

Inquiry into Australia's national parks, conservation reserves and marine protected areas



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Background

Terms of Reference

On 8 December 2005 the Senate referred the following Terms of Reference to the Environment, Communications, Information Technology and the Arts References Committee for inquiry and report by 30 November 2006:

The funding and resources available to meet the objectives of Australia's national parks, other conservation reserves and marine protected areas, with particular reference to:

- ◆ the values and objectives of Australia's national parks, other conservation reserves and marine protected areas;
- ◆ whether governments are providing sufficient resources to meet those objectives and their management requirements;
- ◆ any threats to the objectives and management of our national parks, other conservation reserves and marine protected areas;
- ◆ the responsibilities of governments with regard to the creation and management of national parks, other conservation reserves and marine protected areas, with particular reference to long-term plans; and
- ◆ the record of governments with regard to the creation and management of national parks, other conservation reserves and marine protected areas.

Introduction

- ◆ As at December 2005, Environmental Protection Agency (EPA) manages approximately 12 million hectares of land in more than 1200 individual land parcels that comprises nearly 7% of Queensland.
- ◆ Protected Area estate of 7.7 million hectares of terrestrial estate, 68,000 km² of State Marine Parks and 345,000 km² of Great Barrier Reef Marine Park jointly managed with the Commonwealth.
- ◆ Since 1990, the EPA-managed land area has increased by approximately 7.5 million hectares.
- ◆ Queensland has five World Heritage Areas.
- ◆ Contribution of 16 million protected area and other reserve visitors to GSP in 2004 was estimated to be \$360 million.
- ◆ In 2004-05, EPA spent approximately \$142.5 million on terrestrial and marine managed areas (includes protected area estate and other reserves).
- ◆ Key expenditure areas include staff costs, construction and maintenance of facilities, feral animal and weed control, fire management, monitoring and community engagement.
- ◆ A resource base of more than 560 permanent ranger staff, located at 130 locations, with around 300 additional staff assisting with technical support, administration and management.
- ◆ Entry to most Queensland parks is free of charge.
- ◆ User pays revenue base of around \$11 million from camping, commercial activities and other charges.

Queensland's Terrestrial and Marine Protected Area Estate

Protected areas are recognised as being fundamental to sustaining ecological processes, supporting native ecosystems and maintaining biodiversity. These areas support recreational activities and preserve geological, historical and evolutionary information and materials and have spiritual, inspirational, scientific, cultural and educational value.

In Queensland, the Queensland Parks and Wildlife Service (QPWS), an entity within the EPA leads the management of national parks, conservation reserves and marine protected areas as well as other areas such as state forests, forest reserves and timber reserves. The *Nature Conservation Act 1992* (NCA) is the key legislation in Queensland to preserve the natural condition of the protected area estate and provide the underlying principles for protected area estate management. As at 30 June 2005 the following legislation, in whole or in part, guided the management of protected areas by the Agency on behalf of the Minister for Environment, Local Government, Planning and Women:

- ◆ Nature Conservation Act 1992
- ◆ Marine Parks Act 2004
- ◆ Forestry Act 1959
- ◆ Wet Tropics World Heritage Protection and Management Act 1993
- ◆ Recreation Areas Management Act 1988
- ◆ Brisbane Forest Park Act 1977
- ◆ Coastal Protection and Management Act 1995
- ◆ Environmental Protection Act 1994

Of the 15 (Natural) World Heritage properties in Australia, five are totally or partially located in Queensland - Wet Tropics of Queensland, Great Barrier Reef, the Riversleigh section of the Australian Fossil Mammal Sites, Fraser Island, and the south-eastern Queensland section of the Central Eastern Rainforest Reserves of Australia (CERRA).

World Heritage Areas are listed to protect outstanding examples of the world's natural and cultural heritage for future generations, and represent vitally important links between the past and the future. To be included on the World Heritage list, sites must satisfy the selection criteria outlined in the World Heritage Convention and pass examination by the World Heritage Committee on the basis of technical evaluations provided by independent advisory bodies. Without the support of the Convention and World Heritage listing, the values of some sites could deteriorate. World Heritage properties in Australia do not become Commonwealth property, and ownership rights are not affected by listing. Management of the Great Barrier Reef Marine Park is shared between the Commonwealth and Queensland Governments. Management of other World Heritage sites is carried out primarily by EPA in conjunction with government and community partners.

Marine and terrestrial protected areas make vital contributions to ecosystem services that maintain the overall wellbeing of people as well as provide important benefits to the Queensland economy. These benefits include opportunities to learn about nature, improve physical health, protect wildlife, enhance air quality, preserve environmentally significant lands, reduce flooding and erosion, interact with others for recreation and social purposes, and improve local economies through tourism and businesses. It is recognised however, that pressures on estate areas are increasing. Natural places are being overtaken by urban, industrial and agricultural development.

Careful management and community help is needed to protect these areas and safeguard those values that make them so special.

A *Master Plan for Queensland's Park System* outlines the directions for management of protected areas in Queensland for the next 20 years. Management plans will be prepared for most protected areas to identify special values and determine ways to ensure those values are preserved and enhanced.

Currently, EPA provides management services for 11.9 million hectares of terrestrial land. In addition, over the next three years EPA will progressively assume responsibility for the management of up to 3.8 million additional hectares a result of current forest transfer and land acquisition processes.

Under the NCA, twelve classes of protected area can be declared to protect Queensland's biological diversity and outstanding natural and cultural features. The classes of national parks (scientific), national parks, national parks (recovery), conservation parks and resources reserves can be declared over State-owned land. The classes of national parks (Aboriginal land), national parks (Torres Strait Islander land), nature refuges, coordinated conservation areas, wilderness areas, World Heritage management areas and international agreement areas can be declared over areas of State land and/or other lands with the consent of the owner.

In addition to the 7.7 million hectares of protected area estate, EPA manages 3.9 million hectares of forest estate (forest reserve, state forest and timber reserve), 0.3 million hectares of other lands. There are also more than 400,000 hectares protected by privately managed nature refuges across the state.

Table 1 - Table of EPA Managed Lands as at December 2005

Class	Areas in hectares	Number	% of Qld
National Park (scientific)	52,181	7	0.03%
National Park	7,282,805	227	4.22%
National Park (recovery)	14,328	10	0.01%
Conservation Park	52,587	184	0.03%
Resources Reserve	347,635	36	0.20%
Sub Total - Protected Area Estate	7,749,536	464	4.49%
Forest Reserve	496,281	157	0.29%
State Forest	3,156,309	421	1.83%
Timber Reserve	262,497	11	0.15%
Sub Total - Forest Estate	3,915,087	589	2.27%
Departmental and Official Purposes Reserve	2,560	96	0.00%
Environmental Reserve	8	1	0.00%
Reserve for Environmental Purposes	309,272	26	0.18%
Other Reserves	1,259	7	0.00%
Scientific Reserve	313	4	0.00%
Freehold Land EPA	9,300	23	0.01%
Sub Total - Other Lands	322,712	157	0.19%
Total EPA Managed Lands	11,987,335	1,210	6.94%

Marine parks are established over tidal lands and waters to protect and conserve special areas while allowing for the planned use of marine resources. Multiple-use management allows for many different activities in marine parks, with zoning plans used to determine activities that can occur within each area. EPA manages an area in excess of 68,000 km² of State marine parks and assists with day-to-day management of more than 345,000 km² of the Great Barrier Reef Marine Park. In addition, it is

expected that the proposed Great Sandy Marine Park (approximately 6,000 km²) is will be gazetted by June 2006. Further areas may be added to the marine park estate as part of the Queensland Government's intention to establish marine parks along the Queensland coastline from the Gold Coast to the Gulf of Carpentaria.

Table 2 - Table of EPA Managed Marine Areas

Class	Areas in km ²
State Marine Parks	
Woongarra Marine Park	107
Hervey Bay Marine Park	1,977
Moreton Bay Marine Park	3,472
Great Barrier Reef Coast Marine Park	62,732
Sub Total	68,288
Great Barrier Reef Marine Park (jointly managed with Commonwealth)	345,400
Total	413,688

Analysis

1. Values and Objectives

The values and objectives of Australia's national parks, other conservation reserves and marine protected area.

The availability of land for open space and recreation is integral to the liveability of Queensland and the benefits associated with open space and recreation accrue to the individual, the environment, the community and the economy.

These benefits include opportunities to learn about nature and physical health, protect wildlife, enhance air quality, preserve environmentally significant lands, reduce flooding and erosion, interact with others for recreation and social purposes, and improve local economies through tourism and businesses.

The *Masterplan for Queensland's Parks System* articulates the vision of an estate system that will contribute to the conservation of natural and cultural heritage in Queensland by establishing and managing a comprehensive and fully representative system of protected areas, managed in partnership with Indigenous people, and with the involvement of an informed and participating community. The vision recognises:

- ◆ Parks are cornerstones of an integrated strategy to conserve nature, including biological diversity, and cultural heritage in Queensland, as part of a national and global system.
- ◆ Parks should ensure the conservation of natural and cultural values for all time and for all peoples.
- ◆ Indigenous peoples maintain strong links with the land on which many parks have been established.
- ◆ Continuing engagement between people and parks, including enhanced opportunities for all to visit, participate in, learn, respect, enjoy and preserve parks, is a fundamental purpose of management.

Queensland works under a framework of four dimensions to which 12 principles of park management apply:

Protecting natural and cultural heritage

1. The Queensland parks system will be protected vigorously into the future
2. The natural integrity of parks will be conserved, with their natural values protected and presented, and parks will be integrated with good land management across the landscape.
3. The cultural heritage values of parks will be protected and presented.

Working with community partners

4. Responsibilities, interest and aspirations of Indigenous peoples will be respected in relation to their lands, and their roles in park management will be supported.
5. Parks will be managed in the context of surrounding landscapes with participation and involvement of local community needs and aspirations.

Sustaining recreational and tourism opportunities

6. Opportunities will be provided for people to visit, participate in, learn about, respect, enjoy, preserve and protect parks natural and cultural heritage.
7. The parks system will be managed to provide substantial and sustainable environmental, social and economic benefits to the Queensland community whilst maintaining the intrinsic values of all parks.
8. The parks system will be managed to provide visitors with safe facilities and with information that will promote visitor awareness of the hazards present in parks and the levels of skill and competence required to cope with the risks they may face.

