State of the Parks report

Guide to the State of the Parks report

The State of the Parks report presents systematic and consistent background information on each Commonwealth reserve proclaimed under the EPBC Act as well as the additional responsibility of Calperum and Taylorville Stations.

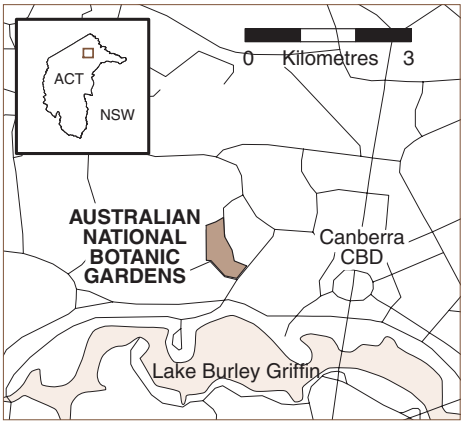
The following information is common to the reports on each place:

- **Area and locational information** derived from the Collaborative Australian Protected Areas Database (CAPAD) is provided.
- The World Conservation Union **(IUCN) protected area management category** is identified for each reserve, and where parts of the reserve come under different categories this is indicated. The IUCN categories are formally assigned under the EPBC Act, and schedule 8 of the EPBC Regulations defines the Australian IUCN reserve management principles applying to each category.
- Where possible, each reserve's **biogeographic context** is described by reference to the national biogeographic regionalisations: terrestrial (Interim Biogeographic Regionalisation for Australia—IBRA) or marine (Interim Marine and Coastal Regionalisation for Australia—IMCRA).
- The report summarises the relevance of **international agreements** to each reserve, recognising both the international significance of the reserves and the Director's legal responsibility to take account of Australia's obligations under each agreement.
- The report summarises the occurrence in each reserve of **species listed under the EPBC Act** as threatened, migratory or marine, and the status of relevant recovery plans.
- Information on the **total number of different types of plant and animal species** recorded for each place is included, to the extent of available knowledge. For the six terrestrial national parks, Parks Australia has worked to refine understanding of the species recorded from each park and species for which each park is significant. The species information for these six parks includes the numbers of species which are a priority for management (defined as being all threatened species plus those non-threatened species for which the park contains more than 1 per cent of its population).
- Monitoring is a key aspect of successful park management, and **major monitoring efforts** for the year are reported.
- Future planning is ongoing, and **future challenges** are reported for each area.
- **Management arrangements** (such as boards of management, committees, management agreements with state agencies) are described.
- The report provides information by **key result area** on major issues, actions and performance results for 2004–05.

Also included in this section are **case studies** that provide more detailed reporting on management of specific issues.

Australian National Botanic Gardens

http://www.anbg.gov.au



Special features

The Australian National Botanic Gardens (ANBG) is a major scientific, educational and recreational resource. It was one of the first botanic gardens in the world to adopt the study and display of indigenous species as a principal goal. One-third of the known flowering plant species that occur in Australia, and about half the known eucalypt species, are represented in its living collection.

The ANBG contributes to meeting Australia's obligations under various international environment conventions to which Australia is a signatory. In particular, the Convention on Biological Diversity recognises the importance of botanic gardens in ex situ and in situ conservation, research, training, plant identification and monitoring, raising public awareness, providing access to genetic resources, and global cooperation in relation to sustainable use of plant biodiversity.

Location	Latitude 35°16' South, Longitude 149°06' East
Area	90 hectares
Proclamation date	17 September 1991
IUCN category	Category IV
Biogeographic context	Houses plants from a vast range of biogeographic regions—alpine to tropical, coastal to central desert
Management plan	Second plan in effect, expires 9 January 2009

Other significant management documents	Management plan implementation schedule; risk assessment and management schedule; ANBG Masterplan (National Capital Authority); Capital Works and Maintenance Plan 2002–05; ANBG Fire Procedures 2004–05; kangaroo and wallaby management plans; ANBG Education Service Policy; ANBG Photograph Collection Policy; Agreement for the Establishment and Operation of the Centre for Plant Biodiversity Research (CPBR) between the Director of National Parks and the CSIRO The ANBG is listed on the Commonwealth Heritage List	
Financial	Operating	$9.644 million
	Capital	$0.392 million
	Revenue	$0.384 million
Visitors	439,600 (est)	
Permits	Permits issued for 4 commercial activities; licences issued for 59 weddings or wedding photography; licences issued to publish 1,225 photographs from the collection	

International conventions and agreements	
World Heritage Convention	Supports Australia's World Heritage sites through research, plant collections, plant identification, and horticultural and educational programmes
Wetlands (Ramsar) Convention	Supports Australia's obligations under the Ramsar Convention through access to plant identification services and data on aquatic plants in the Australian National Herbarium
Other agreements	Collaborates with international organisations including: • International Association of Botanic Gardens • International Association of Plant Taxonomists • International Plant Propagators Society • International Union of Biological Sciences Taxonomic Databases Working Group • International Plant Name Index (Kew Botanic Gardens and Harvard University) • Global Biodiversity Information Facility • International Organisation for Plant Information World Vascular Plant Checklist Project

Centre for Plant Biodiversity Research

The Centre for Plant Biodiversity Research is a joint venture by the ANBG and CSIRO Plant Industry. It was formed under a seven-year agreement between the then Director of National Parks and Wildlife and CSIRO in 1993 and renewed for a further 10 years in 2000.

The Australian National Herbarium is part of this facility, housing voucher specimens for plants in the ANBG with data supporting the living, herbarium, and photograph collections. The herbarium is a major contributor to Australia's Virtual Herbarium, a national project involving all states and territories, and the Consensus Census project to produce an accepted list of scientific names for Australian plants.

Major monitoring efforts

The ANBG's scientific planting is documented through voucher specimens in the Australian National Herbarium. A team of botanists, including national and international collaborators, ensure that the correct botanical names are always applied. New collection accessions help document the occurrence and distribution of plants in Australia.

A specialised and sophisticated database system maintains essential links between specimens in the herbarium, contemporary scientific literature, and the plants in the gardens.

A team of ANBG staff continually assesses the ANBG's living plant specimens.

Future challenges

Water resource management continues to be a major challenge for the ANBG. This is due to both the continuing drought and sharp increases in unit water costs to major users in Canberra. Some work has been done to identify non-potable water supplies and recirculation opportunities. This work will continue.

Maintaining the ANBG's growing role as a tourist attraction will remain a key focus. Continuing to offer interesting visitor attractions, like the Friends of the ANBG's summer concerts and guided tours, will be important.

The Friends have established a tax deductible public fund to assist with projects in the ANBG. Expanding this fund continues to be a challenge.

Work on Australia's Virtual Herbarium will continue into 2005–06, including redeveloping the internet application and interface, and increasing data entry rates.

Late in 2004–05 work commenced on the Consensus Census project to produce a list

of flowering plant names for the whole of Australia that is endorsed by the Australian Government and the state and territory herbaria. The project coordinator is located at the ANBG and the project is due for completion in 2007.

The ANBG's database applications are being redeveloped, involving tighter integration of plant name, living collections, herbarium and plant image data. The new applications are due to be implemented late in 2005.

The ANBG is embarking on a new phase of plant records and facilities management using geographic information systems (GIS) to record and visualise the location and condition of plants, amenities and services.

The global transition to digital photography has led the ANBG to move to digital plant imaging resulting in significant changes to database management.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Water management infrastructure

Actions

- Increase water use efficiency

Performance results 2004–05

- Met Australian Capital Territory water use reduction targets for first three-quarters of the year (Stage 2, 25 per cent saving and Stage 3, 40 per cent). Due to the very dry autumn, target (Stage 2, 25 per cent saving) was not met in that quarter but an overall reduction of 25 per cent was achieved for the whole year
- Evaluated the recommendations of an ANBG-funded consultancy on water management, to be followed up in 2005–06

KRA2: Cultural heritage management

Major issues

- Interpretation
- Education

Actions

- Provide interpretation and education programmes for all sectors of the community

Performance results 2004–05

- Hosted three major Visitor Centre exhibitions—'The Plant Underworld: Cryptogams' produced in-house; 'Setbacks–Shattered Dreams' from the Morley Grainger Studio; and 'Tall Eucalypt Forests' with photographs by Esther Beaton
- Installed interpretive signs in the Sydney region flora section to explain the ecology and cultural significance of this environment (see case study on page 52)
- Initiated the ANBG's first 'Artist in Residence' project with funding from the Australian Network for Art and Technology. The project is the Synapse Art and Science Residency Programme, and the artist will work with the ANBG's cryptogam scientist
- Initiated a series of evening spotlighting tours of the ANBG, the 'Twilight Forest Adventures' for school and community groups

KRA4: Visitor management and park use

Major issues

- Visitor management in emergencies
- Ecotourism Award
- Visitor Centre

Actions

- Implement visitor safety plan
- Compete for national tourism awards
- Upgrade facilities for the Visitor Centre, exhibition space and bookshop

Performance results 2004–05

- Refined the visitor safety plan for the annual summer concert series, covering issues such as parking, visitor access and safety, and fire safety
- Reported safety incidents dropped from 17 in 2003–04 to five in 2004–05 and financial/security incidents dropped from 10 to one
- Won the Ecotourism Award for the Canberra region for the third successive year
- Began a major re-fit of the Visitor Centre in June 2005, to be completed early in 2005–06

KRA5: Stakeholders and partnerships

Major issues

- Friends of the ANBG

- Greening Australia
- Birrigai Outdoor School

Actions

- Strengthen the partnership between the ANBG and the Friends of the ANBG
- Host the Greening Australia Community Seedbank on the ANBG site
- Continue the successful partnership with the Australian Capital Territory Government's Birrigai Outdoor School

Performance results 2004–05

- The Friends of the ANBG ran the annual students' photographic competition and the autumn and spring plant sales; published quarterly newsletters; provided volunteer guided walks each day; committed $20,000 to projects including plantings at the front entrance and a web site on cryptogams; participated in the ANBG's annual summer concerts in January 2005
- Signed an agreement between the Director of National Parks and Greening Australia ACT to share ANBG facilities for native seed processing and storage for community revegetation projects
- Continued the relationship with Birrigai, initiated after the 2003 Canberra fires, with programmes for young children such as 'Teddy Bear's Picnic' and associated trails

KRA6: Business management

Major issues

- Disaster management

Actions

- Improve planning for disaster response

Performance results 2004–05

- Developed a Disaster Management Plan for the ANBG, particularly for the Australian National Herbarium and its collection of specimens. The plan underpins the ANBG's active participation in DisACT, the loose confederation of national collecting institutions in the Australian Capital Territory assisting each other in the event of a disaster affecting their collections
- Revenues up 2 per cent from budget, expenses up 14 per cent (due to asset write-downs)

KRA7: Biodiversity knowledge management

Major issues

- Australian National Herbarium
- Plant names
- Taxonomic botanical research
- Change from film to digital imaging
- ANBG–Centre for Plant Biodiversity Research web site

Actions

- Make botanical data, information and expertise available to the national and international botanic community
- Develop a Consensus Census to list all the flowering plants in Australia
- Publish and disseminate research findings
- Smooth the transition from the use of film to the use of digital images
- Promote and provide information about Australian native plants via the internet

Performance results 2004–05

- Databased 63,879 specimens and added them to Australia's Virtual Herbarium
- Began the Consensus Census project to produce a single list of scientific names for flowering plants for the whole of Australia. The project is funded through the Natural Heritage Trust and endorsed by Australian Government, state and territory herbaria
- Researchers completed 68 scientific papers or publications resulting from research undertaken at the Australian National Herbarium
- Installed new equipment, technology and storage facilities for the Australian Plant Image Index and photographing herbarium specimens, to accommodate the change from film to digital photography
- Recorded about 27,000 hits on the ANBG–CPBR web site each day

Education and tourism—a winning combination

Parliamentary Secretary the Hon Greg Hunt MP inspects some of the new interpretive signage with Paul Janssens, Curator of Living Collections.

The Sydney region flora section at the ANBG has been decades in development. New signs raise interpretation of the section to a new level, and set a model for the interpretation of other displays at the ANBG.

The new signage orients visitors to the geography, geology and flora of the Sydney region and provides an experience of the types of ecological communities found there and their value to generations of Indigenous Australians. It is eye-catching and informative, and takes a storytelling approach to the living exhibit, inviting visitors to touch, smell and explore.

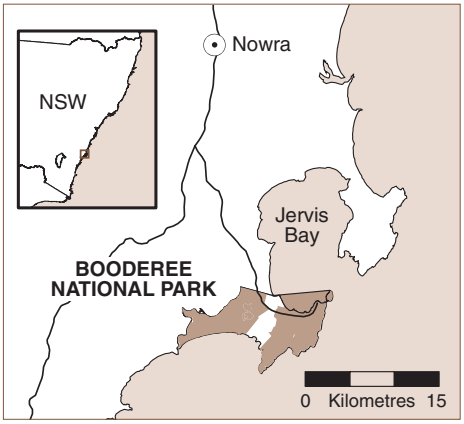
The Sydney region section shows species that grow in the sandstone plateaus and gorges of the area. It includes outlying areas with different geology, such as the Rylstone district and the Cumberland Plain. Plantings include wet rainforest, *Allocasuarina* heath, Budawang Ranges flora and woodlands.

The interpretation introduces visitors to how generations of Indigenous Australians have used plants in the Sydney region. It also shows some of the fossil history of Australian plants. Fossils are common in the sandstone and shale of the region.

Launching the new Sydney region signage on 23 May 2005, the Hon Greg Hunt MP, Parliamentary Secretary to the Minister for the Environment and Heritage, noted that the ANBG had won the Canberra Region Tourism Award for Ecotourism in 2004. This is the third consecutive year the Gardens has received the award and firmly positions the ANBG as one of the Canberra region's significant tourist attractions.

Booderee National Park

http://www.deh.gov.au/parks/booderee



Special features

Booderee National Park protects most of the Bherwerre Peninsula, Bowen Island, and the waters and seabed in the southern part of Jervis Bay. The park includes the Booderee Botanic Gardens, formerly an annex of the ANBG.

The park is of great significance to its traditional owners, the Wreck Bay Aboriginal community. More than 100 prehistoric Aboriginal sites have been recorded on the Bherwerre Peninsula.

Jervis Bay is one of the major biogeographic nodes in Australia and contains a variety of relatively undisturbed marine and terrestrial habitats. The park protects a significantly large area of species-rich coastal heath, wetlands and salt marshes. It also protects one of the largest seagrass meadows on the New South Wales coast. Vegetation communities found in the park include relic rainforest, littoral rainforest, forest, woodland, wet and dry heath, coastal scrub and grassland communities.

The park is rich in flora, with more than 625 native plant species recorded. The fauna is also diverse and includes threatened species such as the eastern bristlebird *(Dasyornis brachypterus)*. Bowen Island is an important breeding site for the little penguin *(Eudyptula minor)*.

Location	Latitude 35° 09' South, Longitude 150°39' East
Area	6,392 hectares (including a marine area of 875 hectares)
Proclamation date	4 March 1992
IUCN category	Category II overall (Botanic Gardens Category IV)
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Sydney Basin
Management plan	First plan in effect, expires 3 April 2009

Other significant management documents	Management plan implementation schedule; risk assessment and management schedule; fire and pest management strategies; Memorandum of Understanding with NSW Rural Fire Service; draft Memorandum of Understanding with the Department of Defence; and Botanic Gardens' Collections Policy	
Financial	Operating	$6.757 million
	Capital	$0.656 million
	Revenue	$1.793 million
	Paid to traditional owners	$0.251 million
Visitors	420,000 (est)	
Permits	23 commercial tour operators, 19 research, 4 others (eg wedding celebrants)	

International conventions and agreements	
Wetlands (Ramsar) Convention	Nomination in preparation
Migratory Species (Bonn) Convention	23 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	20 of the 81 listed species
Japan–Australia Migratory Birds Agreement	22 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 critically endangered 4 endangered 11 vulnerable 36 migratory 72 marine East coast whale migration refuge area
	Recovery plans	5 being implemented (humpback whale; southern right whale; albatrosses & giant petrels; marine turtles; grey nurse shark) 5 in preparation (grey-headed flying-fox; Gould's petrel; eastern bristlebird; green and golden bell frog; giant burrowing frog)
Listed flora	Species	1 vulnerable
	Recovery plans	1 in preparation (magenta lilly-pilly)
Heritage	Listed as Commonwealth Heritage (part of several listings)	

Numbers of native species recorded*					
Mammals	Birds	Reptiles	Amphibians	Fish	Plants
26(4)	200(9)	17(3)	15(2)	308(1)	625(1)

* Figures in brackets are the number of species that are a management priority.

Board of management

The Booderee National Park Board of Management has 12 members, including seven representatives nominated by the Wreck Bay Aboriginal Community Council (WBACC). The board oversees the management of the park and botanic gardens, and the preparation of management plans.

Major monitoring efforts

Threatened species monitored included the eastern bristlebird, sooty oystercatcher *(Haemotopus fuliginosus)* and amphibians, with a focus on the green and golden bell frog *(Litoria aurea)* and the giant burrowing frog *(Heleioporus australiacus)*.

Biodiversity indicators were also monitored, including terrestrial invertebrates (insects, worms, spiders, and others) and hypogeal (underground) fungi, a major source of food for small mammals. These indicator species help managers to determine an ecosystem's health.

Following the Windermere fires which burnt 50 per cent of the park at Christmas 2003, the park instituted intensive fox baiting and wildife monitoring, particularly of long-nosed bandicoots *(Perameles nasuta)* and eastern bristlebirds. Early results show a surprising resilience in both species, a capacity to utilise a broad range of habitats, and an astounding capacity to recover after intense fire.

The Australian National University and Booderee National Park are continuing a major collaborative study of the impact of fire on vertebrate fauna. The Department of Defence joined the collaborative research project and has contributed $60,000 over three years from 2004–05. Research staff will be joined by a WBACC member who will receive training in ecological fire research and assist researchers with expert local knowledge and advice on cultural issues.

The park board approved a NSW National Parks and Wildlife Service feasibility study into the reintroduction of the southern brown bandicoot *(Isoodon obesulus)* into Booderee, due in large part to the successful control of foxes and habitat suitability.

The training database was refined to include reporting across the park and WBACC. The updated database provided for reporting on the amount of funds provided by each organisation as well as external funding.

The visitor data system was updated to ensure it remains consistent with NSW National Parks and Wildlife Service reporting arrangements for the region.

