State of the parks report

System-wide summary

Major outcomes by key result areas

Natural heritage management

- Development of a representative system of Marine Protected Areas continued. Ningaloo Marine Park (Commonwealth Waters) was increased by 12 per cent through the inclusion of former lease areas located within the reserve boundary, and a proposal to declare a reserve over the Cod Grounds off the New South Wales coast was issued for public comment. A system of reserves is being developed for Australia's south-east region as part of Regional Marine Planning under Australia's Ocean Policy.
- A monitoring programme was completed for nine of the 13 marine reserves. Results were encouraging and highlighted the biodiversity values of some deepwater areas that had previously not been investigated. A significant coral bleaching event was discovered at Lihou Reef and management efforts are being refocused in light of these findings.
- A major research expedition was mounted to Heard Island and McDonald Islands Marine Reserve in the sub-Antarctic. A team, including 52 scientists and support personnel, studied glaciology, terrestrial ecology and predator/prey relationships.
- A five-year study on biodiversity and impacts such as fire and weeds commenced at Booderee National Park under a partnership between the park, the Wreck Bay Aboriginal Community, and the Australian National University Centre for Resource and Environmental Studies. An Australian Research Council grant will contribute $600 000 to the project.
- A three-year biodiversity monitoring programme commenced on Christmas Island and will be used to rationalise and prioritise the conservation management of the island, including ongoing management of invasive yellow crazy ants *Anoplolepis gracilipes*.
- A review of the rat control programme at Norfolk Island National Park highlighted its success. Monitoring of Bowen Island in Booderee National Park reaffirmed the island remains rat-free as a result of an earlier eradication process.
- Monitoring at Calperum Station identified a complex underground salinity event as the probable cause of the widespread death of mature trees. A targeted monitoring

and research programme is planned to identify the precise source of the saline water and to develop appropriate management responses.

- Fencing of a large area at Uluṟu-Kata Tjuṯa National Park commenced to assist the reintroduction of endangered mala (rufous hare wallabies) *Lagorchestes hirsutus*. This is a collaborative project involving park staff, traditional owners and the Northern Territory Parks and Wildlife Commission. The mala has high cultural significance and has been identified by traditional owners as a key threatened species for return to the park.
- Two possible new species of plants and a possible new species of planigale (a small carnivorous marsupial) were discovered in Kakadu National Park. Five other plants were recorded in Kakadu for the first time or found to have larger ranges than previously recorded.
- Northern quoll *Dasyurus hallucatus* populations previously relocated to offshore islands in Arnhem Land were re-surveyed and found to be establishing well. This successful project was a joint effort between Parks Australia, the Northern Territory Parks and Wildlife Commission, the traditional owners of Kakadu, and the Northern Land Council.
- Control of exotic grasses has been a high priority in Kakadu with a dedicated work team surveying and spraying weed-infested areas with difficult access.
- A cyclic weeding programme was implemented on Norfolk Island to improve protection of threatened species and habitat areas. The programme allocates resources over a two-year cyclic programme involving weed control, identification of endangered species and rehabilitation planting.
- In the recent drought the Australian National Botanic Gardens reduced water use by 25 per cent. This was achieved through improved irrigation management exceeding stage 3 water restrictions, an achievement promoted by the Australian Capital Territory Government as part of its public awareness programme.
- Parks Australia played a leadership role in the organisation of the World Parks Congress in September 2003 and in the finalisation of the Protected Area Programme of Work agreed at the 7th Conference of Parties to the Convention on Biodiversity in February 2004. As a contribution to consultation on the marine theme of the congress, Parks Australia commissioned the publication of two background documents for the marine participants – *The Benefits of Marine Protected Areas* by Richard Kenchington and *Marine Protected Areas in Ecosystem-based Management of Fisheries* by Trevor Ward and Eddie Hegerl. Four traditional owners from Kakadu and Booderee national parks participated in the congress.

- Cartier Island was closed to Indonesian fishers from 1 July 2003 following survey results showing significant declines in trochus and beche-de-mer populations.

Cultural heritage management

- The introduction of cultural interpretation of the Twin Falls area of Kakadu by local Aboriginal guides has proven to be popular with visitors. It is also revitalising traditional knowledge about the area and maintaining traditional connections to the country.
- Uluṟu-Kata Tjuṯa National Park commissioned a rock art management consultancy that focused on identifying conservation priorities in a number of key sites, including a number of great significance to female traditional owners.
- Twenty-two new cultural sites found at Booderee National Park following the December 2003 Windemere fire were assessed and documented.
- Work continued to establish a cultural centre at Booderee, with the formation of a cultural heritage reference group by the community to develop the park's cultural heritage strategy.
- A survey of the location and condition of late 19th century sealing sites on Heard Island was undertaken during the 2003–04 Australia Antarctic Division expedition. Work was also undertaken to stabilise some items in danger of loss through coastal erosion.

Joint management

- Approximately 39 per cent of Kakadu staff, 34 per cent of Uluṟu staff, and 46 per cent of Booderee staff are of Aboriginal descent.
- Nominees of the Northern Territory Government were appointed to the Uluṟu and Kakadu boards of management for the first time.
- The Kakadu Board of Management endorsed assessment guidelines for recognising traditional knowledge and skills in recruitment within the park.
- Approximately 90 per cent of seasonal ranger interpretation activities at Kakadu included participation by local Aboriginal people. This represented a significant boost to communicating to visitors the cultural importance of Kakadu.
- The Junior Ranger programme in Uluṟu, which engages at-risk youth in environmental work, was revitalised with an increased emphasis on linkages with park management activities.

- The revised lease for Booderee National Park, signed with the Wreck Bay Aboriginal Community Council in October 2003, provides an innovative and challenging framework for progressively contracting out park management to the local Indigenous community.

Visitor management and park use

- Uluṟu was rated the highest satisfaction park in the Northern Territory in the Northern Territory Tourism Commission survey for 2003, with 93 per cent of visitors responding that they were 'satisfied or very satisfied' with their visit to the park. Kakadu also rated highly in the survey.
- Facilities at Uluṟu were improved with work commencing on new toilets at the base of the climb, a new track maintenance programme involving community based field staff, and planning for the introduction of new interpretive signs at the Muṯitjulu Waterhole.
- A project involving traditional owners and the tourism industry commenced to define a shared vision for future tourism in Kakadu, led by former Australian Tourist Commission Managing Director, John Morse AM.
- New visitor access arrangements for Twin Falls in Kakadu were finished in time for the 2004 peak visitor season. The new arrangements include a boat shuttle service and boardwalk to the base of the falls, which incorporate cultural heritage interpretation by Aboriginal guides. The changes were developed in close consultation with the tourism industry, and were prompted by earlier closure of the falls due to crocodile risk.
- A documentary showcasing the natural, cultural and historical values of Pulu Keeling National Park was launched on 17 June 2004 at the Western Australia Maritime Museum as part of a 10-week exhibition on the Cocos-Keeling Islands.
- Visitors and property were protected during the Windermere wildfire at Booderee National Park in December 2003, during which 50 per cent of the park was burnt.
- Construction of the Mount Pitt summit access road and the Summit-to-Summit walking track were completed in Norfolk Island National Park. The Mount Pitt road had been closed to vehicles since 1998.
- The Australian National Botanic Gardens held its annual summer concert series over nine weekends in January and February 2004. The series attracted about 40 000 visitors and was used by the Friends of the Gardens to raise funds.

Stakeholders and partnerships

- Volunteers provided enormous support at a number of locations. At Calperum and Taylorville stations, 370 volunteers provided the equivalent labour of 4.5 full-time staff, while volunteers conducted wildlife monitoring programmes at Coringa-Herald National Nature Reserve and Ashmore Reef National Nature Reserve. Teams of conservation volunteers are progressively removing buffel grass around the base of Uluru.
- An alternative livelihood project is being implemented in Indonesia with AusAID funding. Its aim is to provide other income generating options for traditional Indonesian fishers who currently target the overfished region around Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve. There has been initial success in encouraging fishers to take up seaweed production and marketing.
- Uluru park management worked with the tourism industry in a collaborative approach to reviewing and amending tour operator permit conditions. The collaborative effort was supported by the successful convening of two tour operator workshops.

Business management

- The second management plan for Pulu Keeling National Park came into effect on 28 April 2004. Significant progress was made in developing the fifth management plan for Kakadu National Park, the first management plan for the Heard Island and McDonald Islands Marine Reserve, and the second management plan for Elizabeth and Middleton Reefs Marine National Nature Reserve.
- An extensive operational review of Booderee National Park was conducted to align the staff structure with the requirements of the park's management plan.
- The Australian National Botanic Gardens completed development of a new energy-efficient plant nursery that will substantially improve nursery operations.
- Two more Australian Customs Service officers were appointed as wardens under the EPBC Act. Customs officers play a key role in compliance and enforcement within remote marine reserves.
- Two fishers who breached the closure of the Marine Mammal Protection Zone of the Great Australian Bight Marine Park (Commonwealth Waters) were ordered to pay a total of $44 500 in penalties and costs. A foreign fisher was also fined for two offences of accessing a closed area of a reserve. These were the first such actions under the EPBC Act.

Biodiversity knowledge management

- The Australian National Herbarium added 27 715 botanical specimens to its database and also included them in Australia's Virtual Herbarium, along with 600 digitised photographs from the Australian Plant Image Index.
- Within the Australian National Herbarium, both the 2004 Student Botanical Internship Programme and Summer Student Scholarship Programme were very successful, with over 20 students completing the courses. One student came from overseas and about half used the course to gain university academic credits.
- The Centre for Plant Biodiversity Research contributed to major advances in a grassland weed invasion project, with a paper published in the international Journal of Vegetation Science. Further papers are in preparation.

