Visitors will be encouraged to use commercial whale watching boats rather than private vessels. The regulation of private vessels for whale watching will be investigated and a permit system implemented if necessary.

5 Commercial tour operators will be assisted to develop and conduct appropriate interpretive programs to increase visitor enjoyment and understanding of the annual whale migration and the desirability and appropriate management controls for operators wishing to conduct aerial whale watching will be investigated.

6 The possibility of closure or greater restriction of whale watching in part of Hervey Bay Marine Park will be investigated to provide opportunities for the study of whales free from the influences of whale watching activity and to provide areas free from all human activities as a refuge for mother-calf pods. If such a restriction were imposed, it would be outside the recognised area used by commercial whale-watching operators.

7 The co-ordinated fluke identification program will continue.

8 Whale watching vessels will be required to have sewage, sullage and wastewater holding tanks.

Existing situation

Whale watching activities are currently regulated through a permit system under the Hervey Bay Marine Park Zoning Plan.

QPWS reviewed the management of commercial whale watching in Hervey Bay Marine Park and some minor changes were implemented in 2000. Concern about the potentially adverse effect of tourist activity on whales remains as private whale watching vessels are not restricted in numbers and can be a problem at peak periods. Regular QPWS vessel patrols are undertaken, concentrating on recreational vessels, education programs, research and enforcement activities.

QPWS has developed a standard for whale watching educational programs, in conjunction with the whale watch industry. QPWS assists and monitors operators in the development and delivery of appropriate interpretive programs. An interpretive manual for educational programs on whale watching vessels has also been developed.

Research into the acoustic impact of vessels on whale movements through the area and the behaviour of humpback whales in the vicinity of vessels has been undertaken. Researchers will be encouraged to continue to monitor the behaviour of humpback whales, as their population increases, in the vicinity of vessels. Aerial surveys to monitor distribution and abundance will also be encouraged.

3.17 Turtle watching

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
3.07 Community engagement
3.10 Tourism

Background information

Mon Repos Conservation Park protects an internationally significant marine turtle rookery. The most common nesting marine turtle at Mon Repos is the loggerhead. Flatbacks, greens, leatherbacks, Pacific ridleys and hawksbills visit the Region.

Turtles frequent a number of beaches on northern Fraser Island. Between November and January each year, female turtles leave the ocean to nest in the foredunes, with hatchlings emerging between mid January and March.

In 1991, Woongarra Marine Park was declared over the area between the Burnett River and the Elliott River, extending three nautical miles seaward from high water mark. Under the provisions of the Woongarra Marine Park Zoning Plan a 'special management area' is brought into force at Mon Repos each year between October and April to control activities that might adversely affect the turtles.

Strategies to control recreation and commercial activities that might adversely affect protected aquatic species, such as turtles, will be developed and adopted. Periodic closures or other requirements are to be considered.

Desired outcomes

By or before 2010, to be managing turtle watching to protect the turtles, ensure their ongoing use of the area and provide opportunities for public enjoyment of turtle watching at Mon Repos.

Proposed guidelines and actions

1 Access to nesting and hatchling turtles at Mon Repos will be restricted to guided groups.

2 Continued involvement of volunteers in the turtle management and monitoring program at Mon Repos including visitor contact will be encouraged.

3 Visitors will be provided with interpretive information through guided walks and displays at the interpretive centre at Mon Repos.

*4 Where possible, vehicular use of beaches used by turtles on Fraser Island will be restricted at night during turtle nesting and hatching periods to protect turtles and turtle rookeries. Some known nesting areas will be closed to camping during critical nesting and hatching times.

Existing situation

Turtle watching activities are currently required to comply with existing zoning plans for Hervey Bay and Woongarra Marine Parks.

Mon Repos is a major centre for turtle watching, with 27,940 people visiting the information centre at Mon Repos during the turtle season between November 2003 and March 2004. The information centre at Mon Repos provides visitors with an understanding and appreciation about turtle biology, behaviour and management.

From this centre, QPWS staff conduct education programs and guided walks for hundreds of visitors per night during the peak nesting season. Visitor movements to and on the beach are strictly controlled to ensure there are no negative impacts on turtle breeding success at Mon Repos. These staff, with the assistance of volunteers, conduct a comprehensive marine turtles monitoring program at Mon Repos. A tagging program in areas on the north of Fraser Island is also ongoing and monitoring of turtle activity offshore occurs to a lesser extent.

Vehicle and camper impacts on turtle nesting areas in the Sandy Cape area are being addressed in the Fraser Island World Heritage Area Camping Management Plan. Camping will be confined to designated sites and some areas may be closed to camping during critical nesting and hatching times. The establishment of a ranger base at Sandy Cape and site interpretation has improved education and turtle management in this area.

3.18 Motorised water activities

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.10 Water quality
2.06 Barge and ferry facilities
2.19 Sewage
3.12 Camping

Background information

With more than 600,000 hectares of marine, river, estuarine and intertidal areas, the Great Sandy Region provides extensive opportunities for recreational and commercial motorised water activities. Motorised water sports include personal watercraft use, power boating, water-skiing, tobogganing, wave running and parasailing.

Queensland Transport/Maritime Safety Queensland is responsible for regulatory matters involving vessel activities. The Queensland Boating and Fisheries Patrol of DPI&F and the Water Police of the Queensland

Police Service conduct enforcement and compliance with regulations. Minimal impact codes and special provisions for a number of specific boating activities for certain areas have been developed. Many of these are not regulatory.

If well managed, boating can provide people with a means of visiting and enjoying the values of the Great Sandy Region with minimal impact and without the need for extensive infrastructure. The use of motor vessels to gain access to otherwise remote areas can create conflict with user groups seeking a passive recreational experience.

In confined waters, waves caused by some types of boats travelling at even moderate speeds can cause riverbank erosion. This problem is accentuated in areas with sandy substrates and in areas where people land vessels to go ashore. Due to their shallow draught and lightweight of personal watercrafts, e.g. jet skis, they can use waterways not available to other craft. There has been increased use of personal watercraft in the Region, particularly in areas close to shorebird roost sites at Boonooroo. The mobility and unpredictability of these craft means that they create noise nuisance, disturb wildlife and create hazards and inconvenience for other users such as fishers, yachties and canoeists in otherwise quiet and peaceful settings.

Hovercraft are also able to traverse intertidal areas, unlike other forms of watercraft, and have the potential to disturb migratory waders, both at roost sites and feeding areas, as they generate considerable noise. They can also cause discomfort to other users of the area.

Careless or inexperienced operation of private boats in the vicinity of humpback whales can create conflict with commercial operators and adversely affect whales. Go-slow designated areas introduced in the zoning plans of marine parks in Queensland have reduced vessel strike on turtles significantly.

Maritime Safety Queensland has undertaken a review of the vessel-sourced sewage provisions of the *Transport Operations (Marine Pollution) Act 995* and Regulation. Amendments to the Act have paved the way for more specific vessel sewage management requirements to be detailed in the regulation. All vessels capable of generating sewage will need to adopt onboard sewage management measures to ensure no discharge in nil discharge areas. Onboard measures could include the use of holding tanks, portable toilets and/or treatment systems.

Desired outcomes

By or before 2010, to have a diverse range of motorised water activities available in the Great Sandy Region. However, these activities should not adversely impact on the natural values of the Region or the quality of other visitors' experiences.

Proposed guidelines and actions

1 A minimal impact code of conduct for boating will be developed and promoted in consultation with boating and fishing groups.

2 The use of launching and anchorage areas will be managed to control compaction, erosion, removal of vegetation, littering, noise and fire risk.

3 The use of motorised vessels upstream from Harry's Hut camping area on the upper Noosa River will not be permitted except for management purposes and the existing 'no landing zone' on the Noosa River between Fig Tree Point and Harry's Hut camping area will be maintained.

4 The use of motorised vessels on all closed freshwater lakes on Cooloola and Fraser Island will not be permitted except for management purposes.

5 In consultation with commercial and recreational user groups, a speed limit for vessels travelling on the Noosa River between Lake Cooroibah and Lake Cootharaba will be sought and the two ski areas on the lower Noosa River will be maintained at their present location.

6 A monitoring program will be developed and implemented to measure the impact of boating on the Noosa River, Tin Can Inlet and the mainland boundary of the Region.

7 Restrictions on the discharge of sewage have been introduced for all vessels in the Great Sandy Strait and on the Noosa River. Vessel owners will be encouraged to adopt appropriate onboard sewage management measures to minimise the likelihood of any environmental and human health impacts from their activity.

8 A monitoring program will be established to determine whether stronger controls are needed in the long-term to control waste discharge from vessels into Hervey Bay and Great Sandy Strait.