Future challenges

Major challenges for 2005–06 are to provide better measurable protection of biodiversity values from key threats such as bitou bush, degradation of habitats, foxes and *Caulerpa taxifolia*, an aquatic pest plant found recently in waters adjacent to the park; develop a business case for the cultural centre; develop cultural heritage programmes with the Wreck Bay Aboriginal community; implement the Marine Zoning Plan requirements in consultation with relevant agencies; finalise and implement the training strategy; develop more service level agreements and contracting opportunities with the community; and ensure the water supply for the Jervis Bay Territory is sustainable in the long term.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- 13 known introduced terrestrial vertebrate pest species in the park, of which fox is the greatest threat
- Bitou bush *(Chrysanthemoides monilifera)* is the most significant weed in Booderee. Need to explore more effective integrated control measures (fire, spraying, rehabilitation)
- Protection of little penguin nesting habitat from kikuyu grass
- Fire-prone vegetation communities require management

Actions

- Manage feral animal control programme with emphasis on regional fox control, control of resilient individuals and introduction of alternative fox control methods
- Control or remove weeds and restore managed areas
- Control the spread of kikuyu using integrated measures
- Implement an ecologically appropriate and safe fire management programme

Performance results 2004–05

- Continued successful fox baiting following extensive fire, allowing rapid recovery of small native mammals and ground birds (indicated by the long-nosed bandicoot and the eastern bristlebird)

- Replaced kikuyu with native species that support penguin nesting in targeted areas (approximately one hectare during the year)
- Improved recording of flora and fauna distributions by using GIS
- Implemented new fire management programme incorporating best practice risk management principles
- Kept Bowen Island rat free (confirmed by monitoring programme) providing vital habitat for sensitive and vulnerable ground-nesting seabirds (especially the sooty oystercatcher)
- Board of management approved a revised pest control strategy

KRA2: Cultural heritage management

Major issues

- Maintaining the cultural values of the park
- WBACC and the park to develop and deliver a well-accepted cultural heritage education programme

Actions

- Register cultural sites on GIS and database, and determine protection measures
- Offer summer interpretation programme with increased focus on cultural interpretation
- Plan for new cultural centre by continuing a pre-design project involving environmental impact assessment and feasibility studies
- Develop a cultural heritage strategy for the park

Performance results 2004–05

- Conducted cultural interpretation holiday programme during December 2004–January 2005
- Continued cultural centre negotiations and planning. A feasibility study into potential commercial activities associated with a centre and environmental assessment of potential sites were undertaken and presented to the board of management
- Drafted terms of reference for the development of the cultural heritage strategy

KRA3: Joint management

Major issues

- Lease is successfully negotiated and administered

- Contracting arrangements between the park and Wreck Bay Aboriginal Community are agreed and implemented
- Management plan is fully implemented and cultural centre is progressed

Actions

- Implement new lease
- Negotiate service level agreements for provision of specific park services under the terms of the services contract between the Wreck Bay Aboriginal Community and the Director
- Prepare implementation schedule and report progress to the board of management

Performance results 2004–05

- Implemented the new lease (signed October 2003) which provides a framework for improving employment opportunities for traditional owners. These include employment in the park and contracted work on roads maintenance, the entry station, cleaning, cultural heritage assessment, building maintenance, signage and other services (see case study on page 61)
- Negotiated and signed service level agreements for road and fire trail maintenance and entry station services and progressed other service level agreements including for cleaning. Wreck Bay Enterprises Limited contractors completed major repairs and upgrades to park infrastructure damaged during the Windermere fire of Christmas 2003
- Refined the implementation schedule reporting database

KRA4: Visitor management and park use

Major issues

- Need to increase public awareness of the conservation and cultural values of the park through education and interpretation programmes
- Provision of infrastructure to facilitate appropriate use of the park while protecting conservation values

Actions

- Include conservation themes in summer interpretation programme
- Maintain campgrounds and facilities
- Implement zoning plan

Performance results 2004–05

- Delivered interpretation programmes focusing on Aboriginal cultural values and conservation themes over the Christmas 2004 school holidays. Schools interpretation programmes were delivered in the park and at schools
- Repaired and reopened campground and visitor infrastructure damaged by the Windermere fire of Christmas 2003. The majority of damaged areas have now been repaired and insurance payments received
- Implemented the new landscape/campsite design plan for Green Patch A (now D) section. Campground occupancy returned to pre-fire levels

KRA5: Stakeholders and partnerships

Major issues

- Cooperative arrangements between Booderee, the NSW National Parks and Wildlife Service, the Jervis Bay Marine Park and the Department of Defence are supported
- Strong cooperative arrangements with universities are extended
- Fire recovery monitoring

Actions

- Commence integrated management programmes in key areas
- Support research in conservation areas identified in the park management plan
- Support cooperative undergraduate and postgraduate programmes
- Refocus monitoring programmes to deal with wildfire

Performance results 2004–05

- Commenced integrated management programmes in key areas with the park taking the lead role in regional fox pest management
- Issued 16 research permits in postgraduate conservation fields in line with the management plan. Cooperative undergraduate and postgraduate programmes operated with Wollongong and Canberra universities and the Australian National University. Research areas include whales, dolphin bioacoustics, rats, fox ecology, bitou ecology and biocontrol, bandicoots, pythons, invertebrates, marine habitats and seagrass ecology. Project to translocate eastern bristlebirds to Beecroft Peninsula remained on hold because of wildfire
- Resumed an Australian National University–Booderee National Park fauna research project that began before the wildfire. Transect sites destroyed by the fire have been replaced and research has continued. The wildfire event has provided an extra opportunity to study vertebrate fauna responses to such fire events

- Board of management approved the NSW National Parks and Wildlife Service's commencing a feasibility study into the reintroduction of the southern brown bandicoot
- Drafted a memorandum of understanding between the park and the Department of Defence for discussion by the parties

KRA6: Business management

Major issues

- In accordance with Investors in People policy, staff have all the necessary skills to do their jobs
- Align park structure and staffing for future business needs

Actions

- Increase emphasis on training identified in personal development plans
- Finalise operational review and introduce new structure and business practices

Performance results 2004–05

- Drafted an integrated training strategy for the Wreck Bay Aboriginal Community and park staff, consistent with park lease obligations
- Offered training in line with personal development plans, with emphasis on project management, fire training, career planning, change management and park management
- Implemented an operational review of the park commissioned in 2003–04. Staff were restructured into three teams: Park Services, Visitor Services and Administration. The restructure has improved performance and management in entry fee compliance monitoring, incident reporting, fire operations, adding GIS data, botanic gardens operations and human resource management
- Revenues up 13 per cent from budget, expenses up 7 per cent (both due to fires recovery and insurance receipts)

Contracting services to the Wreck Bay Aboriginal Community

Booderee National Park ranger Jeff Williams (centre) discussing restoration works with Anthony Roberts (left) and Todd Roberts (right) of WBEL.

Contracting, employment and development of commercial activities are key issues for Wreck Bay Aboriginal Community, identified in the Booderee National Park Management Plan and the park lease.

In 2003 the Director and Wreck Bay Aboriginal Community Council (WBACC) negotiated a contract which establishes the mechanism for WBACC's commercial arm, Wreck Bay Enterprises Limited (WBEL), to provide services to the Director.

The contract gives WBACC first preference for services required in the park. Under the contract, service level agreements are negotiated which take into account value for money and capacity to perform the service. The arrangement provides opportunities for the community to develop organisational, financial and management skills, as well as specific job skills, which will develop the community's ability to manage park operations, community business, or commercial activities outside the park in the future. The contract provides for benchmarking and third party probity assessment to ensure value for money.

In 2004–05, the Director contracted WBEL to maintain roads and fire trails, collect entry fees, and provide cleaning, building maintenance and interpretive services. Two service level agreements for the road and fire trail maintenance and entry station operations were finalised.

WBEL staff played a major role in the fire recovery effort, repairing and installing infrastructure burnt in the Windermere fire of Christmas 2003.

The contracting arrangement builds on the sound working relationship developed between community members and park staff, and delivers good service outcomes to the park and good economic and social outcomes to the community.

Christmas Island National Park

http://www.deh.gov.au/parks/christmas

Special features

Christmas Island is home to a unique rainforest ecosystem that supports very high biodiversity with at least 225 species of endemic animals and 25 species of endemic plants and many that do not occur elsewhere in Australia. It includes the last remaining nesting habitat of the endangered Abbott's booby *(Papasula abbotti)*; and an extraordinary diversity and abundance of land crabs.

The island is renowned for its annual crab migration, when up to 100 million red crabs *(Gecarcoidea natalis)* march to the sea to spawn, and for the whale sharks *(Rhincodon typus)* that migrate to its in-shore waters to feed on the spawn.

Location	Latitude 10° 29' South, Longitude 105°38' East	
Area	8,719 hectares	
Proclamation date	21 February 1980, 31 January 1986 and 20 December 1989	
IUCN category	Category II	
Biogeographic context	Christmas Island is the coral-encrusted, emergent summit of a basaltic, submarine mountain in the Indian Ocean. Its plants and animals are most closely linked with those of South-East Asia	
Management plan	Third plan in effect, expires 13 March 2009	
Other significant management documents	Christmas Island Rainforest Rehabilitation Programme (CIRRP); Invasive Ants on Christmas Island Action Plan; biodiversity monitoring programme; management plan implementation schedule; and risk assessment and management schedule	
Financial	Operating	$2.610 million
	Capital	$0.161 million
	Revenue	$1.123 million

Visitors	600 (est)
Permits	2 commercial tour operators; 2 photography, 12 research; 15 others (eg camping, works)

International conventions and agreements	
Wetlands (Ramsar) Convention	The Dales and a small landlocked mangrove forest at Hosnie's Spring are listed under the convention
Migratory Species (Bonn) Convention	28 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	48 of the 81 listed species
Japan–Australia Migratory Birds Agreement	45 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 extinct 6 endangered 8 vulnerable 57 migratory 96 marine
	Recovery plans	8 being partially implemented (shrew; pipistrelle; Abbott's booby; goshawk; frigatebird; hawk-owl; marine turtles; whale shark) 2 in preparation (gecko; blind snake)
Listed flora	Species	3 critically endangered 1 endangered 1 vulnerable
	Recovery plans	2 being implemented (spleenwort; a fern)
Heritage	Listed as Commonwealth Heritage (as part of a wider listing of the island's natural areas)	

Numbers of native species recorded*					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
3(3)	95(16)	9(9)	575(35) marine, 3 freshwater	>2,000(198)	213(91)

* Figures in brackets are the number of species that are a management priority.

Advisory committee

The Christmas Island National Park Advisory Committee comprises the Director of National Parks and community representatives. The committee advises the Government Conservator on the implementation of the management plan. It also advises the Shire of Christmas Island and the Director of National Parks on matters relevant to the park.

Major monitoring efforts

In December 2003 a three-year programme, funded by the Department of Finance and Administration, commenced to monitor the impacts of the construction of a Christmas Island Immigration Reception and Processing Centre. The programme has so far determined that several endemic species (two skinks, one gecko and two bats) and a number of invertebrate species have declined to very low levels, implying that significant ecological change has already occurred. This is probably due to the combined effects of forest clearing and the spread of invasive species, exacerbated by climate change. The future management implications may be far-reaching.

Future challenges

Management programmes have dramatically reduced the density of yellow crazy ants (*Anoplolepis gracilipes*) that had been threatening the island's crab population. However, the ants remain widespread and will require a continuing intensive control effort to contain them at a manageable level.

Two other potentially dangerous exotic ant species, fire ants *(Solenopsis invicta)* and big-headed ants *(Pheidole megacephala)* are present on the island and are being monitored for signs of spread.

The Christmas Island Rainforest Rehabilitation Programme (CIRRP) resumed operation in 2004, but lacks the resources to provide all the rehabilitation required. The question of how best to rehabilitate extensively mined landscapes with limited resources remains under active investigation.

Encroachment on the rainforest by aggressive woody weeds is an escalating problem that will require additional resources over the coming years.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Continuing management of 37 weed species
- Continuing management of yellow crazy ants
- Adoption and funding of all relevant recovery plans
- A proposal that the Department of Transport and Regional Services rehabilitate 2,800 hectares of old mine-sites not covered by the CIRRP, mainly outside the park
- Crab mortality from traffic

Actions

- Implement an integrated island weed control programme
- Control yellow crazy ants to a manageable level
- Obtain funding to implement all species recovery plans
- Adopt mine-site physical rehabilitation programme
- Install better crab crossings

Performance results 2004–05

- Completed 21 hectares of weed control under the CIRRP
- Destroyed 265 hectares of yellow crazy ant super-colonies and completed the island-wide survey
- Achieved the CIRRP target of planting 27,000 trees
- Biodiversity Monitoring Programme met all targets
- Adopted an improved crab crossing design for implementation in the coming migration (see case study on page 68)

KRA2: Cultural heritage management

Major issues

- Ongoing protection of heritage sites (temples) within the park

Actions

- Protect all heritage sites

Performance results 2004–05

- Protected all heritage sites

KRA4: Visitor management and park use

Major issues

- Developing further ecotourism opportunities

Actions

- Facilitate new ecotourism opportunities with conservation outcomes

Performance results 2004–05

- Supported the Christmas Island Tourist Association application under the Australian Government's Tourism and Conservation Partnership Initiative for an ecotourism feasibility study involving bird-watching

KRA5: Stakeholders and partnerships

Major issues

- Continue to negotiate conservation agreements with the Shire of Christmas Island for land adjoining the national park
- Improve performance of the Christmas Island National Park Advisory Committee
- Implement feral cat eradication programme

Actions

- Reach agreement in principle with shire over joint management of land adjoining the national park
- Make Christmas Island National Park Advisory Committee operational
- Implement Memorandum of Understanding on feral cats with mining company and Shire of Christmas Island signed in 2003–04

Performance results 2004–05

- Launched small joint management venture at Smith Point
- Christmas Island National Park Advisory Committee appointed and functioning
- Cat eradication programme awaiting adoption of cat control legislation

KRA6: Business management

Major issues

- Delivering quality management services within a limited budget

Actions

- Maintain park management services within budget

Performance results 2004–05

- Revenues on budget, expenses up 9 per cent (largely due to asset write-downs)

Declining biodiversity on Christmas Island

The population of the endemic blue-tailed skink is declining for reasons yet unknown.

Research shows that Christmas Island's unique biodiversity is in decline.

The ecology of Christmas Island is unique. It features high biodiversity, a high degree of endemism, and the largest and most diverse land crab community in the world. However, a research and monitoring programme that commenced in December 2003 is revealing an apparent decline in biodiversity.

The programme, funded by the Department of Finance and Administration, has so far shown that about 30 million red crabs, one quarter of the population, have been killed by the invasive yellow crazy ant. At least 22 of the plant species native to Christmas Island are in decline, and the researchers recommend that 42 native plant species be regarded as nationally threatened.

Endemic reptiles and mammals are also in decline, with at least six species reduced to remnant populations or no longer recorded. Of the 199 endemic invertebrates, 76 have not been recorded since the 1980s. Birds are faring comparatively well, though endemic species such as the Abbott's booby and the Christmas Island frigatebird remain at risk.

The declining biodiversity appears to be due mainly to invasive fauna and flora species, including ant species, feral cats, black rats and the Asian wolf snake, and habitat loss associated with mining which has removed 23 per cent of the original rainforest and extensive amounts of the phosphate-rich soil.

Parks Australia is implementing an intensive crazy ant control programme that has arrested the decline in red crabs and other species and led to some recovery. The ongoing work received supplementary funding through the Natural Heritage Trust to ensure the early success in crazy ant control is maintained. Parks Australia is cooperating with the Christmas Island Shire Council over implementing a planned control programme for feral cats and controls weeds as resources permit. Phosphate mining, however, creates many isolated clearings that are rapidly colonised by weeds, and extensive work is needed to control environmental weeds island-wide.

Better crab crossings for Christmas Island

A crab's eye view of a roadway 'crab crossing'.

Christmas Island's unique rainforest ecosystem is dominated by the largest and most diverse land crab community in the world. Approximately 90 million red crabs *(Gecarcoidea natalis)* are the most numerous and obvious of the 20 or so species of land crabs present.

At the beginning of every wet season (October/November), adult red crabs begin a spectacular migration from the forest where they live. They walk down to the coast to breed and release eggs into the sea, then return to the forest. After about 30 days in successful breeding years (perhaps only once or twice every 10 years) the baby crabs emerge from the sea and climb up the steep limestone cliffs and terraces to the forest.

During the migration, many thousands of adults and young crabs are crushed by vehicles while crossing roads that are in their path. The red crab population is already depleted from the impact of yellow crazy ants and the deaths during migrations exacerbate this situation.

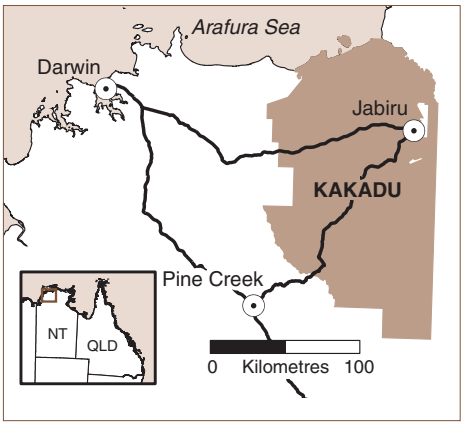
Parks Australia has sought for many years to minimise these deaths. Sections of roads where crabs cross in high numbers have been identified and 'crab crossings' constructed. Crab crossings consist of a concrete tunnel under the road with a grid in the road surface that admits light so the crabs will enter, similar to the construction of a cattle grid. Plastic fencing is erected along the roadside to funnel the crabs through the tunnels under the road and prevent them crossing the roadway.

Parks Australia has also developed removable 'crab bridges' for temporary installation over roads during the migration. Prototypes have been tested to ensure the crabs will use them and the first bridges will be ready for installation this year.

Other conservation measures implemented during the migration period include road closures and traffic detours around major migration paths during peak periods. Crab mortality from vehicles is currently around 300,000 per migration season, down from the million or so that were killed before these management measures were introduced.

Kakadu National Park

http://www.deh.gov.au/parks/kakadu



Special features

Kakadu National Park is inscribed on the World Heritage List under natural and cultural criteria. It is one of the most ecologically and biologically diverse places in Australia.

Kakadu's traditional owners maintain strong links to their country, links that are demonstrated through their ongoing cultural practices, spiritual beliefs and traditional management and use of their country. An estimated 15,000 rock art sites and innumerable artefacts and sites of cultural, archaeological and historic significance in the Kakadu region contribute to archaeological evidence indicating that people have lived continuously in the Kakadu region for at least 50,000 years.

The park contains an almost entire major tropical river catchment (the South Alligator River catchment) and large representative examples of the wet-dry tropical ecosystems of northern Australia. The major landforms in the park include the sandstone plateau and escarpment, extensive areas of savanna woodlands, monsoon forest, riverine and riparian environments, billabongs, floodplains, mangroves and mudflats.

Location	Latitude 13° 29' South, Longitude 132°26' East
Area	1,980,400 hectares
Proclamation date	In several stages: 5 April 1979, 28 February 1984, 12 June 1987, 22 November 1989 and 24 June 1991
IUCN category	Category II
Biogeographic context	Located in the wet-dry tropics Interim Biogeographic Regionalisation for Australian regions: Darwin Coastal; Arnhem Plateau; Pine Creek

Management plan	The fourth management plan expired on 8 March 2004. The fifth management plan is being prepared	
Other significant management documents	Shared Vision for Tourism; district fire management plans; district weed control plans; crocodile management strategy	
Financial	Operating	$16.977 million
	Capital	$1.525 million
	Revenue	$2.222 million
	Paid to traditional owners	$1.040 million
Visitors	165,300 (est)	
Permits	110 film/photography; 126 commercial tour operators; 16 research; 729 camping/bush walking	
Visitor satisfaction	87% of visitors for the 12 months ending March 2005 were 'satisfied to very satisfied' (Northern Territory Tourist Commission). Highest satisfaction level recorded since surveys commenced in 1998.	

International conventions and agreements	
World Heritage Convention	Listed under cultural criteria (i) and (vi) and natural criteria (ii), (iii) and (iv), recognising the park's outstanding natural and cultural values
Wetlands (Ramsar) Convention	683,000 hectares of wetlands in Kakadu are listed
Migratory Species (Bonn) Convention	39 of 98 listed Australian species
China–Australia Migratory Birds Agreement	52 of 81 listed Australian species
Japan–Australia Migratory Birds Agreement	49 of 110 listed Australian species
Other agreements	Tri-National Wetlands Memorandum of Understanding (links Kakadu, Wasur National Park in Indonesia, and Tonda Wildlife Management Area in Papua New Guinea)

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 critically endangered 5 endangered 11 vulnerable 68 migratory 103 marine
	Recovery plans	2 being implemented (golden bandicoot & golden-backed tree rat; marine turtles) 8 in preparation (bare-rumped sheathtail bat; red goshawk; yellow chat; Gouldian finch; eastern partridge pigeon, crested shrike-tit & northern masked owl; freshwater sawfish; speartooth shark; northern rivers shark)
Listed flora	Species	6 vulnerable
	Recovery plans	1 in preparation (multi-species boronia)

Numbers of native species recorded*					
Mammals	Birds	Reptiles	Fish	Amphibians	Plants
77(19)	271(35)	132(32)	246(60)	27(2)	1,586(14)

* Figures in brackets are the number of species that are a management priority.

Board of management

The Minister for the Environment and Heritage appoints members to the Kakadu National Park Board of Management. Ten of the board's 15 members are appointed as representatives of the park's traditional owners, representing the geographic spread of Aboriginal people in the region, and the major language groupings. One position on the board is reserved for a nominee of the Northern Territory Government. In April 2005 a new board was appointed following the conclusion of the five-year appointments of members of the previous board.