Formal recognition of achievements

- For the second year in a row, the Australian National Botanic Gardens won the ecotourism category at the Canberra and Capital Region Tourism Awards 2003.
- The Director of National Parks received Highly Commended in the Innovative Category of the Comcover Awards for Excellence in Risk Management.
- Parks Australia was awarded a three star rating in the Comcover Risk Managament Benchmarking.
- Selissa Armstong, an Ananngu staff member from Uluṟu-Kata Tjuṯa National Park, was invited to attend the Northern Territory Young Leaders Forum.
- The Director of National Parks was presented with a Bronze Award by the Institute of Public Administration Australia (ACT Division) in the 2002–03 Annual Reports Awards.

Explanation of the state of the parks report

The state of the parks report presents fundamental and consistent background information on each Commonwealth reserve under the EPBC Act, as well as the two additional areas of Beecroft and Calperum–Taylorville.

The following information is common to the reports on each Commonwealth reserve.

- The World Conservation Union (IUCN) protected area management category is identified for each reserve, and internal zones of different categories are indicated where relevant. The IUCN categories are formally assigned under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and schedule 8 of the *Environment Protection and Biodiversity Conservation Regulations 2000* 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) and 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 also summarises the occurence in each reserve of species listed under the EPBC Act as threatened, migratory or marine, as well as the status of relevant recovery plans.
- The report provides information by key result area on major issues, outputs and performance results for 2003–04.
- Also included in this section are case studies that provide more detailed reporting on management of specific issues.

Table 14: Commonwealth reserves summary

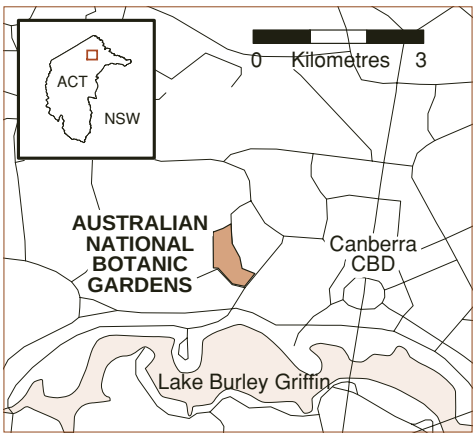
Area name	Area (hectares)	Year declared	2003–04 net operating cost ($ million)	2003–04 capital expenditure ($ million)	2003–04 external revenue raised ($ million)	2003–04 payment to traditional owners ($ million)
Terrestrial parks and reserves						
Australian National Botanic Gardens (page 57)	90	1991	8.19	2.21	0.31	Not applicable
Booderee National Park (page 64)	6312	1992	6.98	1.54	0.78	0.16
Christmas Island National Park (page 73)	8719	1980	1.73	0.65	0.36	Not applicable
Kakadu National Park (page 79)	1 980 400	1979	17.13	4.25	2.86	0.95
Norfolk Island National Park and Botanic Garden (page 89)	656	1986	1.07	0.30	0.01	Not applicable
Pulu Keeling National Park (page 95)	2602	1995	0.72	0.16	0.03	Not applicable
Uluṟu-Kata Tjuṯa National Park (page 101)	132 566	1977	12.41	4.65	5.79	1.42
Marine parks and reserves						
Ashmore Reef National Nature Reserve (page 109)	58 300	1983	0.42	0.13		Not applicable
Cartier Island Marine Reserve (page 115)	17 200	2000	0.05			Not applicable
Coringa–Herald National Nature Reserve (page 119)	885 000	1982	0.02			Not applicable

Area name	Area (hectares)	Year declared	2003–04 net operating cost ($ million)	2003–04 capital expenditure ($ million)	2003–04 revenue raised ($ million)	2003–04 payment to traditional owners ($ million)
Marine parks and reserves (continued)						
Elizabeth and Middleton Reefs Marine National Nature Reserve (page 123)	188 000	1987	0.003			Not applicable
Great Australian Bight Marine Park (Commonwealth Waters) (page 128)	1 940 000	1998	0.19			Not applicable
Heard Island and McDonald Islands Marine Reserve (page 134)	6 460 000	2002	0.23			Not applicable
Lihou Reef National Nature Reserve (page 141)	843 000	1982	0.11			Not applicable
Lord Howe Island Marine Park (Commonwealth Waters) (page 146)	300 000	2000	0.03			Not applicable
Macquarie Island Marine Park (page 150)	16 200 000	1999	0.05			Not applicable
Mermaid Reef Marine National Nature Reserve (page 156)	54 000	1991	0.002	0.045		Not applicable
Ningaloo Marine Park (Commonwealth Waters) (page 160)	244 000	1987	0.15			Not applicable
Solitary Islands Marine Reserve (Commonwealth Waters) (page 165)	15 680	1993	0.08			Not applicable
Tasmanian Seamounts Marine Reserve (page 170)	38 900	1999	0			Not applicable

Note: In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance. Another $422 933 was spent on activities for the identification of new Marine Protected Areas.

Australian National Botanic Gardens

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 are represented.

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

Location	Latitude 35°18′ South, Longitude 149°08′ East
Area	90 hectares
Proclamation date	17 September 1991
IUCN category	IV
Biogeographic context	Houses plants from a vast range of biogeographic regions – alpine to tropical, coastal to central desert
Management plan status	Current plan 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 2002–03; kangaroo and wallaby management plans; ANBG Marketing Plan 2002–03; ANBG Education Service Policy; ANBG Photograph Collection Policy; Agreement for the Establishment and Operation of the Centre for Plant Biodiversity Research between the Director of National Parks Commonwealth Scientific and Industrial Research Organisation (CSIRO); and the Centre for Plant Biodiversity Research Strategic Plan 2000–04 The ANBG is listed on the Register of the National Estate and the Commonwealth Heritage list	
Financial	Operating	$8.19 million
	Capital	$2.21 million
	Revenue	$0.31 million
Visitors	447 000	
Commercial permits	Permits issued for three commercial activities; licences issued for 67 weddings or wedding photography; licences issued to publish 378 photographs from the collection	

International conventions and agreements	
World Heritage Convention	Supports Australia's world heritage sites through research, plant collections, and horticultural and educational programmes
Convention on Wetlands (Ramsar, Iran 1971)	Supports Australia's obligations under the Ramsar Convention through access to data on aquatic plants in the Australian National Herbarium
Other agreements	Collaborative links with international organisations include: • 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 • International Society for Horticultural Science

Centre for Plant Biodiversity Research

The Centre for Plant Biodiversity Research is a joint venture between the ANBG and CSIRO Plant Industry. It was formed under a 10-year agreement between the Director of National Parks and CSIRO Plant Industry.

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 the Australia's Virtual Herbarium, a national project involving all states and territories.

Major monitoring efforts

The scientific planting of the ANBG 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.

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

A team of ANBG staff is engaged to continually assess the presence and status of the ANBG's living plant specimens.

Future challenges

Water resource management will 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' summer concerts and guided tours, will be important.

The Friends of the ANBG have now established a tax deductible public fund, allowing them to improve their fundraising activities.

Work on Australia's Virtual Herbarium will continue into 2004–05, including redeveloping the Internet application and interface, and increasing data entry rates.

The ANBG's database applications are being redeveloped, involving tighter integration of plant name, living collections, herbarium and plant image data.

ANBG is embarking on a new phase of plant records and facilities management using Geographic Information Systems to record and visualise the location status of plants, amenities and services.

Report on performance by key result areas

Key result area: Natural heritage management

Major issues

- Water management infrastructure

Outputs

- Increase efficiency of water use
- Improve propagation facilities

Performance results 2003–04

- Met Australian Capital Territory water use reductions targets (Stage 2 and Stage 3 – 25 per cent saving)
- Maintained a voluntary agreement with ActewAGL to reduce water use in accordance with current restrictions
- Participated as a water ambassador in the ActewAGL 'Stop the Drop' campaign
- Completed construction of a replacement nursery (value $4 million over two years), which was opened in June 2004

Key result area: Cultural heritage management

Major issues

- Interpretation
- Education

Outputs

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

Performance results 2003–04

- Hosted two major exhibitions – 'The Plant Underworld–Cryptogams' and 'The Ladybird Chronicles'
- The ANBG classroom interactive botanical and environmental programme was expanded and more staff were allocated with additional resources

- Birrigai education programmes continued to be jointly managed by ANBG and Birrigai staff
- Consultancy established to provide interpretive signage for Sydney Region Flora section of the ANBG

Key result area: Visitor management and park use

Major issues

- Visitor management in emergencies

Outputs

- Develop a visitor safety plan

Performance results 2003–04

- Safety plan implemented for annual summer concert series, covering issues such as parking, visitor access and safety, and fire safety. Several concerts were cancelled due to severe fire risk. Professional first aid support was enlisted, new traffic control measures implemented and additional staff rostered

Key result area: Stakeholders and partnerships

Major issues

- Friends of the ANBG

Outputs

- Strengthen the partnership between the ANBG and the Friends of the ANBG

Performance results 2003–04

- The Friends of the ANBG operated the annual summer concert series, annual students' photographic competition, autumn and spring plant sales, published quarterly newsletters, provided volunteer guided walks each day, and committed $20 000 in funding for specified projects

Key result area: Business management

Major issues

- Safety
- Organisational change

Outputs

- Improve staff and visitor safety
- Improve use of resources

Performance results 2003–04

- Started developing improved safety management system
- Reorganised areas of management to more effectively apply resources
- Gross revenue was two per cent above target
- Costs were one per cent above target

Key result area: Biodiversity knowledge management

Major issues

- Australian National Herbarium
- Integrated Botanical Information System
- ANBG/Centre for Plant Biodiversity research web site

Outputs

- Make botanical data, information and expertise available to the national and international botanic community
- Continue to enhance the plant biodiversity knowledge base in the herbarium and associated databases
- Promote and provide information about Australian native plants via the Internet

Performance results 2003–04

- 27 715 specimens were databased and contributed to Australia's Virtual Herbarium
- Contributed considerable scientific and technical expertise to the Global Biodiversity Information Facility
- About 18 200 hits were recorded on the web site each day
- Public access was upgraded to the Integrated Botanical Information System databases

No shortage of energy for new production nursery

The new nursery can produce 40 000 plants per annum.