9 Marina managers are encouraged to provide sewage reception facilities as an extension to the existing services they provide to vessel owners and operators. Government agencies and marine industry may also consider providing facilities to support the proposed introduction of nil discharge waters. Once pump-out facilities

are available, action will be taken to ensure skippers of vessels do not discharge sewage, sullage and wastewater into Hervey Bay and the Great Sandy Strait.

10 A plan will be initiated to maximise public access to riverside beaches along the southern bank of the Noosa River at Noosaville. This may include negotiating with commercial operators to relocate access facilities.

11 Appropriate locations for personal watercraft use and mooring of watercraft will be identified and enforced throughout the Region, while hovercraft will not be permitted to operate in Great Sandy Strait, Tin Can Bay and the Noosa River other than to transfer passengers on approved transit routes.

*12 Strategies will be adopted to protect aquatic species and migratory wader birds from vessel activities. Strategies include 'go slow' rules and seasonal restrictions.

Existing situation

The offshore waters of Cooloola and Fraser Island are plied primarily by the boats of divers and fishers (recreational and commercial). The lower reaches of the Noosa River receive high levels of use including use by commercial and recreational fishing vessels, houseboats, vehicular ferries, motorboats, canoes and sightseeing cruises that carry passengers into the upper Noosa River.

Conflicts have been created by personal watercraft at Double Island Point and Theodolite Creek compromising the enjoyment of the majority of users. The Theodolite Creek situation also poses significant risks of disturbance to threatened wildlife such as dugong and shorebirds. In other small coastal areas within the Region such as Toogum, Burrum Heads, Tuan and Poona, the use of personal watercraft is increasing. A number of important tide roost sites are close to areas frequented by personal watercraft.

Some motorised vessels continue above Harry's Hut to Campsite 3 on the Noosa River, detracting from the semi-remote experience and self-reliant recreational opportunities offered in the area. A six knot speed limit (12km/h) on the Noosa River exists north of the Kinaba Information Centre to ensure the safety of canoeists and to reduce bank erosion from wave wash.

The current Noosa River Plan, which was prepared through a co-operative process involving all stakeholders (including government agencies, Noosa Council and the community) proposes a range of measures in relation to recreational boating and associated infrastructure on the Noosa River. As part of the Moreton Bay Waterways and Catchment Partnership, a vessel wash study was undertaken on the Noosa River between Lake Cootharaba and Lake Cooroibah. This study recommends a reduction in vessel speed limits to assist preventing further bank erosion from vessel wash.

There are very few sewage reception facilities in the Region, and marina operators are encouraged to provide facilities as an extension to the existing services they provide vessel owners and operators.

3.19 Non-motorised water activities

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.10 Water quality
2.19 Sewage
3.12 Camping
3.18 Motorised water activities

Background information

Non-motorised boating activities such as sailing, rowing, windsurfing and canoeing are popular activities in the Region. Sailing vessels, including large vessels of more than 30 metres, use Great Sandy Strait when travelling to and from the Great Barrier Reef.

Marine areas within the Region including artificial reefs, coastal fringing coral reefs, natural rock outcrops and shipwrecks provide good opportunities for scuba diving, which is increasing in popularity as an individual pastime and as a commercial recreation activity.

Non-motorised boating occurs in marine and estuarine areas and in inland waters. The use of non-motorised vessels provides access for water-based sightseeing and nature appreciation without the intrusive sounds and smells associated with motorised vessels.

Potential impacts of non-motorised vessel-based activities include fire, as well as littering and erosion, which are most noticeable on shore near anchorages and where people land vessels to go ashore. However, the impacts of non-motorised vessels on bank erosion are generally less than those of motorised vessels owing to the different design, displacement and speed of non-motorised vessels.

Desired outcomes

By or before 2010, to have a diverse range of opportunities for non-motorised water activities within the Region consistent with protection of the Region's values.

Proposed guidelines and actions

1 Non-motorised access by private visitors will be promoted as the most appropriate form of access to the Noosa River above Kinaba.

2 The non-motorised vessel zone above Harry's Hut camping area on the Noosa River will be maintained.

3 Anchorage and launching areas within the Region will be managed to control compaction, erosion, removal of vegetation, littering, noise and fire risk.

4 An interpretation program explaining lake biology and appropriate visitor behaviour through brochures, signs, videos and displays will be developed and implemented, with the aim of reducing pollution of freshwater lakes by human activities.

Existing situation

The upper reaches of the Noosa River are navigable by canoe and have undisturbed natural landscapes on both sides of the river. This area provides some of the most outstanding opportunities for canoeing in south-east Queensland. The flow rate of this river is slow enough to allow paddling upstream and downstream with relative ease.

The current Noosa River Plan proposes a range of measures towards recreational boating on the Noosa River and associated infrastructure. Non-motorised boating is permitted on lakes within the Region and is encouraged on the Noosa River. However, motorised vessel activities are allowed on the Noosa River as far upstream as Campsite 3. Marine Safety Queensland recognises the impacts of motorised craft on the sensitive area of the Noosa River upstream of Kinaba and has imposed a six knot speed limit on all vessels in this area.

Concern about the adverse effects of swimming in freshwater lakes in the Region include pollution by sunscreens and urine. Public education regarding lake biology and appropriate visitor behaviour is necessary through interpretive materials such as brochures, signs and videos.

3.20 Recreational aircraft activities

See also: 2.07 Aircraft landing facilities
3.21 Hang-gliding

Background information

The use of aircraft to view remote sections of the Region can be in direct conflict with on-ground visitors in those areas. Visitors on the ground in remote areas generally are in search of peace and quiet and enjoyment of the sights and sounds of nature. Landings, departures and overflying of powered aircraft may constitute a significant intrusion for some visitors and disturb and endanger wildlife.

Desired outcomes

By or before 2010, to have opportunities for private and commercial recreational aircraft activities available in the Region consistent with the protection of environmental values and the quality of other visitors' experiences.

Proposed guidelines and actions

1 Plan for the management of overflights by fixed-wing aircraft and helicopters according to restrictions that appropriately reflect the landscape and experience zoning of the property. This is to achieve protection of wilderness experiences and impacts to fauna in susceptible habitats such as sea and shorebird roosting sites.

2 Except in emergencies, recreational aircraft will not be permitted to land on beaches immediately adjacent to remote or semi-remote non-motorised areas.

Existing situation

Fixed-wing aircraft and helicopters are used to reach Fraser Island, particularly resort areas. Aircraft are also used for emergency evacuations and rescues. The landing of aircraft on beaches is only permitted at designated landing sites, subject to a commercial activity permit and in accordance with operational guidelines developed between QPWS, Civil Aviation Safety Authority and the industry. The guidelines reflect the shared use of beaches. Aircraft are not permitted to land on beaches adjacent to remote or semi-remote non-motorised areas or on Teewah and Rainbow Beach except in an emergency.

Recreational aircraft activities include scenic flights and flying ultralight aircraft for pleasure. Amphibious aircraft and those fitted with floats are not permitted to land on lakes including Lake Cootharaba or on the Noosa River but may use Great Sandy Strait.

Commercial aircraft activities are carried out under an agreement and written approval. Activities are to be consistent with Civil Aviation Safety Authority guidelines. Fixed-wing aircraft are restricted to minimum approach distances to and altitudes over whales from 1 August to 30 November each year. Helicopters may not be used for whale watching.

Civil aviation legislation does not regulate aircraft activity over remote zones, however 'Fly

neighbourly' agreements can be negotiated between the Civil Aviation Safety Authority, the landowner and operators.

3.21 Hang-gliding

See also: 3.14 Walking
3.20 Recreational aircraft activities

Background information

Hang-gliding pilots are required to adhere to the rules and regulations of the Hang Gliding Federation of Australia, including mandatory qualifications, locations and ceiling height. The Great Sandy Region is recognised as a suitable hang-gliding area owing to the prevailing winds, location of launching sites and surrounding spectacular natural features.

Hang-gliders are regarded by the Civil Aviation Authority as non-powered weight shift controlled aircraft and the use of hang-gliders is subject to a Civil Aviation Order. This Civil Aviation Order exempts hang-gliders from the provisions of certain parts of the Civil Aviation Regulations and specifies the conditions to be complied with by hang-glider pilots. These conditions cover eligibility to operate a glider, adherence to the rules and regulations of the Hang Gliding Federation of Australia, mandatory qualifications for glider pilots, and places where and heights at which a glider may or may not be flown.

Impacts associated with hang-gliding include erosion and trampling around take-off points, intrusion on visual amenity for some visitors, conflict with other users especially during landings and possible medical emergencies.