Major monitoring efforts

Monitoring and control continued in 2004–05 for introduced plants including *Mimosa pigra*, mission grass *(Pennisetum polystachion)* and gamba grass *(Andropogon gayanus)*; introduced ants including big-headed ants *(Pheidole megacephala)* and ginger ants *(Solenopsis geminata)*; and introduced terrestrial vertebrate fauna.

Control measures commenced for the introduced weed olive hymenachne

(Hymenachne amplexicaulis) as it has begun to emerge as a weed of environmental concern.

Studies were conducted of threatened flora and fauna; the impact of cane toads *(Bufo marinus)* on goannas, native frogs and northern quolls *(Dasyurus hallucatus)*; feral animals (by aerial survey); crocodile populations; marine turtles, in particular nesting flat back turtles *(Natator depressus)* in coastal areas of the park; and the marine environments off the park's coast as part of a collaborative project with the Northern Territory Government, the Northern Land Council and the National Oceans Office.

Landscape monitoring projects continued, including a study of channel changes within the South Alligator tidal interface region, in collaboration with Charles Darwin University; an assessment of vegetation change within and surrounding a buffalo farm in the park; monitoring of bank erosion at Yellow Waters; and a long-term fire monitoring programme in collaboration with the Bushfires Council of the Northern Territory.

Annual visitor numbers and the numbers attending the seasonal ranger interpretive activities also continued to be monitored.

Future challenges

Major challenges include supporting the traditional owners of the park to gain senior management roles; establish business enterprises to conduct cultural and natural resource management programmes; and have greater input into all aspects of park management.

Other future challenges include facilitating board consideration of ideas that may progress *A Shared Vision for Tourism in Kakadu National Park*; ensuring ongoing safety of tourists and staff; completing the fifth management plan; controlling the spread of introduced pasture grasses; the threat of weeds/non-native plants associated with developed areas; and controlling the impact of introduced non-native animal species such as cane toads.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- An apparent decline of small mammal populations in the park
- Cane toads and their impacts on native species
- The ongoing spread of introduced pasture grasses
- Introduced pest species and their impacts
- Monitoring the status of significant species
- Understanding the impact of fire
- Landscape change

Actions

- Assess species populations as part of park fauna monitoring programmes
- Assess impact of cane toads on goannas (*Varanus* spp.) and northern quolls
- Detect and treat infestations of invasive ant species
- Continue control of serious pest species, focusing on weeds of national significance including mimosa, salvinia (*Salvinia molesta*) and olive hymenachne, as well as mission grass, gamba grass and other introduced pasture grasses
- Develop appropriate fire regimes for the variety of habitats within the park
- Study landscape change processes

Performance results 2004–05

- Assessed impact of cane toads on northern quolls. While populations translocated to offshore islands in 2003–04 are thriving, populations in the park are a serious concern. As a result the cane toad was declared a key threatening process and the northern quoll an endangered species under the EPBC Act
- Researched cane toad impact on selected goanna species. Research indicates that cane toads are threatening populations of some goanna species
- Began landscape change study, linking processes of landscape change with fire regime, feral animal removal and natural processes
- Tackled weed outbreaks before they became a problem
- Finalised the feral animal strategy
- Continued the monitoring and control programme for big-headed ants and ginger ants
- Established Indigenous fire management programmes

- Completed threatened plants and animals survey
- Signed Memorandum of Understanding between the Director and the Environmental Research Institute of the Supervising Scientist on conduct of research in the park
- Continued to collect data on marine turtle nesting
- Completed a marine resource inventory off the coast of Kakadu

KRA2: Cultural heritage management

Major issues

- Supporting the continuity of traditional owners' living culture
- Protecting cultural items and sites of significance

Actions

- Continue rock art protection work
- Continue cataloguing and preserving cultural heritage materials
- Continue to collect oral histories
- Seek opportunities for the transfer of knowledge between generations
- Support traditional owner leadership in the park's natural and cultural resource management activities

Performance results 2004–05

- Established the new position of Manager, Natural and Cultural Programmes
- Continued oral history interviews with senior traditional owners
- Continued development of a register of oral history audio and video material
- Sought expert opinion on the long-term storage and protection of audio and video materials currently held in the park
- Produced a video of the marine survey and Field Island turtle research programme for communication with traditional owners
- Continued rock art maintenance at public visitation sites with the involvement of relevant Aboriginal people and held a rock art protection training camp for Jawoyn traditional owners
- Prepared a conservation plan for Munmarlary and began work on a plan for Old Goodparla historic homestead
- Staff participated in a five-day women's Aboriginal land management conference

KRA3: Joint management

Major issues

- Meeting the commitments outlined in the lease and management plan
- Ensuring shared decision-making occurs at all levels within the park
- Development of the fifth management plan

Actions

- Implement actions to encourage increased Aboriginal engagement through recruitment and under contract, including skills development programmes
- Support traditional land management projects
- Consult with traditional owners and the board of management in developing the fifth management plan
- Appoint a new board of management
- Continue day-to-day consultations with traditional owners

Performance results 2004–05

- Relevant Aboriginal staff continued tertiary studies
- Continued to employ relevant Aboriginal people, including through the New Apprenticeship Scheme
- Continued skill development and training for relevant Aboriginal staff
- Consulted with traditional owners and other relevant Aboriginal people through the Northern Land Council
- Continued day-to-day joint decision-making by relevant Aboriginal people and park staff, including field trips to discuss mine-site rehabilitation and sickness country protocols
- Continued financial support of a Northern Land Council Kakadu Officer position
- Held quarterly meetings of Kakadu National Park Board of Management
- Aboriginal board members attended tourism conferences and one board member gained a Certificate II in tourism
- Continued a joint research and management project involving CSIRO, Bushfires Cooperative Research Centre, traditional owners and relevant Aboriginal people at Boggy Plains mapping historical changes, impact of fire, weeds, potential salt-water intrusion areas and significant fauna such as magpie geese
- Continued support of the Uwagi fire project conducted by relevant Aboriginal people from Kakadu (see case study on page 80)
- Completed consultations with traditional owners for the draft fifth management plan and held two extraordinary board meetings to work on preparation of the fifth management plan

KRA4: Visitor management and park use

Major issues

- Quality and range of visitors' experiences
- Visitor safety
- Communication with the tourism industry
- Shared vision and strategic direction for increasing tourism

Actions

- Increase Aboriginal engagement in visitor programmes and tourism enterprises
- Review and document crocodile management procedures
- Put in place new access arrangements to Twin Falls
- Regularly inspect and maintain visitor facilities

Performance results 2004–05

- Developed and launched *A Shared Vision for Tourism in Kakadu National Park* (see case study on page 79)
- Finalised a consultancy report providing recommendations for Kakadu's shared vision statement
- Increased level of visitor satisfaction to the highest level ever recorded in surveys (measured by the Northern Territory Tourist Commission)
- Successfully operated new access arrangements to Twin Falls comprising a boat shuttle service with interpretive presentations by local Aboriginal people, and a walk to the plateau above Twin Falls
- Local Aboriginal people delivered seasonal interpretive ranger programmes incorporating natural and cultural content
- Aboriginal people took a major part in tour operator workshops
- Abolished the park use fee to encourage visitation
- Established advanced methods to monitor visitor usage
- Supported Aboriginal enterprise development and involvement in tourism ventures such as the Twin Fall shuttle
- Finalised a crocodile management strategy, providing for ongoing assessment and management of risks posed by crocodiles

KRA5: Stakeholders and partnerships

Major issues

- Relationships with the tourism industry, Northern Territory Government and neighbours
- Participation in local, regional, national and international initiatives associated with Kakadu's World Heritage values

Actions

- Build a cooperative relationship with tourism stakeholders and Northern Territory Government
- Develop an operational relationship with park neighbours
- Take an active role in community programmes
- Implement work programme under the tri-national wetland agreement between Indonesia, Papua New Guinea and Australia

Performance results 2004–05

- Kakadu Tourism Consultative Committee advised the board of management on tourism related matters
- Developed the ongoing high-level relationship between the Australian and Northern Territory governments on tourism, native title, the future of Jabiru, employment and education
- Drafted an operational plan to support the tri-national wetland agreement between Papua New Guinea, Indonesia and Australia (plan agreed in August 2005)
- Participated in Kakadu community development meetings
- Continued liaison with the Bushfires Council of the Northern Territory and other NT Government agencies, Jabiru Town Council and the Northern Land Council
- Supported community events, including festivals and community-based programmes

KRA6: Business management

Major issues

- Park is currently without a management plan, the fourth plan having expired in 2004, though substantial progress has been made in consultations and drafting of the fifth plan
- Production of final draft of management plan delayed by work on the Shared Vision for Tourism
- Recognition of high levels of staff expertise and performance
- Compliance with obligations under the EPBC Act and Regulations relating to the management of Commonwealth reserves

Actions

- Implement a performance development scheme in accordance with the policy of the Department of the Environment and Heritage
- Participate in the Jabiru Region Sustainability Project, in which Parks Australia, the Northern Territory Government, Energy Resources of Australia and relevant Indigenous groups are considering options for the future of the Jabiru township
- Fulfil the Department's financial management and reporting obligations

Performance results 2004–05

- Introduced the ParkSafe initiative, continued occupational health and safety training and continued incident reporting and assessment
- Commenced operational review
- A staff member received an Australia Day Achievement Award recognising his contribution to weed control and crocodile management
- Implemented a performance development scheme for all staff
- Continued operational training for staff
- Revenues and expenses on budget

The tourism vision for Kakadu National Park

In February 2005, the Kakadu National Park Board of Management, supported by the Australian and Northern Territory governments, launched *A Shared Vision for Tourism in Kakadu National Park*. The project was facilitated by John Morse AM, former head of the Australian Tourism Commission. The resulting shared vision provides a framework for re-invigorating Kakadu as an international tourism icon, with emphasis on Aboriginal culture and the park's World Heritage values as a core part of the visitor experience.

The vision aims to protect and build on the values of Kakadu National Park while creating new and enriching experiences for visitors. The vision includes helping visitors understand and appreciate the beauty of the traditional lands, the landscapes and wildlife, some of the oldest artwork in the world, and especially the living culture and deep spiritual affiliation the traditional Aboriginal owners have with the land.

The vision also acknowledges the important role tourism can play in assisting economic development of Indigenous communities, including creating new opportunities for employment and skills development, especially for young people looking for meaningful work on their own country. At the same time, the vision recognises that tourism must develop at a pace that traditional Aboriginal owners are comfortable with.

The vision also provides a framework for new business opportunities and investment security for the tourism industry. The board of management will consider an enhanced tourism focus for park management; the potential for new experiences such as night wildlife tours, bush tucker tours, eco-camps and walking tracks; new low impact accommodation, at both the luxury and budget ends of the market; exploration of Kakadu's six seasons; and the potential for Aboriginal story-telling to give visitors a new perspective of country.

A report *Walking to the Future...Together*, by John Morse, John King and Jennifer Bartlett, provides invaluable background data and information to underpin the vision. It includes 71 recommendations to the Board and the Australian and Northern Territory Governments. A formal response from the Australian Government is to be released early in 2005–06.

Uwagi—Aboriginal burning and research on country

Limilngan traditional owners and park staff burning a firebreak along Kakadu's north-western boundary.

The Uwagi ('fire') project is helping to manage country inside the north-western boundary of Kakadu National Park adjacent to the Carmor Plains pastoral station. The Limilngan traditional owners from Kakadu proposed the project to Parks Australia in 2002, with the objectives of maintaining customary Aboriginal burning practices, engaging young people in 'caring for country', sharing and linking traditional and scientific knowledge of country and establishing a firebreak on the north-western boundary of the park.

Parks Australia and the Minitja Aboriginal Corporation contribute resources to the project. The project manager is a park employee and an Aboriginal member of the park Board. Employment opportunities have been created for other local Aboriginal people. Project participants work closely with the Arafura and West Arnhem Region Bushfires Council and staff of the South Alligator District of the park.

Protecting the adjoining pastoral property is a key issue, and a memorandum of understanding with the owner of the neighbouring Carmor Plains station regarding fire management and responsibilities has been agreed.

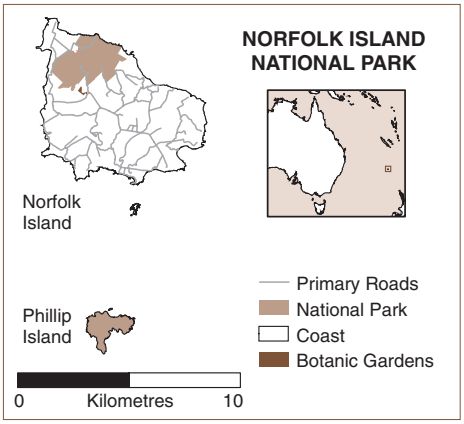
Once the boundary is protected with a firebreak, 'cultural' burning follows the seasons. Early dry season burning is usually carried out in the late afternoon (when the temperature drops) and fires die down at night from the dew, resulting in low intensity fires and a 'patchy' landscape of burnt and unburnt country most favoured for biodiversity. The burning protects much of the floodplain margins, savannah woodlands and monsoon forests from hot, late dry season fires.

The grass is burnt when it starts to cure, the burning beginning on higher, well-drained areas and working, as the dry season progresses, towards the gradually drying floodplain and watercourse margins. Burning promotes green regrowth on which game animals can graze, and facilitates hunting. Test burns are being conducted during the wet season to research any positive or negative effects on fruiting trees, including the bush currant *(Antidesma parvifolium).*

Other research under way on Limilngan country includes surveys of fish and aquatic plants at the freshwater springs; vegetation and mammal surveys in woodland areas; and monitoring the effects on fish and goannas of cane toads.

Norfolk Island National Park and Botanic Garden

http://www.deh.gov.au/parks/norfolk



Special features

Norfolk Island National Park protects most of the remaining natural vegetation of the island. The park and botanic garden are refuge for some 40 species found only on the island, including the entire populations of 13 of the 15 flora species considered to be critically endangered.

Of the 15 species and subspecies of birds once found only on Norfolk Island, only seven definitely remain (of the remaining species, two have not been sighted for some time and may be extinct). The park provides important habitat for native bird fauna and assisted wild breeding programmes are in place for two species, the green parrot (*Cyanoramphus novaezelandiae cookii)* and the morepork or boobook owl *(Ninox novaeseelandiae undulata).*

Phillip Island, which is free of introduced predators, is an important seabird breeding area. The only terrestrial reptile species found in the Norfolk group—*Christinus guentheri* and *Pseudemoia lichenigera*—are considered extinct on Norfolk Island but still occur on Phillip Island.

Location	Latitude 29° 01' South, Longitude 167°56' East
Area	National park 652 hectares (Mount Pitt section 462 hectares; Phillip Island 190 hectares) Botanic garden 5.5 hectares
Proclamation date	National park 31 January 1986 (Mount Pitt section); 24 January 1996 (Phillip Island) Botanic garden 31 January 1986
IUCN category	National park Category II overall (Phillip Island Category IV) Botanic garden Category IV

Biogeographic context	Isolated small islands of volcanic origin (2 to 3 million years old) in the South Pacific Ocean. Prior to European settlement, Norfolk Island was almost entirely covered by sub-tropical rainforest	
Management plan	First plan in effect, expires 28 June 2007	
Other significant management documents	*Norfolk Island Public Reserves Act 1997* (NI); Norfolk Island Plan; Phillip Island rehabilitation strategy; native forest rehabilitation strategy; management plan implementation schedule; and risk assessment and management schedule	
Financial	Operating	$1.017 million
	Capital	$0.125 million
	Revenue	$0.060 million
Visitors	20,000 (est)	
Permits	9 commercial tour operators (8 for Mount Pitt, 1 for Phillip Island)	

International conventions and agreements	
Migratory Species (Bonn) Convention	18 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	25 of the 81 listed species
Japan–Australia Migratory Birds Agreement	32 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	5 extinct 2 endangered 6 vulnerable 37 migratory 57 marine
	Recovery plans	1 being implemented (green parrot) 2 in preparation (golden whistler & scarlet robin; multispecies plan) 1 exempted (morepork)
Listed flora	Species	15 critically endangered 16 endangered 15 vulnerable
	Recovery plans	Multispecies plan in preparation
Heritage	Phillip Island listed as Commonwealth Heritage	

Numbers of native species recorded*			
Mammals	Birds	Reptiles	Plants
0	47(26)	2(2)	92(74)

* Figures in brackets are the numbers of species that are a management priority.

Advisory committee

The Norfolk Island community provides guidance to the Director on national park and botanic garden management through the Norfolk Island National Park Advisory Committee, which meets formally twice a year, and informally each month.

Major monitoring efforts

Monitoring is undertaken to determine the success of a major baiting programme to control rats.

A cyclic invasive flora management programme is being trialled to trigger rehabilitation of forest ecosystems.

Captive green parrots are monitored daily for health, behaviour, pairing, sexual activity and social activity. Chicks found in the park are banded, weighed, measured and their sex is confirmed when breeding starts. Sightings and incidents are recorded.

Wild owl chicks are banded, weighed, measured, blood tested and their sex is recorded when breeding starts. Sightings and incidents are also recorded.

Park staff facilitate a voluntary migratory seabird banding programme.

Monthly monitoring of Phillip Island and Norfolk Island aims to detect outbreaks of pioneer weed species, including African olive *(Olea europaea africana),* cherry guava *(Psidium cattleianum* var. *cattleianum),* ipomea *(Ipomea cairica)*, lantana *(Lantana camara)*, kikuyu *(Pennisetum clandestinum)*, Hawaiian holly *(Schinus terebinthifolius),* Paterson's curse *(Echium plantagineum)* and running bean *(Desmodium incanum)*.

Future challenges

Major challenges include upgrading invasive species management programmes; continuing rehabilitation of Phillip Island; expanding endangered species programmes; strengthening Phillip Island quarantine measures; completing the multispecies recovery plan; and balancing threatened species management and an expanding focus on local tourism in a small island environment.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Fauna and flora pest species management
- Inadequate knowledge on which to base management decisions

Actions

- Remove weed species and control or eliminate feral fauna
- Rehabilitate habitat and facilitate forest health recovery
- Database and extend existing knowledge

Performance results 2004–05

- Continued monthly rodent and feral cat control programmes with expanded monitoring activity
- Cleared and maintained approximately 37 hectares of weed-infested areas
- Added existing records to spatial information systems
- Progressed development of the multispecies recovery plan, which will produce valuable knowledge on these little-known species
- Built temporary nursery on Phillip Island

KRA2: Cultural heritage management

No major issues of concern

KRA4: Visitor management and park use

Major issues

- Duncombe Bay road to Cook's monument is closed after heavy rain
- Some access tracks are not suitable for current visitor use
- Lack of high quality interpretive signs and pamphlets

Actions

- Fund and manage drainage and surface renewal of Duncombe Bay road
- Review current access tracks, focusing on high visitation areas
- Establish requirements and allocate resources within existing priorities

Performance results 2004–05

- Completed Duncombe Bay road drainage plan

- Completed the botanic garden boardwalk upgrade stage 4
- Installed additional stairs and handrails on steep sections of botanic garden paths
- Installed handrails on sections of Bird Rock Track
- Commenced Interpretations Plan review

KRA5: Stakeholders and partnerships

Major issues

- Need to work with tourism operators, environmentalists, concerned citizens and professional and amateur researchers

Actions

- Hold regular meetings with tourism industry representatives
- Create avenues for information sharing and access to resources, such as S266A Register and the web site, for citizens, stakeholders, and government and non-government organisations

Performance results 2004–05

- Strengthened relationships with the Norfolk Island Administration, other Australian Government agencies and Norfolk Island tourism operators. This was achieved by Norfolk Island National Park Advisory Committee tourism representatives through direct meetings and information sharing
- Successfully managed permit system for a wide range of citizens, stakeholders, and formal and informal partners
- Cooperated with Norfolk Island media to produce weekly newspaper and radio coverage of the park, providing a flow of quality information
- Provided community contact point for listings, voluntary conservation agreement information, Kingston Arthurs Vale Historic Area referrals, and marine investigation stakeholder enquiries
- Facilitated information and resource sharing (for example, Coastwatch, satellite imagery, and training courses)

KRA6: Business management

Major issues

- Delivering quality management services within a limited budget

Actions

- Maintain park management services within budget

Performance results 2004–05

- Revenues up 2 per cent from budget, expenses down 1 per cent

Mount Pitt road reconstruction

An example of a gabion wall and steep cutaway along Mount Pitt road, minimising plant loss and watershed interruption.