Enhancing management capabilities

9. The Queensland parks system will be planned and managed skilfully, effectively, adaptively and efficiently to maintain park values in conjunction with other private and State lands.
10. Good management decisions will be made based on high standards of information and wisdom and community involvement in decision making.
11. A dedicated, skilled and motivated workforce will manage parks, using clear policies, directions and standards.
12. Continual improvement in park management will be fostered through evaluation, learning, and reliable and logical allocation of resources.

Key Issues

Biodiversity

Protected areas are a vital component in protecting the living diversity of the Earth and maintaining the species that inhabit it, including people. The quality of human life depends on biological diversity. Biological resources are necessary for many life-sustaining processes that we take for granted, including oxygen supply, clean water, soil formation, flood prevention, climate regulation and waste cleansing. There is an economic reliance on nature to provide food, medicine and other raw materials. In addition to this, visiting and interacting with natural areas also enhance quality of life.

Protected areas help preserve the genetic variety and the potential for continuing evolution of native plants and animals in their natural habitats, and this is essential to

sustain and enhance forestry, agricultural and fishery production. Protected areas provide opportunities for future expansion of ecologically based industries, such as the pharmaceutical industry. The loss of species diversity means options for future benefits are foregone forever.

Queensland has remarkable species diversity in ecosystems, plants and animals. Maintaining this biodiversity is important to maintaining the health of the environment for future generations. Queensland has identified 1,260 regional ecosystems within 13 bioregions, of which 736 are classified as 'not of concern', 426 as 'of concern' and 98 as 'endangered'.

Animal diversity (of mammals, birds, reptiles, amphibians, freshwater fish and butterflies) includes 1,955 species of which 91 are vulnerable, 57 are endangered and seven are presumed extinct. Total plants include 9,493 vascular (angiosperms, gymnosperms and ferns) and 5,062 non-vascular (mosses, liverworts, lichens, algae) plant taxa. In addition, there are currently 1,105 taxa of macrofungi recognised for Queensland.

In Queensland, biodiversity is under pressure from many influences including urban growth, land clearing and habitat destruction, climate change and pest plants and animals. Approximately 5 percent of plant species and 7 percent of animal species native to Queensland are threatened.

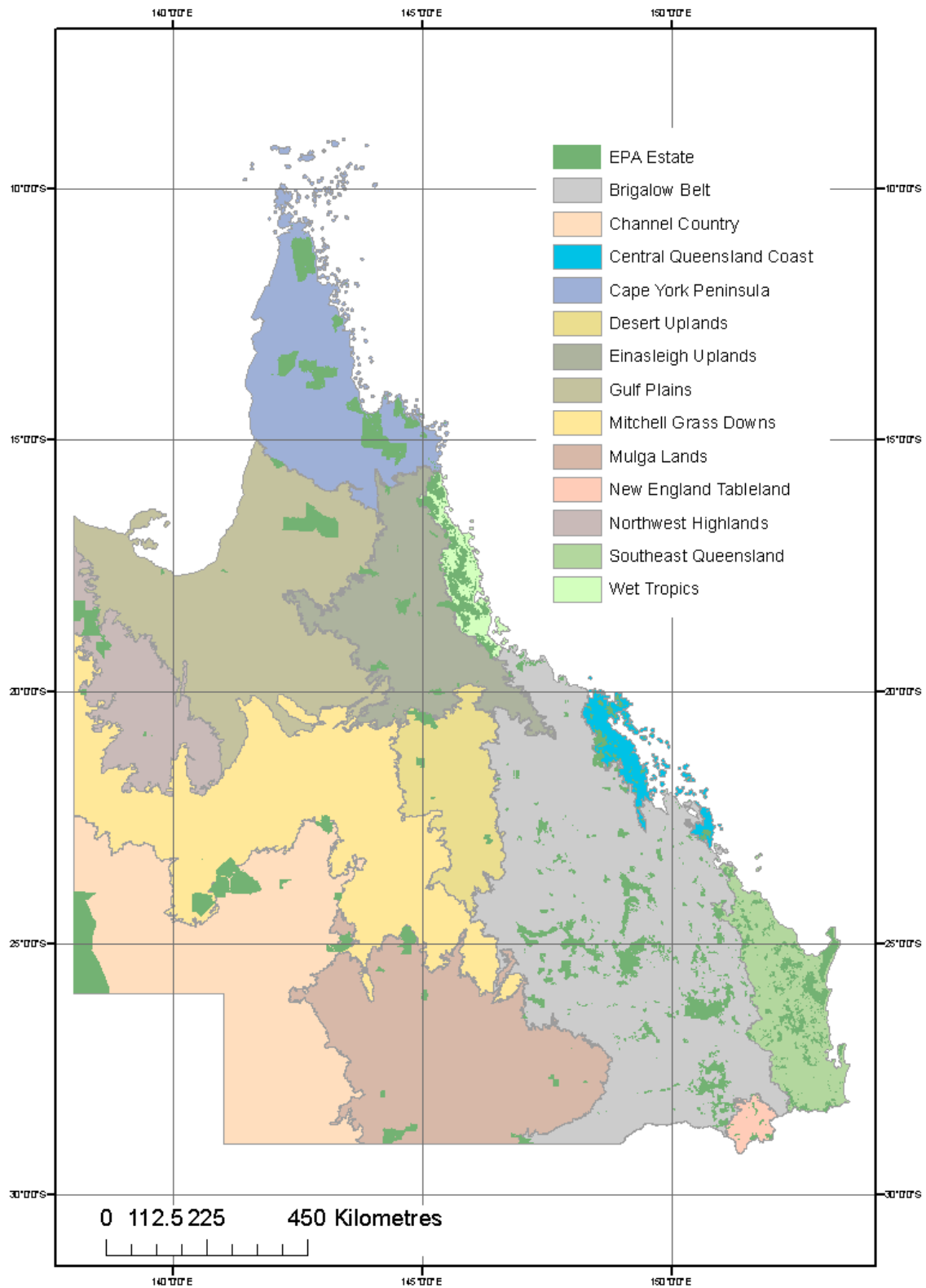
The central strategy for conserving biodiversity is through the establishment of a 'comprehensive', 'adequate' and 'representative' protected area system (principle 8, *National Strategy for Conservation of Australia's Biodiversity 1996*) in conjunction with conservation measures on other lands. It is a considerable challenge to conserve all the levels of biological diversity (genetic, species, ecosystem and landscape) in the most effective and efficient way possible.

Queensland's natural diversity has been classified into 13 "bioregions", which describe the broad types of "landscapes" or natural systems found across the state. Each bioregion is further divided into units called regional ecosystems, which are based on vegetation communities consistently associated with a particular combination of geology, landform and soil. The bioregions and regional ecosystems of Queensland have been the fundamental framework used in planning the expansion of the protected area estate over the last two decades. By conserving the ecosystems and their essential ecosystem processes, most of the diversity of plants and animals can also be protected. However, there are also cases where protected areas have been declared to protect particular plants or animals.

The principal method for determining the completeness or 'comprehensiveness' of the protected area system in sampling biodiversity is the level of representation of regional ecosystems in protected areas in each bioregion. Increasingly, regional ecosystems have been used as the surrogate for planning the protection of biodiversity.

The current status of Queensland's protected area system in these terms identifies that approximately 70% of the State's regional terrestrial ecosystems are represented in protected areas greater than 1000ha in size across all 13 bioregions, however deficiencies in representativeness still occur in many of the bioregions.

Table 3 - Queensland Bioregions and EPA Managed Estate



Ecosystem Services

Protected areas provide vital ecosystem services to the community. For example, protecting watersheds provides relatively reliable water for agricultural and urban lands downstream and protects adjacent lands from salination, erosion, and common effects of widespread land clearing. The large uncleared tracts of natural vegetation absorb greenhouse gases. Other benefits include contributions such as:

- ◆ Regulation - helping to maintain air quality, local and global temperature and rainfall patterns, coastal storm protection/buffering, flood dampening, prevention of erosion and siltation, pollination of commercial plant species.
- ◆ Provision - provision of clean drinking water and access to, and protection of biological resources such as food, medicinal resources and plant and animal population reservoirs.
- ◆ Support - pollution control, cycling of nutrients and detoxification.
- ◆ Cultural - outdoor recreation, ecotourism and enjoyment of scenery and nature, inspiration for creative activities, use of nature for education and research, security for significant environmental values.

World Heritage Areas

The Commonwealth Government is the only entity that is able to nominate World Heritage properties in Australia.

The five World Heritage Areas in Queensland are areas of outstanding universal value that have been recognised at State, national and international levels. No other Australian State or Territory contains as many properties.

The Great Barrier Reef is administered primarily under Commonwealth marine park legislation and joint Commonwealth/State arrangements for day-to-day management. The EPA is the foremost State agency carrying out on-ground management.

Only one property, the Wet Tropics, is subject to State legislation designed specifically to protect World Heritage values and provide for administration, management and planning procedures, including relationships with the Commonwealth. The other properties (or relevant parts of them) are managed under the provisions of Acts that apply to the underlying tenure, but only where that tenure is protected area, State forest or forest reserve. Consequently, on some properties where private land is present, there is no capacity to apply a management and planning regime that encompasses all tenures.

The overwhelming majority of land in the other four World Heritage properties has protected area status and is therefore subject to the provisions of the NCA. However, there are certain components that are not protected areas under that Act. This limits EPA capacity to apply management and planning regimes that encompass all land and water within the World Heritage property such as presently apply in the Wet Tropics.

The nomination of potential properties in Australia is a Commonwealth function, and the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) give the Commonwealth over-riding powers to determine what can and cannot happen within, and adjacent to, the properties. A key matter of concern in the administration of Queensland World Heritage properties is the substantial decline in the Commonwealth contribution to their management.

Cultural Heritage

Cultural heritage conservation on protected areas can involve the protection of historic places and objects of obvious heritage significance, such as indigenous art sites, historic buildings and other early heritage sites. The protection of this “material” culture is important, and requires considerable expertise and resources.