The new energy-efficient nursery at the Australian National Botanic Gardens (ANBG) was a major undertaking. Completed in May 2004, it is the largest single development since the ANBG were officially opened in 1970.

The nursery can produce up to an average of 40 000 plants and around 2000 species each year. It features double-skinned polyhouses with a retractable roof and side panels, and sophisticated heating and cooling systems to reduce the amount of power needed. Run-off from the site is treated and reused for irrigation, and composting toilets further reduce the water use.

Good project management meant that both the local consultant group and building company were committed and positive in their approach. ANBG staff were consulted in the design and construction phases and contributed a wealth of experience to the project.

The natural slope at the eastern end of the site was used to incorporate two levels, with a lower floor area to house vehicles, bulk materials, a water recycling plant and extra storage space. This means there is more space freed up for the main nursery facilities on the platform at ground level.

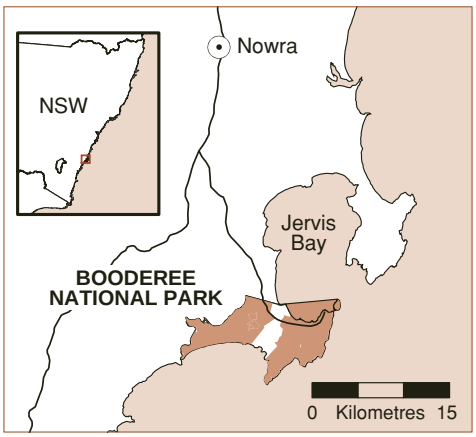
The design also ensures that all plant production areas are grouped together to make the operation more efficient. Other buildings are separated from the production areas, to make it easy for people and vehicles to get around the nursery.

Safety is a major priority and the nursery's location at the northern edge of the gardens ensures it is well away from major public use areas.

The nursery was designed by Gutteridge Haskins and Davey Pty Ltd and built by Binutti Constructions Pty Ltd, a Canberra-based company.

Booderee National Park

www.deh.gov.au/parks/booderee/index.html



Special features

Booderee National Park protects most of the Bherwerre Peninsula, Bowen Island, and the waters and seabed (875 hectares) in the southern part of Jervis Bay. 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 Posidonia 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.

Location	Latitude 35° 03′ South, Longitude 150°30′ East
Area	6312 hectares
Proclamation date	4 March 1992
IUCN category	II Botanic gardens IV
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Sydney Basin
Management plan status	Current plan expires 3 April 2009
Other significant management documents	Management plan implementation schedule; risk assessment and management schedule; fire and weed management strategies; Memorandum of Understanding with NSW Rural Fire Service; and botanic gardens' collections policy

Financial	Operating	$6.98 million
	Capital	$1.54 million
	Revenue	$0.78 million
	Paid to traditional owners	$0.16 million
Visitors	370 000	
Commercial permits	24	

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Nomination in preparation
Bonn Convention	46 of 160 listed Australian species
China–Australia Migratory Birds Agreement	20 of 81 listed species
Japan–Australia Migratory Birds Agreement	22 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 critically endangered 3 endangered 9 vulnerable 59 migratory 76 marine Significant penguin colony Mainland seal colony
	Recovery plans	3 being implemented (grey nurse shark, eastern bristlebird, and albatrosses and giant petrels)
Listed flora	Species	1 endangered
	Recovery plans	None in preparation or completed

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Amphibians	Fish	Plants
26	200	17	15	308	625

Board of Management

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

Major monitoring efforts

Threatened species monitoring was undertaken, including eastern bristlebirds, sooty oyster catchers and amphibians (with a focus on the green and golden bell frog, and the giant burrowing frog).

Biodiversity indicators were also monitored, including terrestrial invertebrates (insects, worms, spiders, and others) and hypogeal fungi (major source of food for small mammals and a determinant of ecosystem health).

Following the fox control programme, the recovery of native species has occurred, including long-nosed bandicoots.

The Australian National University and the Booderee National Park are undertaking a major collaborative study of vertebrate fauna and the impact of fire. The university team has discovered the eastern chestnut mouse *Pseudomys gracilicaudatus* for the first time in the park. An Australian Research Council 'linkage' grant has been approved to support the research, contributing $600 000 for the project over five years.

The park board approved a New South Wales National Parks and Wildlife Service feasibilty study into the reintroduction of the southern brown bandicoot into Booderee, due in large part to the successful control of foxes and habitat suitability.

Future challenges

Major challenges for 2004–05 are to provide better measurable protection of biodiversity values from key threats such as bitou bush, 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; and develop more service level agreements and contracting opportunities with the community.

Report on performance by key result areas

Key result area: Natural heritage management

Major issues

- 13 known introduced terrestrial vertebrate pest species in the park – fox greatest threat
- Bitou bush *Chrysanthemoides monilifera* is the most significant weed in Booderee
- An outbreak of *Caulerpa taxifolia* (aquatic pest plant) was identified in New South Wales waters adjacent to the park (May 2004)
- Protection of little penguin nesting habitat from kikuyu grass
- Fire-prone vegetation communities require management
- Bowen Island – rat control

Outputs

- Manage feral fauna control programme with emphasis on regional fox control in 2003
- Control or remove weeds and restore the managed areas
- Spray kikuyu and plant suitable native species
- Implement an ecologically-appropriate and safe fire management programme
- Check status of earlier rat eradication programme on Bowen Island

Performance results 2003–04

- Successful fox baiting was demonstrated by an increase in small native mammal numbers (especially the long-nosed bandicoot)
- Aerial survey programme to clearly map the extent of bitou infestation
- Contacted relevant New South Wales state agencies to discuss *Caulerpa taxifolia* problem and management strategies
- Native species that support penguin nesting replaced kikuyu in targeted areas (approximately one hectare)
- The fire management programme was updated using the latest data
- Prescribed burns were completed. As well, a major wildfire affected approximately 50 per cent of the park in December 2003/January 2004
- Bowen Island remains rat free – confirmed after monitoring programme

Key result area: Cultural heritage management

Major issues

- Maintaining the cultural values of the park
- Wreck Bay Aboriginal Community Council and the park to develop and deliver a well-accepted cultural heritage education programme

Outputs

- Register cultural sites on geographic information system and database, and determine protection measures
- Offer summer interpretation programme with increased focus on cultural interpretation
- Plan for new cultural centre by undertaking a pre-design study
- Develop a Cultural Heritage Strategy for the park

Performance results 2003–04

- 22 new sites and/or extensions of old sites were uncovered due to the wildfire. These sites were assessed and recorded
- Scheduled cultural interpretation holiday programme was cancelled due to the wildfire
- Cultural centre negotiations continued. A pre-design study was finalised that identified relevant cultural, environmental, business case, and activity issues. The pre-design study was completed and provided to the park board
- A Community Cultural Heritage reference group was formed to progress the development of the cultural heritage strategy

Key result area: 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

Outputs

- Negotiate, sign and implement new lease
- Negotiate services contract for provision of park services by Wreck Bay Aboriginal community

- Prepare implementation schedule and report progress to the board of management

Performance results 2003–04

- Five-yearly lease negotiation review was finalised in October 2003. The lease 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 service opportunities
- The services contract negotiations were finalised. Service level agreements for road and fire trail maintenance and entry station services are in final stages of negotiation. Negotitiations are proceeding on the cleaning service level agreements
- The implementation schedule reporting database was refined

Key result area: Visitor management and park use

Major issues

- Increased 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

Outputs

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

Performance results 2003–04

- Park holiday interpretation programmes were cancelled because of wildfire. Thirty education and extension programmes with conservation themes were delivered to school groups
- Campground and visitor infrastructure, such as signs, bollards, pedestrian bridges and boardwalks were destroyed by the wildfire. Development of scopes of works and quotes to replace these items have been forwarded to the insurer
- A landscape/campsite design plan for Green Patch A section was finalised

Key result area: Stakeholders and partnerships

Major issues

- Cooperative arrangements between the Booderee park, the New South Wales National Parks and Wildlife Service, the Jervis Bay Marine Park and the Department of Defence are developed
- Strong cooperative arrangements with universities are developed
- Fire recovery monitoring

Outputs

- Commence integrated management programmes in key areas
- Support research in conservation areas identified in the Booderee Management Plan
- Support cooperative undergraduate and postgraduate programmes
- Monitoring programmes refocused to deal with wildfire

Performance results 2003–04

- Integrated management programmes in key areas commenced with the park taking the lead role in regional fox pest management
- Sixteen research permits in postgraduate conservation fields were issued in line with the management plan. Cooperative undergraduate programmes operated with both Wollongong and Canberra universities. Research areas include whales, dolphins bioacoustics, rats, fox ecology, bitou ecology and bio control, and seagrass ecology. Translocation project of eastern bristle birds to Beecroft Peninsula (on hold because of wildfire)
- An Australian National University/Booderee National Park fauna research project commenced 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 verterbrate fauna responses to such fire events
- Approval was given by the park board for the New South Wales National Parks and Wildlife Service to commence a feasiblity study into the reintroduction of the southern brown bandicoot into Booderee

Key result area: 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

Outputs

- Increase emphasis on training identified in personal development plans
- Introduce new structure and business practices

Performance results 2003–04

- A training calendar derived from personal development plans was prepared and training offered
- Emphasis was placed on project management supervisory skills, fire training and career planning training
- An operational review of the park was commissioned, which included investigating organisational structures and work practices, and providing options on how they are structured to meet the Management Plan requirements. The operational review consultancy and final report was completed in April 2004
- Gross revenue was on target
- Costs were six per cent above target

Feeling the heat – a fire recovery study

Over many thousands of years fire has dramatically affected and changed the Australian landscape. Yet we still know very little about the effects of fire on individual vegetation and wildlife species.