In August 1998 severe storms damaged the roads in Norfolk Island National Park to the extent that roads had to be closed and significant repairs scheduled.

Duncombe Bay road and Selwyn Pine road were eventually reopened with standard maintenance procedures but Mount Pitt road required significant structural repairs. The Director of National Parks received an equity injection of $3.5 million in 2000 for the repair of the three roads.

In July 2001 the Snowy Mountains Engineering Corporation (SMEC) was engaged as the project supervisor for the Norfolk Island National Park Road Repair Project.

The project was delayed for two years due to the lack of appropriate aggregate and issues around the operation of the local quarry—a critical constraint for road maintenance on Norfolk. The project faced many challenges, not the least being the need to work in close proximity to, and with minimum impact on, sensitive habitats in the national park.

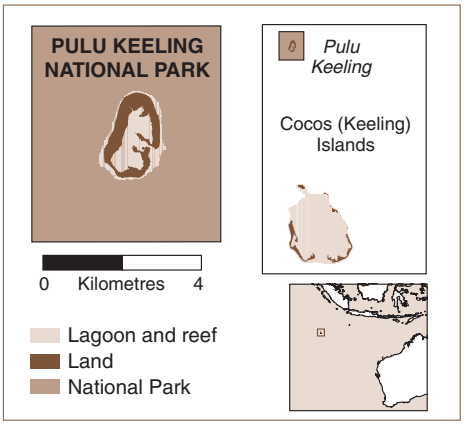
Roadstone Constructions Ltd, a major New Zealand construction company, was the successful tenderer for the project. Before the project was completed the company went into liquidation and the final tasks were completed under SMEC guidance. A 22-week delay in completing the contract resulted in the Director invoking the liquidated damages provisions of the contract, leading to a $44,000 penalty to Roadstone. This money was recovered through a combination of monies held and a call on the construction (performance) bond held as a requirement of the contract. This construction bond was put in place prior to work commencing. The bond was unconditional, enabling the Director to call on it without any third party approval.

The construction works were formally completed on 8 October 2003 and a 12-month defects liability period expired on 7 October 2004. Mount Pitt road had been effectively closed to vehicular traffic for five years.

Despite the delays in completing the road, the Norfolk Island National Park Advisory Committee has indicated it is very satisfied with the outcome of the road project as a key component of the island's visitor facilities.

Pulu Keeling National Park

http://www.deh.gov.au/parks/cocos



Special features

Pulu Keeling National Park's most outstanding feature is its intact coral atoll ecosystem. With the widespread global decline of similar coral island habitats and their reefs due to human interactions, the conservation and protection of the park and its wildlife is of international importance.

The park, which makes up the whole of North Keeling Island, is an internationally significant seabird rookery. The breeding colony of the dominant bird species—the red-footed booby *(Sula sula)*—is one of the largest in the world. The island is also the main habitat of the endangered Cocos buff-banded rail *(Gallirallus philippensis andrewsi)*, found only on the Cocos (Keeling) Islands.

The critically endangered Round Island petrel *(Pterodroma arminjoniana)* has been recorded on the island but has not been sighted in recent years, despite intensive searching. Green turtles *(Chelonia mydas)* nest on the island and hawksbill turtles *(Eretmochelys imbricata)* reside in the waters of the park; both species are listed as vulnerable.

Location	Latitude 11°50' South, Longitude 96°49' East
Area	2,602 hectares including marine area extending 1.5 kilometres around North Keeling Island
Proclamation date	12 December 1995
IUCN category	Category II overall comprising: Terrestrial Zone Category Ia (122 hectares) Marine Zone Category II (2,480 hectares)
Biogeographic context	Isolated atoll in the Indian Ocean formed atop an old volcanic seamount
Management plan	Second plan in effect, expires 27 April 2011

Other significant management documents	Visitor access, boating, diving and fishing strategies; management implementation schedule; and risk assessment and management schedule	
Financial	Operating	$0.733 million
	Capital	$0.028 million
	Revenue	$0.024 million
Visitors	115	
Permits	3 commercial tour operators (one each for diving, surfing and terrestrial tours)	

International conventions and agreements	
Wetlands (Ramsar) Convention	Entire park listed
Migratory Species (Bonn) Convention	8 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	15 of the 81 listed species
Japan–Australia Migratory Birds Agreement	15 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 critically endangered 4 endangered 5 vulnerable 24 migratory 36 marine
	Recovery plans	4 being implemented (blue whale; sei whale; Round Island petrel; marine turtles)
Listed flora	Species	None
Heritage	Listed as Commonwealth Heritage	

Numbers of native species recorded*			
Mammals	Birds	Reptiles	Plants
5(2)	24(8)	6(5)	31

* Figures in brackets are the numbers of species that are a management priority.

Advisory committee

The Pulu Keeling National Park Community Management Committee comprises the Director of National Parks (or his nominee), three other persons nominated by the Director and six community representatives nominated by the Cocos (Keeling) Islands Shire Council.

Major monitoring efforts

The red-footed booby population on North Keeling Island has been monitored since 1985. Analysis of the data in 2004 put the number at around 30,000 breeding pairs.

Surveys of the Cocos buff-banded rail resumed in 2004 as the forest had recovered sufficiently from the effects of Cyclone Walter in April 2001 to enable the birds to be counted. The population is now estimated to be 1,000 which is an increase from the estimate of 850 birds in 1999.

The sixth year of the sea turtle monitoring programme was completed, with an additional 166 turtles tagged (68 green turtles and 98 hawksbill turtles). In 2005, strip transects were conducted by boat to provide another means of assessing turtle abundance (other than population estimates calculated from capture/recapture data). The knowledge gained from the monitoring programme has enabled Parks Australia North to provide informed comments on proposed developments, resulting in a 'win-win' situation for proponents and the environment.

Parks Australia has been monitoring the status of Cocos (Keeling) Island coral reefs since 1997. The monitoring programme, called Reefcheck, provides data for an international database from which State of the Reef reports are produced. Developed under the International Coral Reef Initiative, Reefcheck is designed to detect and monitor the impacts of human activities on coral reef ecosystems.

Future challenges

Major challenges are to prevent the introduction of pests and diseases to the park, and to maintain compliance and enforcement efforts to stop seabird poaching. Island fauna is especially vulnerable to the introduction of exotic species. Outbreaks of scale insects and die-back (*Phytophthera* spp.) on nearby Christmas Island and in Western Australia may pose a threat to Pulu Keeling National Park.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Illegal entry to park
- Illegal harvesting of wildlife
- Monitoring of red-footed boobies
- Reefcheck

Actions

- Maintain surveillance, boat patrols and education
- Survey bird numbers regularly

Performance results 2004–05

- Installed remote surveillance equipment in the park to provide more effective detection of illegal park entry and poaching
- Spent 209 staff days on patrols during the year. Patrols are believed to be effective at deterring poaching
- Progressed prosecution of poachers caught in park on 25 December 2003 with 240 birds
- Conducted surveys, found population estimate 30,000 red-footed booby breeding pairs

KRA2: Cultural heritage management

Major issues

- The *SMS Emden* shipwreck is becoming a popular diving site
- Visitors to Malay gravesites

Actions

- Ensure access to sites is managed appropriately

Performance results 2004–05

- Effectively managed cultural heritage sites
- Replaced grave markers and cleaned up grave sites after extensive consultation with the community

KRA4: Visitor management and park use

Major issues

- Potential for introduction of exotic species by park visitors

Actions

- Implement quarantine procedures
- Prevent introduction of alien species

Performance results 2004–05

- Inspected and treated visitors' equipment and clothing before they went ashore in the park. No evidence was found that new species had been introduced

KRA5: Stakeholders and partnerships

Major issues

- Dissatisfaction with park management due to perceived lack of obvious benefits to the community

Actions

- Promote benefits of the park (including employment, tourism, local expenditure)

Performance results 2004–05

- Documentary on the park and 10-week exhibition at the Western Australian Maritime Museum in Fremantle (commencing 17 June 2004) have proved beneficial to the local community

KRA6: Business management

Major issues

- Isolation restricts training opportunities

Actions

- Train staff more effectively

Performance results 2004–05

- Improved record keeping. Records management staff visited the island to install a filing system more compliant with requirements. However, the system is not yet complete. Staff were given basic finance training
- Revenues up 3 per cent from budget, expenses up 5 per cent

Catalina JX 435 commemorative ceremony

The wing of Catalina JX435 sits in a bed of seagrass and has been colonised by corals, sponges and fish.

The Cocos (Keeling) Islands, in the eastern Indian Ocean, are in a militarily strategic position and there has been a long association between the islands and Australia's defence forces. During World War I the *HMAS Sydney* destroyed the German raider *SMS Emden* off North Keeling Island after the captain of the *Emden* sent a landing party ashore at Direction Island on the southern atoll to destroy the cable station situated there. During World War II 7,000 troops were stationed on Direction Island and the islands were bombed by Japanese aircraft.

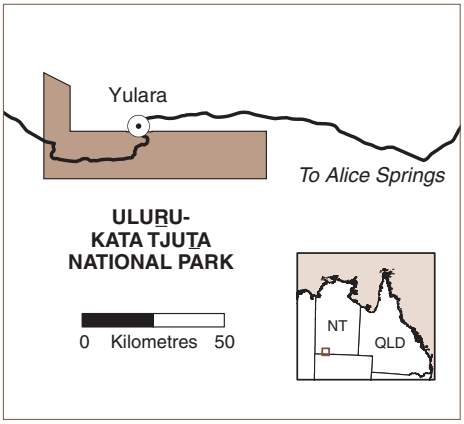
The crash of Catalina JX435 was a significant war-time tragedy and is considered an important part of the islands' heritage. At 1045hrs on 27 June 1945, a Catalina from No. 240 RAF Squadron, based at Red Hills Lake, Madras, India, with a crew of 14 Canadian and British RAF personnel, crashed into the lagoon of the southern atoll of the Cocos (Keeling) Islands. Rescuers arrived at the crash site three minutes later and pulled seven men from the wreckage, but another seven could not be rescued. Two of the rescued men later died from injuries caused by the crash. The wreck was not salvaged and the remaining seven bodies have never been recovered.

In 2004 Parks Australia staff located most of the wreckage of Catalina JX435 among spectacular corals, sponges, seagrasses and schools of colourful tropical fish. The engines, wing and tail plane sections of the Catalina will become part of an underwater historic trail, linking the wreck of the *Phaeton* (sister ship to the famous *Cutty Sark*), a WWII barge, cannons, an 18th century barque and a 19th century American whaler in the lagoon. The wreck of Catalina JX435 has been nominated for the Commonwealth Heritage List and the heritage values of the site are protected under the EPBC Act.

A ceremony to commemorate the 60th anniversary of the Catalina's crash took place on the Cocos (Keeling) Islands on 27 June 2005. Industry groups and Australian Government departments provided assistance and funding for the ceremony. The sole remaining survivor and the first rescuer on the scene (both ex-RAF) flew to Cocos to take part in the ceremony, which was filmed as the final part of a documentary being produced about Catalina JX435.

Uluṟu–Kata Tjuṯa National Park

http://www.deh.gov.au/parks/uluru



Special features

Uluṟu–Kata Tjuṯa National Park is inscribed on the World Heritage List for both the cultural and natural values of its landscape. The park protects the cultural values of its *Aṉangu* (western desert Aboriginal) owners, the iconic rock outcrops of Uluṟu and Kata Tjuṯa, outstanding examples of arid zone flora and fauna, and outstanding scenic beauty.

Uluṟu–Kata Tjuṯa National Park is a place of great spiritual and cultural importance to *Aṉangu* men and women. For countless generations this ancient landscape has developed as a result of the activities of *Aṉangu* and their ancestors. The land management techniques that are a feature of these activities are an intrinsic part of *tjukurpa* (traditional law and culture) and a feature of the joint management of the park by *Aṉangu* and Parks Australia.

Location	Latitude 25°15' South, Longitude 130°43'East
Area	132,566 hectares
Proclamation date	24 May 1977, 28 October 1985
IUCN category	Category II
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Great Sandy Desert
Management plan	Fourth plan in effect, expires 28 June 2007
Other significant management documents	Visitor infrastructure masterplan; staff development plan; species reintroduction plan; weed control plan; feral species control plan; fire management plan; cultural heritage management plan; the lease; interpretation plan; management plan implementation schedule; and risk assessment and management schedule

Financial	Operating	$10.956 million
	Capital	$2.267 million
	Revenue	$8.374 million
	Paid to traditional owners	$1.997 million
Visitors	348,472 adult paying visitors	
Permits	270 film/photography; 103 tour operators; 3 research	
Visitor satisfaction	89% of visitors for the 12 months ending March 2005 were 'satisfied to very satisfied' (Northern Territory Tourist Commission). Rated second best park in the Northern Territory.	

International conventions and agreements	
World Heritage Convention	Listed under cultural criteria (v) and (vi) and natural criteria (ii) and (iii), recognising the park's outstanding natural and cultural values and its significance as a cultural landscape
Migratory Species (Bonn) Convention	11 of 98 listed Australian species
China–Australia Migratory Birds Agreement	14 of 81 listed species
Japan–Australia Migratory Birds Agreement	15 of 110 listed species
Other agreements	Listed as a biosphere reserve under the UNESCO Man and the Biosphere Programme

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	6 extinct 5 endangered 9 vulnerable 17 migratory 36 marine (primarily birds not exclusively marine)
	Recovery plans	4 being implemented (mala or rufus hare wallaby; golden bandicoot; Alice Springs mouse; tjakura or great desert skink) 9 in preparation (mulgara; bilby; southern marsupial mole; red-tailed phascogale; sandhill dunnart; numbat; black-flanked rock-wallaby; chuditch; central rock-rat)
Listed flora	None	
Heritage	Listed as Commonwealth Heritage	

Numbers of native species recorded*					
Mammals	Birds	Reptiles	Fish	Amphibians	Plants
21(14)	170(2)	73(3)	None	1(1)	>400

* Figures in brackets are the numbers of species that are a management priority.

Board of management

The structure of the Uluṟu–Kata Tjuṯa Board of Management ensures an *Aṉangu* majority of 8:4. The current board was appointed by the Minister for the Environment and Heritage in October 2003 for five years. The board oversees the management of the park and the preparation of management plans. Through joint management of the park, *Aṉangu* and *Piṟanpa* (non-Aboriginal people) work together to manage the park's cultural and natural heritage.

Major monitoring efforts

Monitoring programmes included ongoing assessment of the condition of rock art; monitoring of rock movement above the Muṯitjulu art site; monitoring of threatened species; and monitoring of weed infestations.

Surveys for threatened species such as tjakuṟa *(Egernia kintorei)* and mulgara *(Dasycercus cristicauda)* continued. The 2005 tjakuṟa survey indicated an increase in population (after several years of decline) with many juveniles and new burrows being documented. The increase may be due to a range of environmental factors, including the effects of a major wildfire event in 2002 and changes in rainfall and vertebrate pest numbers. The mulgara survey also indicated an increase in numbers, as well as colonisation of new habitat areas in recently burnt country.

Mapping of weed infestations and recording of weed removal by volunteer teams continued through the year.

Future challenges

Major challenges for 2005–06 include balancing the needs of an increasing number of visitors with those of *Aṉangu* and the impacts on the fragile environment; addressing visitor overcrowding issues at the Sunrise Viewing Area; addressing erosion problems caused by run-off around Uluṟu; providing adequate resources to eradicate buffel grass *(Cenchrus ciliaris)* and other weeds; providing opportunities for greater *Aṉangu* involvement in park management and decision-making; and improving the governance and wellbeing of the Muṯitjulu community.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Protecting natural heritage from degradation caused by increased visitation
- 42 common weeds and growing infestations of buffel grass (see case study on page 101)
- Seven fauna pest species
- Fire plan and vegetation mapping strategy
- Plant nursery re-establishment
- Construction of mala *(Lagorchestes hirsutus)* exclosure and successful reintroduction of the species

Actions

- Develop weed manual and handbook for conservation volunteer agency and park staff
- Complete vertebrate pest strategy
- Form fire plan and vegetation mapping strategy team
- Complete stage 1 data gathering for nursery re-establishment
- Implement operational plan for the park, with prioritised land management actions

Performance results 2004–05

- Completed two-yearly flora and fauna survey
- Drafted weed identification handbook as part of weed strategy
- Trained *Anangu* women and Conservation Volunteers Australia volunteers in nursery techniques
- Implemented feral pest (cat and camel) monitoring and eradication programmes
- Drafted feral dog policy
- Drafted dingo policy
- Developed operations plan and implemented projects
- Undertook wildfire suppression with traditional owners
- Conducted planned burn with traditional owners
- Surveyed for tjakura and mulgara—numbers of both species appear to be increasing
- Completed environmental impact assessments for all proposed infrastructure projects
- Completed mala exclosure for re-introduction of mala in second half of 2005

KRA2: Cultural heritage management

Major issues

- Reconciling living, dynamic culture with natural and cultural heritage management
- Documenting cultural sites and associated knowledge, and integrating them into park management practices
- Maintaining and developing information management systems that are culturally appropriate and accessible to traditional owners
- Identifying and protecting women's heritage

Actions

- Transcribe part of the oral history tapes collected over the last 10 years
- Resolve cultural site management system technical issues
- Publish seasonal bush food calendar painted by *Anangu*
- Hold women's heritage workshop
- Establish rock art monitoring programme
- Host visit by New Zealand member of World Heritage Committee, accompanied by staff of the NZ Department of Conservation

Performance results 2004–05

- Solved problems with cultural site management system which is now in use (see case study on page 102)
- Continued rock art conservation and held training in conservation techniques
- Women attended several conferences on culture, land management and educational opportunities
- Two traditional owners visited New Zealand at the invitation of Maori and NZ Department of Conservation

KRA3: Joint management

Major issues

- Supporting and developing the new joint management partnership team
- Effectively supporting the new board of management
- Ensuring traditional owners are appropriately involved in project design and implementation, and in the delivery of core functions
- Supporting the training and development of Indigenous staff
- Developing key indicators for joint management

Actions

- Work with joint management partnership members in developing productive working relationships and roles
- Put in place effective board secretariat
- Hold training programmes to facilitate community involvement
- Set key directions for the fire and vegetation strategy and the women's heritage workshop for land management works

Performance results 2004–05

- Joint management arrangements supported the board and the operation of the park
- Supported board members and provided them with information about park operations and proposals
- Continued to support traditional owners' involvement in managing threatened species, fire and cultural heritage project work
- Used traditional owner input to environmental impact assessments

KRA4: Visitor management and park use

Major issues

- Pressures on ageing infrastructure to effectively manage increasing visitor numbers
- Some infrastructure in need of repairs and/or replacement

Actions

- Complete upgrade of first section of the Valley of the Winds track
- Complete toilets for the Uluṟu base walk
- Continue effective and strategic infrastructure planning and maintenance
- Train tour operators

Performance results 2004–05

- Progressed track reconstruction to the first lookout at the Valley of the Winds with field crew of *Aṉangu* and *Piṟanpa*
- Started signage replacement and upgrade
- Undertook ongoing maintenance of other park infrastructure under a scheduled works programme
- Held two tour operator workshops
- Started work on extending parking space at the Sunset Viewing Area

KRA5: Stakeholders and partnerships

Major issues

- Developing and maintaining effective relationships with key stakeholders and partners

Actions

- Hold regular meetings of committees, including the Uluṟu–Kata Tjuṯa Tourism Consultative Committee, the cultural heritage committee and the film and photography consultative committee
- Communicate clearly with all parties
- Meet regularly with Muṯitjulu Council and Ayers Rock Resort

Performance results 2004–05

- Revised the commercial film and photography guidelines and streamlined the application process (finalised for start date of 1 August 2005)
- Continued ongoing contact between the park management team, the joint management partnership and traditional owners during the design and implementation of core programmes, such as fire and pest species management
- Responded quickly to requests for information

KRA6: Business management

Major issues

- Providing essential services to the Muṯitjulu community is consuming an ever-increasing proportion of the park budget
- Shortage of staff housing
- Charging for power at the Muṯitjulu community and for both private residences and business enterprises at the cultural centre

Actions

- Introduce new arrangements to improve local cost centre managers' budget management

Performance results 2004–05

- 'User pays' system for electricity provided to park staff, Muṯitjulu community houses and businesses in the park's cultural centre introduced on 1 July 2005
- Prioritised recruitment actions to take account of staff housing constraints
- Increased park revenue (per person) and traditional owner payments generated by fee increase were off-set by declining visitor numbers
- Revenues down 3 per cent from budget, expenses up 1 per cent

The Mutitjulu community *Tjungu Waakaripai* project

Mutitjulu community members discussing the working together project.