Cultural heritage conservation is a dynamic and inclusive process, based on keeping alive the values that people place on the landscape and on their experience of it, as well as protecting specific places, structures, and objects. The cultural importance of protected areas is not always obvious; it may be associated with the history of a place or people’s feelings about it. Thus cultural heritage conservation must involve the community, especially those for whom each protected area holds special significance. Management actions can include encouraging or supporting cultural links, recognising community knowledge, and the recording or renewal of living cultural expressions.

For Indigenous people, protected areas are places where they can take their families and meet communities back on country that has been kept relatively natural. Here, they can pass on skills and stories to the next generation. An estimated 126,000 Aboriginal and Torres Strait Island people were resident in Queensland in June 2001, accounting for 3.5% of the State’s population. This compares with 2.4% for Australia. Queensland had the second highest proportion of Australia’s Indigenous population (27.5%), after New South Wales (29.4%). (Queensland Government 2004, page 8).

The Queensland Government recognises that native title interests may exist over some of Queensland’s protected areas. Many have traditional owners with an interest in area management and cultural obligations to maintain continuing custodianship of protected areas. Respecting and supporting the laws, customs, knowledge responsibilities, and interests of indigenous people will enhance management of protected areas. Participation of indigenous people is likely to be of benefit as traditional owners increase their capacity to resume or continue their interest in management of lands and waters and to undertake their cultural activities. Maintenance of the natural and cultural values of protected areas will remain the primary management principle, however management arrangements may address issues such as natural resource management, possible living areas, cultural heritage management, sustainable hunting and other appropriate activities.

Indigenous peoples are the custodians of their cultural heritage. Traditional owners should lead in defining the level of Indigenous cultural importance of areas and the extent to which any related areas, subjects, material items or stories should be accessible to the public. Interpretation of indigenous culture requires the authority and advice of the traditional owners.

EPA recognises that developing partnerships with traditional owners will be sensitive and that sufficient time should be allocated for this process. Protocols and agreements will be developed to promote indigenous involvement in the management of protected areas irrespective of the determination of native title. Responsibilities, interests and aspirations of indigenous peoples will be respected in relation to their lands, and their roles in management will be supported.

Tourism

Protected areas generate substantial economic benefits for Queenslanders and they are one of Queensland’s biggest tourist attractions, hosting an estimated 16 million visits each year. Research by the Australian Bureau of Statistics shows that most Australians visit a national park or similar reserve at least once a year. Many are likely

to make repeat visits and more than half of international visitors to Australia visit national parks or similar natural areas.

Spending by visitors to these areas contributes more than \$1.2 billion each year to the Queensland economy and supports more than 6000 jobs directly and many more indirectly. For every \$1 of government funding invested in their management, it is estimated that protected areas generate more than \$40 worth of economic activity in the Queensland economy. More than 500 commercial tour operators and 40 near-park resorts rely on these areas for much of their business. Many other businesses benefit from the existence, management and use of protected areas and services provided by tourism operators accessing these areas. (Kinhill Economics, 1998).

Health and Recreation

The availability of land for open space and recreation is integral to the liveability of Queensland's human settlements. For many people, protected areas are popular places to visit on weekends and holidays - to camp, picnic, hike, climb, enjoy a change of scenery, view wildlife or have a good time outside with family or friends. Some people, especially backpackers and retired people, take long trips and visit these areas in Queensland and other states, learning about natural and cultural heritage on the way. While facilities for camping and picnicking are provided in some areas, the emphasis for most of the protected area estate is on low-key recreation in the natural environment, where people enjoy themselves in simple ways without a lot of development or artificial activities.

National surveys show a decline in the overall number of people who achieve sufficient levels of physical activity for health benefit. Nationally, the proportion of the population defined as active declined from 62% in 1997 to 56% in 2000. Queensland was one of the least active states (Queensland Government, 2003). The proportion of Queenslanders who are overweight or obese, as defined by a person's body mass index, has risen steadily over the past decade, from 39.3% in 1993 to 52.2% in 2004. This reflects a general gain in weight across the population. The proportion who are obese has nearly doubled over the same period, from 9.4% to 17.7. (Queensland Government, 2005, page 115).

In 2001, the South East Queensland Outdoor Recreational Demand Study found that a high proportion of people in the region participated in a variety of outdoor recreational activities. While the study demonstrated that age, sex and location have a major influence on participation rates, people strongly value the provision of accessible open spaces that are retained as much as possible in their natural condition. Further, the study found that a shortage of places catering for outdoor activities is a cause of increasing concern and that for health reasons more people would like to participate in outdoor activities.

Forest Transfer Process

Though protected areas alone cannot achieve conservation, they are regarded worldwide as cornerstones of conservation, to be complemented and linked by conservation efforts and sustainable land use on private, government and community lands. The National Strategy for the Conservation of Australia's Biodiversity recognises as the central strategy for conservation the role of a "comprehensive, adequate and representative (CAR) reserve system".

Continuing growth and improvement of the protected area estate is important for the protection of biological diversity, especially for regional ecosystems that are not represented in protected areas at present. Eighty percent is the estimated maximum

possible representation of regional ecosystems in protected areas in Queensland without major compulsory land acquisitions. Conservation of the remainder of Queensland's regional ecosystems may best be achieved through conservation agreements and covenants over private and leasehold lands.

The Queensland Government has commenced a statewide review of forestry and conservation land use needs known as the Statewide Forest Process (SFP). To date the SFP has resulted in the conversion of approximately 850,000ha of state forests to forest reserves, an interim tenure that cannot be logged but which otherwise preserves other third party interests and uses. Investigations and consultation is then undertaken to determine the most appropriate conservation tenure for the forest reserves.

To date the planning process has been concluded in the Wet Tropics World Heritage Area, with a result that about 375,000 hectares of new national parks and other protected areas have been created. An additional 50,000 hectares will be added to this total by the end of 2006. The South-east Queensland region is currently in the final phases of investigation and consultation, and it is anticipated that a further 425,000 hectares of protected area will be created by the middle of 2006.

The remaining approximately 3 million hectares of non-plantation state forests in Queensland will be assessed under the SFP in due course and it is anticipated that further new areas of protected areas will be created as a result of that process.

Off Park Conservation

The protected area estate alone will never be able to protect the incredible variety of Queensland's plants and animals. EPA recognises that private landholders can play a vital role in providing extra habitat and sharing their properties with native wildlife.

A nature refuge is a voluntary conservation agreement between a landholder and the Queensland Government that leads to the establishment of a nature refuge. A nature refuge is a category of protected area under the NCA with each agreement tailored to suit the management needs of the particular area and of the landholder. In most cases, the agreement allows for the ecologically sustainable use of natural resources to continue. A nature refuge can cover part or all of a property protecting wildlife and wildlife habitat and emphasising the conservation of biodiversity as an important part of property management.

More than 180 landholders across Queensland manage nature refuges totalling more than 412,000 hectares. These refuges protect rare and threatened ecosystems, plants and animals, while maintaining and enhancing property enterprises as diverse as grazing, cropping, horticulture and ecotourism.

Jurisdictional Interest

Proper administration of protected areas and other reserves is very much dependent on defining the extent and location of these areas as well as defining the rules, restrictions and responsibilities associated with their management.

Currently, overlaps in jurisdictional interest and responsibility in specific areas of interest are not always readily identifiable. Management of such areas can now be assisted by opportunities provided through advances in spatial location technologies, particularly Global Positioning System (GPS). Spatial definition of the boundaries and extent of areas would enable jurisdictional interests to be visualised and relevant needs more readily identified. This includes scientific research and monitoring,

development of management strategies and practices, public consultation, proclamation, policing and prosecutions. It also involves public use consistent with the management strategies and practices.

Environmental areas need to be described and visualised with legal certainty, in a manner that can be communicated to all and accessible in a variety of formats and media, so that individuals can confidently realise whether they are inside or outside an area. Understanding the extent and location of protected areas and other reserves needs to be supported by complimentary legal and spatial infrastructures that preserve legal certainty in all aspects of their management.

Boundary Definitions

The environmental characteristics across the terrestrial, tidal, estuarine and marine ecosystems and overlapping interests and responsibilities in these areas can make interactions between various authorities and agencies quite complex. Boundary definitions may in some cases be easy to describe, but difficult to visualise or realise and in other cases easy to realise but difficult to describe. A consistent approach across jurisdictions would assist in reducing the level of uncertainty in area boundaries. Initiatives that will improve the spatial definition of environmental areas and promote a more coordinated approach to naming geographical areas in the marine environment are supported.