To help fill the gap at Booderee National Park, a major long-term study of how fauna recovers after fire began in 2002–03. The study – a collaboration between Parks Australia and the Australian National University's Centre for Research and Environmental Studies – is measuring how Booderee's fire management programme has affected the distribution and abundance of vertebrate fauna.

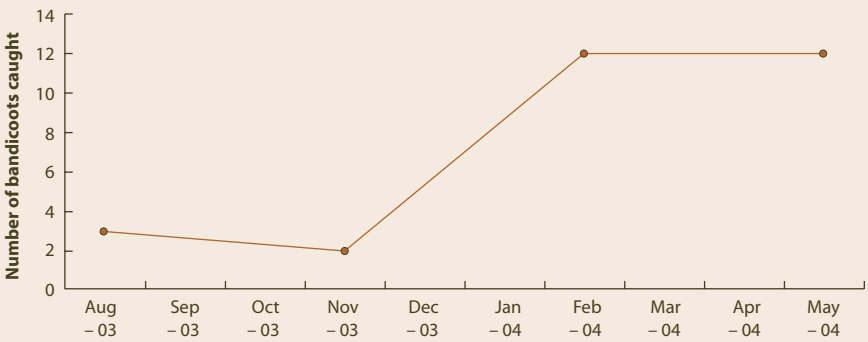
Ironically, in the summer of 2003–04 a wildfire at Booderee affected around 50 per cent of the project sites. The study's design was changed to reflect the impact of a real-life fire event, and some of the results – released in February 2004 – were surprising.

The numbers of eastern bristle birds *Dasyornis brachypterus* decreased throughout the heath sites. However, many bristle birds turned up on unburnt sites in areas not used by them before. As well, the rarely recorded eastern chestnut mouse *Pseudomys gracilicaudatus* was discovered for the first time at Booderee.

Long-nosed bandicoots *Perameles nasuta* appeared to survive the fire extremely well (see Figure 8), with a rapid jump in numbers caught following the fire. Indeed, one female captured in August 2003 was captured again at the same site in May 2004 after it had been burnt. This suggests that long-nosed bandicoots are extremely adaptable and resilient to the effects of wildfire.

Although most mammals seem to be doing reasonably well after the wildfire, it is hard to tell how the park's amphibians and reptiles have coped. It seems that the number of slower moving reptiles, such as the death adder *Acanthophis antracticus*, has taken a significant fall, although the threatened giant burrowing frog *Heleioporus australiacus* has been heard and caught on a number of recently burnt sites.

Figure 8: Bandicoot numbers at Booderee



Numbers of bandicoots increased following the 2003 bushfires

Christmas Island National Park

www.deh.gov.au/parks/christmas/index.html

Special features

Christmas Island is home to a unique rainforest ecosystem that supports the last remaining nesting habitat of the Abbott's booby, more than 150 endemic species of plants and animals, and the world's largest population of the endangered robber crab.

The diversity and abundance of Christmas Island's land crabs are unmatched anywhere else in the world. The island is renowned for its annual migration of millions of red crabs.

Location	Latitude 10°25′ South, Longitude 105°40′ East	
Area	8719 hectares	
Proclamation date	21 February 1980, 31 January 1986 and 20 December 1989	
IUCN category	II	
Biogeographic context	Christmas Island is the coral encrusted emergent summit of a basaltic submarine mountain in the Indian Ocean. It lies at the southern edge of the Intertropical Convergence Zone. The biota's affinities are primarily with the South-East Asian region	
Management plan status	Current plan expires 13 March 2009	
Other significant management documents	Christmas Island Rainforest Rehabilitation Programme (CIRRP); Invasive Ants on Christmas Island Action Plan; management plan implementation schedule; risk assessment and management schedule; and CIRRP Memorandum of Understanding on biodiversity monitoring with the Department of Finance and Administration	
Financial	Operating	$1.73 million
	Capital	$0.65 million
	Revenue	$0.36 million

Visitors	Not recorded, numbers small
Commercial permits	2 photography permits

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	A small inland area near Hosnie's Spring (containing a stand of mangroves) and The Dales are listed as Wetlands of International Importance under the Ramsar Convention
Bonn Convention	4 of 160 listed Australian species
China–Australia Migratory Birds Agreement	8 of 81 listed species
Japan–Australia Migratory Birds Agreement	8 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 critically endangered 5 endangered 8 vulnerable 14 migratory 19 marine
	Recovery plans	5 being revised 3 in preparation 5 being partially implemented
Listed flora	Species	2 endangered 1 vulnerable
	Recovery plans	3 in preparation none being implemented

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
3	95	6	575 marine, 3 freshwater	>2000	213

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 and the Director of National Parks on matters relevant to the park.

Major monitoring efforts

In December 2003, a three-year programme 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 occurred. This is probably the result of climate change, exacerbated by forest clearing and the spread of invasive species. The future management implications may be far-reaching.

Future challenges

Management programmes have dramatically reduced the density of yellow crazy ants. 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 species* were discovered on the island and are being monitored for signs of rapid spread.

The Christmas Island Rainforest Rehabilitation Programme will resume operation in 2004, but cannot cover all the rehabilitation required.

The question of how to best rehabilitate extensively mined landscapes with limited resources remains under active discussion.

The encroachment of the forest by aggressive woody weeds is an escalating problem that will require input of additional resources over the coming years.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- The continuing management of 37 weed species

- The continuing management of yellow crazy ants
- Negotiate (with the Department of Transport and Regional Services) the recommencement of the Christmas Island Rainforest Rehabilitation Programme
- Propose for the Department of Transport and Regional Services physical rehabilitation programme of 2800 hectares of old mine sites on island not covered by the rehabilitation programme, mainly outside of the park
- Reduce crab mortality from traffic

Outputs

- Implementation of park weed control programme
- Control of yellow crazy ant to manageable level
- Negotiation complete, Christmas Island Rainforest Rehabilitation Programme recommenced
- Submission of minesite physical rehabilitation programme
- Development of improved crab crossings

Performance results 2003–04

- 20 hectares of weed control undertaken as Christmas Island Rainforest Rehabilitation Programme (CIRRP)
- 207 hectares of yellow crazy ant super-colonies destroyed, island-wide survey complete
- Christmas Island Rainforest Rehabilitation Programme Memorandum of Understanding signed February, funding released June 2004 (weeding, maintenance and planning work only occurred this year)
- Planning only
- Improved crab crossings tested for next season

Key performance area: Cultural heritage management

Major issues

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

Outputs

- Effective ongoing protection of heritage sites

Performance results 2003–04

- Effective ongoing protection of heritage sites

Key performance area: Visitor management and park use

Major issues

- Local desire for increased tourism

Outputs

- Increased tourist numbers

Performance results 2003–04

- Efforts by the Christmas Island Tourist Association to encourage tourism to Christmas Island were supported

Key performance area: Stakeholders and partnerships

Major issues

- Conclude Memorandum of Understanding with Shire of Christmas Island for road maintenance
- Need to refresh and re-establish the Christmas Island National Park Advisory Committee
- Negotiate Memorandum of Understanding with mining company and Shire of Christmas Island for feral cat eradication programme

Outputs

- Memorandum of Understanding signed and operational
- A Christmas Island National Park Advisory Committee re-established
- Memorandum of Understanding signed and operational

Performance results 2003–04

- Memorandum of Understanding signed and some road improvements made
- Nominations to the committee invited, but due to lack of response nomination period extended
- Eradication postponed to new year due to delay in adoption of cat control legislation

Key performance area: Business management

Major issues

- Maintaining sufficient funding to fulfil commitments

Outputs

- Budget appropriated

Performance results 2003–04

- Gross revenue was 14 per cent above target
- Costs were 11 per cent above target

The Sentinels – art for gardens' sake

The Sentinels *provide new interest for visitors.*

The Sentinels, unveiled in April 2004, are the latest works of art to grace the Australian National Botanic Gardens.

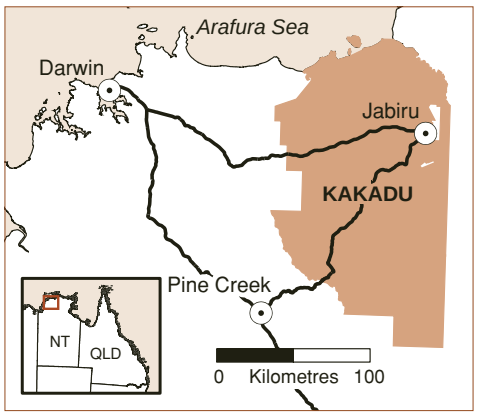
Made up of nine sculptural bollards, *The Sentinels* will help visitors appreciate the significance of the Gardens and the importance of Australian plants. The bollards teach people about the Gardens by listing a range of plant species. They also help to control vehicle access to the Gardens.