In recent years the health and well-being of the Mutitjulu community in Uluru–Kata Tjuta National Park have been affected by social and administrative dysfunction.

In mid-2004 the community established a 'working together' project, called *Tjungu Waakaripai*, with the aim of ensuring the future of Mutitjulu as a socially healthy community built on principles of sound governance and environmental and economic sustainability.

The project involves the Australian Government (represented by Parks Australia, the Office for Indigenous Policy Coordination and the Department of Family and Community Services), the Northern Territory Government, Mutitjulu Community Council, NPY Women's Council and the Central Land Council. Other important stakeholders include the board of management, other Aboriginal people living in the region, and the Ayers Rock Resort.

Community members and other stakeholders have identified immediate priorities for change as well as some longer-term needs. Stronger law and order has been recognised as a critical prerequisite for improvements in education, health and employment. Other important areas include youth, governance, more effective resource use and addiction in the community. The project recognises that good governance and a safe and healthy community are critical to the Mutitjulu community being able to realise its full potential to participate in the day-to-day management of the park, and for residents to benefit from tourism and other regional activities.

Some early outcomes include:

- strategies for youth development and diversion from substance abuse and anti-social behaviour
- establishment of 94.5 Mutitjulu FM to teach young people about broadcasting
- re-opening of the community child care centre with employment of local people
- agreement to pay for electricity reducing dependence on 'sit-down' money
- greater teaching resources and formation of school council
- improved community governance
- commitment to establish a new police post in the community and recruit two Aboriginal Community Police Officers.

Volunteers move on buffel grass

Volunteers removing buffel grass.

For the fourth consecutive year a Conservation Volunteers Australia (CVA) group was involved in the buffel grass eradication programme around Uluṟu. This programme is a result of the enthusiasm and passion of Thomas Konieczny, Chief Ranger Operations at the park, and aims to eradicate all buffel grass from the area.

During the 2004 and 2005 seasons Thomas organised 12 CVA groups with an average of seven to 10 volunteers per group. Each group goes through an induction and training programme that places great emphasis on the cultural significance of the area to *Aṉangu*. Eradicating buffel grass restores important cultural, as well as natural, values to the area.

Each CVA group commits to a two-week block of work, which equates to approximately 500 work hours. During the 2004 and 2005 seasons 10 hectares were cleared and 20 hectares previously cleared were followed up for removal of regrowth. Over the four years a total of 35 hectares has been cleared and maintained.

Thomas also organises Friends of the Park volunteers from the Ayers Rock Resort and Muṯitjulu community, who contribute their time generally on Saturday mornings. This equates to about 10 CVA groups during the year, and interest is growing.

With the Muṯitjulu Green Corps programme, launched in April 2005, park staff and community members work on eradicating buffel grass within the Muṯitjulu community, propagating native plants to rehabilitate the cleared area and building fences. As well as improving the environment in the community, Green Corps is helping *Aṉangu* men and women to develop skills in land management.

Developing a cultural database including oral histories

Rock art maintenance inspection.

From a small beginning, Uluru's cultural site management system is now a world-class Indigenous knowledge database.

The database had its beginnings in a workshop to discuss cultural data storage and is now a premier store of cultural information that Indigenous people can easily access and intuitively navigate.

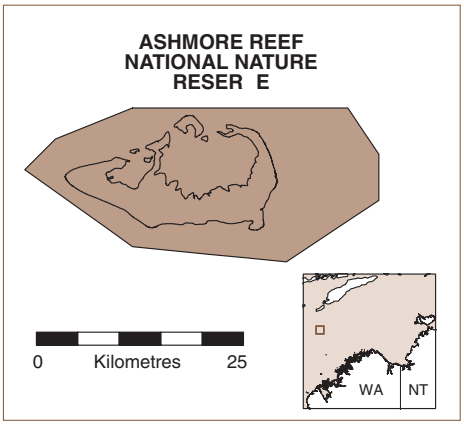
The database houses information on cultural sites in and around the park. It is a powerful tool that uses multi-media formats, such as digital images, video and sound recordings, operating in a hardware package that is easily transported and protected from the rigours of the central Australian environment.

The cultural data include recorded oral histories and cultural site management information, such as site work data, results of patrols and monitoring, maps, and photographs of rock art, people and ceremonies. The database is specifically designed to partition, where necessary, men's and women's cultural information. A security system restricts access to sensitive materials, such as secret/sacred materials, through the use of passwords.

The cultural site management system is now in its third stage of development, with a final stage to be completed in late 2005, by which time it will be fully operational.

Ashmore Reef National Nature Reserve

http://www.deh.gov.au/coasts/mpa/ashmore



Special features

Ashmore Reef National Nature Reserve is renowned for its high biological diversity. The reserve contains a variety of marine habitats, including extensive seagrass meadows, sandflats, reef flats and lagoons.

Ashmore Reef is home to many species of fish, corals, molluscs and other invertebrates, and has the highest known diversity and density of sea snakes in the world, with 14 species recorded. It is also an important breeding and feeding habitat for threatened species including dugong *(Dugong dugon)* and several sea turtle species.

The reserve contains three small sand islands with a combined area of 112 hectares. The islands support some of the most important seabird rookeries on the North-West Shelf and the reserve is an important staging point for migratory wetland birds, especially waders. At Ashmore Reef more than 78 species have been recorded, 43 of which are listed in international agreements for the conservation of birds and their habitats. Colonies of sooty tern *(Sterna fuscata)* and common noddy *(Anous stolidus)* number up to 50,000 breeding pairs.

Location	Latitude 12°15' South, Longitude 123°4' East
Area	58,337 hectares
Proclamation date	16 August 1983
IUCN category	Category Ia overall comprising: Category Ia (54,991 hectares) Category II (3,346 hectares)
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Oceanic Shoals
Management plan	Second plan in effect, expires 25 June 2009

Other significant management documents	Memorandum of Understanding with Indonesia; management plan implementation and performance report, incorporating risk assessment; service level agreement with the National Marine Unit of the Australian Customs Service	
Financial	Operating	$496,801*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Permits	1 commercial filming;1 commercial tour (bird watching trip)	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Wetlands (Ramsar) Convention	The entire reserve is listed
Migratory Species (Bonn) Convention	21 of the 98 Australian listed species
China–Australia Migratory Birds Agreement	38 of the 81 listed species
Japan–Australia Migratory Birds Agreement	38 of the 110 listed species
Other international agreements	Memorandum of Understanding with Indonesia, under which traditional Indonesian fishers are allowed access to an area that includes the reserve

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 2 vulnerable 43 migratory 60 marine
	Recovery plans	1 being implemented (marine turtles)
Listed flora	None	
Heritage	Listed as Commonwealth Heritage	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
1	78	17	720	1,265	40

Management arrangements

The Australian Customs Service carried out on-site management of the reserve and Coastwatch provided regular flights over Ashmore.

Departmental staff visited the reserve in August 2004 and May 2005 to implement and assess reserve management. They also provided training to Australian Customs Service officers and assistance with visitor management.

Major monitoring efforts

The Australian Institute of Marine Science conducted a shark and fish survey of the reserve in October 2004.

Sea snake monitoring carried out by Charles Darwin University indicates a decline in sea snake populations at Ashmore Reef. A research programme to investigate this more closely is being developed for next year.

The Australian Quarantine and Inspection Service surveyed the reserve for the introduced ginger ant *(Solenopsis geminata)* in September 2004. This was followed up by a risk assessment of the impact of the ginger ant on resident sea bird colonies in November 2004 (see case study on page 109).

In May 2005, the Northern Territory Herbarium conducted a survey of terrestrial plant pests to guide the weed eradication programme.

Future challenges

Major challenges are to continually improve compliance and enforcement of fishing and access restrictions; and to implement a comprehensive research and monitoring strategy for the natural values of the reserve.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Illegal fishing
- Introduction of pest species

Actions

- Enforce access and fishing restrictions
- Cooperate with Indonesian officials to improve management of MoU Box fishery, an area within Australian waters covered by a Memorandum of Understanding with Indonesia that includes Ashmore Reef and Cartier Island and is open to traditional Indonesian fishers
- Encourage and facilitate reef research and monitoring
- Commence work on dealing with the threats identified in the Marine and Terrestrial Introduced Species Prevention and Management Strategy (2004)
- Remove weeds from reserve
- Implement new quarantine, bilge and ballast water protocols

Performance results 2004–05

- The Australian Customs Service provided on-site management at Ashmore Reef throughout the year
- Customs officers actively enforced access and fishing restrictions. Fishing vessels in the area were boarded and advised of restrictions. Suspected illegal activities were investigated and warnings issued
- Customs officers implemented new protocols for vessels with significant hull fouling and/or discharging bilge and ballast water arriving in the reserve. Brochures were revised to include information for visitors about the new protocols
- Undertook research on migratory shorebirds and seabirds, sea snakes, turtles and dugong
- Surveyed the introduced pest ginger ant, including risk assessment of impact of ginger ants on seabirds (see case study on page 109)
- Progressed work on removal of two potentially vigorous colonising weeds
- Continued to collect and analyse marine debris

KRA2: Cultural heritage management

Major issues

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Anchor damage

Actions

- Maintain moorings
- Monitor visitation

Performance results 2004–05

- Inspected and maintained 13 reserve moorings
- Visitors to Ashmore included traditional Indonesian fishers, recreational yachts and research groups
- Australian Customs Service officers monitored visitors' use of moorings
- Included information about use of the moorings in new Ashmore brochure

KRA5: Stakeholders and partnerships

Major issues

- Illegal Indonesian fishing

Actions

- Revise and implement an integrated management approach for Indonesian fishing

Performance results 2004–05

- Completed an alternative livelihood project (using AusAID funds) in Roti, Indonesia. The project provides alternative sources of income for traditional fishers who currently target Australian waters. The next phase of the project will be expanded to five new villages and will investigate the development of additional alternative income sources
- Consulted with Indonesian officials and the Department of Agriculture, Fisheries and Forestry to address overfishing issues in the MoU Box on a regional and cooperative basis

KRA6: Business management

Major issues

- Effective management of contract with management service provider

Actions

- Manage the service level agreement with the Australian Customs Service

Performance results 2004–05

- Held regular meetings and consultation with the Australian Customs Service
- Provided warden training for Customs officers

Ginger ant research at Ashmore Reef

Bird habitat survey on Middle Island, Ashmore Reef.

The ginger ant, also called the tropical fire ant, was introduced to Australia and Indonesia from North America. It is a small, aggressive species and feeds on insects and other animals. It was first recorded at Ashmore in 1992.

In 2004, as part of the development of an introduced species management strategy for Ashmore, the ginger ant was identified as a potentially dangerous threat to ground nesting seabirds. Sick or vulnerable animals are more susceptible to attack from the ant, so it is possible that nesting birds and hatchlings could be affected.

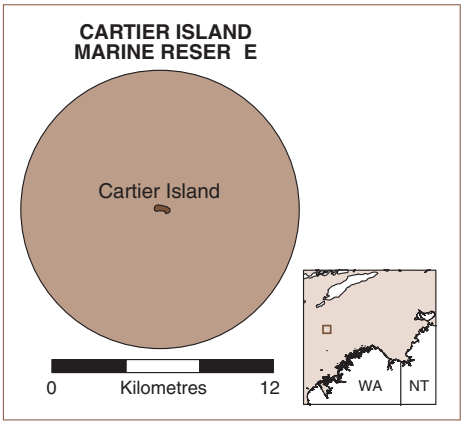
The Ashmore management team developed a research project to investigate the situation further. Two experts were brought in, an ornithologist from the Environmental Research Institute of the Supervising Scientist in Darwin and an entomologist from the Australian Quarantine and Inspection Service in Broome.

The project was carried out in two parts in September and November 2004. First the distribution and density of ginger ants on the islands were mapped. Second, an ecological risk assessment of ginger ants' potential impact on the seabirds was conducted, mapping the seabird colonies, paying specific attention to nests and hatchlings and the extent to which they were being affected by the ants.

The research suggests that there may be a relationship between the presence of nesting seabirds and ginger ants. However, the ants were not particularly aggressive. The next step will be to investigate the feasibility of eradication options, including cost-benefit analysis. This will be done in conjunction with an improved monitoring programme to track any changes in bird and ant populations or nesting behaviour.

Cartier Island Marine Reserve

http://www.deh.gov.au/coasts/mpa/cartier



Special features

Cartier Island Marine Reserve is notable for its high biodiversity values, with many fish species, corals, sponges, echinoderms, molluscs and other invertebrates. The reserve provides significant habitat for an unusually high diversity and density of sea snakes, some of which are endemic to the region. It also supports populations of feeding, breeding and nesting sea turtles, and may support dugong *(Dugong dugon)*.

Location	Latitude 12°32' South, Longitude 123°33' East	
Area	17,237 hectares	
Proclamation date	21 June 2000	
IUCN category	Category Ia	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Oceanic Shoals	
Management plan	First plan in effect, expires 25 June 2009	
Other significant management documents	Memorandum of Understanding with Indonesia; and management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$30,500*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Permits	None	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	21 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	38 of the 81 listed species
Japan–Australia Migratory Birds Agreement	38 of the 110 listed species
Other international agreements	Memorandum of Understanding with Indonesia, under which traditional Indonesian fishers are allowed access to an area that includes the reserve

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 2 vulnerable 43 migratory 60 marine
	Recovery plans	1 being implemented (marine turtles)
Listed flora	None	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
1	78	17	720	1,265	40

Major monitoring efforts

The Australian Institute of Marine Science conducted a shark and fish survey of the reserve in October 2004.

Management arrangements

The Australian Customs Service stationed at Ashmore Reef carried out on-site patrols of Cartier Reserve.

Future challenges

Major challenges are to continually improve compliance and enforcement of fishing and access restrictions; and to implement a comprehensive research and monitoring strategy for the natural values of the reserve.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Illegal access
- Overfishing

Actions

- Enforce fishing restrictions

Performance results 2004–05

- Coastwatch and the Australian Customs Service undertook regular patrols. Officers boarded Indonesian vessels in the area and advised of closure restrictions. They investigated suspected illegal activities and issued warnings

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Safety arising from the area's past use as a Department of Defence practice area

Actions

- Enforce the closure of the reserve

Performance results 2004–05

- Coastwatch and the Australian Customs Service undertook regular patrols. Officers boarded Indonesian vessels in the area and advised of closure restrictions

KRA5: Stakeholders and partnerships

Major issues

- Illegal Indonesian fishing

Actions

- Revise and implement an integrated management approach for Indonesian ishing

Performance results 2004–05

- Completed an alternative livelihood project (using AusAID funds) in Roti, Indonesia.

The project provides alternative sources of income for traditional fishers who currently target Australian waters. The next phase of the project will be expanded to five new villages and will investigate the development of additional alternative income sources

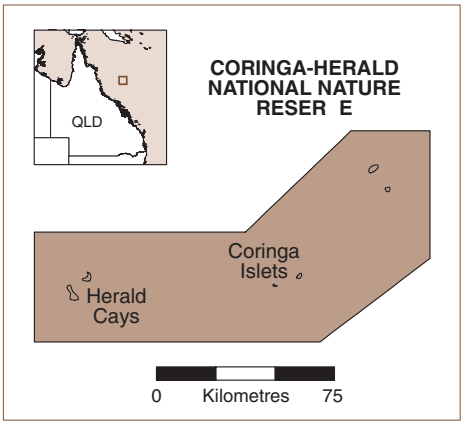
- Consulted with Indonesian officials and the Department of Agriculture, Fisheries and Forestry to address overfishing issues in the MoU Box on a regional and cooperative basis

KRA6: Business management

- No major issues of concern

Coringa–Herald National Nature Reserve

http://www.deh.gov.au/coasts/mpa/coringa



Special features

The islets and cays of Coringa–Herald National Nature Reserve include the only forested cays in the Coral Sea Islands Territory. Five islets in the reserve are vegetated, mainly by widespread tropical shoreline plants of the Indo-Pacific region.

The *Pisonia grandis* forest ecosystem, which occurs on two islets in the reserve, has intrinsic conservation significance and is important habitat for nesting seabirds. The forested islets are critical for the survival of seabirds, which gather there from an extensive oceanic area. Many of the bird species are migratory and breed mainly on small isolated islands.

The reef habitats support marine benthic (bottom-dwelling) flora and fauna that are distinct from those of the Great Barrier Reef. The green turtle *(Chelonia mydas)* breeds in the reserve and dolphins and whales occur in the area.

An historic shipwreck—the *Coringa Packet*—is located off Chilcott Islet. The Coringa Islets were named after the *Coringa Packet*, which sank in 1845.

Location	Latitude 16°59' South, Longitude 149°45' East
Area	885,250 hectares
Proclamation date	16 August 1982
IUCN category	Category Ia
Biogeographic context	Tropical waters of the Coral Sea Islands Territory
Management plan	Second plan in effect, expires 4 September 2008
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$26,000*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	49 visitor days recorded from 2 commercial tours	
Permits	3 commercial tour operators	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Wetlands (Ramsar) Convention	Entire reserve is listed
Migratory Species (Bonn) Convention	8 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	14 of the 81 listed species
Japan–Australia Migratory Birds Agreement	15 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 8 vulnerable 16 migratory 51 marine
	Recovery plans	2 being implemented (marine turtles; great white shark)
Listed flora	None	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
30	27	5	>342	>1,000	16

Major monitoring efforts

Seabird monitoring continued with the assistance of staff and an active volunteer programme that has run continuously since 1991. The long-term, and now regionally significant, dataset provides valuable information about these species. Regular monitoring also identified a scale insect species that was damaging the Pisonia trees and successful control measures were introduced.

Sea turtle monitoring was not undertaken during 2004–05 due to a formal risk analysis process (Activity Safety Analysis) identifying a number of high risk factors,

mainly the strong likelihood of cyclonic activity in the Coral Seas region during the period of the turtle monitoring patrol (scheduled for November–December) and the lack of quick access to emergency medical help.

Management arrangements

The Australian Customs Service provided surface transport and logistical assistance for Departmental staff patrolling the reserve. Coastwatch provided regular aerial surveillance.

Future challenges

Major conservation challenges are to control scale insects, and to continue monitoring illegal activities and reserve health especially seabirds and turtles. Occupational health and safety is also a challenge because of the reserve's isolation.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Possible illegal fishing
- Impact of pest insects on Pisonia forest (loss of habitat)

Actions

- Enforce fishing restrictions
- Monitor condition of Pisonia forest and release control insects as required

Performance results 2004–05

- Coastwatch undertook one flight and Departmental staff one patrol. No offences detected
- Deforestation arrested (see case study on page 118)

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- High risk to patrol staff from hazards and risks associated with the isolation of the reserve

Actions

- Implement formal Activity Safety Analysis

Performance results 2004–05

- Conducted Activity Safety Analysis before all scheduled patrols and one scheduled patrol was cancelled

KRA 5: Stakeholders and partnerships

Major issues

- Lack of awareness among stakeholders of reserve management prescriptions

Actions

- Consult key stakeholders on relevant issues
- Prepare and distribute reserve advisory brochure

Performance results 2004–05

- Liaised with Coastwatch, Australian Customs Service, Department of Defence, relevant researchers and tour operators
- Informed visitors of restrictions and minimal impact practices

KRA6: Business management

- No major issues of concern

Biological control of insect pests in the Coringa–Herald Pisonia forests

An insect pest expert monitors impacts on Pisonia forest, Coringa-Herald.

Coringa–Herald National Nature Reserve is located in the Coral Sea, some 400 kilometres out beyond the Great Barrier Reef. Three of the six coral cays and islets of the reserve are forested with the softwood tree *Pisonia grandis*. These tropical island forests are of high conservation value due to their limited distribution and important role as nesting habitat for a variety of seabirds.