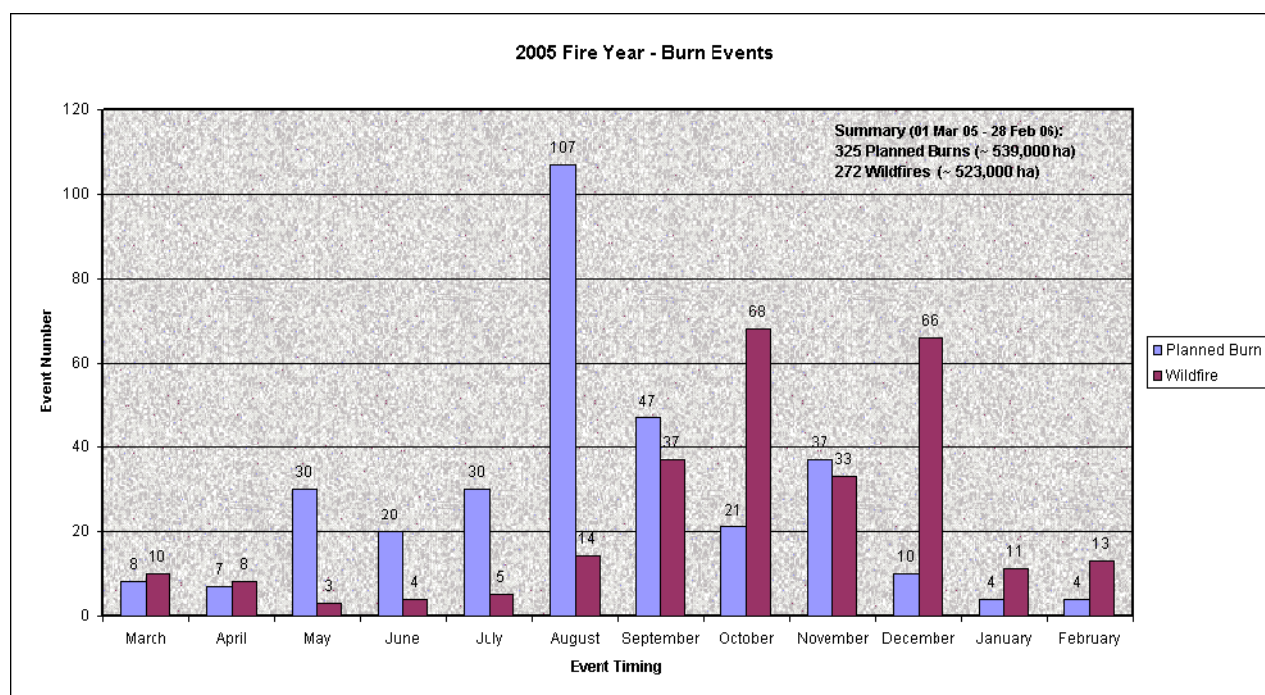
The naming conventions and definition of marine features and protected areas is on the agenda with The Committee for Geographical Names of Australia (CGNA). With regard to Marine Parks, reserves or protected areas, the Australian Hydrographic Office (AHO), the Great Barrier Reef Marine Park Authority (GBRMPA) and the Department of Natural Resources, Mines and Water are currently preparing a Tripartite Agreement which will detail the involvement and responsibilities of these organisations to ensure a coordinated and consistent approach to future naming of marine features and areas for waters off the Queensland coastline.

Fire Management

Fire is a critical element of land management programs. In managing fire, EPA places the highest priority on protecting human life, followed by protecting infrastructure and environmental values. A comprehensive Fire Management System guides the fire management program. This system provides processes and standards to assist fire planning and managing the operational aspects of fire in a professional, ecologically sound, accountable and coordinated manner.

During the 2005 fire year, which extended from March 2005 to February 2006, EPA responded to 272 wildfires on, and adjoining its estate. These fires affected some 0.52 million hectares of managed lands. Of these wildfires, 49% are known to have started off the EPA estate and at least 20% are believed to be arson related.

Table 4 - 2005 Fire Year Burn Events



In the 2005 fire year, the EPA planned burning program achieved more than 0.5 million hectares of managed lands across the state. Many of these burns are scheduled over the winter months to address protection issues protected areas and other reserves with an urban interface. In preparation for this year's fire season, EPA carried out ongoing pre-emptive work to ensure on-ground readiness, including the upgrading of some 1,500 kilometres of high priority firebreaks on and adjacent to the estate. Almost 2,000 kilometres of firebreaks are scheduled for upgrading in the 2005-06 financial year.

Over 600 EPA field staff are trained in fire management, with advanced training provided to staff with a role in managing responses to wildfires. Other specialised training such as fire management planning, conducting aerial ignition and incident control is also undertaken by more experienced staff.

Close liaison continues between EPA and all bushfire management agencies in Queensland, particularly the Rural Fire Division of the Queensland Fire and Rescue Service. Under its *Good Neighbour Policy*, EPA places an emphasis on working with adjoining landholders, local communities and traditional owners to manage fire on the land it manages and on surrounding areas. This aids in developing and maintaining cooperative arrangements with stakeholders and assists in resolving issues associated with hazard reduction burning, fire trails and wildfire suppression.

Pest Management

Pest plants and animals can have significant negative impacts on the natural and cultural values of land managed by EPA. Pests also have a direct economic impact on the rural sector. The control of pest plants and animals on EPA estate is not only a legislative requirement, but also an integral component of management.

EPA has obligations under the NCA and *Forestry Act 1959* to manage protected areas and state forests in accordance with management principles aimed at conserving the inherent values of these areas. In common with all other landholders, EPA also has a responsibility under *Land Protection (Pest and Stock Route Management) Act 2002*

(LPA) to control declared plant and animal pests on its lands. Current projects involve the control of weeds identified in national programs such as *Weeds of National Significance* and control of Class 1 pests under the LPA.

Effective pest management requires a thorough understanding of the pest species and their dynamics, developed through relevant pest animal and weed research programs. As an example, a poor understanding of the movement of pest animals between the protected area estate and surrounding land used for production (and urban areas) presents a significant barrier to effective pest control. Without this basic information, the management of pest animals is very difficult and is likely to be inefficient and ineffective. To some extent, the spread of weeds may be a similar issue.

Control efforts are prioritised and focus on preventing the introduction or spread of any declared plant or animal on EPA estate, co-operating with neighbouring landholders, Land Protection officers from Department of Natural Resources, Mines and Water (NRMW) and local government pest officers. The majority of pest management funds within QPWS are currently spent on control programs, but their effectiveness is not well documented. NRMW has the expertise, but do not have the resource capacity to implement pest management research programs or assist in the development of management strategies for QPWS. The aim is to achieve maximum benefit from pest management programs in accordance with EPA *Good Neighbour Policy*, protecting the integrity of natural communities on the estate and protecting populations of rare or threatened species.

2. Resources

Whether governments are providing sufficient resources to meet those objectives and their management requirements.

- ◆ In 2004-05, EPA spent approximately \$142.5 million on management and maintenance of terrestrial and marine managed areas (includes protected area estate and other reserves).
- ◆ An additional investment for land management of \$70 million over the next 3 years will be allocated.
- ◆ Key expenditure areas include staff costs, infrastructure development, maintenance of facilities, feral animal and weed control, fire management, monitoring and community engagement.
- ◆ A resource base of more than 560 permanent ranger staff, located at 130 locations, with around 300 additional staff assisting with technical support, administration and management.
- ◆ There has been a significant decrease in Commonwealth funds for the management of World Heritage Areas over the past five years.
- ◆ The Queensland Government has a policy position of not charging entry fees to parks and forests, as it is believed that these public areas should be freely accessible to the general public.

Key Issues

Visitation levels, associated infrastructure and the number of staff based on an estate area are the major contributors to the management costs of a particular area. For example, Noosa National Park, which has an annual visitation rate of more than 1.6 million people, costs more than \$100 per hectare to manage annually. Larger reserves by geographical size in remote areas have lower visitation, less infrastructure

and fewer staff resulting in a lower per hectare cost for management. Although a dollar per hectare measure is a simple measure that has been used for a number of years, it is recognised that it is not the most appropriate or accurate indicator of management performance.

From a community perspective, transparency in relation to the types of services being delivered by the EPA and the standard of delivery achieved are more important than the dollars spent. The dollar per hectare measure is also ineffective for service delivery comparison purposes, as it does not readily account for the differences in the average cost per hectare to manage reserves of varied management needs. It is more appropriate to define standards and objectives for each reserve and then measure achievement of these objectives to monitor performance. Over the coming years, the Rapid Assessment Process within the Park Profiles information system will enable more effective measurement of land management performance.

The Rapid Assessment Program (RAP) was developed to quickly assess how well estate areas are being managed. RAP results are used to provide a snapshot of management performance, provide a baseline against which future performance can be compared, identify areas of excellence in park management, and identify aspects of park management requiring additional attention. The RAP program incorporates performance targets based on Park Profile categories that are used to improve management effectiveness.

Workforce Resources

Terrestrial and marine managed areas in Queensland are staffed by a resource base of more than 560 permanent ranger staff located at 130 locations, with around 300 additional permanent staff assisting with technical support, administration and management. In addition, temporary and casual staff are employed as needed to support service delivery, usually in project-based work. In 2005-06, an allocation of \$55 million has been made for salary and wages costs.

There are a further 100 permanent ranger staff and a number of other support staff who provide conservation services both on and off the estate. A total of 140 extra permanent rangers were recruited over the two years to June 2003, completing a 2001 election commitment from Queensland Government to employ 30 percent more permanent rangers.

Financial Resources

The Queensland Government, through the EPA in the 2004-05 financial year spent an estimated \$142.5 million on the operational management, capital improvement and maintenance of Queensland's protected areas and other reserves (including depreciation costs). This will be considerably enhanced through an additional investment for enhanced land management of \$70 million over the next three years.

The Queensland Government has a policy position of generally not charging entry fees to estate areas, as it is believed that these public areas should be freely accessible to the general public. Admission fees are charged in some areas where a service is provided to day visitors (eg. turtle viewing and interpretation activities at Mon Repos), however these fees contribute less than 4% of the total user revenue received each year. EPA charges for overnight camping and vehicle service permits for access to areas managed under the *Recreation Areas Management Act 1988* (QRAM) such as Fraser, Moreton and Bribie Islands.

Table 5 - Table of User Pays Revenue Received

Revenue Category	2001-02 \$M	2002-03 \$M	2003-04 \$M	2004-05 \$M	2005-06 \$M
Camping and visitor fees	2.4	5.8	6.1	6.3	5.6
Commercial Activities	1.2	3.0	3.0	3.4	2.9
Other	2.5	2.0	2.2	2.0	1.9
Total	6.2	10.8	11.3	11.6	10.4

- ◆ All estimates are actual revenue received to 2004-05 and budget estimates for 2005-06

The Queensland government has made a substantial investment in infrastructure to provide safe and equitable recreational access to estate areas, protecting critical habitat and to ensure fire protection. EPA has a diverse inventory of infrastructure including over 20,000 kilometres of road, 134 camping areas and 129 day-use facilities. At June 2005, these built assets were valued at almost \$1.2 billion.