Melbourne sculptor, Simon Taylor, was commissioned to design and produce the nine stainless steel bollards which stand guard at the Garden's entrances. New adaptations of laser technology were used to carve the names of 1000 endangered, vulnerable and extinct native plant species onto the *The Sentinels*.

The Sentinels are part of the Gardens' Public Art Masterplan, the development of which was funded by the Friends of the Australian National Botanic Gardens. The masterplan describes the conceptual basis for art in the Gardens and the rationale for commissioning art. The Gardens' Art Advisory Committee oversees the masterplan's implementation of the programme.

Kakadu National Park

www.deh.gov.au/parks/kakadu/index.html



Special features

Kakadu National Park is home to one of the world's most ancient cultures, and represents one of the most ecologically and biologically diverse places in Australia.

Archaeological evidence suggests that humans have lived in the Kakadu region for around 50 000 years. That period of continuous occupation is central to the cultural significance of the park.

Kakadu's cultural heritage includes Aboriginal knowledge, beliefs, customs and practices. The artefacts, rock art and other archaeological sites, historic sites and sites of significance provide tangible evidence of this heritage. There are an estimated 15 000 rock art sites in the park, of which only 5000 have been recorded.

The park contains an entire major river catchment (South Alligator River) and is a large representative sample of the wet–dry tropics of northern Australia. Some of the major landforms and habitats in the park are the sandstone plateau and escarpment, extensive areas of savanna woodlands and open forest, rivers, billabongs, floodplains, mangroves and mudflats.

Location	Latitude 13° South, Longitude 132° East
Area	1 980 400 hectares
Proclamation dates	5 April 1979, 28 February 1984, 12 June 1987, 22 November 1989 and 24 June 1991
IUCN category	II
Biogeographic context	Interim Biogeographic Regionalisation for Australia regions: Darwin Coastal, Arnhem Plateau, and Pine Creek Kakadu located in the wet-dry tropics
Management plan status	The current management plan expired on 8 March 2004 – a new plan is being prepared

Other significant management documents	Fire management plan; weed control strategy; feral animal strategy; crocodile management strategy	
Financial	Operating	$17.13 million
	Capital	$4.25 million
	Revenue	$2.86 million
	Paid to traditional owners	$0.95 million
Visitors	170 423 estimated total visitors including children under 16 136 571 adult paying visitors (seasonal tickets are not included)	
Commercial permits	100 tour operators permits, 849 camping and bushwalking permits, 21 photography permits, 27 filming permits	
Visitor satisfaction	83 per cent of visitors to Kakadu were 'satisfied to very satisfied' for the 12 months ending December 2003 (Northern Territory Tourist Commission)	

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
Convention on Wetlands (Ramsar, Iran 1971)	683 000 hectares of wetlands in Kakadu are listed under the Ramsar Convention
Bonn Convention	86 of 160 listed Australian species
China–Australia Migratory Birds Agreement	51 of 81 listed species
Japan–Australia Migratory Birds Agreement	48 of 110 listed species
Other agreements	Tri National Wetlands Conservation Project (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 4 endangered 17 vulnerable 108 migratory 113 marine
	Recovery plans	6 recovery plans being implemented (gouldian finch, freshwater sawfish, partridge pigeon (eastern), crested shrike-tit, masked owl (northern) and marine turtles) 2 recovery plans available for comment (golden bandicoot and golden-backed tree rat)
Listed flora	Species	6 vulnerable
	Recovery plans	1 recovery plan available for public comment (multi-species Boronia)

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Amphibians	Plants
77	271	132	>60	27	1586

Board of Management

All Kakadu Board of Management members are appointed by the Minister for the Environment and Heritage. Ten of the board's 15 members are appointed as representatives of the park's Bininj-Mungguy traditional owners representating the geographic spread of Aboriginal people in the region, as well as the major language groupings.

In 2004, a nominee of the Northern Territory, Ms Marilynne Paspaley, was appointed to the board.

Major monitoring efforts

A number of monitoring programmes were undertaken during 2003–04. These included surveys of introduced plants, including *Mimosa pigra*; mission grass *Pennisetum polystachium*; gamba grass *Andropogon gayanus*; introduced ants, including big-headed ants *Pheidole megacephala* and ginger ants *Solenopsis geminate*; and terrestrial vertebrate fauna. There have also been cane toad impact studies; aerial

surveys of feral animals; crocodile population monitoring surveys; art site monitoring; studies of tourism numbers; and monitoring historical landscape level change in closed forests, riparian forests and woodland cover and distribution.

The introduced weed – olive hymenachne *Hymenachne amplexicaulis* – has been reported more widely in Kakadu.

Two potentially new species of plants were discovered in Kakadu's sandstone habitat – an *Acacia* and a *Phyllanthus*. A further five plant species were recorded in Kakadu for the first time, or found to have been more extensive than previously thought. The conservation status of a further four plant species is to be upgraded on the basis of larger populations and/or wider distribution than previously recorded.

A possible new species of small carnivorous marsupial, Planigale, was also reported.

Future challenges

Major challenges are to support Kakadu's Indigenous languages as part of a living culture; expand the rock art maintenance programme across the park; build the capacity of Bininj-Mungguy staff and support their move into senior management roles; and successfully complete the fifth management plan. Ongoing priorities also include the control of weed infestations in an environment of increasing external pressure, and trying to meet the expectations and aspirations of traditional owners to increase their control and management of traditional lands, especially in fire management.

Other challenges are enhancing access to sites in the park as visitor destinations, and managing visitor safety in an environment of increasing crocodile risk. Developing stronger partnerships with stakeholders, assisting traditional owner involvement in tourism and supporting the future direction for tourism in the park will be key challenges over future years.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Apparent decline of small mammal populations in the park
- Cane toads well established
- Ongoing spread of introduced pasture grasses, which poses a serious weed control issue

- Eight known introduced terrestrial vertebrate pest species and other invasive ant species
- Insufficient information of the marine habitats and species of Kakadu
- Habitat change due to saltwater in freshwater habitats

Outputs

- Monitor small mammal populations as part of a park-wide fauna monitoring programme
- Monitor goanna populations for cane toad impacts
- Monitor spread and effect of cane toads and reduce their impact, if possible
- Undertake control of serious weeds focusing on giant sensitive plant *Mimosa pigra*; salvinia *Salvinia molestra*; mission grass *Pennisetum polystachium*; gamba grass *Andropogon gayansus;* and olive hymenachne *Hymenachne amplexicaulis*
- Develop a comprehensive feral animal strategy in consultation with traditional owners
- Develop an updated inventory of listed species and an action plan
- Publish results of introduced ant control operations
- Develop a marine resource inventory
- Develop a saltwater intrusion control programme

Performance results 2003–04

- Changes to fire regimes resulted in some localised changes in mammal community structure
- Fauna monitoring sites established at long-term fire monitoring sites
- A significant decline in northern quolls *Dasyurus hallucatus* population is linked to the arrival of cane toads *Bufo marinus*, which are now well established throughout much of the park
- Populations of northern quolls established on offshore toad-free islands in 2002–03 are healthy
- A significant decline in goanna numbers linked to the arrival of cane toads
- The successful mimosa control programme continued
- District weed control plans were developed
- Programme for control of serious grass weeds was upgraded, with additional staff and resources
- Good progress towards development of the feral animal strategy
- Big-headed ants eradicated from Jabiru with ongoing monitoring strategy in place

- Ongoing monitoring of ginger ants and control programme established
- Marine resource inventory programme involving Parks Australia and Northern Territory government agencies to begin in 2004–05
- A small scale saltwater intrusion control programme established on South Alligator River

Key performance area: Cultural heritage management

Major issues

- Ensure continuity of the traditional owners' living culture
- Protection of material culture (all sites of significance)

Outputs

- Establish a natural and cultural resource manager position to oversee and increase coordination between natural and cultural resource management sections
- Continue digitisation and cataloguing of cultural heritage material to ensure long-term preservation
- Continue ongoing collection of oral history material
- Provide opportunities for the transfer of knowledge between generations
- Provide opportunities for Bininj-Munguuy leadership to be involved in the park's natural resource management and cultural resource management activities

Performance results 2003–04

- Position of a natural and cultural resource manager was advertised early 2004–05
- Interviews with senior Bininj-Munguuy have continued in line with the oral history interview schedule under the action plan for cultural heritage
- Development of the Register of Oral History Audio and Video Material continued
- The digitisation of audio and video material held by the park continued
- Produced several video stories of natural resource management and cultural resource management activities in the park for distribution to Bininj-Munguuy within Kakadu

Key performance area: Joint management

Major issues

- Capacity building of relevant Aboriginal people to meet commitments outlined in the lease and management plan

- Development of the park's fifth management plan

Outputs

- Implement affirmative action to encourage Aboriginal engagement through recruitment and contract arrangements
- Draft Indigenous skills assessment guidelines to be adopted by board of management
- Conduct regular briefings of the board of management, with four formal meetings and at least one consultation with each of the 117 traditional owners
- Support traditional land management projects
- Undertake formal management plan consultations with traditional custodians

Performance result 2003–04

- 39 per cent of park staff are of Aboriginal descent
- Board endorsed assessment guidelines for traditional skills and their inclusion in the recruitment process
- Board members received media training and participated in the Indigenous Governance Conference; Stepping Stones Indigenous Tourism Conference; World Parks Congress; and the Western Australia Tourism Conference
- Over 30 consultations held with 12 traditional owners. Plan discussed at five board meetings

Key performance area: Visitor management and park use

Major issues

- Quality of visitors' experience
- Visitor safety – exposure to attack by crocodiles and risks associated with the sandstone plateau and escarpment
- Lack of shared vision and strategic direction for tourism