Pulvinaria (an introduced scale insect) was detected on Pisonia trees at Coringa Islets in the early 1990s. By 2000, the Pisonia forest had completely disappeared as a result of insect attack. Stands of Pisonia elsewhere in the reserve have also been affected by the scale insect and the larvae of a species of hawkmoth.

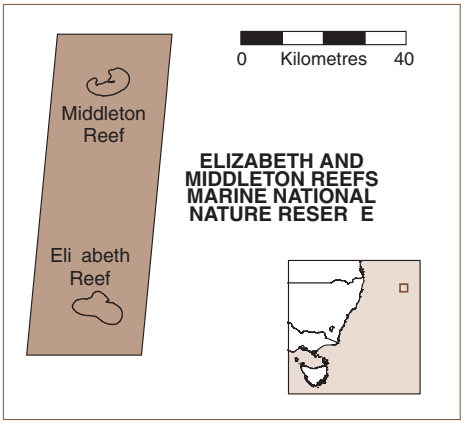
The isolation of Coringa–Herald has meant that, once introduced, these insect populations grew unchecked by natural predators. The appropriate mainland insect predators were identified and in 2001 biological control agents were introduced in the form of several ladybird species and a species of small wasp.

Four years on and the programme has been highly successful with no further deforestation occurring. This was the first successful attempt to control this pest in Pisonia forests and has established protocols and methods which are now being evaluated for managing similar outbreaks across northern Australia.

Regular Coastwatch surveillance flights now monitor vegetation cover at Coringa–Herald and act as an early warning system for possible deforestation events. This can trigger more detailed monitoring and, if necessary, application of appropriate additional control measures to restore the reserve's natural balance and protect the Pisonia forests.

Elizabeth and Middleton Reefs Marine National Nature Reserve

http://www.deh.gov.au/coasts/mpa/elizabeth



Special features

Elizabeth and Middleton Reefs Marine National Nature Reserve is located in a transition area between tropical and temperate climates. The reefs are therefore home to a unique range of marine organisms, many of which are near the northern or southern limit of their distribution. A number of species are also considered endemic to the reefs or to the south-western Pacific region.

The available information on marine plants indicates a rich and diverse algal flora. The coral communities contain unique tropical species at, or near, the southern limits of their distribution, and subtropical species that are rare or absent from tropical reefs.

The diversity of fish species is relatively low, but at least seven previously undescribed species may be endemic to the reserve. The reserve also supports two of the few known populations of the black cod *(Epinephelus daemelii)* which was once common along the New South Wales coast but is now considered rare.

The reserve is a feeding ground for the green turtle *(Chelonia mydas)* and several species of cetaceans.

Location	Latitude 29°42' South, Longitude 159°04' East
Area	187,726 hectares
Proclamation date	23 December 1987
IUCN category	Category Ia
Biogeographic context	Offshore warm temperate waters in the south of the Coral Sea Islands Territory
Management plan	First plan expired 23 March 2004 (new plan in preparation)

Other significant management documents	Management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$75,850*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not recorded, numbers low	
Permits	None	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Wetlands (Ramsar) Convention	Entire reserve is listed
Migratory Species (Bonn) Convention	12 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	3 of the 81 listed species
Japan–Australia Migratory Birds Agreement	6 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	13 vulnerable 16 migratory 15 marine
	Recovery plans	2 being implemented (marine turtles; great white shark)
Listed flora	None	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
6	31	2	311	558	1

Major monitoring efforts

The Australian Institute of Marine Science monitored reserve health at Elizabeth Reef in December 2003. The reserve was found to be generally in good health with no bleaching and very little evidence of crown of thorns starfish activity.

The number of black cod, a species of concern in the reserve, has remained stable since the last survey in 1987. High numbers of Galapagos shark *(Carcharhinus galapagensis)* were observed in 2003, which suggests that the area is an important

nursery for this species. Another major reserve health survey will be undertaken at Middleton Reef in late 2005.

Management arrangements

Coastwatch undertook surveillance flights and Royal Australian Navy and Australian Customs Service vessels visited the reserve.

A new management plan was drafted and released for public comment.

Future challenges

Major challenges are implementing biological monitoring, finalising the second management plan and monitoring for possible illegal activities in the area.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Possible illegal fishing
- Monitoring reef health

Actions

- Enforce fishing restrictions
- Plan strategic reef biological monitoring programme

Performance results 2004–05

- Coastwatch flights detected no illegal fishing
- Finalised service level agreement with Coastwatch that clarifies roles for strategic monitoring during 2005–06
- Signed contract with James Cook University for reef health monitoring at Middleton Reef in late 2005
- Signed contract with the CSIRO to undertake genetic analysis of the black cod population in the reserve

KRA2: Cultural heritage management

Major issues

- Possible interference with shipwrecks

Actions

- Enforce protection of shipwrecks

Performance results 2004–05

- Distributed advisory brochure
- Coastwatch flights and occasional patrols detected no interference with shipwrecks

KRA4: Visitor management and park use

- No major issues of concern

KRA5: Stakeholders and partnerships

Major issues

- Continue good relationships with Coastwatch and researchers

Actions

- Ensure relationships with partners are productive

Performance results 2004–05

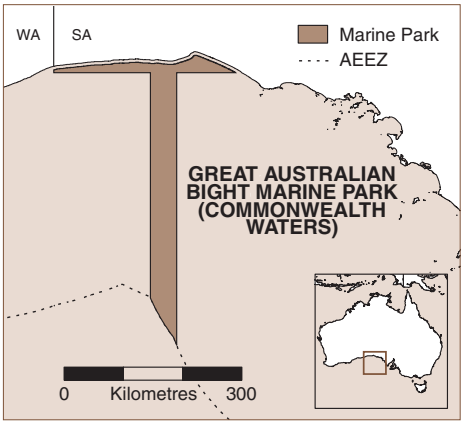
- Liaised effectively with Coastwatch, relevant scientists and tour operators
- Australian Institute of Marine Science presented study data to Departmental staff

KRA6: Business management

- No major issues of concern

Great Australian Bight Marine Park (Commonwealth Waters)

http://www.deh.gov.au/coasts/mpa/gab



Special features

The Great Australian Bight Marine Park (Commonwealth Waters) extends South Australia's protection of habitat for marine mammals to Commonwealth waters adjacent to the state park. Notable species protected are the EPBC Act-listed (endangered) southern right whale (Eubalaena australis) and (vulnerable) Australian sea-lion (Neophoca cinerea).

The marine park is next to the Head of Bight, the most important breeding place for southern right whales in Australia and one of the most important, discrete breeding locations for the species in the world. The area also offers a unique opportunity to observe the species in a pristine environment.

The marine park protects a transect of the wide continental shelf of the Great Australian Bight, which is remarkable for its high levels of invertebrate endemism and diversity. The park is also the largest representative sample of the southern continental margin of Australia in a reserve.

The marine park provides for the sustainable use of its natural resources including commercial fishing and mineral exploration while ensuring these activities do not impact on the park's special features.

Location	Latitude 3°43' South, Longitude 130°23' East
Area	1,937,162 hectares
Proclamation date	22 April 1998
IUCN category	Category VI comprising: Marine Mammal Protection Zone Category VI (387,500 hectares) Benthic Protection Zone Category VI (1,608,500 hectares) (Area of overlap of these two zones = 56,000 hectares)

Biogeographic context	Interim Marine and Coastal Regionalisation (IMCRA) for regions: Eucla Bioregion (IMCRA 3.3 mesoscale regionalisation) Great Australian Bight biotone and associated continental slope (IMCRA 3.3 demersal provinces and biotones) Southern Pelagic Province (IMCRA 3.3 pelagic provinces and biotones)	
Management plan	Second plan in effect, expires 16 May 2012	
Other significant management documents	Service level agreement and subsidiary annual business agreements between Australian and SA governments; and management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$173,481*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	None recorded	
Permits	21 commercial fishing (current until 16 May 2012); 1 scientific research	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	17 of 98 listed Australian species
Agreement on the Conservation of Albatrosses and Petrels	11 of 18 listed species
China–Australia Migratory Birds Agreement	2 of 81 listed species
Japan–Australia Migratory Birds Agreement	4 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	6 endangered 15 vulnerable 21 migratory 48 marine
	Recovery plans	3 being implemented (great white shark; marine turtles; albatrosses & giant petrels)
Listed flora	None	

Numbers of native species recorded*			
Mammals	Birds	Reptiles	Fish
37	24	2	29

* Only EPBC Act listed fauna recorded.

Management arrangements

The Australian Government and the South Australian Government manage the Great Australian Bight Marine Park through a joint steering committee. A consultative committee with community representatives advises the steering committee on management issues.

A park manager is employed by the South Australian Department of Environment and Heritage.

The first management plan for the park ceased to have effect on 16 May 2005. The second plan came into effect on 17 May 2005 and will last for seven years until 2012.

Major monitoring efforts

Southern right whale numbers are monitored annually. Current figures put the population using southern Australian waters at about 1,500 increasing at an average of 8 per cent per annum. Data collected over 13 years have provided a catalogue of identified whales numbering around 550 individuals. Ongoing studies of the ecology and behaviour of southern right whales are being conducted at the Head of Bight. A recovery plan for the southern right whale was released on 20 May 2005.

Bight coastline surveys have counted 10 breeding sites and 14 haul-out sites for the Australian sea-lion. Due to the inaccessibility of the coastline the total population is not known. Further sea-lion studies funded in 2004–05 were on foraging range and behaviour to understand where and when these animals feed; and interaction with fishing vessels to assess the impact of vessel activity on behaviour and population.

Further monitoring of the Benthic Protection Zone is planned.

Future challenges

Major challenges are developing a research programme to assess the marine park's performance; increasing the effectiveness of compliance strategies, including improving the fishing industry's compliance reporting; and implementing the new management plan.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Lack of baseline information

Actions

- Establish initial baselines
- Develop research plan to monitor the impact of known pressures on park values; assess park values' vulnerability to use; and assess park values' vulnerability to debris and other identified risks
- Assess performance of marine park

Performance results 2004–05 (in cooperation with SA Government)

- Initiated second round of baseline studies of benthos (the bottom level of the ocean)
- Southern right whale numbers increasing at 8 per cent annually and Australian sea-lion haul-out and breeding sites identified
- Initiated research into Australian sea-lion foraging behaviour and interactions with fishing vessels

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Illegal fishing
- Community understanding and appreciation of marine park's values

Actions

- Review surveillance plans
- Continue aerial surveillance by Coastwatch, on-ground surveillance by Yalata Land Management
- Pursue litigation and development of enforcement policies
- Implement communications plan

Performance results 2004–05 (in cooperation with SA Government)

- Advertised annual closures
- Completed land surveillance and aerial patrols
- Contributed to review of compliance and enforcement procedures
- Issued permits for commercial fishers

KRA5: Stakeholders and partnerships

Major issues

- Maintain productive relationships with partners

Actions

- Negotiate and implement annual business agreement with SA
- Consult stakeholders on new management plan
- Develop compliance monitoring arrangements with Australian Fisheries Management Authority

Performance results 2004–05 (in cooperation with SA Government)

- Renewed annual business agreement
- Undertook statutory consultation on new management plan, including meeting with consultative committee and other stakeholders
- Continued to make approaches to Australian Fisheries Management Authority and industry sectors about monitoring compliance
- Addressed collaborative risk management with Australian Fisheries Management Authority

KRA6: Business management

Major issues

- Performance assessment of first management plan
- Communicating new management plan to stakeholders
- Complex administrative structures

Actions

- Review first management plan and write new plan
- Reach clear understanding of the new management plan and rules governing activities in the park
- Establish clear understanding regarding roles of individuals and committees

Performance results 2004–05 (in cooperation with SA Government)

- New management plan came into effect 17 May 2005
- Produced and distributed plain English summary brochure with new management plan
- Improved communication among stakeholders

Advanced warden training for marine protected areas

Warden training aboard an Australian Customs Service vessel.

The management of Australian Government marine reserves from the sub-Antarctic to the tropics is a major challenge. One important aspect is promoting compliance with and enforcing the EPBC Act beyond the three nautical mile limit of state and territory waters.

To enforce the EPBC Act beyond state waters, the Department of the Environment and Heritage works closely with and relies on the assistance of officers from other Australian Government departments and from state fisheries and conservation agencies. Under cooperative arrangements between state and Australian Government ministers, trained officers are appointed as law enforcement officers (known as wardens) under the EPBC Act. Any individual officer may work anywhere around Australia, from Heard Island to the Gulf of Carpentaria, on a variety of matters regulated under the Act.

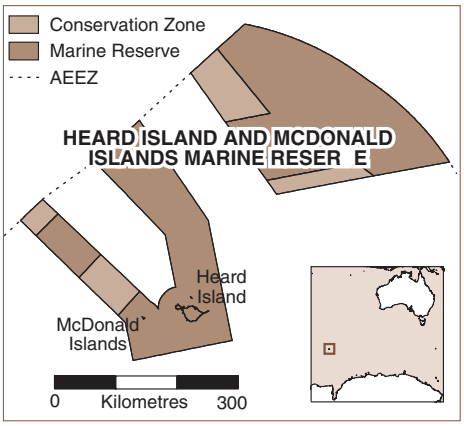
The EPBC Act came into effect in July 2000, and is still relatively new legislation. Recent investigations of incidents involving possible breaches of the Act have highlighted the breadth of enforcement provisions available under the Act.

In collaboration with the Department's Environment Investigations Unit, advanced training is now being provided to the established network of state-based law enforcement officers with Commonwealth law enforcement responsibilities to make use of the full range of enforcement options available. The provision of this training is one example of the ongoing support provided to law enforcement officers 'on the water'.

The advanced training has already been delivered in South Australia and during 2005–06 will be provided to officers from other states. The training gives law enforcement officers the understanding they need to make use of the full range of investigative possibilities available to them under the EPBC Act, increasing their capacity to tackle illegal activities in marine protected areas and in Commonwealth waters generally.

Heard Island and McDonald Islands Marine Reserve and Conservation Zone

http://www.heardisland.aq



Special features

The Heard Island and McDonald Islands (HIMI) Marine Reserve includes the World Heritage-listed islands and 12 nautical mile territorial sea, plus an additional marine area which extends in parts to the 200 nautical mile Exclusive Economic Zone boundary. The HIMI Conservation Zone covers areas of the Exclusive Economic Zone adjoining the reserve that are being assessed for their conservation significance and fisheries resource potential before being considered for addition to the reserve.

Heard Island and McDonald Islands is the only major sub-Antarctic island group believed to contain no species directly introduced by humans. Its terrestrial and marine ecology and oceanographic conditions are quite distinct from other Southern Ocean islands, including Australia's other sub-Antarctic island, Macquarie Island.

The islands and surrounding waters provide crucial breeding habitat for birds and marine mammals, including several species listed as threatened and/or migratory under international conservation agreements and the EPBC Act. Two birds, the Heard Island sheathbill *(Chionis minor nasicornis)* and the vulnerable Heard Island cormorant *(Phalacrocorax nivalis)* are endemic to the reserve.

The terrestrial environment displays distinctive geographical features such as permanent glaciers, Australia's only active volcanoes, and Australia's highest mountain (Mawson Peak, 2,750 metres) outside the Australian Antarctic Territory. Heard Island also contains significant cultural relics and heritage sites from 19th and early 20th century sealing activities and from the first Australian Antarctic research expeditions.

The marine environment surrounding the islands features diverse and distinctive benthic habitats that support slow-growing and vulnerable species including corals, sponges, barnacles and echinoderms. The waters of the reserve also include prime foraging areas for terrestrial species that prey on marine species, and provide nursery

areas for fishes, including commercially harvested species. Areas of highly productive nutrient rich waters in the reserve, created by the confluence of key oceanographic fronts such as the Antarctic Polar Front, are believed to provide feeding grounds for a range of cetaceans.

Location	Latitude 51°01' South, Longitude 76°55' East	
Area	6,457,815 hectares (Note: conservation zone is a further 1,170,000 hectares)	
Proclamation date	16 October 2002	
IUCN category	Category Ia	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Kerguelen Province	
Management plan	Public comment period on first draft plan closed 4 May 2005 (the plan has been finalised and is expected to take effect later in 2005)	
Other significant management documents	Australia's Antarctic Science Programme: Science Strategy 2004–05 to 2008–09; draft cultural heritage management plan for the Atlas Cove area[abc].	
Financial	Operating	$60,000[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	None[b]	
Permits	3 scientific research[c]	

(a) No science or management expedition was conducted in 2004–05, which was an 'off year' for triennial visits to HIMI. This figure does not include costs associated with analysis of data collected during the 2003–04 expedition, much of which is expected to contribute directly or indirectly to the future management of the reserve and the HIMI region.

(b) No government research expeditions or tourist visits to Heard Island were undertaken during 2004–05. Fishing vessels and surveillance vessels may have passed through the marine areas of the reserve.

(c) These permits relate to scientific research in the HIMI territorial sea required as a condition of licences to commercially fish in the Australian commercial fishery adjacent to the reserve.

International conventions and agreements	
World Heritage Convention	Listed under natural criteria (i) and (ii), recognising its outstanding natural values
Wetlands (Ramsar) Convention	Nomination of HIMI Territory being considered (draft Ramsar Information Sheet circulated for public comment as part of draft plan for the reserve)
Migratory Species (Bonn) Convention	12 of 98 listed Australian species
China–Australia Migratory Birds Agreement	1 of 81 listed species
Japan–Australia Migratory Birds Agreement	4 of 110 listed species
Other agreements	Convention for the Conservation of Antarctic Marine Living Resources; Agreement on the Conservation of Albatrosses and Petrels; Treaty between the Government of Australia and the Government of the French Republic on Cooperation in the Maritime Areas Adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species[a]	1 endangered 10 vulnerable 12 migratory 51 marine
	Recovery plans	1 being implemented (albatrosses & giant petrels)
Listed flora	None	

(a) Figures include both breeding and non-breeding species, but do not include cetaceans. Only sparse records of cetaceans are currently available for the HIMI region.

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
7[a]	47[b]	0	34[c]	168[d]	262[e]

(a) 3 breeding, 4 non-breeding seals
(b) 19 breeding, 28 non-breeding birds
(c) Refers to fish recorded from nearshore waters (<12nm)
(d) Refers only to terrestrial and freshwater invertebrates
(e) 12 vascular plants, 62 bryophytes, 71 lichens, 100 terrestrial algae, 17 marine macro-algae

Management arrangements

The reserve is managed by the Australian Antarctic Division of the Department of the Environment and Heritage, under delegation from the Director of National Parks.

Major monitoring efforts

The Australian Antarctic Division mounts Australian Antarctic Programme expeditions to the HIMI region approximately every three years. The triennial cycle is partly due to the significant costs involved and also the time required for research results to be analysed and duly considered in planning for subsequent visits. During 2004–05 there was no expedition, but there was substantial continuing analysis of the vast amount of data collected during the 2003–04 expedition, primarily in relation to glaciology, predator-prey interactions and terrestrial ecology.

Work to produce a baseline vegetation map of Heard Island continued, and much of the spatial data collected during 2003–04 was mapped and added to a GIS. Preliminary studies were also undertaken as to the origins of the new plant species recorded in 2003–04 *(Leptinella plumosa)* and another plant species *(Poa annua)* first recorded in 1987.