Desired outcomes

By or before 2010, to have opportunities for hang-gliding within the Great Sandy Region consistent with protection of the Region's values.

Proposed guidelines and actions

1 Visitors will be encouraged by signs and other strategies to reach launching sites via approved walking tracks, rather than directly up sand dunes.

2 The dune in front of the Seawah Hill launching site will be revegetated with local species to stabilise and rehabilitate impacts caused by human activity without placing unreasonable constraints on take-off opportunities.

3 A code of conduct for hang-gliders within the Region will be developed and promoted. The code will incorporate general and site specific management and safety requirements including appropriate landing areas and practices to minimise impacts on the environment and the quality of other visitors' experiences.

4 The towing of gliders and paragliders behind vehicles and parasailing along the beach will not be permitted.

5 The car park near the Carlo Sandblow will be reconstructed.

Existing situation

Hang-gliding is not permitted on Fraser Island owing to concern about the potential impact on vegetation and sand dunes, safety and conflict with other uses. Hang-gliding is currently permitted at Carlo Sandblow and near Seawah Hill within Cooloola. Both locations have launching platforms and access tracks. Reconstruction of steps and launch platform and the revegetation of the front dune of Seawah Hill is complete and the walking track to the launching site at Carlo Sandblow has been upgraded.

Commercial hang-gliding and paragliding occurs in the Cooloola area. Expressions of Interest have been called and agreements signed for commercial hang-gliding and paragliding in the Cooloola area. A commercial hang-gliding agreement (code of conduct for the Region) has been established between QPWS and commercial hang-gliding and paragliding operators in the Cooloola area. Under transport legislation, the towing of gliders behind vehicles is not permitted.

3.22 Bicycle riding

See also: 3.09 Recreational driving
3.14 Walking

Background information

Bicycles are defined as two-wheel non-motorised vehicles, which include BMX and mountain or bush bikes as well as conventional bikes. There is increasing demand for bicycle access to natural areas for a variety of reasons including nature appreciation and exercise.

Desired outcomes

By or before 2010, to have a range of opportunities for bicycle riding for transport and recreational purposes consistent with protection of the Region's values.

Proposed guidelines and actions

1 A network of bicycle paths will be developed at Rainbow Beach and along Inskip Peninsula and on the Noosa North Shore to provide for local transport and recreational purposes.

2 Cycling is allowed on roads, trails and beaches available to general vehicular traffic. Access along walking tracks will not be permitted, but in the future cycling may be allowed on some management tracks, such as fire trails, where motorised vehicles are not permitted. This would be subject to an assessment of the potential impact on the Region's values (including other recreation activities), and safety considerations.

3 Information on opportunities for cycling will be included in publications and other visitor information.

Existing situation

Opportunities for bicycle riding within the Great Sandy Region are extremely limited. The predominantly sandy terrain makes bicycle riding difficult, especially on dry, inland sand tracks. The hard sand of intertidal beach areas and the limited formed roads in the Region provide the only realistic opportunities for this activity. Bicycle access and associated facilities in the Rainbow Beach area have been allowed for in the Cooloola Shire Council planning scheme.

Bike design has evolved in recent years and mountain (all terrain) biking is a growing recreational activity in other recreation areas. However, there is potential for conflict between cyclists and other visitors to natural areas within the Region, as bicycles are permitted on vehicular roads but not on walking tracks within Great Sandy National Park.

A number of cyclists have expressed interest in cycling the Cooloola Wilderness Trail and formed tracks from Elanda to Mill Point, Fig Tree Point, Harry's Hut camping area and the Kinaba Information Centre on Lake Cootharaba. Residents of Rainbow Beach and Noosa North Shore have also expressed a desire for increased opportunities for bicycle riding in those areas.

3.23 Horse and camel riding

See also: 1.12 Introduced pest species
3.04 Permit arrangements
3.10 Tourism

Background information

No comprehensive assessment of the effects of horse or camel riding in the Great Sandy Region has been undertaken. However, preliminary observations in a Victorian study of the condition of walking and horse tracks suggest increased track deterioration and weed invasion due to horse traffic.

Potential management problems include soil erosion, soil compaction, vegetation damage through trampling, pollution of waterways and damage to archaeological sites. Impacts on native vegetation caused by horses and camels include disturbance due to grazing, introduction of non-local plants and ringbarking of native tree species.

Horse and camel riding is not permitted on national parks, but may be allowed on State forests.

Desired outcomes

By or before 2010, to have commercial horse and camel riding operations within the Great Sandy Region limited to the level, style, size and ownership of authorised operations existing in 1992.

Proposed guidelines and actions

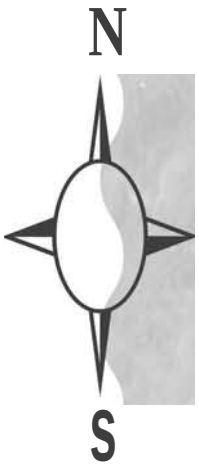
1 The existing commercial horse and camel riding operations will be permitted to continue as non-conforming, pre-existing uses. The operations will not be permitted to expand or be traded.

2 The operations will be monitored regularly to identify any impacts occurring and possible methods of impact mitigation.

3 Apart from the existing authorised operation, horse and camel riding will not be permitted on the Great Sandy National Park.

Existing situation

Strict conditions apply to permits for horse and camel riding in the Region, as transfer of permits is not permitted and no new permits have been issued since the 1994 Management Plan.



Strategy 4

Sustainable resource harvesting

Strategy 4

Sustainable resource harvesting

4.01 Sustainable resource harvesting

Background information

Fundamental to the notion of sustainable resource harvesting is the concept of ecologically sustainable development. The National Strategy for Ecologically Sustainable Development sets out the broad strategic and policy framework under which governments co-operatively make decisions and take actions to achieve ecologically sustainable development in Australia.

The underlying principle of sustainable development stipulates that any development to meet the needs of the present generation should not detract from the capacity of future generations to meet their needs. The Queensland Government is committed to this principle in which economic and environmental considerations are integrated. Ecologically sustainable development is a part of all its programs.

Resource-use decisions should optimise the net benefits to the community from the nation's resources. Some resource uses are compatible with sustainable development; others are not. Resource-allocation decisions require an understanding of the costs and benefits that result or accrue to the community as a consequence of those decisions.

Sustainable development incorporates the following principles, each of which is applicable directly or indirectly to all development activities on a global and regional basis:

a) ecological sustainability requires that development be compatible with the maintenance of ecological processes, biological diversity and biological resources;
b) economic sustainability requires that development be economically efficient and that it be equitable within and between generations;
c) social sustainability requires that development not displace or adversely affect the activities of social groupings; and
d) cultural sustainability requires that development be compatible with the culture and values of the people affected by it.

Sustainable resource use requires integration of ecological and economic considerations. A very low intensity of resource use might be ecologically desirable in preventing degradation of the resource, but may be unprofitable. The other extreme is to pursue the objective of maximum short-term financial return, but this may result in degradation to the biological and physical resource and would probably not be ecologically, socially or culturally sustainable. Achieving integration of economic and ecological sustainability is the challenge at the heart of sustainable use.

The social and cultural dimensions of sustainable development require that consideration be given to the consultative and political processes involved in generating an acceptable balance between the economic, ecological, social and cultural dimensions of development. The inclusion of social values in sustainable development decisions necessitates an element of public choice.

Seven potential and existing types of resource harvesting have been identified within the Great Sandy Region: traditional hunting and gathering, mineral exploration and mining, collecting of flora and fauna, commercial fishing, beekeeping, grazing, agriculture and extraction of quarry materials. Each is discussed below.

4.02 Traditional hunting and gathering

See also: 1.03 Indigenous interests
1.06 Marine and terrestrial wildlife (including vegetation)

Background information

A history of traditional hunting and gathering by Indigenous people in the Great Sandy Region is recognised. Under the *Nature Conservation Act 1992*, an Indigenous person may take, use, or keep protected wildlife under Indigenous tradition subject to any provision of a conservation plan that expressly applies to the taking, use or keeping of protected wildlife under Indigenous tradition. The taking of wildlife, in particular protected marine wildlife, is to be sustainable. This applies subject to the landholder's consent.

Desired outcomes

By or before 2010, to have any traditional hunting and gathering which occurs in the Region carried out in a sustainable manner consistent with conservation of the Region's natural and cultural heritage.

Proposed guidelines and actions

1 QPWS will establish formal links with Indigenous people associated with the Great Sandy Region with a view to establishing a mutually agreed framework for the ecologically sustainable use of protected wildlife for traditional purposes.

2 A program to encourage community understanding and support for sustainable traditional Indigenous hunting, gathering and related activities will be developed.