Outputs

- Increase Aboriginal participation in visitor programmes
- Measure visitor satisfaction
- Review and document crocodile management procedures
- Conduct routine inspections and maintenance of visitor facilities
- Revise risk management plan and implement additional protection for visitors from attack by crocodiles

- Implement Comcare recommendations in regard to management of risks on the sandstone plateau and escarpment
- Develop new facilities at Twin Falls
- Develop a new tourism vision strategy

Performance result 2003–04

- Approximately 90 per cent of seasonal ranger activities include participation by local Aboriginal people
- Achieved a high level of visitor satisfaction (83 per cent)
- Achieved a high level of visitor satisfaction with the new access arrangements at Twin Falls. Over 2000 visitors used the boat service in the first 10 days of operation. An average of 56 visitors accessed the top of the falls each day
- New arrangements developed in collaboration with tourism industry, Northern Territory government and traditional owners
- Board, traditional owners and tourism industry worked closely with the consultant to draft a joint tourism vision strategy for the park

Key performance area: Stakeholders and partnerships

Major issues

- Relationships with tourism industry

Outputs

- Attend quarterly meetings of Kakadu Tourism Consultative Committee and other meetings, including Tourism Top End, the peak tourism body for the northern section of the Northern Territory

Performance result 2003–04

- A sub-committee of the Kakadu Tourism Consultative Committee worked closely with park management on new access arrangements at Twin Falls
- The Tourism Consultative Committee met four times during the year

Key performance area: Business management

Major issues

- Planning and decision-making is based on best available information; legislative obligations; Parks Australia policy; and social justice principles
- High levels of staff expertise and performance is recognised and valued

- Obligations under the EPBC Act and regulations relating to management of Commonwealth reserves are complied with

Outputs

- Preparation of a joint union/staff/management paper on a range of staffing issues
- Procedures to ensure Performance Development Scheme implemented in accordance with the Department of the Environment and Heritage's policy and Investors in People plans
- Management plans prepared and in place for all reserves

Performance result 2003–04

- Issues identified mostly addressed in 2003–04 to satisfaction of all parties
- Increased emphasis placed on all staff to prepare, implement and report on Performance Development Scheme agreements. Resulted in increased numbers of staff meeting requirements of Performance Development Scheme
- Fourth management plan expired in March 2004. Preparation of new plan continues with draft expected to be completed towards the end of 2004

Improving visitor access to Twin Falls

Visitors experiencing the new access arrangements for Twin Falls.

Visitor access to one of Kakadu's most popular and iconic destinations, Twin Falls, was improved this year.

New visitor access arrangements were put in place after the Kakadu Board of Management decided that swimming was no longer a safe activity in the gorge or the plunge pool, due to the possible presence of saltwater crocodiles. Saltwater crocodile populations are continuing to increase in the park and are now being found in more marginal habitats. In 2003, saltwater crocodiles *Crocodylus porosus* were found in the Twin Falls area and some proved extremely difficult to trap. This resulted in Twin Falls remaining closed for the 2003 visitor season.

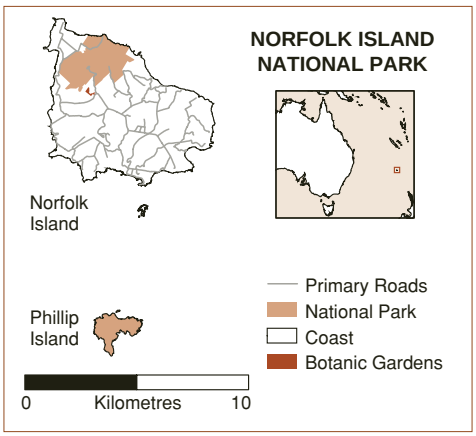
In light of the above, the board decided in late February that a shuttle boat and boardwalk to Twin Falls was the best option to provide a safe and enjoyable visitor experience. In addition, it was decided that a walking track would be opened to the top of the escarpment near Twin Falls where visitors could swim safely in rock pools.

Traditional owners and park staff worked closely with the tourism industry to design and implement the new arrangements. Challenges included sourcing appropriate boats and boardwalk materials and installing them in the remote Twin Falls area before the commencement of the 2004 visitor season. The project also required an environmental assessment to ensure that the impacts of the new facilities were assessed and minimised. A geological risk assessment of the walking track to the top of the escarpment was also carried out to assist in ensuring visitor safety. These new arrangements were introduced in less than four months.

The new facilities, which opened in June 2004, have already proven to be very popular with visitors to the park. Aboriginal guides provide a new dimension to the Twin Falls experience by sharing the special cultural meaning of the area with visitors during the boat trip along the magnificent gorge. Each day, between 200 and 300 visitors have been using the boat shuttle service and about 50 visitors have been taking the more challenging walk to the top of the escarpment where they are rewarded by breathtaking views and a cool swim.

Norfolk Island National Park and Botanic Garden

www.deh.gov.au/parks/norfolk/index.html



Special features

The Norfolk Island National Park protects most of the remaining natural vegetation of the island. The park and the Norfolk Island Botanic Garden are refuge to 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. 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°02′ South, Longitude 167°57′ East
Area	National park 652 hectares total: 462 hectares on Norfolk Island, 190 hectares on Phillip Island Botanic garden 5.5 hectares
Proclamation dates	National park (Mount Pitt section) 31 January 1986, (Phillip Island section) 24 January 1996 Botanic garden 31 January 1986, 2 June 1993
IUCN category	Norfolk Island National Park (Mount Pitt section) II Phillip Island IV Botanic garden 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 status	Current plan expires 28 June 2007	
Other significant management documents	*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	$1.07 million
	Capital	$0.30 million
	Revenue	$0.01 million
Visitors	Not available	
Commercial permits	4 for commercial tours of the national park (Mount Pitt section), 1 for Phillip Island tours	

International conventions and agreements	
Bonn Convention	1 of 160 listed Australian species
China–Australia Migratory Birds Agreement	1 of 81 listed species
Japan–Australia Migratory Birds Agreement	4 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	15 critically endangered 18 endangered 20 vulnerable 5 migratory 16 marine
	Recovery plans	4 in preparation 1 (Norfolk Island morepork) exempted 1 being implemented

Listed flora	Species listed	15 critically endangered 16 endangered 15 vulnerable
	Recovery plans	None in preparation or completed

Advisory Committee

Norfolk Island residents provide 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 manage a voluntary migratory seabird banding programme
- Monthly monitoring is conducted to detect for outbreaks of pioneer weed species, including Paterson's curse *Echium plantagineum*, and running bean *Desmodium incanum*. Running bean has spread substantially in off-park areas of Norfolk Island since being introduced as a pasture improvement legume

Future challenges

Major future challenges include:

- upgrading invasive species management programmes
- continuing rehabilitation of Phillip Island
- expanding endangered species programmes
- strengthening Phillip Island quarantine measures

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Fauna and flora pest species management
- Lack of resources for research and survey required to build knowledge

Outputs

- Remove weed species and control or eliminate feral fauna
- Database existing knowledge

Performance results 2003–04

- Monthly rodent and feral cat control programmes continued
- Staff cleared and maintained approximately 14 hectares of weed-infested areas
- Existing records were added to spatial information systems

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Road to summit of Mount Pitt has been unusable
- Some access tracks are not suitable for current visitor demographic
- Lack of high quality interpretive signs and pamphlets

Outputs

- Fund and manage reconstruction of Mount Pitt Road
- Review current access tracks, focusing on high visitation areas
- Establish requirements and allocate resources within existing priorities

Performance results 2003–04

- Mount Pitt Road reconstruction completed in 2003
- The botanic garden boardwalk was completed

- Additional handrails were installed on steep sections of botanic garden paths and in the park on Bird Rock Track
- The link track was completed from Bird Rock to Bridle Track
- New interpretive signage was installed at the Mount Pitt summit
- A new series of interpretive pamphlets was completed and distributed

Key performance area: Stakeholders and partnerships

Major issues

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

Outputs

- 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 2003–04

- Management developed stronger 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
- Weekly newspaper and radio coverage of the park provided a flow of quality information
- Provided community contact point for listings, voluntary conservation agreement information, Kingston Arthurs Vale Historic Area referrals, and seamounts investigation stakeholder enquiries
- Facilitated information and resource sharing (for example, Coastwatch, satellite imagery, and training courses)

Key performance area: Business management

Major issues

- Construction of Mount Pitt Road

Outputs

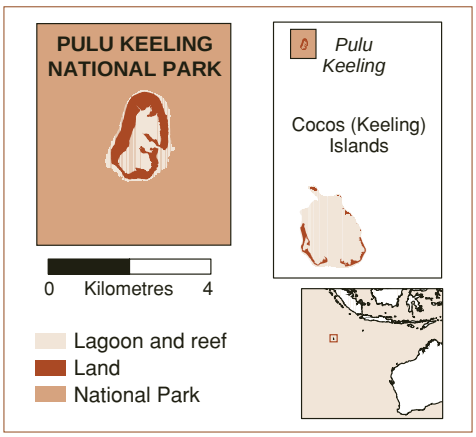
- Complete road construction

Performance results 2003–04

- Road construction project completed 8 October 2003, reopened. Mount Pitt area landscaped
- Gross revenue was on target
- Costs were three per cent under target

Pulu Keeling National Park

www.deh.gov.au/parks/cocos/index.html



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 – 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 there, but has not been sighted in recent years despite intensive searching.