Table 6 - EPA Constructed Asset Value

Asset Group	Value \$ M
Fencing	55
Visitor Facilities	79
Tracks and Trails	122
Management Infrastructure	124
Roads	815
Total	1,195

Table 7 - EPA Capital Investment

Funding Status	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M
Base	11.0	14.7	10.6	10.7	8.9	7.0	10.1	10.1	10.1
Special	2.8	2.7	3.9	3.3	14.1	12.7	6.2	6.5	6.5
Total	13.8	17.4	14.4	14.0	23.0	19.7	16.2	16.6	16.6

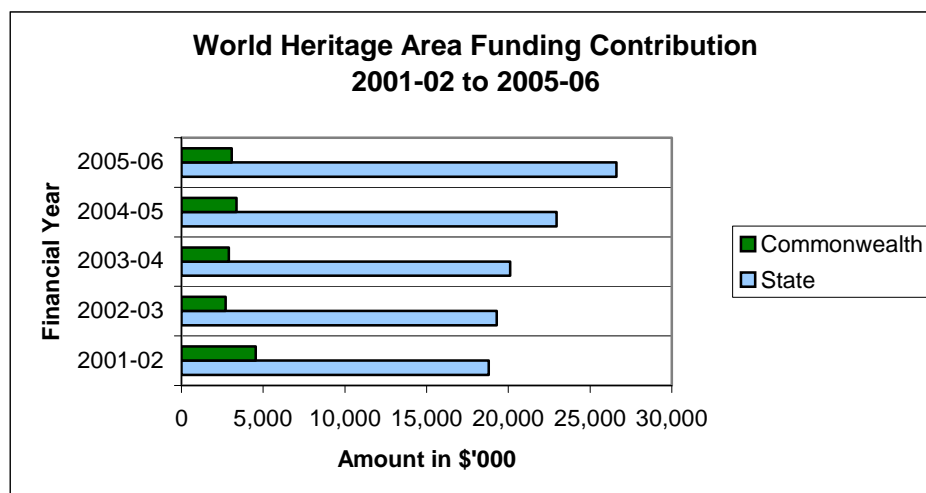
- ❖ All estimates are actual expenditure to 2004-05 and budget allocation estimates from 2005-06 to 2009-10

World Heritage Areas

Australia's World Heritage properties are protected under State legislation and also under the Commonwealth's *EPBC Act*, an Act recognised as world's best practice for protecting World Heritage values. Parties to the World Heritage Convention contribute the necessary financial and intellectual resources to protect World Heritage sites with the Commonwealth and State sharing the financial commitment to care for these areas appropriately. World Heritage listing increases the number of visitors to the area, accompanied by an increase in visitor expectations for the presentation of the site and the facilities provided. This in turn results in a substantial increase to management costs.

There has been a rapid and dramatic change in the Commonwealth contribution to Queensland World Heritage Areas over the past five years, with large disparities in contributions between properties. The significant decrease in Commonwealth contributions to Queensland's World Heritage Areas coincided with Round Two of the Natural Heritage Trust (NHT2) agreement in the 2002-03 financial year.

Table 8 - Contributions to World Heritage Areas



In 2002-03, the Commonwealth reduced its base funding contribution to the Wet Tropics Management Authority (WTMA) by \$1 million, a reduction from \$3.2 million to \$2.2 million. Following strong lobbying by the Queensland Government and WTMA, \$0.5 million was reinstated, but with limitations on how it could be used. The State contribution to WTMA that year was \$1.8 million with a total State expenditure on the estate component of the Wet Tropics being approximately \$8.2 million.

In the same year, the Fraser Island property received only \$8,000 from the Commonwealth, a significant decrease from the previous year's allocation of \$0.7 million. Fraser Island receives no Commonwealth base funding, only funds for approved projects. In comparison, the State expenditure on Fraser for 2002-03 was \$6.2 million.

The Queensland component of CERRA received no Commonwealth funding in 2002-03 after receiving \$0.2 million the year before. The NSW component of CERRA received \$30,000 in 2002-03. Across both States, the Commonwealth contribution to CERRA dropped from \$0.37 million to \$30,000.

While Commonwealth contributions have increased from the disastrous low of 2002-03, they are still well below allocations during the period 1996 to 2002 as is clearly indicated by the following table:

Table 9 - Commonwealth Contributions to World Heritage Areas

Location	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M	\$ M
CERRA	0.19	0.44	0.66	0.28	0.21	0.21	-	0.02	0.13	0.11
Fraser Island	0.70	0.95	0.07	0.66	0.51	0.70	0.01	0.04	0.13	0.07
Wet Tropics	4.88	5.38	3.45	3.85	3.39	3.43	2.69	2.75	2.91	2.70
AFMS- Riversleigh	0.19	0.30	0.19	0.40	0.16	0.22	-	0.09	0.20	0.19
Total	5.96	7.07	4.37	5.19	4.27	4.55	2.70	2.90	3.37	3.08

The following table illustrates the disparity between the level of Commonwealth and State funding contributed to the management of World Heritage Areas over the past five years:

Table 10 - Queensland World Heritage Areas Expenditure 2001-02 to 2005-06

WHA	Year	State Contribution \$ M	C'wealth Funds Received \$ M	Total State & C'wealth \$ M	% Contribution - State	% Contribution - C'wealth
Fraser Island	2001-02	6.8	0.7	7.5	91%	9%
	2002-03	6.2	0.0	6.2	100%	0%
	2003-04	6.6	0.0	6.7	99%	1%
	2004-05	8.6	0.1	8.7	99%	1%
	2005-06	9.1	0.1	9.2	99%	1%
CERRA	2001-02	2.7	0.2	2.9	93%	7%
	2002-03	3.0	0.0	3.0	100%	0%
	2003-04	3.5	0.0	3.5	100%	0%
	2004-05	3.7	0.1	3.8	97%	3%
	2005-06	4.8	0.1	4.9	98%	2%
Wet Tropics	2001-02	9.2	3.4	12.7	73%	27%
	2002-03	10.0	2.7	12.7	79%	21%
	2003-04	9.9	2.8	12.6	78%	22%
	2004-05	10.5	2.9	13.4	78%	22%
	2005-06	12.6	2.7	15.3	82%	18%
AFMS - Riversleigh	2001-02	0.1	0.2	0.3	30%	70%
	2002-03	0.1	0.0	0.1	100%	0%
	2003-04	0.1	0.1	0.2	54%	46%
	2004-05	0.1	0.2	0.3	39%	61%
	2005-06	0.1	0.2	0.3	38%	62%
Total	2001-02	18.8	4.6	23.4	81%	19%
	2002-03	19.3	2.7	22.0	88%	12%
	2003-04	20.1	2.9	23.0	87%	13%
	2004-05	23.0	3.4	26.3	87%	13%
	2005-06	26.6	3.1	29.7	90%	10%

* All State expenditure is estimated actual, except 2005-06 listed as budget allocation

* Commonwealth Funds are actual received in that financial year

Furthermore, the Commonwealth has made substantial capital investments to infrastructure over the past ten years within Queensland World Heritage Areas with no provision for long-term funding for maintenance or replacement of this infrastructure.

Service Enhancements

Infrastructure and Facilities

Annually, EPA invests base level funding totalling more than \$6 million into maintenance and \$10 million into the capital replacement and upgrade of existing assets. Specific allocations funded through election commitments or new initiative enhancements supplement the base allocation. For example there has been a \$6 million visitor park infrastructure enhancement for the three years ending 2006/07.

- ◆ \$1 million for visitor facilities - Cooloola National Park
- ◆ \$1 million for visitor facilities - Bribie Island National Park
- ◆ \$0.75 million for visitor information facilities - Sunshine Coast Hinterland
- ◆ \$1 million for visitor facilities - Cape York Peninsula
- ◆ \$1.5 million for visitor facilities and tourists roads - Wet Tropics
- ◆ \$0.75 million for visitor information facilities - Noosa National Park and Springbrook

An additional \$20 million capital has been allocated in the next three years as part of an enhanced land management initiative. A key project will be an investment of an additional \$2.5 million for fencing of protected areas and other reserves.

Pest Management

Funding for pest plant and animal management is provided as part of overall funding for EPA estate management, and is estimated that a base level funding allocation of more than \$3 million is made each year for this purpose. As part of an election commitment to enhance pest management on the estate, an additional \$1.5 million will be spent each year for the three years ending in 2006-07 financial year. In 2005-06, this will result in 72 specific projects undertaken across the state in addition to normal pest management activities.

Fire Management

Depending on the severity of the wildfire season, EPA spends around \$5 million each year on fire management. As part of an election commitment to enhance fire management, an additional \$0.5 million will be spent each year for the three years ending in 2006-07 financial year. Budget initiatives for 2005-06 include \$0.95 million allocated to 82 specific projects to enable firebreak works and major hazard reduction burning. These projects cover both broad-area and urban interface estate areas, spanning a large proportion of the state. A further \$0.35 million will be spent on phasing in newly designed vehicle-mounted fire units and personal protective equipment to meet fire fighter safety requirements.

Tourism in Protected Areas Framework (TIPA)

EPA and Tourism Queensland have developed the Tourism in Protected Areas (TIPA) framework that aims to deliver a more efficient, effective and equitable system of sustainable tourism management in protected areas based on a "commercial partnership" approach between the EPA and tour operators. TIPA recognises both the commercial realities of the tourism industry and the need for ecologically sustainable outcomes in protected areas and other reserves. A sustainable eco-tourism industry relies on the long-term protection of the environmental and cultural resources that it uses, and continued access to these resources in ways that meet changing market demands.

It provides improved outcomes for the environment, the tourism industry and the community. Some key outcomes of this initiative include the allocation of access rights for commercial operators based on an assessment of the site capacity of protected areas to sustain recreational use, as well as improved environmental performance of tour operations through the rewarding of best practice standards as part of licensing arrangements.

Great Walks of Queensland

Great Walks of Queensland is a \$10 million Queensland Government initiative that will create a series of six world-class walking tracks through some of the state's most beautiful natural areas, including three World Heritage Areas. Walks are located in the Wet Tropics, Whitsunday, Fraser Island, Mackay Highlands, Sunshine Coast Hinterland and the Gold Coast Hinterland. Five of the Great Walks have been completed with the Gold Coast Hinterland project delayed awaiting Commonwealth approval under the *EPBC Act*.

The Great Walks offer visitors a range of experiences, from short, easy strolls of a couple of hours to full-day walks and extended adventure walks lasting several days.

This mix ensures that people of all ages and abilities have the opportunity to explore and enjoy Queensland's estate areas.