Existing situation

Hunting by Indigenous Traditional Owners in the Region continues according to tradition. Local working arrangements currently exist between QPWS and the local Indigenous Traditional Owners to monitor the taking of wildlife.

4.03 Mineral exploration and mining

See also: Strategy 1 Natural and cultural resource management

Background information

To date, mineral sand (defined as a mineral under the *Mineral Resources Act 1989*) is the only significant economic mineral deposit identified in the Great Sandy Region, with large deposits located both on Fraser Island and Cooloola, although other resources of silica sand, peats and quarry materials are known and there is potential for hydrocarbons (gas and petroleum).

Following the Report of the Commission of Inquiry into the Conservation, Management and Use of Fraser Island and the Great Sandy Region, the Queensland Government negotiated the surrender of all mining leases for minerals and mineral exploration permits within the Region.

Exploration drilling for oil and gas was undertaken in Cooloola in 1923. The drilling was undertaken because of 'oil slicks' noticed on the waters issuing from the sand at what is now known as King's Bore. These 'slicks' can still be seen on the waters today and are due to iron compounds known as ferrihydrite. The drilling tests indicated the presence of 'green' oil. The Department of Resource Industries and the Australian Petroleum Exploration Association advised the Commission of Inquiry that the geology of the Region implies that the existence of commercial hydrocarbons onshore is unlikely. The offshore hydrocarbon potential is unknown as no drilling has been undertaken, but seismic surveys indicate that the potential is higher than onshore.

The *Petroleum Act 1923* has allowed for conditional petroleum exploration to be conducted within national parks. The EPBC Act regulates actions that will, or are likely to, have a significant impact on any matter of national environmental significance. This includes relevant actions occurring outside the boundaries of a place or indirectly of a matter. These actions are to be referred to the Commonwealth Environment Minister and are subject to a rigorous environmental assessment and approval regime under the EPBC Act. This legislation overrides all other Commonwealth and State legislation and policy.

The *Environmental Legislation Amendment Act 2003* (yet to be commenced) amends the *Nature Conservation Act 1992* with the effect that access to national park for petroleum exploration will not be permitted. The *Petroleum and Gas (Production and Safety) Bill 2004,* scheduled to commence in January 2005, will also preclude petroleum exploration in national parks.

Desired outcomes

Prohibit exploration for or extraction of minerals (other than hydrocarbons) within the Region. All mining related activities (including hydrocarbon exploration and extraction) will be prohibited within the Fraser Island World Heritage property.

Proposed guidelines and actions

1 All mining-related activities (including hydrocarbon exploration and extraction) will be prohibited within the boundaries of the Fraser Island World Heritage property. No exploration for, or extraction of, minerals other than hydrocarbons will be permitted in the remainder of the Region. The exploration for and extraction of hydrocarbons in the part of the Region outside the Fraser Island World Heritage property will be subject to stringent environmental assessment and guidelines and be in accordance with present government policy and procedures.

2 The removal of existing stockpiles of processed minerals may be considered where such action would contribute to the rehabilitation of the site or to mitigate a recognised health hazard. The removal of the mineral stockpiles, depending on the use of the mineral, may require tenure under the *Mineral Resources Act 1989*.

Existing situation

There is currently no exploration for or extraction of hydrocarbons in the Great Sandy Region. However, there is one existing granted petroleum exploration tenure in the Region, along with overlapping petroleum exploration applications.

4.04 Collecting of flora and fauna

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.16 Research, monitoring and scientific sites

Background information

Outside national parks, harvesting of whole plants or plant parts from the wild for commercial, scientific, recreational, traditional and customary purposes is managed in accordance with legislation, strategies, management programs and a code of practice contained in the *Nature Conservation Act 1992*, *Nature Conservation Regulation 1994,* and *Conservation and Management of Protected Plants in Queensland 2001-2005*.

In general, harvesting of whole protected plants or protected plant parts is not permitted on national parks. Very limited collection of flora and fauna on national parks, primarily for scientific purposes, is allowed, only where consistent with management principles and plans and is subject to strict conditions. Permits for collecting ensure that collecting activities are managed to ensure they are sustainable.

Harvesting protected plants in the wild, whether on freehold or State land, may require a harvesting licence. Harvesting activities must be ecologically sustainable and all harvesting must be in accordance with the *Code of practice for the taking and use of protected plants 2001*. This Code provides minimum standards for the taking, keeping and use of protected plants in Queensland.

Desired outcomes

By or before 2010, to have harvesting of whole protected plants or protected plant parts off-park to be in compliance with the *Nature Conservation Act 1992* and associated State and Commonwealth legislation and occurring only where there is no conflict with other land uses.

By or before 2010, to have collecting of flora and fauna for scientific purposes outside protected areas in the Region subject to conditions consistent with those stipulated by QPWS in relation to protected areas.

By or before 2010, to have harvesting of whole protected plants or protected plant parts on national parks to be consistent with management principles and plans and in compliance with strict conditions.

Proposed guidelines and actions

*1 All protected plant harvesting (including whole plant and plant parts) on protected areas must be consistent with the *Nature Conservation Act 1992* and associated legislation. Very limited collection of fauna on protected areas within the Region will continue to be permitted for scientific purposes, subject to strict conditions.

*2 All protected plant harvesting (including whole plants and plant parts) from off-park areas must be consistent with the *Nature Conservation Act 1992,* including the *Conservation and Management of Protected Plants in Queensland 2001-2005*.

*3 Where conservation plans for species are prepared under the *Nature Conservation Act 1992*, these plans will be adopted for the Region.

Existing situation

The programs and strategies associated with the current legislation aim to ensure that protected plants continue to exist in the wild, while allowing for ecologically sustainable harvesting of whole protected plants and protected plant parts on appropriate land tenures in Queensland.

4.05 Commercial fishing

See also: 3.07 Community engagement
3.11 Recreational fishing
4.01 Sustainable resource harvesting

Background information

Commercial fishing is an important component of the economy of the Great Sandy Region and provides significant volumes of bait and seafood for local, State and export markets. The principal commercial fisheries within the Region are:

- an otter trawl fishery targeting saucer scallops and king, banana and tiger prawns;
- a beam trawl fishery mainly for banana prawns;
- a beach net fishery for mullet, mackerel, whiting, bream, tailor, dart and other species;
- a mudcrab and sandcrab fishery using pots;
- an estuarine net fishery for mullet, whiting, bream and flathead;
- a bait fishery for beach worms and bait prawns;
- oyster culture operations;
- aquarium fish collecting; and
- aquaculture.

The commercial fishing fleet based in the Region consists of otter and beam trawlers, as well as net and crabbing vessels. The main ports of operation are Bundaberg, Urangan, Maryborough and Tin Can Bay, with a small number of vessels also operating in the Tewantin and Noosa area.

The landed value of the Region's commercial fishing activity is about $28.8 million and provides jobs locally and flow-on effects create additional jobs. Of this output, the majority of landed value and local jobs are derived from within the Region, the remainder coming from fishing grounds further offshore. Commercial fisheries have a relatively high multiplier value of about 1.8 to 2.1 – consequently the industry is of considerable significance to the Region's economy.

Fisheries in the Region are managed under the *Fisheries Act 1994* and its associated regulations and policies. The DPI&F manages the State's fisheries resources and is responsible for research, management and enforcement for all commercial fisheries under Queensland jurisdiction.

A range of statewide and area-specific management arrangements apply to commercial fishing in the Region. These include licensing requirements and fees, vessel restrictions, restrictions on the design and application of fishing gear and seasonal and area closures. Fisheries legislation and regulations are largely enforced by the Queensland Boating and Fisheries Patrol, a DPI&F agency.

Fishery management plans need to consider natural values and critical habitat in the World Heritage Area, which extends 500m off the Fraser Island coast.

Unlike the recreation sector, the commercial fishing sector contributes directly to management of fisheries in Queensland through fishing licences and other fees. The present management arrangements governing commercial fisheries are intended to maintain the sustainability of the resource by limiting expansion of commercial effort and to manage the interface between commercial and recreational fishers.

Effort from recreational fishing is expected to continue to increase and additional management measures will need to be introduced to ensure the sustainability of the resource. The benefits of managing fishing effort can be seriously eroded if the natural environment, the basis of fisheries production, is not protected.

There is continuing concern that the stocks of fish and other marine and freshwater resources are being depleted. In order to assess the long-term sustainability of fishery activity in the Region, more detailed information will be required. A detailed evaluation of fish stocks in the Region and critical habitat requirements would be expensive and would take several years for initial assessment. Increasing controls would be needed and some fishing activities may need to be restricted during monitoring and research.