Location	Latitude 11°50′ South, Longitude 96°49′ East
Area	2602 hectares including marine area extending 1.5 kilometres around North Keeling Island
Proclamation date	12 December 1995
IUCN category	Overall category II (national park) Terrestrial zone Ia (216 hectares) Marine zone II (2386 hectares)
Biogeographic context	Isolated atoll in the Indian Ocean formed atop an old volcanic seamount
Management plan status	Current plan expires 27 April 2011
Other significant management documents	Visitor access, boating, diving and fishing strategies; management plan implementation schedule; and risk assessment and management schedule

Financial	Operating	$0.72 million
	Capital	$0.16 million
	Revenue	$0.03 million
Visitors	Not recorded, numbers low	
Commercial permits	2 commercial tour operator permits (one each for diving and land-based tours)	

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Entire park listed
Bonn Convention	10 of 160 listed Australian species
China–Australia Migratory Birds Agreement	15 of 81 listed species
Japan–Australia Migratory Birds Agreement	15 of 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	1 recovery plan being implemented (marine turtles)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
0	24	6	Not known	Not known	31

Management 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 population of red-footed booby birds *Sula sula* on North Keeling Island has been monitored since 1985. Analysis of the data in 2003 put the number at around 30 000 breeding pairs.

The fifth year of the sea turtle monitoring programme was completed, with an additional 153 turtles (52 green turtles and 101 hawksbill turtles) tagged. In 2004, strip transects were conducted by boat to provide another means of assessing the abundance of the turtles (other than population estimates calculated from capture/recapture data). The knowledge gained from the monitoring programme has meant informed comments on proposed developments can be provided.

Community education about turtles also continued. A turtle evening was organised and community members were invited to watch some of the research work in action.

Parks Australia has been monitoring the status of Cocos (Keeling) Island coral reefs since 1997. This programme provides data for an international database that produces State of the Reef reports. Developed under the International Coral Reef Initiative, Reef Check is designed to detect and monitor anthropogenic effects 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, die-back *Phytophthera* and yellow crazy ants on nearby Christmas Island and in Western Australia pose a threat to Pulu Keeling National Park.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Illegal entering of park
- Illegal harvesting of wildlife
- Monitoring of red-footed boobies

Outputs

- Conduct surveillance, boat patrols and education

- Conduct regular surveys

Performance results 2003–04

- Remote surveillance equipment was located in the park to provide more effective detection of illegal park entry and poaching
- Staff spent 136 days until June 2004 on patrols. Ongoing patrols are believed to be effective at deterring poaching
- Poachers caught in park on 25 December 2003 with 240 birds
- Surveys conducted – population estimate 30 000 breeding pairs

Key performance area: Cultural heritage management

Major issues

- Shipwreck is a popular diving site
- Visitors to Malay gravesites

Outputs

- Ensure access to sites is managed appropriately

Performance results 2003–04

- Cultural heritage sites were effectively managed

Key performance area: Visitor management and park use

Major issues

- Potential for introduction of exotic species by park visitors

Outputs

- Implement quarantine procedures
- Prevent introduction of any alien species

Performance results 2003–04

- Visitors' equipment and clothing were inspected before they came ashore in the park. No evidence was found that new species had been introduced

Key performance area: Stakeholders and partnerships

Major issues

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

Outputs

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

Performance results 2003–04

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

Key performance area: Business management

Major issues

- Isolation restricts training opportunities
- Management planning

Outputs

- Effectively train staff
- Audit of plan that expired in March 2004
- Prepare new management plan

Performance results 2003–04

- Records Management Unit visit to the island resulted in a more compliant filing system. Staff were given basic training. Finance training still outstanding
- The audit reported that 99 per cent of the prescriptions for the expiring management plan were either implemented to a satisfactory standard or were no longer applicable
- New management plan gazetted 28 April 2004
- Gross revenue was five per cent above target
- Costs were seven per cent above target

Marine turtle monitoring in the Cocos (Keeling) Islands conservancy

Monitoring of marine turtles provides vital information for their conservation.

Green turtles *Chelonia mydas* and hawksbill turtles *Eretmochelys imbricata*, listed as vulnerable under the EPBC Act, are common in the waters around the Cocos (Keeling) Islands. Parks Australia has been studying the turtle populations on Cocos for the past five years. This has revealed that the islands are an extremely important foraging habitat for green and hawksbill turtles, and that the southern atoll supports globally significant populations of hawksbill turtles.

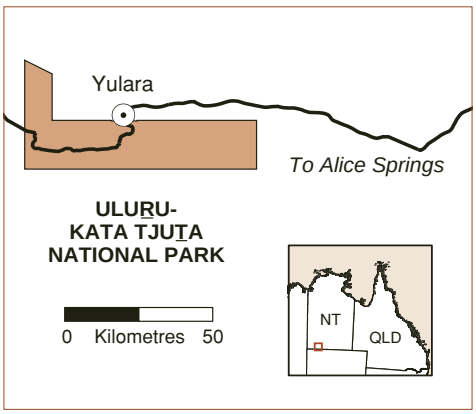
Under the direction of a turtle expert, park staff monitor aspects of population dynamics including species composition; size/class structure; population size; blood chemistry; diet; genetics; and distribution of turtles in the lagoon. Turtle abundance and movements by satellite tracking (particularly inter-tidal movements around the lagoon) are also being observed.

This monitoring programme is making a valuable contribution to the research requirements of the Recovery Plan for Marine Turtles in Australia. It has already revealed the importance of shallow seagrass areas adjacent to the islands to turtle populations. This crucial information was used in the assessment of the proposed Rumah Baru freight and passenger facility and the proposed hovercraft operation. Without the data collected from the research project, these developments would have affected one of the most important turtle habitats at Cocos. The data was also used to find suitable alternative ferry and hovercraft routes.

Involving the community is important, with the Cocos Islands District High School invited to annual turtle education sessions, and in 2004 a general community session was held where locals and visitors could watch some of the research in action.

Uluṟu-Kata Tjuṯa National Park

www.deh.gov.au/parks/uluru/index.html



Special features

Uluṟu-Kata Tjuṯa National Park contains outstanding examples of rare desert flora and fauna habitats, as well as the major geological and cultural features of Uluṟu and Kata Tjuṯa.

The park is an international icon, and a place of great spiritual and cultural importance to its traditional Aboriginal owners – the Aṉangu. Over many thousands of years, this ancient cultural landscape has been changed by both nature and the Aṉangu, who employ traditional land management methods to protect the landscape.

The park is managed jointly by Indigenous and non-Indigenous Australians.

Location	Latitude 25°20′ South, Longitude 131° East	
Area	132 566 hectares	
Proclamation dates	24 May 1977, 28 October 1985	
IUCN category	II	
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Great Sandy Desert	
Management plan status	Current plan 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; management plan implementation schedule; and risk assessment and management schedule	
Financial	Operating	$12.41 million
	Capital	$4.65 million
	Revenue	$5.79 million
	Paid to traditional owners	$1.42 million

Visitors	348 882 adult paying visitors
Commercial permits	138 tour operator permits; 177 filming and photography permits
Visitor satisfaction	Rated highest satisfaction park in the Northern Territory by the Northern Territory Tourist Commission for the 12 months to December 2003 – 93 per cent of visitors rated satisfaction with the park as 'satisfied to very satisfied'

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
Bonn Convention	43 of 160 listed Australian species
China–Australia Migratory Birds Agreement	13 of 81 listed species
Japan–Australia Migratory Birds Agreement	14 of 110 listed species
Other agreements	Listed as one of 440 biosphere reserves under the United Nations Educational, Scientific and Cultural Organisation's Man and the Biosphere programme

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 4 vulnerable 49 migratory 41 marine
	Recovery plans	2 recovery plans being implemented for tjakura (great desert skink) and mala (rufus hare wallaby)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Amphibians	Plants
21	170	73	None	Unknown	>400

Board of Management

The Uluṟu-Kata Tjuṯa Board of Management includes a majority of Aboriginal traditional owners. The board oversees the management of the park and the preparation of management plans. Through joint management of the park, Aṉangu and Piranpa (non-Aboriginal people) work together to manage the park's natural and cultural values.

The Board structure was revised in 2003, increasing the Aṉangu majority from 6:5 to 8:4. The new board was appointed by the Minister for the Environment and Heritage in October 2003 for a period of five years. A nominee of the Northern Territory, Ms Vicki Gillick, was appointed to the board.

Major monitoring efforts

The park undertook a range of monitoring programmes. These included the ongoing assessment of the condition of rock art by rock art patrols, a formal rock art consultancy and the monitoring of rock movement above the Muṯitjulu art site, including a formal assessment of visitor safety implications.

Surveys for threatened species, such as tjakuṟa *Egeronia kintorei* and mulgara *Dasycercus cristicauda*, were undertaken. The tjakuṟa population was found to have collapsed to less than half of that recorded during 2003. The reduction is thought to be the result of foxes, and staff and traditional owners are now working to establish an effective fox control programme.

There was also ongoing mapping of weed infestations and recording of weed removal by volunteer teams.

Future challenges

Major challenges for 2004–05 include an emphasis on formal land management programmes, including the development of a fire plan and habitat mapping strategy. This will require an inclusive approach to planning and ongoing collaboration between a wide range of stakeholders.

New infrastructure, which will better cater for visitor needs and the protection of park values, will be designed and completed. This includes new toilets at the base of the Uluṟu climb and new interpretation within the Muṯitjulu Waterhole precinct and around the Uluṟu base walk.