Future challenges

The management situation for the reserve has not varied substantially since 2003–04. Future challenges include:

- finalising and implementing the management plan for the reserve
- maintaining thorough quarantine processes for all visits
- capitalising on Australian Antarctic Programme visits and partnerships with other operators in the region to undertake management actions and conduct research and monitoring
- using information gathered during such visits to inform management actions
- completing the HIMI conservation zone assessment
- developing a research and monitoring strategy to facilitate performance assessment for the reserve.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Preventing human introduction of alien species
- Performance assessment and reporting

Actions

- Evaluate possible alien species
- Perform quarantine risk assessment and inspection of vessels
- Undertake research and monitoring that facilitate performance assessment and reporting

Performance results 2004–05

- Continued analysis of data collected during 2003–04 expedition
- Continued baseline vegetation mapping
- Mapped 2003–04 expedition spatial data and added the data to GIS
- Undertook quarantine inspection of surveillance vessel

KRA2: Cultural heritage management

Major issues

- Loss/degradation of cultural heritage
- Recording and monitoring condition of heritage sites and items at the sites

Actions

- Manage decay of heritage sites and items

Performance results 2004–05

- Catalogued images taken of heritage items during 2003–04 expedition

KRA4: Visitor management and reserve use

Major issues

- Safe and environmentally appropriate visitor access
- Off-site presentation of the remote and isolated reserve

Actions

- Provide briefings and relevant materials to all visit organisers/visitors
- Issue permits that include conditions to provide for appropriate access and use
- Develop off-site measures for communicating the values of the reserve

Performance results 2004–05

- Briefed surveillance vessel officers on management requirements
- Included relevant conditions in all permits issued for commercial fishing, scientific research operations and surveillance
- Launched new Heard Island web site
- Launched DVD of 2003–04 expedition

KRA5: Stakeholders and partnerships

Major issues

- Effective management of the isolated and infrequently visited reserve requires excellent working relationships with other operators in the region
- Transparency of reserve management

Actions

- Establish and maintain effective partnerships with relevant government agencies and other stakeholders
- Inform the public of reserve management activities

Performance results 2004–05

- Consulted key stakeholders and public during comment period on draft plan
- Continued Australian Antarctic Division involvement in government initiatives to address illegal, unreported and unregulated fishing

KRA6: Business management

Major issues

- Ensuring compliance and enforcement with reserve management requirements
- Management planning

Actions

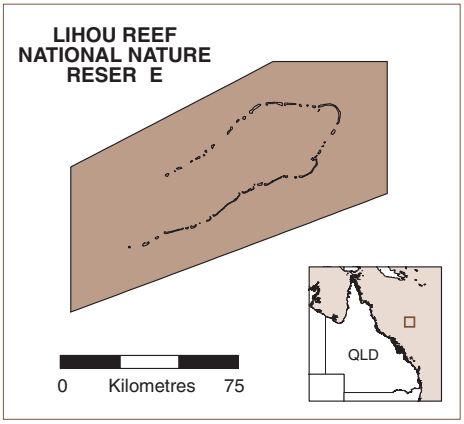
- Educate all visitors about reserve management requirements
- Release draft management plan for public comment

Performance results 2004–05

- Held public comment period on draft plan 14 March to 4 May 2005 (plan subsequently finalised)
- Launched new Heard Island web site
- Released Heard Island 2003–04 expedition DVD

Lihou Reef National Nature Reserve

http://www.deh.gov.au/coasts/mpa/lihou



Special features

Lihou Reef National Nature Reserve and its associated sandy coral cays and islets include the largest reef structure in the Coral Sea. The reef habitats support marine benthic flora and fauna that are distinct from those of the Great Barrier Reef.

A diverse range of marine organisms has been recorded in the reserve. The green turtle *(Chelonia mydas)* breeds in the reserve and a number of cetacean species inhabit the area.

Five islets in the reserve are vegetated, mainly by widespread tropical shoreline plants of the Indo-Pacific region.

The reserve also contains extensive and regionally significant seabird colonies. The buff-banded rail *(Gallirallus philippensis)* is the only landbird species that breeds in the reserve.

Several well-documented shipwrecks, and a number of wrecks whose origins are not yet known, are located on Lihou Reef.

Location	Latitude 17°21' South, Longitude 151°44' East
Area	843,670 hectares
Proclamation date	16 August 1982
IUCN category	Category Ia
Biogeographic context	Coral Sea Islands Territory
Management plan	Second plan in effect, expires 4 September 2008
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$13,523*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	128 visitor days recorded from 2 commercial tours	
Commercial permits	3 permits were issued for commercial tours	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Wetlands (Ramsar) Convention	Entire reserve is listed
Migratory Species (Bonn) Convention	6 of the 98 Australian listed species
China–Australia Migratory Birds Agreement	12 of the 81 listed species
Japan–Australia Migratory Birds Agreement	15 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 8 vulnerable 17 migratory 51 marine
	Recovery plans	2 being implemented (marine turtles; great white shark)
Listed flora	None	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
30	24	5	>342	>1,000	7

Major monitoring efforts

The Australian Institute of Marine Science undertook reef health monitoring during March and October 2004. The March survey identified severe coral bleaching within the reserve with an estimated 65 per cent of the live hard coral bleached. The October survey found that the overall impact on the reserve from the severe coral bleaching event has been small. Few corals remained bleached in October and on average there was no substantial decline in coral cover from March to October 2004 with no indication of species loss at the reserve level.

Management arrangements

The Australian Customs Service provided surface transport and logistical assistance for Departmental staff patrolling the reserves. Coastwatch provided regular aerial surveillance of the reserve.

Future challenges

Future challenges are monitoring the impact of and recovery from coral bleaching, and surveillance of the area for possible illegal activities.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Possible illegal fishing
- Measuring health of reef

Actions

- Enforce fishing restrictions
- Continue strategic reef monitoring programme

Performance results 2004–05

- Coastwatch flights detected no illegal fishing
- Australian Institute of Marine Science strategic monitoring of coral reef condition found that the coral bleaching event identified in 2003–04 has overall had only a small impact on the reserve

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

- No major issues of concern

KRA5: Stakeholders and partnerships

Major issues

- Awareness of reserve management prescriptions among stakeholders

Actions

- Consult with key stakeholders

Performance results 2004–05

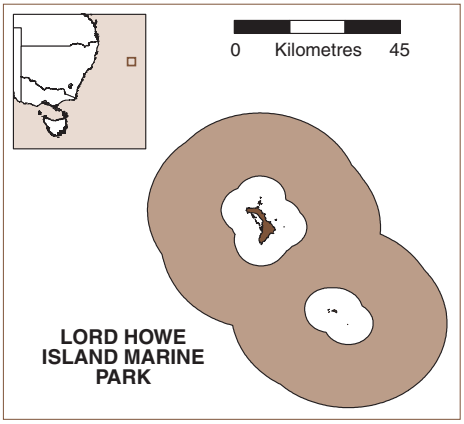
- Liaised with Coastwatch, relevant scientists and tour operators
- Prepared and distributed advisory brochure

KRA6: Business management

- No major issues of concern

Lord Howe Island Marine Park (Commonwealth Waters)

http://www.deh.gov.au/coasts/mpa/lordhowe



Special features

Lord Howe Island Marine Park protects and conserves the complex, vulnerable and regionally unique set of deep-sea structures, benthic habitats and flora and fauna associated with the Lord Howe Island seamount system.

The marine park also ensures that the natural resources important for food, income and recreation are protected and used in an ecologically sustainable manner.

Location	Latitude 31°47' South, Longitude 159°09' East	
Area	300,063 hectares	
Proclamation date	21 June 2000	
IUCN category	Category IV overall comprising: Category Ia (96,208 hectares) Category IV (203,855 hectares)	
Biogeographic context	Waters surrounding oceanic islands on seamounts; biota combine tropical and temperate taxa; east of Central Eastern Province Pelagic Biotone	
Management plan	First plan in effect, expires 24 September 2009	
Other significant management documents	Management plan implementation schedule; risk assessment and management schedule; and Memorandum of Understanding with NSW Marine Parks Authority for on-ground management	
Financial	Operating	$12,400*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Permits	9	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
World Heritage Convention	Listed for its outstanding natural universal values; criteria (iii) and (iv)
Migratory Species (Bonn) Convention	11 of the 98 Australian listed species
Japan–Australia Migratory Birds Agreement	4 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	3 endangered 10 vulnerable 15 migratory 20 marine
	Recovery plans	2 being implemented (albatrosses & giant petrels; marine turtles)
Listed flora	None	

Numbers of native species recorded			
Mammals	Birds	Fish	Invertebrates
7	17	447	536

Management arrangements

The Lord Howe Island Marine Park Advisory Committee and the Lord Howe Island Steering Committee provide forums for cooperative planning and management of the adjacent state and Commonwealth reserves.

The NSW Marine Parks Authority conducts on-ground management of the Commonwealth marine park on behalf of the Department of the Environment and Heritage under a Memorandum of Understanding.

The Australian Customs Service continues to conduct Coastwatch flights over the Lord Howe Island area and to report on vessel activity. NSW Water Police has also conducted surface patrols from the mainland.

Major monitoring efforts

The Australian Institute of Marine Science undertook the first survey of seabed biodiversity in the park and produced a habitat map using data from this survey and from further surveys of the adjoining state park. The survey found significant numbers of the rare Ballina angelfish *(Chaetodontoplus ballinae)* in the Commonwealth reserve.

The fish catch taken by charter fishing vessels operating under permit in the reserve was monitored.

Future challenges

Future challenges are the implementation of a strategic monitoring programme building on baseline data, and monitoring the area for possible illegal activities.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Illegal longline fishing within the park

Actions

- Enforce fishing restrictions
- Train and authorise enforcement staff

Performance results 2004–05

- Coastwatch regularly conducted aerial surveillance
- NSW Marine Park Authority conducted surface patrols
- Lord Howe Island NSW Marine Park Authority manager operated as EPBC Act warden

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

- No major issues of concern

KRA5: Stakeholders and partnerships

Major issues

- Cooperation with community and NSW Marine Parks Authority
- Community support for management plan

Actions

- Take an active role on advisory committee and steering committee
- Ensure community knowledge of management plan

Performance results 2004–05

- Held meetings of Lord Howe Island Advisory Committee and consulted with Lord Howe Island Steering Committee

KRA6: Business management

Major issues

- Continued assistance from NSW Marine Parks Authority

Actions

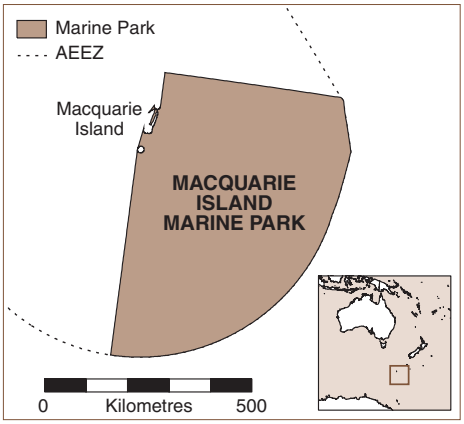
- Negotiate and implement annual business agreement with NSW Marine Parks Authority

Performance results 2004–05

- Negotiated and implemented annual business agreement for 2004–05

Macquarie Island Marine Park

http://www.deh.gov.au/coasts/mpa/macquarie



Special features

Macquarie Island Marine Park protects the unique and vulnerable marine ecosystems of the south-eastern portion of the Commonwealth waters around Macquarie Island. The marine park includes significant feeding and migratory areas for a number of threatened marine mammals and seabirds. The marine park contains a variety of large-scale benthic habitats, each exposed to different depths, currents, nutrient levels, wave activity and temperatures.

The Macquarie Island region has unique geological characteristics. It is the only known location where oceanic crust from a normal mid-ocean ridge has been lifted above sea level in a major oceanic basin.

In 1997, Macquarie Island and waters within a 12 nautical mile radius were inscribed on the World Heritage List.

Several species found in the region are under threat, including five albatross, four penguin and two seal species. Macquarie Island is also listed as a critical habitat under the EPBC Act for the grey-headed albatross *(Thalassarche chrysostoma)* and the wandering albatross *(Diomedea exulans)*.

Location	Latitude 55°54' South, Longitude 161°38' East
Area	16,205,928 hectares
Proclamation date	27 October 1999
IUCN category	Category IV overall comprising: Category IV (10,492,287 hectares) Category Ia (5,713,641 hectares)
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Macquarie Province

Management plan	First plan in effect, expires 25 September 2008	
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$137,499*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	5 tourist ships with a total of 303 passengers passed through the reserve	
Permits	None	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
World Heritage Convention	Macquarie Island and waters within a 12 nautical mile radius were listed as a World Heritage area in 1997
Migratory Species (Bonn) Convention	6 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	1 of the 81 listed species
Japan–Australia Migratory Birds Agreement	3 of the 110 listed species
Other agreements	Agreement on the Conservation of Albatrosses and Petrels; International Convention for the Regulation of Whaling

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 9 vulnerable 7 migratory 46 marine
	Recovery plans	4 being implemented (southern right whale; sub-Antarctic fur seal & southern elephant seal; albatrosses & giant petrels; 10 seabird species)
Listed flora	None	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
18	40	0	>158	>102 benthic sp	103 marine algae

Major monitoring efforts

An agreement is in place with the Australian Antarctic Division to develop a research and monitoring strategy for Commonwealth sub-Antarctic marine reserves. The strategy is expected to be completed in 2005.

Monitoring on Macquarie Island has revealed significant increases in rodent and rabbit populations, requiring the development and implementation of a feral pest eradication programme. These feral pest species have a major impact on marine wildlife species (eg nesting seabirds) that forage in the park.

Management arrangements

The Tasmanian Government manages Macquarie Island and its surrounding waters out to three nautical miles. The Commonwealth marine park is managed by the Marine Division of the Department of the Environment and Heritage under delegation from the Director.

The Australian Antarctic Division manages the Australian National Antarctic Research Expeditions' Macquarie Island base and its operational, logistical and scientific activities.

The Department of the Environment and Heritage and the Tasmanian Government have developed a service level agreement in relation to the cooperative management of marine protected areas including Macquarie Island Marine Park.

Future challenges

A major challenge is to develop and implement a sub-Antarctic research and monitoring strategy for marine protected areas, including Macquarie Island Marine Park. Further challenges are to continue to secure Coastwatch support and investigate other surveillance and observer platforms (eg fishing and tourism industry and government agencies) for monitoring of possible illegal activities.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Possible illegal fishing
- Degradation of island feeding and breeding areas within state jurisdiction

Actions

- Conduct regular surveillance and enforce fishing restrictions
- Develop implementation plan for the feral pests eradication programme at Macquarie Island
- Improve understanding and protection of species and habitats
- Develop a strategic monitoring approach for the sub-Antarctic reserves

Performance results 2004–05

- Coastwatch did not conduct any surveillance flights over the reserve
- Tasmanian Department of Primary Industries, Water and Environment met its contractual arrangements for Stage 2 of the programme to eradicate rabbits and rodents from Macquarie Island
- Natural Heritage Trust Financial Agreement in place with the Tasmanian Department of Tourism, Parks, Heritage and the Arts covering management of the marine park. The Department surveyed and collected marine debris; determined the foraging patterns of southern and northern giant petrels and their ecological relationships with fisheries; and monitored and collected seabird population baseline data
- Progressed the agreement with Australian Antarctic Division to develop a research and monitoring strategy for sub-Antarctic reserves managed by the Director

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

- No major issues of concern

KRA5: Stakeholders and partnerships

Major issues

- Establish effective working relationships with partners
- Lack of regular surveillance

Actions

- Conclude service level agreement with Tasmanian Government, focusing on Macquarie Island marine protected area
- Conduct regular surveillance

Performance results 2004–05

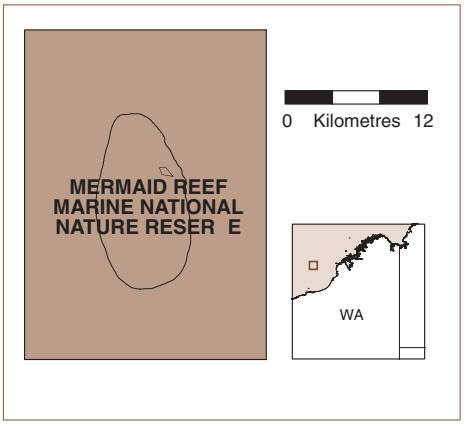
- Service level agreement put in place with the Tasmanian Government in relation to the cooperative management of marine protected areas including Macquarie Island Marine Park
- Coastwatch did not conduct any surveillance due to higher tasking priorities

KRA6: Business management

- No major issues of concern

Mermaid Reef Marine National Nature Reserve

http://www.deh.gov.au/coasts/mpa/mermaid



Special features

Mermaid Reef is the most northerly of the three reefs in the Rowley Shoals. The reef is totally submerged at high tide and therefore falls under Australian Government jurisdiction.

Clerke Reef and Imperieuse Reef, the two southerly reefs, have permanent sand cays above the high water mark. Together they were incorporated into the Rowley Shoals Marine Park, declared under Western Australian legislation on 25 May 1990.

The three reefs of the Rowley Shoals have been described as the most perfect examples of shelf atolls occurring in Australian waters. Each reef includes spectacular and unusual underwater topography and life forms that have attracted international recreational divers.

Approximately 230 species of coral and some 390 species of fish inhabit the shoals, including many species not found on nearshore coral reefs. The coral and fish communities of the Rowley Shoals are unique in their relative abundance of species.

Location	Latitude 17°06' South, Longitude 119°38' East
Area	53,987 hectares
Proclamation date	10 April 1991
IUCN category	Category Ia
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Oceanic Shoals
Management plan	First plan in effect, expires 16 May 2007
Other significant management documents	1999 Memorandum of Understanding with WA Department of Fisheries and WA Department of Conservation and Land Management; management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$5,987*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Approximately 144	
Permits	7 commercial tour operators	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	10 of the 98 Australian listed species
China–Australia Migratory Birds Agreement	13 of the 81 listed species
Japan–Australia Migratory Birds Agreement	8 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 7 vulnerable 15 migratory 48 marine
	Recovery plans	3 being implemented (great white shark, marine turtles; humpback whale)
Listed flora	None	
Heritage	Listed as Commonwealth Heritage (part of reserve only)	

Numbers of native species recorded				
Mammals	Birds	Reptiles	Fish	Invertebrates
13	19	3	>390	>558

Major monitoring efforts

The Australian Institute of Marine Science's June 2003 survey concluded that overall the coral community was in excellent health with relatively high densities of beche-de-mer species. Some coral disturbance was observed, probably caused by anchor damage.

Shark numbers at Mermaid Reef were estimated to be up to 17 times greater than at Scott Reef, which is located north of Mermaid Reef in an area fished by Indonesians.

Management arrangements

The Mermaid Reef Marine National Nature Reserve is managed under a Memorandum of Understanding between the Director of National Parks, the Western Australian Department of Conservation and Land Management and the WA Department of Fisheries. These agencies cooperate in issuing permits for commercial tours of the Rowley Shoals.

Coastwatch provided regular aerial surveillance of the reserve.

Future challenges

Major challenges are installing moorings at Mermaid Reef; monitoring and curbing illegal activities, particularly foreign commercial fishing; and ensuring the reserve's conservation values and management arrangements are understood by visitors.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Anchor damage
- Monitoring reserve health

Actions

- Investigate and install moorings
- Conduct strategic reef monitoring

Performance results 2004–05

- Continued to investigate mooring design
- Progressed development of an ecological monitoring programme for the Rowley Shoals in collaboration with WA Department of Conservation and Land Management and Australian Institute of Marine Science

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Visitors need to understand reserve values and uses

Actions

- Ensure that the general public and reserve visitors appreciate the reserve's values and use it appropriately

Performance results 2004–05

- Provided anchoring information sheet (also on internet) to people asking about Mermaid Reef
- Published Mermaid Reef Reserve brochure and distributed to key stakeholders

KRA5: Stakeholders and partnerships

Major issues

- Effective management of the reserve by the management service provider

Actions

- Establish effective Rowley Shoals Steering Committee and service level agreement

Performance results 2004–05

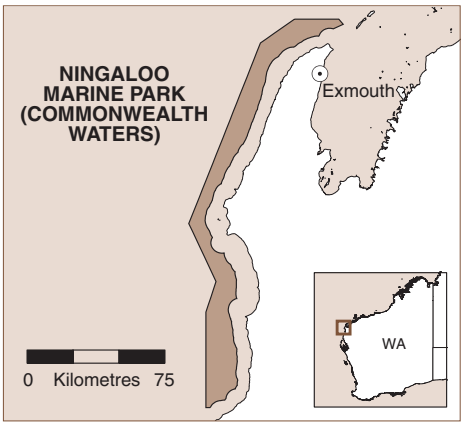
- Operated under service level agreement in place with the WA Department of Conservation and Land Management
- Worked with the WA Department of Conservation and Land Management on a commercial tour operator permit assessment process and the installation of moorings

KRA6: Business management

- No major issues of concern

Ningaloo Marine Park (Commonwealth Waters)

http://www.deh.gov.au/coasts/mpa/ningaloo



Special features

The Ningaloo Reef is unique because, unlike the Great Barrier Reef and other reefs off the northern coast of Australia, it is not separated from the coast by a wide expanse of water. In places it is as little as 20 metres from the coastline. The park is also unique because it is a tropical reef system projecting out from an arid part of the continental land mass.