In the short-term, overall economic benefits may be reduced and the viability of individual recreational and commercial fishers may be affected. However, the long-term viability of fishery activity would be enhanced by the information obtained and by subsequently improved management systems such as, trawl and reef management plans.

All fisheries are being assessed against the EPBC Act. Reports on a number of Queensland fisheries have been prepared and accepted or are currently being reviewed by the Department of Environment and Heritage (Commonwealth). The remainder are in an advanced state of preparation.

Desired outcomes

By or before 2010, to have commercial fishing operations within the Great Sandy Region occurring in an environmentally, economically and socially sustainable manner.

Proposed guidelines and actions

1 The DPI&F, in consultation with other government agencies and interest groups and the Queensland Seafood Industry Association, will develop a detailed management plan for the fisheries of the Region. Matters for consideration include:

- the need for further research into the state of fish stocks and levels of exploitation to determine the sustainability of current commercial fishing activities;
- recreational fishing effort will continue to be captured by the Rfish database and be incorporated into stock assessments;
- DPI&F will continue to assess the impacts of fishing activities on fish stock, looking at improvements to fishing regulation such as development of the Inshore Fin Fish Management Plan;
- the economic and social significance of commercial fishing in the Region;
- the impact of environmental modification and degradation on marine resources in the Region;
- the impact of commercial and recreational fishing activities and recreational boating on non-target species particularly turtles, dugong and whales and dolphins; and
- the need to identify and quantify issues of conflict between the recreational and commercial sectors and other resource users, and to implement measures to reduce the potential for conflict and resolve conflicts when they do occur (resource allocation is a DPI&F role and responsibility).

2 Where appropriate, commercial fishing operations and entitlements will be modified to ensure the environmental, economic and social sustainability of the Region's commercial fishing sector.

3 When appropriate, formal inter-agency management arrangements will be developed to deal with the management of species whose survival depends on actions outside the Region.

4 Consideration will be given to establishing a professional fishing camp at Orchid Beach.

*5 Regular reviews of Fish Habitat Area boundaries are required to ensure they retain their usefulness over time, in particular at the seaward boundaries.

Existing situation

There appears to be an over-capacity in the commercial fishing fleet operating within the Great Sandy Region, but information is insufficient to assess the long-term sustainability of current commercial and recreational fishing activities. Potential conflict exists between commercial fishers and recreational fishers as they often target similar species.

Commercial fishers have legal rights and responsibilities that the general community needs to better understand. A number of commercial fishers who have a demonstrated historic use of areas in the north of Fraser Island in accordance with a licence under the *Fisheries Act 1994* have written approval to use specified closed roads and beaches. A code of conduct and conditions apply.

Closures to commercial fishing in the Region includes an area within a 1.2 km radius of Wolf Rock and an area of Fraser Island between Indian Head and Waddy Point from 1 August to 30 September annually.

DPI&F has issued a number of aquaculture authorities for areas within the Great Sandy Region, and is assessing others. Recently approved authorities within the Great Sandy Region include an experimental sea cucumber ranching operation and a pearl-oyster operation. Authorities have been granted for oyster areas that have existed in the Region for more than 100 years, a scallop sea ranching trial and one beche de mer sea ranching approval. A number of applications for various forms of shellfish culture within the Region are being assessed. To ensure that the expected additional pressure for further industry growth is managed properly, a whole-of-government planning, management and development arrangement for marine aquaculture is currently being developed by DPI&F.

DPI&F is currently developing fisheries management plans for all of the State's fisheries, as subordinate legislation. These plans are being developed on a statewide basis, in order to ensure an increasing consistency and fairness between sectors and interest groups across the State.

4.06 Beekeeping

See also: 1.06 Marine and terrestrial wildlife (including vegetation)
1.07 Landscape
1.16 Research, monitoring and scientific sites
2.04 Roads

Background information

The Great Sandy Region has many plant species that are or have been used extensively by beekeepers, including wildflowers, banksia, paperbark, swamp mahogany and Mary River and Susan River estuary mangroves.

Apart from attempts at the turn of the century, Fraser Island has not been used for honey production. Improved hive management and vehicular access has increased interest in the value of the Island for beekeeping, particularly for breeding bees for use in crop pollination and queen bee rearing in an insecticide-free environment. State Forest SF451 (Womalah) has been an important regional area for beekeeping.

The *Nature Conservation Act 1994* provides for the issue of a permit to keep bees on a conservation park or a resources reserve where it is considered appropriate and compatible with the stated management principles of that category of protected area. Beekeeping is not permitted on national parks. Permits to keep bees may be issued for new national parks and conservation parks for a limited time after gazettal. Beekeeping is allowed on national parks and national park (recovery) that were previously forest reserve lands until 2024.

The EPA Beekeeping Policy outlines a number of management guidelines and operational procedures that need to be considered regarding beekeeping on protected areas.

Most of State Forest SF451 (Womalah) was revoked in December 1991 and added to the Cooloola Section of the Great Sandy National Park in January 1992. Government policy permitted existing apiary sites in areas gazetted national park to continue for three years from the date of gazettal of the national park.

The compatibility of beekeeping and conservation management is in question, as there is insufficient information available to determine the extent or significance of the

impacts of beekeeping on the Region's conservation values. Possible effects of beekeeping on the Region's conservation values include:

- reduced nectar and pollen supply for native fauna, especially birds and insects;
- reduced pollination of native plants (especially plants adapted to pollination by birds);
- increased hybridisation of some native plant species; and
- the long-term decline in abundance of native pollinators.

Desired outcomes

By or before 2010, to have beekeeping within the Great Sandy Region limited to areas other than national parks, except for areas converted to national park under the South East Queensland Forests Agreement which allows beekeeping until 2024.

Proposed guidelines and actions

1 The siting of apiaries will be limited to those areas in use or on disused roadside cuttings, quarries and other appropriate sites not requiring vegetation or landscape modification.

2 All existing apiary sites will be recorded and mapped.

Existing situation

Apiary permits are current for the Womalah Forest Reserve. Other permits allow for apiaries on freehold land and other tenures in the Region. All beekeepers need to be registered with DPI&F, with registration reviewed annually.

4.07 Grazing and agriculture

See also: 1.05 Landform and soil forming processes
1.11 Land rehabilitation
1.15 Catchment management

Background information

Grazing and agricultural activities within the Great Sandy Region have not been extensive. Soils in the Region are generally low in nutrient status and are highly subject to erosion making them less than ideal for agricultural purposes. On Fraser Island, grazing began last century with the breeding of horses for the Indian Army and the grazing of bullocks and cattle, primarily on the southern end of the Island.

In the Cooloola area, large-scale expenditure on the development of wallum areas for grazing purposes was encouraged during the 1960s and is evidenced by the development of properties such as Elanda Plains, Tarangau and Bayside (on Tin Can Inlet). Several unsuccessful attempts to establish grazing operations are indicated by relics such as stumps, tanks, fencing and rough creek crossings. Following the slump in the beef industry, Elanda Plains was bought by the Commonwealth Government for addition to the Cooloola Section of the Great Sandy National Park. Bayside was sold for urban development (now Cooloola Cove). Tarangau remains a private rural property.

Desired outcomes

By or before 2010, to have commercial grazing and agriculture occurring only on private lands within the Region.

Existing situation

There is currently no commercial grazing on Fraser Island and grazing in the Region is generally restricted to freehold property. Grazing on Elanda Plains, within the Cooloola Section of the Great Sandy National Park, no longer occurs and a revegetation program is under way to address the impact of past grazing activities.

4.08 Extraction of quarry materials

See also: 1.05 Landform and soil forming processes (requires relevant page numbering)
1.07 Landscape
1.11 Land rehabilitation
2.02 Marine infrastructure

Background information

Issues relating to the extraction of quarry materials from the Great Sandy Region can be categorised into three broad areas: rock and gravel quarries, sand borrow pits and marine dredging.

Landfill is required by residents and developers within the Region for land development, house building and landscaping. The need for managed sand borrow pits adjacent to township areas is particularly important on Fraser Island where cartage costs are high.

Mt Bilewilam was an important source of supply of local quarry material for major developments, general township requirements and road construction and maintenance in Rainbow Beach and Tin Can Bay. Quarry products are now used for maintenance purposes only.

Impacts associated with Mt Bilewilam quarry operations include local noise and dust pollution, impact on landscape and visual amenity values. Quarrying of Mt Bilewilam threatens the integrity of one of the most prominent rock features in the Cooloola area.

Desired outcomes

By or before 2010, to have extraction of quarry materials from the Great Sandy Region limited to the use of designated sand borrow pits within township areas and minimal extraction of hard rock from Mt Bilewilam.