Park Profiles

Park Profiles is an information system based on park values, threats and management opportunities that will be used to guide EPA planning and management decisions. Park Profiles will set service delivery standards for each reserve category, incorporating information from other management systems, as well as information from the Rapid Assessment Program to evaluate performance in achieving set standards. Park categories are one of many tools used to assisting decision-making for funding and infrastructure development on parks. Other factors that will also be considered include regional and district priorities, visitation levels, neighbours and external factors.

Park Profiles will include a comparative rating of park values, threats and management opportunities, with each reserve aggregate rated by themes - nature conservation, cultural heritage and presentation values. The park category framework will be used for guiding high-level, strategic planning and management, in particular for setting State and regional priorities. All of Queensland's estate has been placed in categories according to their value (either 'outstanding', 'very significant', 'high' or 'moderate') with threats or additional effort required also identified and rated (either 'very high', 'high', 'medium' or 'low').

Preliminary work to date has found that:

- ◆ Seventy-eight aggregations in Queensland have been rated 'Outstanding' for at least one management theme.
- ◆ Six aggregations - Carnarvon Gorge National Park, Daintree North, Boodjamulla National Park, Cooloola National Park, Lamington and Palmerston have been rated 'Outstanding' for all three themes.
- ◆ 39 (9%) of Queensland's aggregations require 'high' or 'very high' additional presentation planning and /or management effort over the next five years.

3. Threats

Any threats to the objectives and management of our national parks, other conservation reserves and marine protected areas.

The main pressures currently affecting Queensland's terrestrial landscape are vegetation clearing, unsustainable agricultural practices, urban development and introduced species. Underlying these are pressures from population growth, economic trends and climatic conditions.

Key Issues

Biodiversity

In many bioregions considerable threats currently exist to the maintenance of biodiversity. In four of the 13 bioregions, at least 40% of all regional ecosystems are now at risk. At risk ecosystems are those that are either "endangered" (ie, less than 10% of their original distribution remains) or "of concern" (ie, 10-30% of their original distribution remains). Queensland-wide 32% of all regional ecosystems are at risk including 10% "endangered", and 22% "of concern".

Those landscapes where the threat to biodiversity is greatest are:

- ◆ the fertile agricultural regions;
- ◆ the restricted fertile and moist areas within drier regions; and
- ◆ areas associated with arid and coastal wetlands.

Queensland's protected area system has been reviewed in terms of its comprehensiveness and the threatening processes to biodiversity in comparison with other States and Territories. This analysis identified that Queensland has the most pressing need in Australia to consolidate its reserve system with the majority of bioregions in Queensland acknowledged to be of high priority for reserve consolidation. Queensland has the greatest relative number of bioregions and greatest area of any State classified as high priority for reservation.

This analysis is supported by a consideration of the relative extent of the reserve system in this State. Queensland, the most biodiverse State of Australia, has a national park system covering 4.2% of the State compared with a national average of 7.6%.

Factors considered in the determination of statewide and bioregional conservation priorities include two key indicators, the comprehensiveness of regional ecosystem (RE) representation and the conservation status or the impact of threatening process on regional ecosystems. These criteria are consistent with the scientific guidelines for the national reserve system.

Other scientific criteria such as endemism and securing a representation of ecosystems/species across their geographic range are important considerations. 'Adequacy' of representation of a regional ecosystem in protected areas is difficult to quantify particularly in terms of species and habitat viability. One important factor is the degree to which regional ecosystems are replicated in another protected area. This provides some safeguard against loss through major perturbation. Recent studies show that whilst it appears that in some regions regional ecosystems are well represented, many are not replicated.

To date, the Queensland Herbarium has finalised RE mapping for approximately 60% of the State. A further 20% is in draft form, which is sufficiently advanced to be utilised by the EPA until the mapping is finalised. The remaining 20% of the State is expected to be mapped over the next 2 years. As currently unmapped areas are in bioregions that are not under immediate threat from clearing, such as the Northwest Highlands and Gulf Plains, this is not considered to be a constraint. In the meantime, efforts will concentrate on the areas where RE mapping is available, and will progress to the remaining areas as the mapping becomes available.

The latest RE mapping enables the location of all priority RE's to be identified. High priority RE's are considered to be those;

- ◆ not currently represented in the protected area estate;
- ◆ poorly represented in the protected area estate; and
- ◆ that are considered to require additional protection.

Vegetation

One of the main pressures affecting Queensland's land and soils is vegetation clearing. EPA is responsible for safeguarding biodiversity values by implementing strategies aimed at protecting the many ecosystems and species under pressure. To enable this, EPA manages a number of high quality information and monitoring,

modelling and assessment services in biodiversity such as mapping regional ecosystems and researching plant and wildlife ecology.

Several Acts of Parliament regulate the management of vegetation, including:

- ◆ Integrated Planning Act 1997
- ◆ Vegetation Management Act 1999
- ◆ Nature Conservation Act 1992

◆

Each Act has a different function and any person proposing to clear vegetation may need approvals under one or more legislation depending upon the geographic area, tenure of the land, whether or not the ecosystem is identified as remnant ecosystem, or if the activity involves rare or threatened plants.

The Regional Ecosystem Description Database lists the status of regional ecosystems as gazetted under the *Vegetation Management Act 1999* (their Vegetation Management Status) and their Biodiversity Status as recognised by the EPA. Status is based on an assessment of the pre-clearing and remnant extent of a regional ecosystem.

Native vegetation has immense variation in composition across the 13 bioregions in the State. Queensland's vegetation changes as you move from the coastal zone to the arid west, from the tropical north to the sub-tropical south. There are 1085 distinct vegetation communities known as regional ecosystems in Queensland. Many of these regional ecosystems, particularly on fertile soils have been extensively cleared to open up areas for production. Other areas of native vegetation are subject to degradation from weeds and changed fire regimes.

About 32 million hectares in Queensland have been cleared of native remnant vegetation - that is vegetation approximating original vegetation. This equates to 19% of the States' total land area, although most clearing has occurred in the east of the State. In the fertile agricultural areas such as the Brigalow Belt the pressure of development, enhanced by initiatives such as water infrastructure proposals, means that opportunities to develop a comprehensive protected area system is likely to be forgone unless urgent action is taken.

Wetlands

Across all bioregions one obvious deficiency in the reserve system is the protection of wetlands. Wetlands occur on protected areas, freehold and leasehold land, and are estimated to cover approximately four percent of Queensland's mainland area, or nearly 71,000 km². Of this, seasonally and intermittently inundated wetlands account for about 69 percent of the total, tidal wetlands (mangroves and saline coastal flats) account for 14 percent, and the remaining 17 percent includes a variety of wetland types. It is estimated that only 0.7 percent of Queensland is permanently inundated with water, including areas contained within more than 1,125,000km of major waterways.

Wetlands are recognised as being of significant environmental, economical and social importance. They:

- ◆ support a diverse range of plants and animals and provide habitat and refuge for many migratory and threatened species;
- ◆ play an essential role in natural hydrological cycles, provide water passage and storage, and may contribute to flood mitigation and the recharge of groundwater;
- ◆ purify water by filtering nutrients and sediments;

-
- ◆ provide coastal protection against destructive natural events, such as cyclones;
 - ◆ lessen flood levels;
 - ◆ contribute to the economic productivity of the State by providing essential water sources for agricultural, urban and industrial uses, fish resources, and fodder for livestock grazing;
 - ◆ are used for navigation and port facilities essential for trade;
 - ◆ feature significantly in the cultural heritage, spiritual values, and day-to-day living of Aboriginal and Torres Strait Islander peoples;
 - ◆ contribute to the well-being of people through landscape diversity, heritage values and aesthetic appeal; and
 - ◆ feature strongly in Queensland's tourism and recreational appeal.

Many activities or conditions contribute to the degradation and loss of wetlands including:

- ◆ clearing, draining and/or filling of wetland for residential, industrial and agricultural development;
- ◆ sediment accumulation and suspension;
- ◆ water pollution and nutrient enrichment;
- ◆ alterations to hydrological cycles;
- ◆ stormwater run-off;
- ◆ salinisation;
- ◆ excessive water extraction for urban use, agriculture and industry;
- ◆ modification of water regimes through emplacement of dams and other barriers;
- ◆ inappropriate grazing regimes;
- ◆ mining and other resource use activities;
- ◆ weeds;
- ◆ aquatic and terrestrial feral animals;
- ◆ fire;
- ◆ increased human activity within wetlands; and
- ◆ climate change.

A number of Queensland's wetlands are nationally and internationally acknowledged for their significant values - five wetlands are listed under the international Ramsar Convention and 210 are nationally recognised in *A Directory of Important Wetlands in Australia* (June 2005). Of the 32 natural wetland categories defined in this directory, 29 occur in Queensland.

Wetland management profiles have been designed to provide information about the distribution, ecology, cultural values, conservation status, threats to, and management of particular wetland types and wetland RE's within Queensland. These profiles are a tool to help wetland managers identify:

- ◆ the social, economic and environmental values of wetlands;
- ◆ the hydrology and ecology of wetlands;
- ◆ threats and pressures on wetlands; and
- ◆ management actions that can be taken to conserve or enhance wetland biodiversity and productivity.

Wetland management profiles have been written as part of the Queensland Natural Heritage Trust Wetlands Programme - a joint initiative between the Australian

Government and Queensland. This programme complements the Great Barrier Reef Coastal Wetlands Protection Programme, which is designed to develop and implement measures for the long-term conservation and management of wetlands in the Great Barrier Reef catchment consistent with actions outlined in the Reef Water Quality Protection Plan. The overall aim of these two programmes is to address the loss and degradation of wetlands, which in turn impacts water quality and biodiversity in Queensland, particularly the Great Barrier Reef catchment.

Urban Development and Population

Queensland's population growth rate has exceeded Australia's for several decades, with the State population passing one million in 1938, two million in 1974, three million in 1992 and reaching 3.86 million in March 2004. Queensland has been the third most populous state behind New South Wales and Victoria throughout this period. The State's population grew 2.2% over the year to March quarter 2004 compared with 1.2% in Australia, due mainly to high net interstate migration. Strong growth in population is expected to continue in Queensland with the State's population projected to be 4.5 million by 2014 and 5.2 million by 2024. The forecast population growth will pose challenges for government service delivery and the provision of essential infrastructure. (Queensland Government, 2004, page 8).