Ningaloo Marine Park is made up of state waters, extending from the Western Australian coastline out to three nautical miles, and Commonwealth waters from the limit of the state jurisdiction out to the seaward boundary of the marine park. The marine park protects the whole of the deep-water environment fringing the reef, including the open waters and the seabeds of the continental slope and shelf.

The reef is extremely variable, with the range of coral cover and species changing within short distances. The coral communities contain many of the species typical of the tropical Indo-Western Pacific region that do not occur further south. They also contain temperate species that are at the northern limit of their distribution in Western Australia.

The reef includes a wide range of habitats and highly diverse marine fauna. The fish fauna of the reef ecosystem is very rich, but little is known about the fish of the deeper Commonwealth waters.

The reef is also an important area for marine mammals, particularly whales. Green turtles *(Chelonia mydas)* are very common all along the coast, with several breeding rookeries. Of particular interest is the presence of the whale shark *(Rhincodon typus)*, the world's biggest species of fish.

Location	Latitude 22°30' South, Longitude 113°40' East	
Area	243,559 hectares	
Proclamation date	20 May 1987, 5 August 1992, 6 April 2004	
IUCN category	Category II	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Ningaloo	
Management plan	Second plan in effect, expires 2 July 2009	
Other significant management documents	Memorandum of Understanding with WA Department of Fisheries and WA Department of Conservation and Land Management; annual business agreement; and management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$200,450*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not available	
Permits	16 commercial charter fishing tours	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	12 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	9 of the 81 listed species
Japan–Australia Migratory Birds Agreement	9 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 12 vulnerable 24 migratory 59 marine
	Recovery plans	1 being implemented (great white shark)
Listed flora	None	
Heritage	Listed as Commonwealth Heritage	

Numbers of native species recorded			
Mammals	Birds	Reptiles	Plants
20	>34	>18	0

Major monitoring efforts

The Australian Institute of Marine Science has undertaken the first survey of seabed biodiversity in the park and is producing a habitat map using data from this survey and from surveys of the adjoining state park. Of particular interest was the discovery of patchy, widespread and occasionally rich beds of filter feeding organisms, including sponges. These sponge beds may be especially important because of their high diversity and likely high endemism in the region.

Management arrangements

The WA Department of Conservation and Land Management and WA Department of Fisheries conduct on-ground management of the reserve under a Memorandum of Understanding with the Director.

The Department of the Environment and Heritage works with these agencies on issues affecting both the WA park and the Commonwealth reserve.

Future challenges

Future challenges are to ensure compliance with park management prescriptions; adequately map the habitat; monitor the health of the reserve; and maintain consistency between state and Australian Government planning processes.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Management of charter fishing tour operators with minimal impact on the park

Actions

- Ensure commercial charter tour operators comply with permits and conditions

Performance results 2004–05

- Distributed a brochure informing commercial fishers and charter fishing tour operators of management arrangements

- WA Department of Fisheries and Department of Conservation and Land Management officers patrolled the reserve regularly as part of their normal surveillance operations
- Coastwatch conducted aerial surveillance
- Began a research project to be completed in 2006 on the migration and behaviour of whale sharks in the Commonwealth waters of the park

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Longlines from commercial fishing operations drift into the park

Actions

- Negotiate a best practice protocol with industry to deal with accidental longline loss

Performance results 2004–05

- Progressed liaison and negotiation with industry to develop the best protocol to deal with accidental loss of longlines and their retrieval

KRA5: Stakeholders and partnerships

Major issues

- Ensure that complementary management regimes are negotiated between the Department and the WA Department of Conservation and Land Management to best manage the adjoining Commonwealth and state reserves

Actions

- Contribute to a joint planning process with WA for managing both reserves

Performance results 2004–05

- Negotiated planning process with the WA Department of Conservation and Land Management
- Met with WA Department of Conservation and Land Management and Ningaloo Management Committee representatives

KRA6: Business management

Major issues

- Need to effectively manage contracts with service providers

Actions

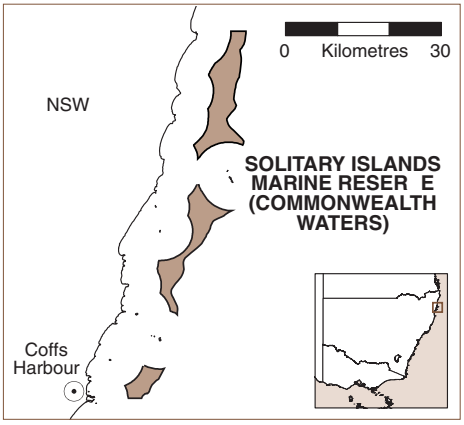
- Negotiate and implement annual business agreements with WA Department of Conservation and Land Management and WA Department of Fisheries

Performance results 2004–05

- Negotiated and implemented annual business agreements covering research, visitor management, education, and compliance and enforcement with WA Department of Conservation and Land Management and WA Department of Fisheries

Solitary Islands Marine Reserve (Commonwealth Waters)

http://www.deh.gov.au/coasts/mpa/solitary



Special features

The Solitary Islands Marine Reserve is located in a mixing zone between tropical and temperate environments. Many species in the reserve are at, or close to, their southern and northern geographical limits.

Pimpernel Rock is the most significant feature in the reserve. It is a submerged pinnacle that rises from the seabed to within a few metres of the surface, providing habitat for benthic communities, pelagic fish, the endangered grey nurse shark *(Carcharias taurus)*, black cod *(Epinephelus daemelii)* and marine turtles.

The reserve is home to a number of species that are protected under Commonwealth legislation or international agreements. These include the humpback whale *(Megaptera novaeangliae)* and other cetaceans, the grey nurse shark and a variety of seabirds.

The reserve and the adjacent state marine park were listed on the Register of the National Estate in 1995. Values noted on the register include outstanding marine biodiversity; mixture of communities; diversity of coral, algal and fish species; abundance of giant anemone and clownfish associations; penguin and muttonbird nesting areas; and overall diversity and beauty.

Location	Latitude 29°48' South, Longitude 153°22' East
Area	15,746 hectares
Proclamation date	3 March 1993

IUCN category	Category VI overall comprising: Category Ia (79 hectares) Category IV (3,744 hectares) Category VI (11,924 hectares)	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Manning Shelf	
Management plan	First plan in effect, expires 3 April 2008	
Other significant management documents	Service level agreement with NSW; annual business agreements, management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$133,176*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Permits	6 commercial fishing; 9 commercial tour operators; 3 recreational diving	

* In addition, $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	4 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	9 of the 81 listed species
Japan–Australia Migratory Birds Agreement	11 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 4 vulnerable 15 migratory 33 marine
	Recovery plans	2 being implemented (marine turtles; grey nurse shark)
Listed flora	None	

Numbers of native species recorded			
Mammals	Birds	Reptiles	Plants
25	42	7	0

Management arrangements

The NSW Marine Parks Authority conducts on-ground management of the reserve under a Memorandum of Understanding.

The Solitary Islands Marine Park Steering Committee comprises government agency representatives, and oversees management and planning arrangements.

The Solitary Islands Marine Park Advisory Committee provides a forum for stakeholders to contribute to planning for the adjacent state park and the reserve.

The Department of the Environment and Heritage is represented on both committees.

Major monitoring efforts

The NSW Marine Parks Authority and the CSIRO continued to monitor movements of grey nurse sharks between aggregation sites, including at Pimpernel Rock in the reserve.

The NSW Marine Parks Authority continued to remove and monitor debris at Pimpernel Rock and continued a reef habitat mapping programme that includes the reserve.

A contract was signed to undertake a survey of the reserve and to assess anchor damage at Pimpernel Rock in the second half of 2005.

Future challenges

Future challenges are to implement biological monitoring and to monitor possible illegal activities in the area.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Illegal fishing within the sanctuary zone

Actions

- Enforce fishing restrictions
- Undertake surveillance

Performance results 2004–05

- Coastwatch conducted regular aerial surveillance
- NSW Marine Parks Authority provided surface support to Coastwatch surveillance and conducted surface patrols as required

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Managing impacts of diving in sanctuary zone

Actions

- Issue permits with appropriate conditions for dive operations

Performance results 2004–05

- Issued 18 diving permits. No infringements of conditions detected

KRA5: Stakeholders and partnerships

Major issues

- Ongoing engagement with community and government representatives

Actions

- Participate on Solitary Islands Marine Park Advisory Committee and Solitary Islands Marine Park Steering Committee

Performance results 2004–05

- Participated on advisory and steering committees

KRA6: Business management

Major issues

- Continued assistance from NSW Marine Parks Authority

Actions

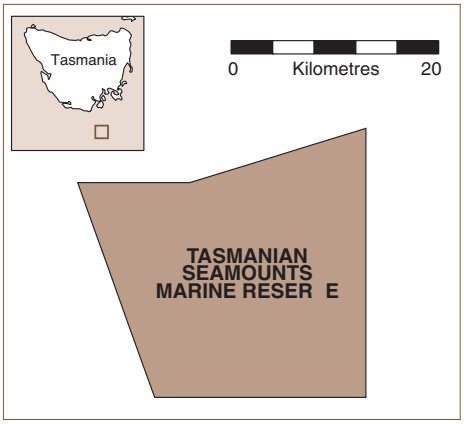
- Endorse and manage annual business agreement with NSW Marine Parks Authority

Performance results 2004–05

- Implemented annual business agreement

Tasmanian Seamounts Marine Reserve

http://www.deh.gov.au/coasts/mpa/seamounts



Special features

The Tasmanian Seamounts Marine Reserve covers 15 of the approximately 70 seamounts that arise from water depths of between 1,000 and 2,000 metres on the continental slope off southern Tasmania. Remnants of extinct volcanoes, these seamounts are typically cone-shaped, between 200 and 500 metres high, and several kilometres across at their base.

This field of seamounts is a distinctive geological feature not known elsewhere in Australia. It supports a distinct benthic (bottom-dwelling) community of animals, many of which are native to the Tasmanian seamounts and do not occur anywhere else on earth. The primary purpose of the reserve is to protect a sample of this unique benthic community.

Research has found that 24 to 43 per cent of species in the reserve are new to science. At least eight new genera have been discovered.

Location	Latitude 44°24' South, Longitude 147°18' East
Area	38,897 hectares
Proclamation date	19 May 1999
IUCN category	Category Ia overall (below a depth of 500 metres is Ia while upper 500 metres is VI)
Biogeographic context	Cold temperate waters offshore from the Tasmanian (demersal) province and the Southern Pelagic Province
Management plan	First plan in effect, expires 25 June 2009
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$130*
	Capital	Not applicable
	Revenue	Not applicable
Visitors	None	
Permits	None	

* In addition $250,452 was spent across the 12 marine reserves managed by the Marine Division on professional services, development of permits and performance assessment systems, training wardens, communications, workshops and conference attendance.

International conventions and agreements	
Migratory Species (Bonn) Convention	20 of the 98 listed Australian species
Japan–Australia Migratory Birds Agreement	1 of the 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 15 vulnerable 20 migratory 14 marine
	Recovery plans	3 being implemented (southern right whale; albatrosses & giant petrels; marine turtles)
Listed flora	None	

Numbers of native species recorded				
Mammals	Birds	Reptiles	Fish	Invertebrates
>25	>21	>1	37	242

Major monitoring efforts

A strategic plan for research and monitoring across the Commonwealth's existing and proposed temperate marine protected areas, including Tasmanian Seamounts Marine Reserve, is being developed and will be completed in 2005. The plan is being prepared by the Cooperative Research Centre for the Great Barrier Reef World Heritage Area (CRC Reef Research Centre).

The Department signed a contract with CSIRO Marine Research for a project on research and monitoring for benthic ecosystems in Australia's south-east region marine protected areas which will cover the Tasmanian Seamounts Marine Reserve.

Future challenges

Major challenges are to implement a strategic plan for research and to continue monitoring across the Commonwealth's existing and proposed temperate marine reserves, including Tasmanian Seamounts Marine Reserve; and to complete and implement a compliance and enforcement plan for the reserve, including monitoring possible illegal activities, particularly illegal fishing.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Possible illegal commercial fishing
- Need to improve understanding of reserve's ecological processes

Actions

- Enforce fishing restrictions
- Develop research and monitoring programme

Performance results 2004–05

- Requested regular Coastwatch aerial surveillance. Surveillance provided occasionally, consistent with Coastwatch tasking priorities
- Detected no illegal fishing
- Progressed work on the consultancy with the CRC Reef Research Centre to develop a strategic research and monitoring plan for temperate marine protected areas including the Tasmanian Seamounts Marine Reserve

KRA2: Cultural heritage management

- No major issues of concern

KRA4: Visitor management and park use

Major issues

- Monitoring possible illegal activities, particularly fishing

Actions

- Minimise risk of accidental or deliberate encroachment on the reserve by trawling vessels

Performance results 2004–05

- Conducted periodic surveillance

KRA5: Stakeholders and partnerships

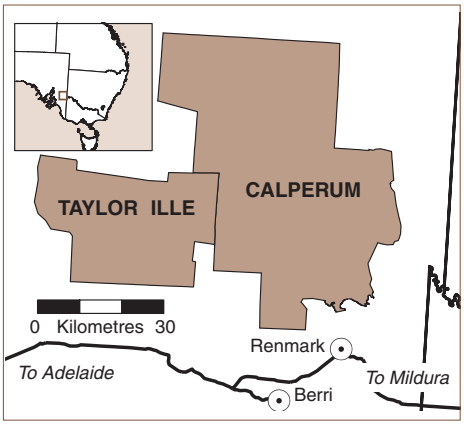
- No major issues of concern

KRA6: Business management

- No major issues of concern

Calperum and Taylorville Stations

http://deh.gov.au/parks/biosphere/riverland



Special features

Calperum and Taylorville Stations are adjacent pastoral leases in the Riverland area of South Australia. Both properties are key components of the Riverland (formerly Bookmark) Biosphere Reserve, which has a total area of 900,000 hectares. The Riverland Biosphere Reserve forms part of the UNESCO Man and the Biosphere Programme, which comprises areas chosen as representative of the world's biodiversity.

Calperum and Taylorville are important locally, nationally and internationally because of their wetlands and related species, their mallee vegetation, and the presence of several threatened bird species. The properties form key habitat for the endangered black-eared miner *(Manorina melanotis)* and are also important for the vulnerable malleefowl *(Leipoa ocellata)*.

While biodiversity conservation guides the management of both properties, each has different management objectives. The development of Calperum as a model for environmentally sustainable development, including tourism, is an explicit environmental objective. In contrast, Taylorville is managed primarily for conservation of long-unburnt mallee and its dependent species.

Location	Latitude 34° South, Longitude 140°30' East
Area	338,400 hectares (combined area)
Status	Pastoral leases in South Australia, owned by the Australian Government through the Director of National Parks (Calperum acquired in 1993, Taylorville acquired in 2000)
IUCN category	Calperum not applicable Taylorville Category IV
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Murray–Darling Depression

Management plan	Non-statutory management plan covering both properties finalised in February 2005 (tied to length of management contract)	
Other significant management documents	Biosphere Reserves Seville Strategy and statutory framework	
Financial	Operating*	$0.616 million
	Capital	$0.019 million
	Revenue	$0.616 million
Visitors	152 day visitors, 319 campers	

*Represents the funding provided by the Director of National Parks. Austland Services provides at least matching resources.

International conventions and agreements	
Wetlands (Ramsar) Convention	Part of Calperum included in Riverland Ramsar site
Migratory Species (Bonn) Convention	8 of the 98 listed Australian species
China–Australia Migratory Birds Agreement	10 of the 81 listed species
Japan–Australia Migratory Birds Agreement	10 of the 110 listed species
Other international agreements	Major component of the Riverland Biosphere Reserve under the UNESCO Man and the Biosphere Programme

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 6 vulnerable 12 migratory 47 marine (primarily birds not exclusively marine)
	Recovery plans	2 being implemented (malleefowl; black-eared miner)
Listed flora	None	
Heritage	Listed as Commonwealth Heritage	
Other	Taylorville and majority of Calperum listed as critical habitat for the black-eared miner	

Numbers of native species recorded					
Mammals	Birds	Reptiles	Amphibians	Fish	Plants
25	188	68	10	12	>300

Management arrangements

Calperum and Taylorville Stations are managed by Austland Services Pty Ltd (a company established by the Australian Landscape Trust) under contract to the Director of National Parks. The current management contract runs from 1 May 2003 to 30 June 2008. The contract is funded through the Natural Heritage Trust. Austland Services provides an equivalent level of support for management.

Major monitoring efforts

A tree monitoring programme at Lake Merreti in 2003 identified a pattern of declining tree health that is consistent with an intrusion of saline groundwater. A monitoring and research programme to investigate the phenomenon and to develop appropriate management responses has commenced.

Other monitoring includes vertebrate surveys; vegetation photopoint surveys; threatened species, especially malleefowl mound activity; fish; frogs; and feral animals, especially foxes.

Future challenges

Identifying and implementing environmentally sustainable industries on Calperum Station remains an ongoing challenge. Devising appropriate management of Calperum Station's wetlands on a floodplain that is undergoing hydrological change is a major challenge. Protecting mature mallee on Taylorville Station from fire and other potentially threatening impacts is a major priority.

Report on performance by key result areas

KRA1: Natural heritage management

Major issues

- Need to reverse land degradation
- Feral animal and weed control
- Fauna management

Actions

- Conduct wetlands restoration and revegetation
- Implement feral animal control programmes concentrating on pigs, foxes and rabbits
- Monitor native animal populations
- Contribute to recovery programmes for threatened birds

Performance results 2004–05

- Reviewed management regimes for Lake Merreti and Lake Woolpolool
- Completed Lake Merreti inlet structures
- Trialled innovative approaches to revegetation
- Established several drip irrigated grazing exclosures allowing emergence of plant species latent in the seed bank but not recently observed in the broader environment
- Continued existing fox control programme. Monitoring suggests fox numbers remain low
- Participated in black-eared miner recovery programme
- Expanded malleefowl monitoring and recovery programme
- Secured several colonies of the Murray River snail *(Notopala sublineata hanleyi)* (regarded as extinct in its natural habitat) in secure artificial habitats
- Green Corps carried out boxthorn control and distribution mapping
- Continued other ongoing monitoring programmes

KRA2: Cultural heritage management

Major issues

- Need to identify and protect Aboriginal heritage

Actions

- Protect known Aboriginal cultural sites

Performance results 2004–05

- Continued to protect and revegetate identified Aboriginal heritage sites

KRA4: Visitor management and park use

Major issues

- Management of tourism impacts

Actions

- Manage day-to-day recreational use

Performance results 2004–05

- Managed visitors to area satisfactorily

KRA5: Stakeholders and partnerships

Major issues

- Use of volunteers
- Inconsistent records of volunteer time
- Governance arrangements

Actions

- Promote, support and oversee extensive volunteer involvement
- Develop system for consistent recording of volunteer hours
- Participate in Riverland Biosphere Community Committee

Performance results 2004–05

- Community Land Management Inc, a volunteer organisation based at Calperum Station, has grown in membership and now has programmes on public and private land, including programmes interstate
- 175 volunteers donated over 4,000 hours to formal feral animal control and monitoring programmes, plus approximately 10,000 more hours to a broad range of Community Land Management activities
- Green Corps team graduated in February
- Parks Australia representatives attended four biosphere committee meetings

KRA6: Business management

Major issues

- Property maintenance
- Management planning
- Sustainable industry development

Actions

- Maintain infrastructure
- Compile first formal management plan for Calperum and Taylorville Stations
- Undertake native plant and seed production

Performance results 2004–05

- Maintained buildings, management trails and boundary fencing
- Completed management plan and began implementation
- Produced policy statements on operations and workplace practices
- Achieved encouraging results with experiments in producing commercial quantities of seed for revegetation
- Increased productive capacity of floriculture plantings but international market conditions remained unfavorable