Proposed guidelines and actions

1 The quarry reserve (R264) on Noosa North Shore will be used only to supply gravel required for proposed road works on Noosa North Shore, then closed, rehabilitated in accordance with EPA conditions and added to the Cooloola Section of the Great Sandy National Park.

2 Quarry operations at Mt Bilewilam will be limited to hard rock extraction. Requirements for sand fill in the Rainbow Beach/Inskip Peninsula area will be assessed.

3 A quarry development plan will be prepared for Mt Bilewilam quarry to guide minimum impact extraction and provide for the programmed rehabilitation of the site. The rehabilitation of the Mt Bilewilam quarry will include contouring to promote revegetation in accordance with EPA licence conditions. Care will be taken to minimise disturbance to the capping of dune sand on Mt Bilewilam.

*4 Subject to ecological, landscape and cultural resource evaluation, sand borrow pits will be established where necessary for townships and areas of settlement within the Great Sandy Region. Guidelines for the development, maintenance and use of borrow pits will be prepared.

5 Approval will not be granted for the commercial removal of sand or gravel from tidal areas in the Great Sandy Region, with the exception of the extraction of a finite amount of sand from in the vicinity of Rainbow Beach necessary to permit planned development in the Rainbow Beach/Inskip Peninsula area. Material produced by approved dredging of harbours and channels may be sold.

Existing situation

There are currently no dredging permits to allow commercial extraction of gravel and sand materials from tidal areas in the Great Sandy Region. Three permits in the Mary River upstream of the Region's boundary allow the removal of some 210,000 cubic metres a year.

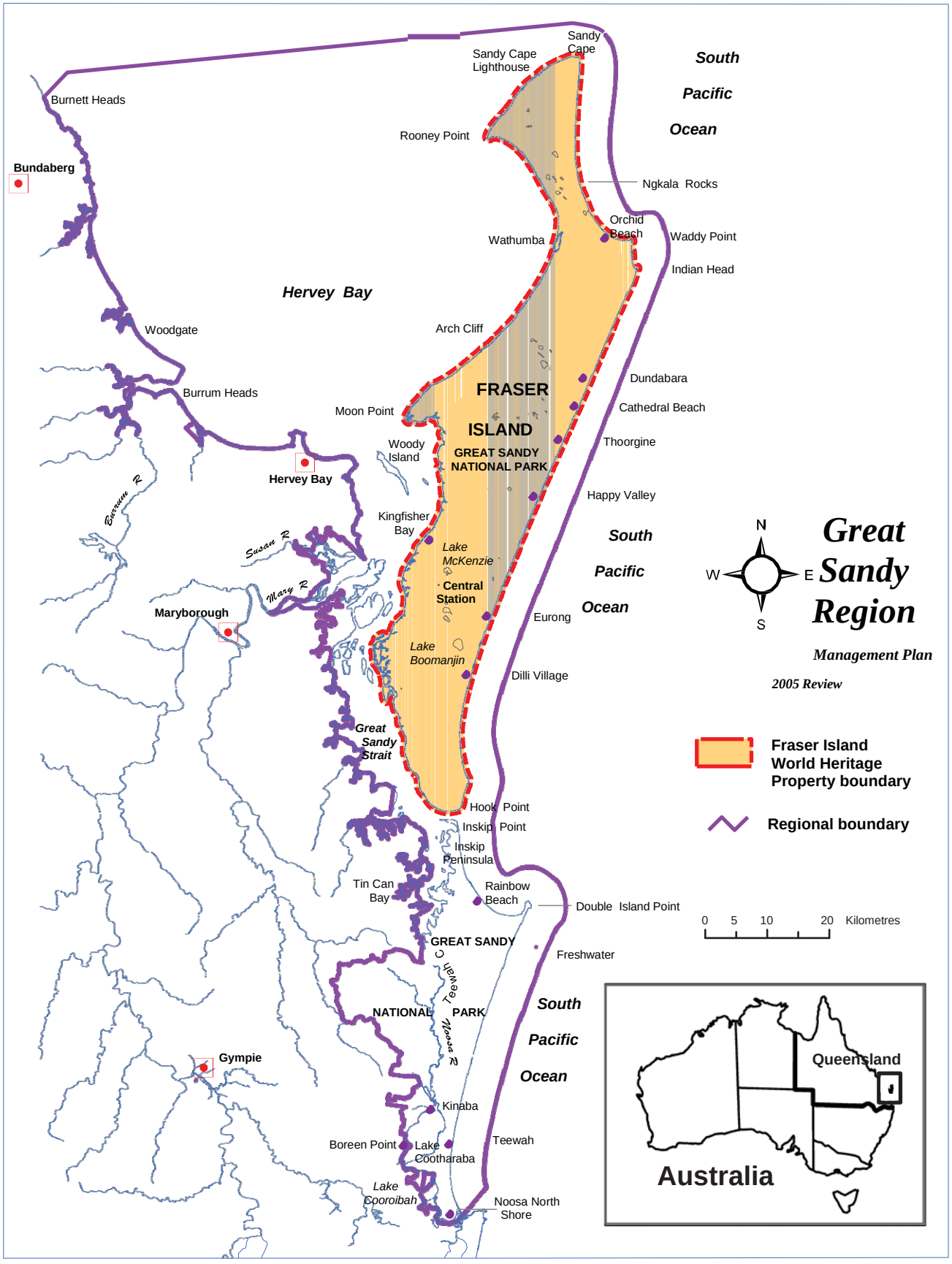
There are presently two quarries within the Region — Mt Bilewilam on the Rainbow Beach Road and a Council reserve on the Noosa North Shore. The Cooloola Shire Council supports the mining of sand and gravel at Mt Bilewilam as they are valuable resources for business and community.

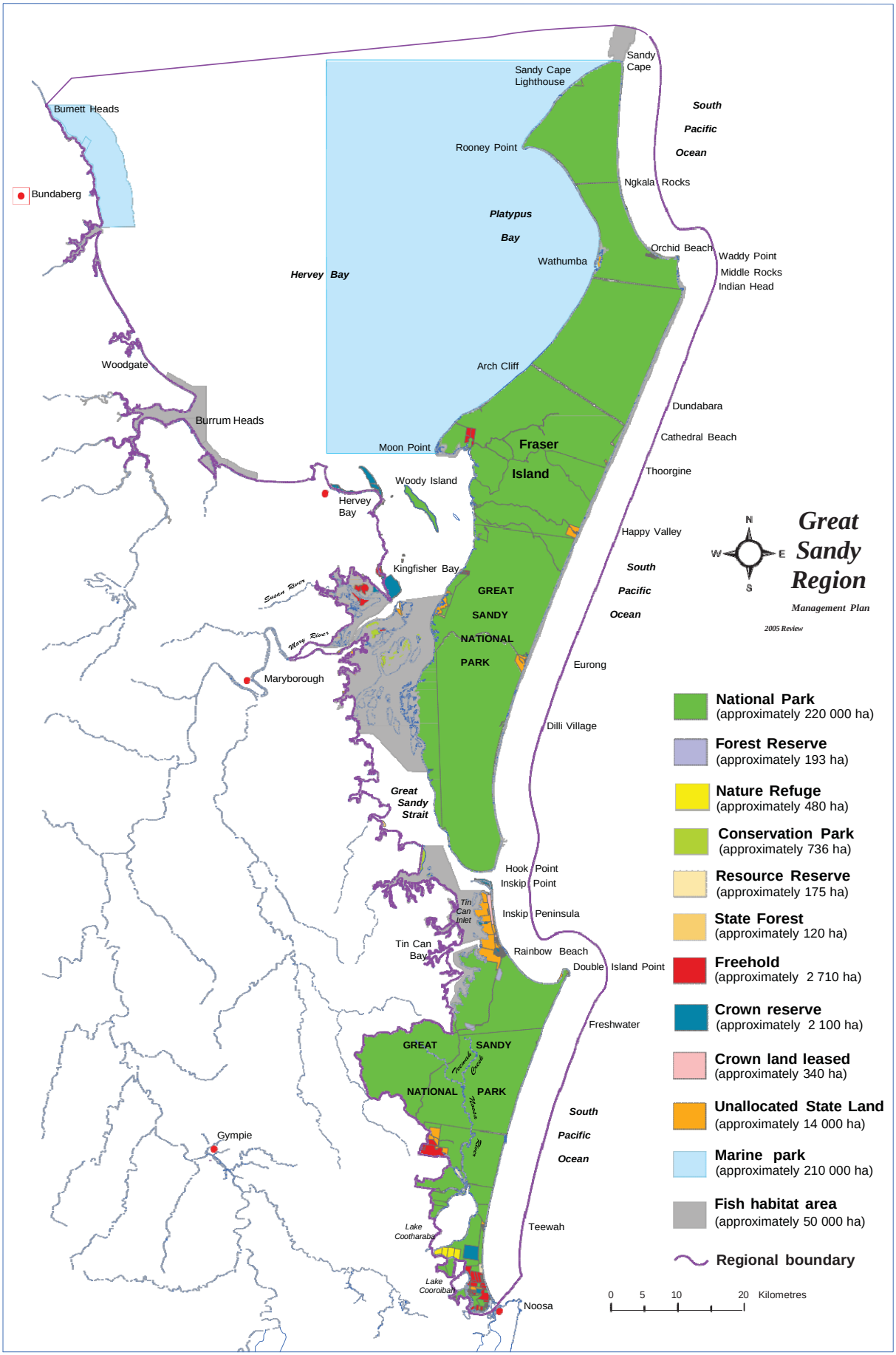
Mt Bilewilam Quarry and the remainder of Womalah State Forest have been declared forest reserve under the *Nature Conservation Act 1992* and are proposed for gazettal as national park and resources reserve under the South East Queensland Forests Agreement process. Gravel and sand extraction continues at Mt Bilewilam quarry. The grade of sand from the quarry is the only supply of this quality in the local Region.