Population growth in Queensland is concentrated in the southeast corner of the State. Urban growth can increase liveability by providing greater employment, social and cultural opportunities. These benefits however, may be accompanied by a degradation of aspects of the natural and built environment through loss of remnant vegetation and increased pressures on open space. Consequently, it becomes more important to maintain and improve the quality of public spaces through urban design, link residential areas with cycle paths and pedestrian walkways, and protect areas of green space for environmental and recreation purposes.

Like other Australian states and most developed nations, Queensland has an ageing population. This trend is expected to accelerate as those born in the post-World War II 'baby boom' period reach retirement age in the early part of this century. The proportion of the State's population aged 65 years and over is projected to rise from 11.9% in 2003 to 18.6% in 2023. The number of people in this age group is expected to more than double over this period. This will impact on the level of funds required for government service delivery, particularly health services. (Queensland Government, 2004, page 9).

With the significant increase in urban development, an aging population and the associated need for increased government services and infrastructure, the relevance and benefits of terrestrial and marine estate areas must be comprehensively marketed to government and the broader community. To successfully lobby for resource enhancements in a budgetary environment that is strongly tied to the provision of services such as health, education and transport is a difficult, but not impossible task.

Climate Change

The rapid growth and increasing concentration of greenhouse gases worldwide is expected to contribute to climate change at a faster rate than previously recorded in the earth's history. These changes will have significant associated social, economic and environmental implications, from a global to a local level. In Queensland, climate change is expected to have a number of impacts including warmer temperatures, rising sea levels, changes in rainfall patterns and increased storm and

cyclone intensity. These impacts may present many challenges for Queensland's environment, community and economy.

Queensland's climate is influenced by its position in the tropics and subtropics and its proximity to the western Pacific Ocean. The State's climate is characterised by a large degree of natural year-to-year variability, particularly where rainfall is concerned. In addition to natural variations, a number of climate processes are beginning to change, and most scientists believe this is in response to enhanced concentrations of greenhouse gases. This has been most evident in observed minimum temperature records, with the entire State demonstrating an average increase of approximately 1 degree Celsius since 1957. Similarly, maximum temperatures across the State have increased, on average by 0.7 degrees Celsius for the same period (McKeon et al 1998). Queensland rainfall has exhibited both increasing and decreasing trends in different regions since the early 1900's.

Projections of future climate conditions indicate continued warming in Queensland, with mean annual temperatures projected to increase by 0.3-2.0 degrees Celsius by 2030.

In addition to forecast changes in temperature and rainfall, other impacts could include:

- ◆ higher sea levels.
- ◆ increased storm and cyclone intensity.
- ◆ increased amplitude of climate variability (e.g. drought), possibly leading to changes in land use.
- ◆ biodiversity and ecosystem impacts, including on tropical rainforests and wetlands, and on terrestrial vertebrates and marine life.
- ◆ damage to the Great Barrier Reef (e.g. increased frequency of coral bleaching).
- ◆ increased extent of damage to coastal infrastructure (e.g. from storm surge related flooding).
- ◆ health impacts, including increased potential risk of diseases; morbidity and mortality from extreme weather events; and respiratory illness associated with air pollution and allergens.

Land use change (vegetation or land clearing) contributed 28 percent of Queensland's total net greenhouse gas emissions in 1999 and 65 percent of net emissions from the combined rural sector (EPA 2004). The primary purpose of land use change has generally been for agricultural development. However, net emissions from land use change are estimated to have declined by about 50 percent between 1990 and 1999, and by 14 percent between 1995 and 1999 (AGO 2003). Further reductions in emissions will be achieved through the Government's vegetation management legislation and policies.

Given the potentially serious impacts of climate change on terrestrial and aquatic biodiversity, the Queensland Government will also help determine research priorities and consider the resulting information in planning and managing the public conservation estate and in fostering the establishment of private conservation initiatives to promote a healthy landscape.

An EPA initiative, *Sustainable Parks*, sets the framework to promote sound environmental management through sustainable energy practices on the estate. This includes installing photovoltaics, solar hot water heating, energy efficient appliances and eco-efficient ranger housing on managed estate areas.

Introduced Species

Weeds and pest animals cost Queensland more than \$600 million annually in lost production and control costs. The impacts on the environment have never been fully costed but it is widely recognised that weeds and pest animals pose a significant and ongoing threat to the environment. Biological invasions are recognised as the second greatest threat to biodiversity after land clearing. (Queensland Government, 2004, page 171).

The *Land Protection (Pest and Stock Route Management) Act 2002* lists 10 animals and 28 weed species or groups of weeds which are declared Class 2 pests and the subject of ongoing control programs. A further 35 weed species and all non-native mammals, reptiles and amphibians are declared as Class 1 pests, except for 35 species, and are the focus of eradication campaigns. (Queensland Government, 2004, page 171).

Marine Threats

The zoning plan for each marine park defines the zones and describes how each zone can be used. The plan will usually include the objectives for each zone and specify which activities are allowed and which are prohibited or require a marine park permit. Designated areas allow for special management of some locations.

Zoning plan information guides show the different zones by using colours on zoning plan maps. Activities tables show what you can and can't do in a particular zone, however most zones allow a wide range of uses, including fishing and boating. Certain activities are prohibited in only a few zones, however the potential effect of illegal activities (e.g. illegal fishing, hunting and netting) adversely affecting populations of marine wildlife is of concern.

Natural factors such as predators, weather events and disease cause marine wildlife deaths, however increased human activities may also threaten survival of populations. Increased boating and shipping create hazards as vessels may kill or injure marine wildlife, scare them from their feeding areas and disrupt social bonds in populations. Commercial fishing, particularly trawling, is a threat to animals such as turtle, dolphin and dugong that may be caught in trawl nets and drown.

The clearing of land, dumping of dredge wastes, discharge of silt from coastal rivers and trawling can increase the amount of silt in sea water, affecting seagrass meadows that support species such as dugong. Seagrass also provides habitat for prawns and many commercial fish species. Many areas of seagrass in marine parks have been identified and restrictions on trawling, dredging and spoil dumping implemented.

The dumping of rubbish is prohibited inside marine parks, but increasing amounts of debris, such as plastic objects and fishing line, enter the marine environment every year causing entanglement and ingestion by marine wildlife.

Preservation of Threatened Species

The incorporation of habitat needs for rare and threatened species is a vital component of reserve selection within the context of overall recovery planning for species and the associated development of off-park conservation strategies. One example is the mahogany glider whose conservation in the Wet Tropics bioregion is being addressed through acquisition of core habitat, by regulation through declaration of critical habitat, through incentives (eg. rate relief incentives), and through industry initiatives such as environmental guidelines for the sugar industry. The

conservation requirements of threatened species cannot be addressed in isolation but must be considered in terms of regional ecosystem conservation planning to ensure the protection of associated habitats.

Infrastructure

EPA has a substantial investment in infrastructure that was built more than 50 years ago. For example, most of Queensland's extensive walking track system, picnic and camping areas were built in the period from 1930 to 1950. These assets comprise more than 50% of EPA built assets (excluding roads). The maintenance of these aging assets represents a challenge for the Agency, with clients relying on this infrastructure for safe access and enjoyment of Queensland's estate.

Roads are valued at \$815 million representing 68% of total built assets on EPA managed estate. With an annual investment of approximately \$1 million in their maintenance, ongoing road maintenance is of critical concern to enable a number of key service delivery functions to continue. Roads are essential for access to estate areas, fire management, recreational use and natural resource maintenance. Many of the roads on EPA estate were originally constructed for timber harvesting and in many cases required significant engineering works such as bridge building, cut and fill, drainage structures and revetment walls. As land use has changed from timber production to conservation management, road use and demand has changed and without the revenue base from timber harvesting royalties, maintenance is difficult to fund within existing budget allocations.

4. Responsibilities

The responsibilities of governments with regard to the creation and management of national parks, other conservation reserves and marine protected areas, with particular reference to long-term plans.

Protection of Natural and Cultural Heritage

The cardinal principle of protected area management is to "provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values" (NCA). This sits within the framework of the Commonwealth's *EPBC Act*.

Maintaining natural integrity, cultural values and natural landscapes is the highest priority of management. Conservation of the natural values of protected areas is partly achieved by protecting them from development and clearing, and by regulating the impacts of visitors. However, active management is also needed to maintain the plants, animals and landscapes that form protected area ecosystems. Over recent decades, there have been a number of changes in the approach to protected area management.

It is recognized that there are many choices to be made about what is a protected areas "natural state" and what values need to be protected. Active decision-making and management is often required to maintain these values. For example, periodic fire is needed to maintain the tall, wet eucalypt forests found in some coastal Queensland protected areas. If fire is excluded, rainforest will expand and total regional biodiversity might decrease. Maintaining biodiversity depends on understanding ecological processes and dynamics, such as fire, so that a mosaic of habitats is maintained over space and time.

Where the knowledge to make decisions is lacking, caution must be applied and the potential for resolving uncertainty through further research assessed. Community involvement in these decisions is important.

It is understood that protected areas can be managed successfully, and contribute effectively to ecologically sustainable management, only if they are considered as part of the wider landscape and if a long timeframe is considered. Many processes, such as fire, pest invasion and animal migration, do not recognise tenure boundaries. Animals move from one habitat to another for food or shelter, and flows of materials, energy and information link reserves with surrounding lands. Climatic and evolutionary processes will continue to occur and require dynamic management.

Protected areas must be managed as “open systems” rather than isolated “islands”, by recognising and minimizing the negative flows between the protected area and the surrounding landscape (such as the entry of pollutants into watercourses or pest plants into the reserve) while encouraging positive flows (such as the movement of pollinators and migratory species in and out of the reserve).

Biological diversity needs to be considered at a number of levels from genetic and species up to ecosystem and landscape. Though the basis of conservation is the protection of habitats, conserving biological diversity also requires attention to individual species, especially those that are restricted to a small area or are rare or threatened with extinction.