Under the Noosa North Shore Management Strategy, the possibility of transfer of part of the quarry reserve to national park will be investigated. Part of the quarry may be held for minor operations including the stockpile of construction materials.

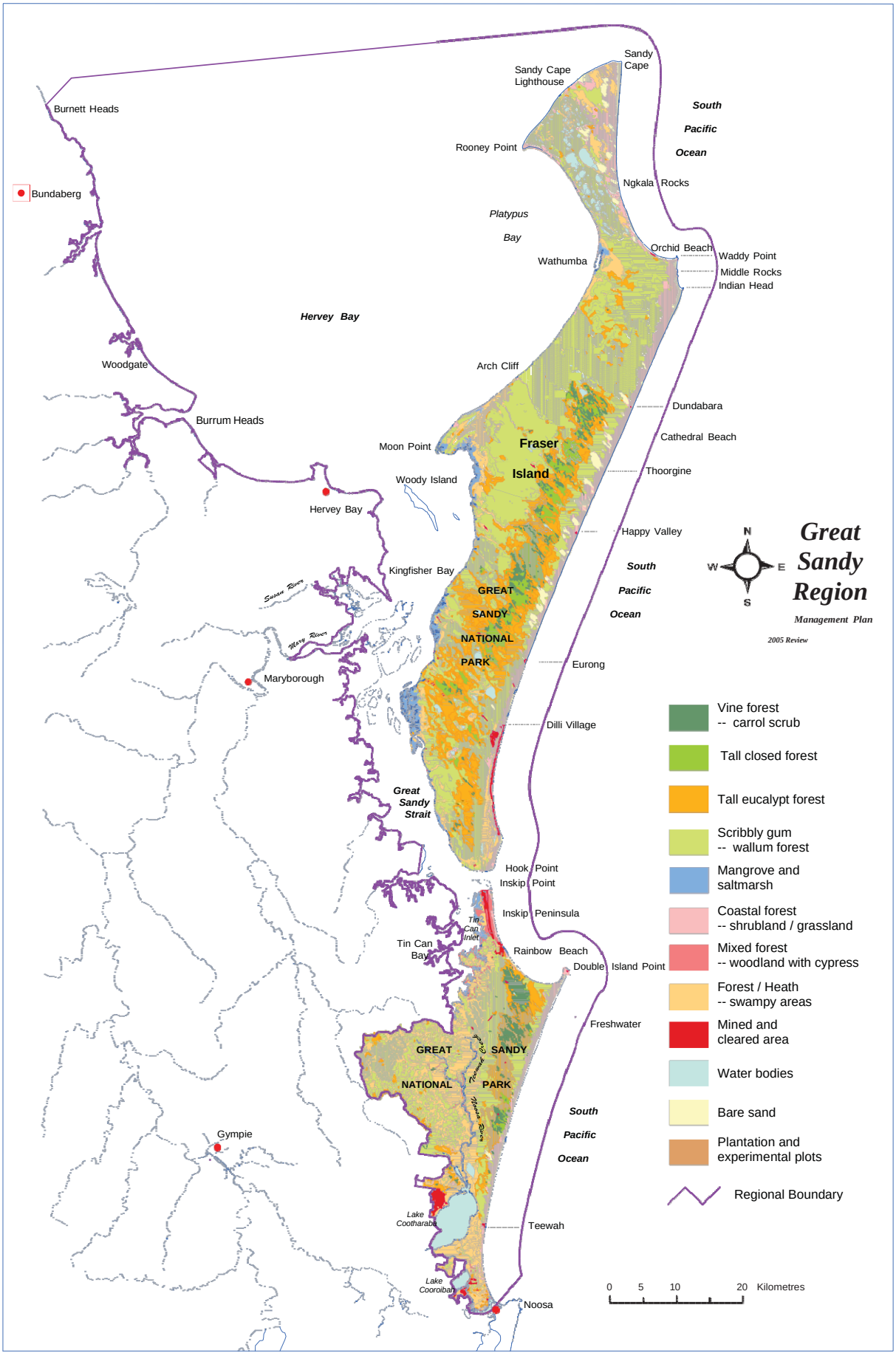
Map 1

Great Sandy Region locality, Regional boundary and Fraser Island World Heritage Property boundary

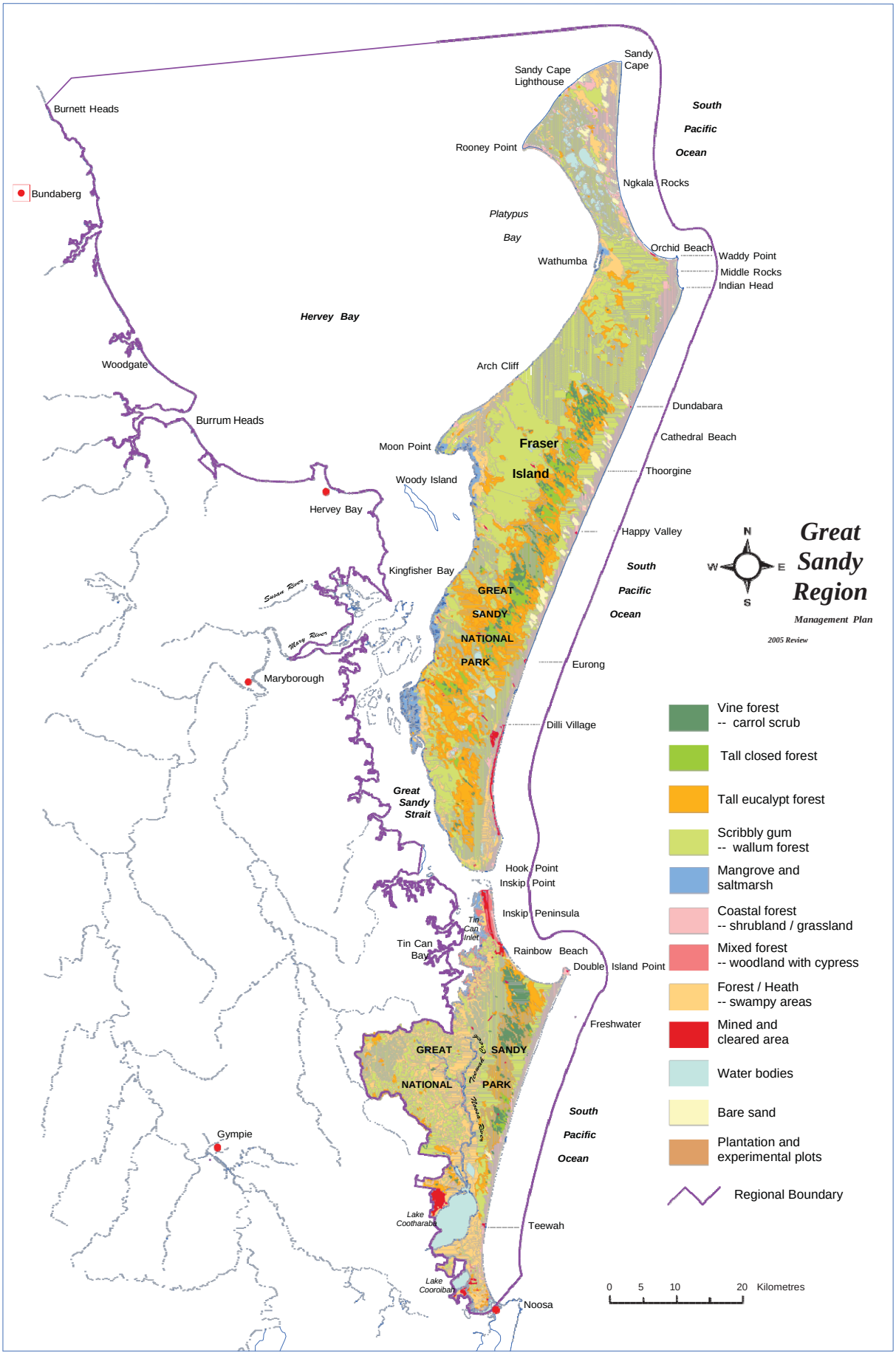




Map 2
Great Sandy Region land tenures



Map 3
Great Sandy Region vegetation



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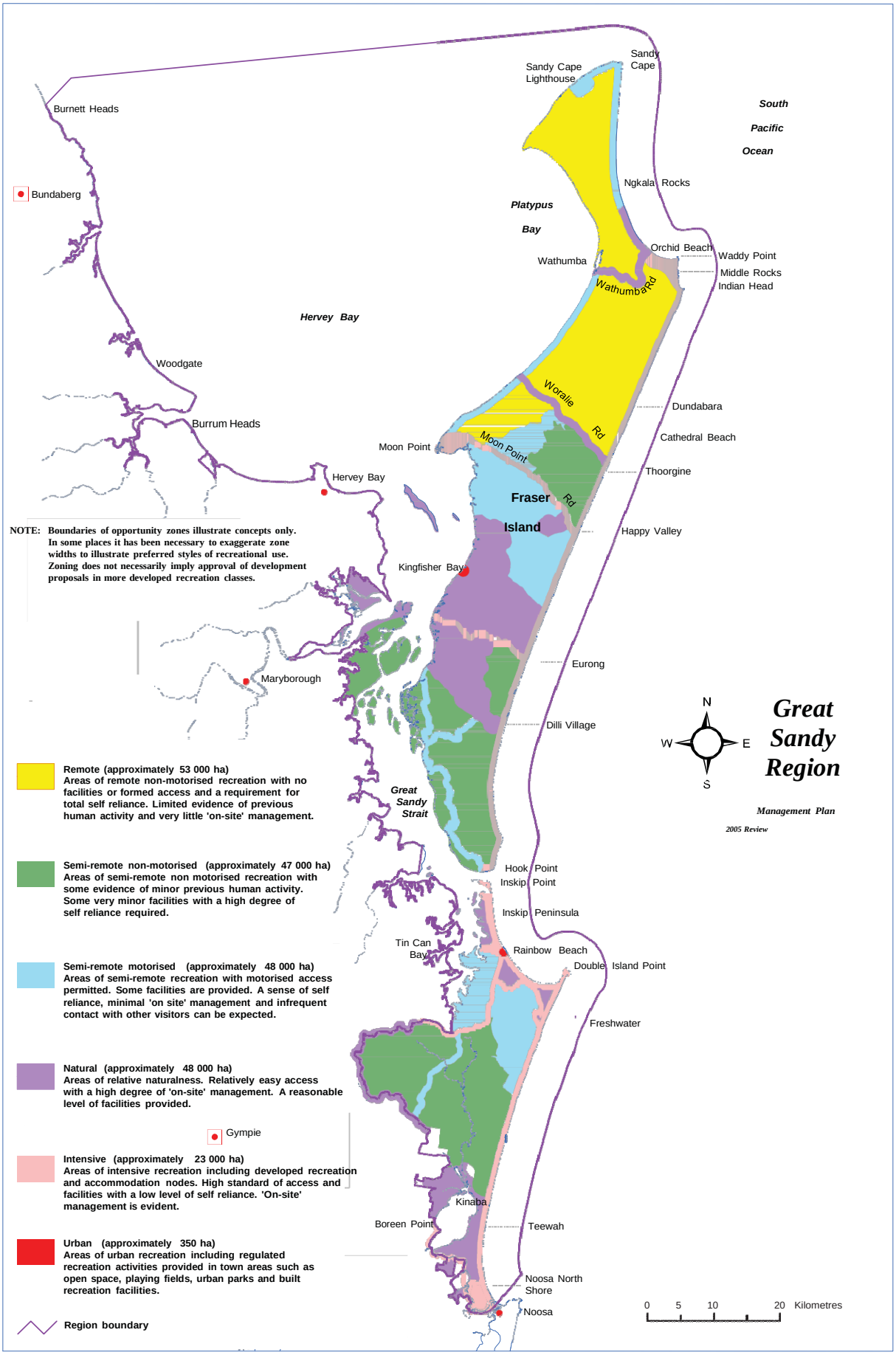
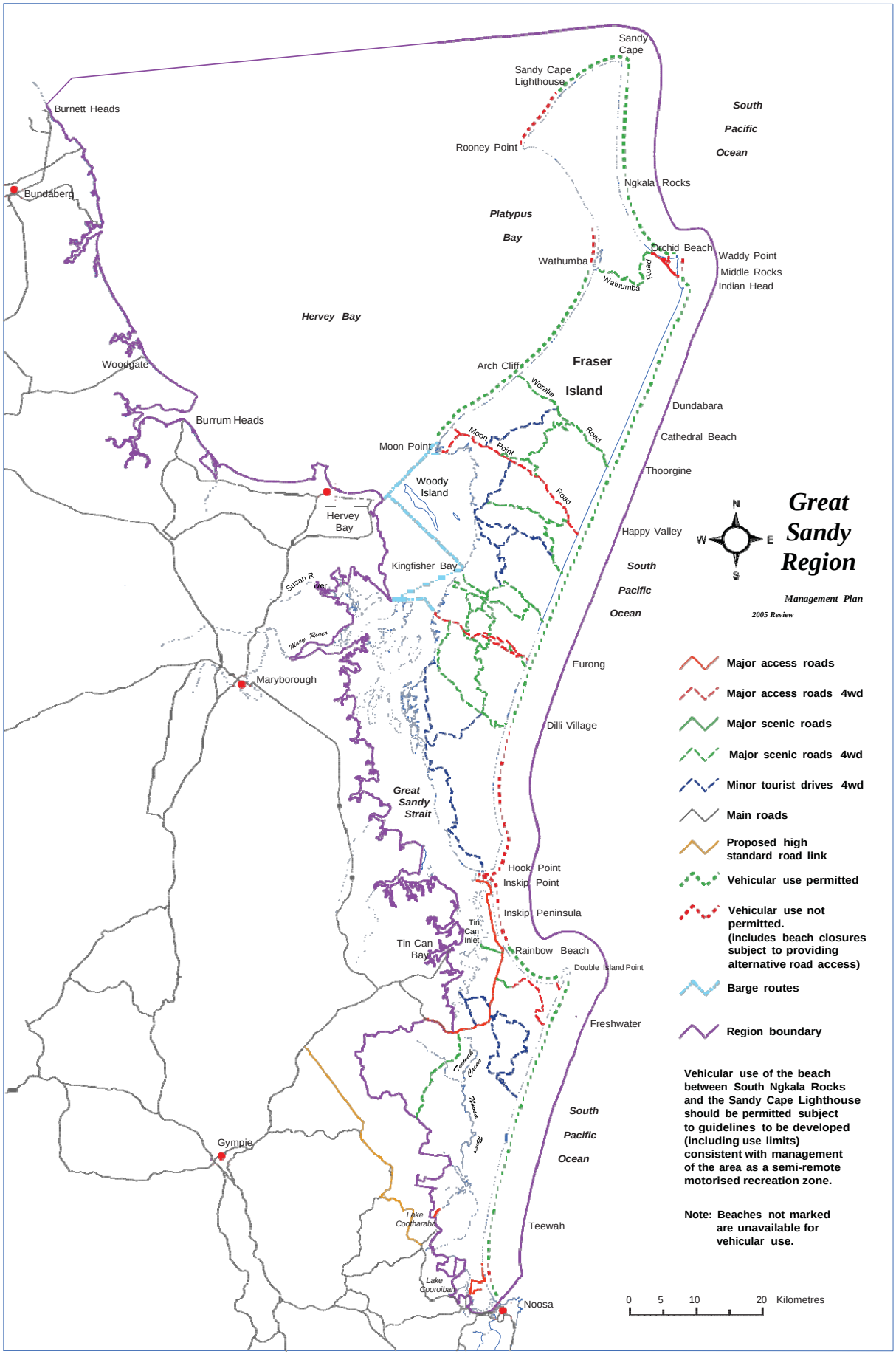


Map 5
Great Sandy Region recreation opportunity classes



Map 6
Great Sandy Region access