Recognising these considerations, a primary goal of protected area management is the maintenance of natural integrity. To maintain natural integrity, including species diversity, natural processes and threats from inside and outside the reserve, borders must be recognised, understood and managed. Natural integrity will be the aim across all protected areas.

However, in the “multi-use” classes of protected areas such as nature refuges declared over private properties, the defined values of the area will be protected. Natural integrity may not be protected to the same extent across the entire property, especially where it is also used for production purposes. Complementary work by local communities, local governments, other Government agencies and neighbours is essential to effectively manage the reserve system, not only in managing the inter-related landscape, but as partners with estate managers in developing and sharing experience and knowledge. EPA undertakes pest and fire management planning for protected areas and other reserves, but also recognises the importance of working with reserve neighbours who assist in preserving natural integrity by undertaking feral animal and weed control on their own properties as part of their daily management.

The natural integrity of protected areas can also be improved by restoration of degraded areas or by voluntary habitat protection on adjacent lands. Ecosystem management is an integral part of all other activities associated with reserve use and management, and is critical for all reserves, not only those which have high visitor use and a high public profile. Generally, the priority for ecosystem management is the maintenance of integrity rather than restoration of degraded habitats.

Protected Area Estate

Reserve design is an important consideration in terms of management of protected areas. This includes maximising the incorporation of environmental gradients, catchment boundaries and reducing fragmentation and potential edge effects. In a number of existing protected areas consolidation of boundaries and the linking of reserve parts are an important consideration to be addressed.

Funding for land acquisition for a comprehensive, adequate and representative National Reserve System Program (NRS) is considered to be one of the most efficient uses of conservation funding available to Australian Governments. The fact that many Local Governments as well as all State jurisdictions have acquisition programs indicates the high level of benefit that is now recognised in relation to intangible as well as tangible values and outcomes.

Overall, the NRS Program is considered to be very effective as evidenced by the growth in the protected area estate across Australia over the last decade. There is strong evidence to support the statement that acquisition, in order to achieve permanent conservation outcomes, is one of the most cost effective options available and this argument is strengthened by the increasing activity of non-Government organisations in relation to land acquisitions during this time period. There is clear evidence that NRS Program funding does leverage outcomes that would not be achieved if the funding were not available. For example, the availability of NRS Program matching funding provides a strong case when arguing for internal program funding.

Queensland remains committed to the acquisition program that seeks to optimise the representation of biodiversity in the Reserve Estate and in that regard the current performance indicator for the National Reserve System is considered appropriate. However, a review of these performance indicators would be desirable with a view to broadening the outcomes sought under the program, especially in relation to emerging issues such as climate change and options for linking existing and future reserves through both off park as well as on park conservation efforts.

Legislative Framework

The NCA is the key legislation in Queensland to preserve the natural condition of the protected area estate and provide the underlying principles for the protected area and other managed reserves. As at 30 June 2005 the following legislation, in whole or in part, guided the management of protected areas by the Agency on behalf of the Minister for Environment, Local Government, Planning and Women:

- ◆ Nature Conservation Act 1992
- ◆ Marine Parks Act 2004
- ◆ Forestry Act 1959
- ◆ Wet Tropics World Heritage Protection and Management Act 1993
- ◆ Recreation Areas Management Act 1988
- ◆ Brisbane Forest Park Act 1977
- ◆ Coastal Protection and Management Act 1995
- ◆ Environmental Protection Act 1994

5. Record

The record of governments with regard to the creation and management of national parks, other conservation reserves and marine protected areas.

Increased Estate Area

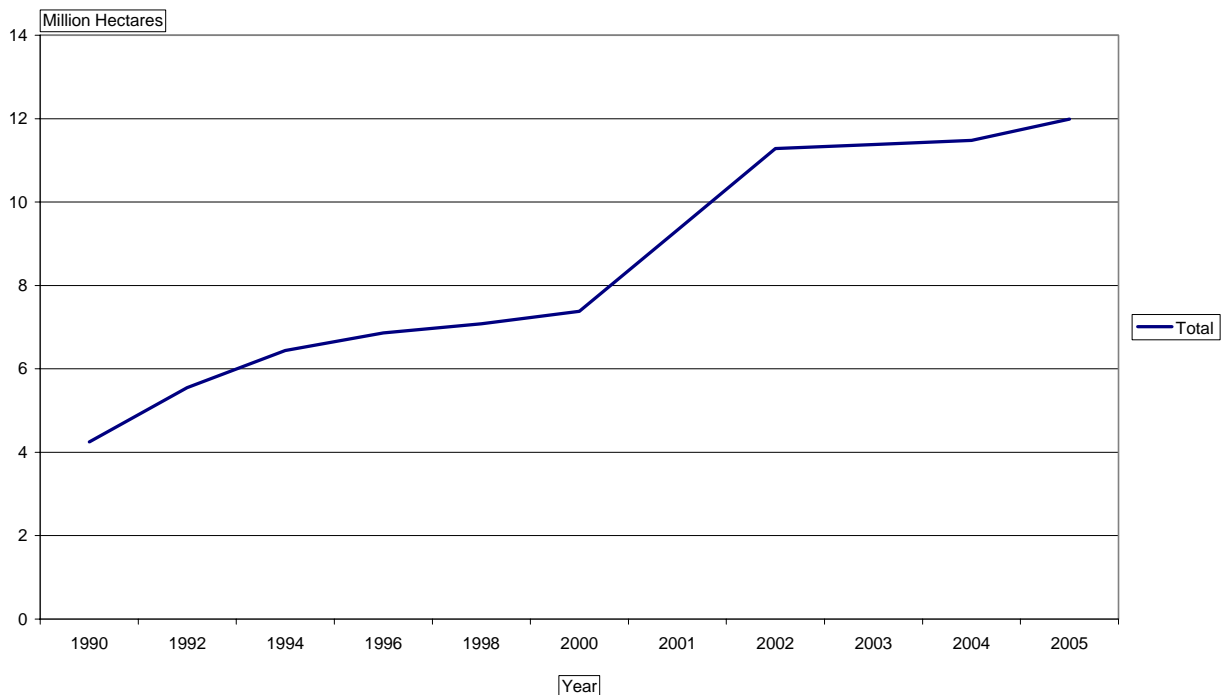
The most significant impediment to the effectiveness of the NRS Program is the funding allocation provided by the Commonwealth for acquisitions. The national funding of the NRS Program during Round One of the Natural Heritage Trust Agreement (NHT1) was of the order of \$14 million per annum, dropping to around \$6 million through NHT2 for 2005-06 financial year. The minimum annual funding

requirement on an ongoing basis to ensure the long-term outcome sought by the NRS Program is at least \$20 million per annum. If a more rapid approach were sought then funding of \$30-40 million per annum would be necessary. The current level of funding is considered inadequate given the number of jurisdictions involved and the continuing increases in prices paid for rural land particularly in northern Australia.

A further area of concern is the funding ratio offered by the program. The original ratio was two of Commonwealth money for one dollar of matching State funds. This formula was agreed upon in order to recognise that the State bears the ongoing management costs relating to any reserves acquired for the NRS Program. In the last few years this formula has been reduced to a dollar for dollar basis that has significantly impacted on the rate at which acquisitions can be undertaken under this program.

If the NRS Program is to be a true partnership between the Commonwealth and various State-based acquiring authorities and organisations, a recognition of the true long-term management commitment needs to be made. Given that all NRS Program acquisitions are purchased for protection on a permanent basis, a funding ratio of 3 to 1 would generate recognition of the long-term contribution the management costs for NRS Program properties acquired.

Table 11 - Increase to QPWS Managed Estate 1990 to 2005



Conclusions

- ◆ Enhanced emphasis needs to be placed on the continued development of a comprehensive, adequate and representative National Reserve System. The previous Commonwealth commitment of a 2:1 contribution to land acquisition under this program should, at very least, be reinstated. A 3:1 contribution would be more appropriate in the light of ongoing management and maintenance costs taken on by protected area agencies in perpetuity with each acquisition.
- ◆ Flexibility in the allocation funding for land acquisition should be built into any NRS program to take advantage of acquisition circumstances where there is not likely to be any second chance available.
- ◆ The Commonwealth has an undisputed obligation to provide funding assistance for the management of Australia's World Heritage properties. There is a need to rectify the substantial decline that has occurred in meeting that obligation since 2002-03. An attempt to immerse World Heritage funding in the Natural Heritage Trust Bushcare program has been a disaster for the properties. It presupposes that NRM regional bodies will provide funding for World Heritage properties to supplement the loss in Commonwealth allocations. As these bodies are not designed to think and act nationally and internationally, or even property-wide where the property crosses NRM boundaries, funding assistance has not eventuated. World Heritage funding assistance from the Commonwealth should be reinstated as a NHT funding program in its own right.
- ◆ More than 85% of Commonwealth NHT funds for World Heritage properties are allocated to two of the 15 natural heritage properties - Tasmanian Wilderness and Wet Tropics. The Commonwealth has intimated that it would seek to achieve a more equitable distribution of funds among the properties. Queensland would argue that, instead of decreasing the allocation to the two "well funded" properties by redistributing some of their existing allocations, the objective should be to bring other properties up to a comparable level.
- ◆ Climate change issues need to be addressed in an Australia-wide context in the first instance and not be diluted and potentially trivialised by consideration on a reserve-by-reserve basis.
- ◆ Clear recognition needs to be given to the fact that management of protected areas is not restricted to what happens within the boundaries of those parks and reserves. Many key protected area threats cannot be addressed purely within the boundaries of those areas. The management of fire, weeds, feral animals and water quality are substantial cross-boundary issues and frequently whole-of-catchment issues.
- ◆ More recognition needs to be given to the ecosystem and social/economic services provided by parks over and above their primary purpose of nature conservation. This includes the recreational/health benefits and the considerable contribution to the economy deriving from such areas.

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Attachments

1. Queensland Government. 2000. *Parks Masterplan*. Brisbane: Environmental Protection Agency. URL Reference: http://www.epa.qld.gov.au/publications/p00576aa.pdf/Master_plan_for_Queenslands_parks_system.pdf
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