The whole-of-government approach to improving the governance and wellbeing of the Muṯitjulu community will also closely involve park management.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- 42 common weeds and a major growing buffel grass infestation
- Seven fauna pest species
- To develop an integrated approach to land management

Outputs

- Develop appropriate long term strategies
- Develop a vertebrate pest strategy
- Develop an operational plan for the park that prioritises land management actions
- Conduct survey programmes

Performance results 2003–04

- Weed strategy developed and currently being implemented, including the use of Australian Conservation Volunteer crews
- Vertebrate pest strategy developed and currently being implemented, including dog and fox control
- Operational plan developed and in place
- Wildfire control undertaken in collaboration with traditional owners
- Burn plans implemented with traditional owners
- Surveys undertaken for tjakura and mulgara
- Environmental impact assessments completed for all proposed infrastructure projects
- Mala reintroduction project progressed and mala paddock fencing commenced

Key performance area: Cultural heritage management

Major issues

- Cultural sites and associated knowledge documented and integrated into park management practice
- Maintain and develop information management systems that are culturally appropriate and accessible to traditional owners

Outputs

- Ongoing recording of cultural knowledge and the development of associated databases in collaboration with traditional owners
- Ongoing rock art monitoring
- Develop project scope for repatriation project

Performance results 2003–04

- Rock art management consultancy undertaken and supported by rock art patrols
- Database for Arra Iritja expanded, involving archival management of photographs, tapes and other materials

Key performance area: Joint management

Major issues

- Support and develop the new joint management partnership team
- Effective support provided to the new board of management
- Ensure traditional owners are appropriately involved in project design and implementation, and in the delivery of core functions
- Support Indigenous training and development

Outputs

- Work with joint management partnership members to develop good working relationships and key roles
- Develop and maintain an effective board secretariat
- Further develop efficient and inclusive planning processes
- Structure training programmes to suit community involvement

Performance results 2003–04

- Joint management partnership supported the board and the operation of the park
- Board of management supported and provided with information about park operations and proposals
- Ongoing involvement of traditional owners in threatened species, fire and cultural heritage project work

Key performance area: Visitor management and park use

Major issues

- Inadequate infrastructure to effectively manage increasing visitor numbers
- Some infrastructure in need of repairs and/or replacement
- Need for a review of all existing park signage

Outputs

- Effective and strategic infrastructure planning and maintenance

Performance results 2003–04

- Work started on new toilets at the base of Uluṟu climb
- Track maintenance programme commenced with community-based field crew
- Sign audit completed – replacement and upgrade work started
- Ongoing maintenance of other park infrastructure undertaken in line with scheduled works programme

Key performance area: Stakeholders and partnerships

Major issues

- Develop and maintain effective relationships with key stakeholders and partners

Outputs

- Regular meetings of relevant board committees, such as the tourism consultative committee and cultural heritage committee
- Communicate clearly with all parties and provide timely responses to requests for information

Performance results 2003–04

- Worked in partnership with tourism industry to improve the conditions and management of commercial tour operator permits
- Worked in partnership with the tourism and film and photography industries to review the commercial film and photography guidelines
- 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

Key performance area: Business management

Major issues

- Provision of essential services to the Mutitjulu community consuming ever increasing proportion of park budget (not a core park management function)
- Shortage of staff housing
- Entry fee increase
- Budget

Outputs

- Negotiations with the Northern Territory Government, the Northern Territory PowerWater and Mutitjulu Council regarding the staged transfer of responsibility for essential services
- Business case developed for new staff housing. New housing deferred pending a forthcoming operational review
- New fee of $25 per head introduced on 1 April 2004
- New arrangements introduced to improve management of budgets by local cost centre managers

Performance results 2003–04

- Arrangements made to introduce 'user pays' system for electricity provided to park staff, Mutitjulu community and businesses in the park's cultural centre
- Recruitment actions prioritised taking account of staff housing constraints
- Increased park revenue and traditional owner payments generated by fee increase, but overall revenue continues to be impacted on by declining international arrivals to Australia
- Gross revenue was on target
- Costs were three per cent above target

Tjakuṟa (Great Desert Skink) monitoring

Conservation of the tjakura is an important issue in Uluṟu-Kata Tjuṯa National Park.

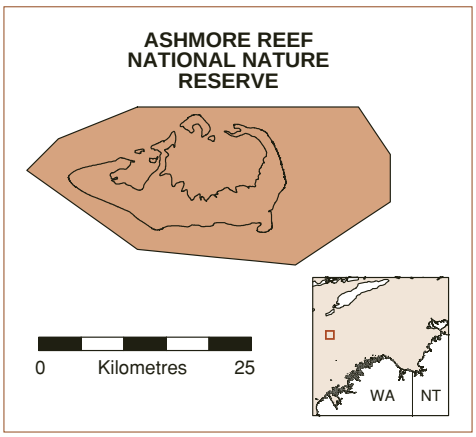
The tjakuṟa, a listed threatened species under the EPBC Act, occurs in remote western desert regions, including the spinifex sandplain and interdune areas of Uluṟu-Kata Tjuṯa National Park. Park staff and Aṉangu traditional owners participated in 10 days of tjakuṟa (great desert skink) monitoring over the year (tjakuṟa surveys commenced in 1996 to establish an understanding of where the species is most abundant).

Key areas of habitat were carefully assessed, new burrows mapped and known burrows assessed to determine if they were inhabited. The survey revealed that the tjakuṟa population has collapsed to less than half of that recorded in 2003 – possibly because of a dramatic increase in fox predation. Surveys also showed that active tjakuṟa burrows were widely scattered and most were inhabited by only a single adult lizard.

Staff and traditional owners are now working to establish a fox control programme to be complemented by ongoing tjakuṟa monitoring. Wildfire in the last two years has allowed the development of large areas of suitable habitat and it is hoped that this, in combination with active management, will promote the recovery of tjakuṟa numbers within the park.

Ashmore Reef National Nature Reserve

www.deh.gov.au/coasts/mpa/ashmore/index.html



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 different 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, green turtles, loggerhead turtles and hawksbill turtles.

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 terns and common noddies number up to 50 000 breeding pairs.

Location	Latitude 12°15′ South, Longitude 123° East
Area	58 000 hectares
Proclamation date	16 August 1983
IUCN category	Ia 55 000 hectares II 3 300 hectares
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: oceanic shoals
Management plan status	Current plan 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	$420 455[a]
	Capital	$131 863
	Revenue	Not applicable
Visitors	Not known	
Commercial permits	1 permit was issued for a bird watching trip 3 permits were issued for commercial filming and/or journalism	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by the Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	The entire reserve is listed
Bonn Convention	26 of 160 Australian listed species
China–Australia Migratory Birds Agreement	38 of 81 listed species
Japan–Australia Migratory Birds Agreement	38 of 110 listed species
Other international agreements	Memorandum of Understanding with Indonesia

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 2 vulnerable 46 migratory 60 marine
	Recovery plans	1 recovery plan being implemented (marine turtles)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
1	78	17	720	1265	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 December 2002 and March 2003 to assess the effectiveness of 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 provided a report on coral reef health monitoring conducted during 2003. The survey found significant evidence of coral bleaching. Encouraging discoveries included a healthy population of trochus and significant populations of some of the commercial species of beche-de-mer.

The Australian Quarantine and Inspection Service also surveyed the reserve. No plant pathology pathogens of significance were detected. The survey identified two weeds – annual mission grass *Pennisetim pedicullatum* and buffel grass *Cenchrus ciliaris*. The dominant insect pest was the ginger ant *Solenopsis geminata*, which has increased in numbers since previous studies.

Future challenges

Major challenges are enforcement of fishing and access restrictions; installation of moorings; the review of the service level agreement with the Australian Customs Service; the research and monitoring programme; and application of the recommendations from the pests' consultancy (report entitled *Marine and Terrestrial Introduced Species Prevention and Management Strategy*).

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Illegal fishing
- Introduction of pest species

Outputs

- Enforce access and fishing restrictions
- Cooperate with Indonesian officials to improve management of MoU Box fishery
- Encourage and facilitate reef research and monitoring
- Report received detailing a threat assessment of pest and weeds establishing in the reserve and a recommended prevention strategy
- Weeds removed from reserve
- New quarantine, bilge and ballast water protocols implemented

Performance results 2003–04

- 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. One Indonesian fisher was prosecuted for two counts of accessing closed areas of the reserve
- The Australian Institute of Marine Science provided a report on reef health monitoring conducted in February 2003
- Research was undertaken on migratory shorebirds and seabirds, sea snakes, turtles and dugong. Scientific data were also collected by on-site Australian Customs Service managers, including regular counts of turtle tracks and water sampling
- A contract was signed for a survey of introduced pest ginger ant *Solenopsis geminata* during 2003
- *A Marine and Terrestrial Introduced Species Prevention and Management Strategy* was received. Several high priority recommendations were implemented immediately
- Work began to remove two potentially vigorous colonising weeds and new quarantine protocols were introduced for implementation on-site by Australian Customs Service officers
- New protocols were introduced 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
- Marine debris continues to be collected and analysed

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Anchor damage

Outputs

- Install moorings
- Monitor visitation

Performance results 2003–04

- Thirteen moorings were installed for use by the public (including for traditional Indonesian fishers)
- Visitors to Ashmore included traditional Indonesian fishers, recreational yachts and research groups
- Australian Customs Service officers monitored visitors' use of moorings

Key performance area: Stakeholders and partnerships

Major issues

- Illegal Indonesian fishing

Outputs

- Revise and implement an integrated management approach for Indonesian fishing

Performance results 2003–04

- A contract was managed (using AusAID funds) for an alternative livelihood project in Roti, Indonesia. The project aims to provide alternative sources of income for fishers who currently target Australian waters
- Consultation was undertaken 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
- The Director was involved in implementing a MoU Box Management Strategy

Key performance area: Business management

Major issues

- Effective management of contract with management service provider

Outputs

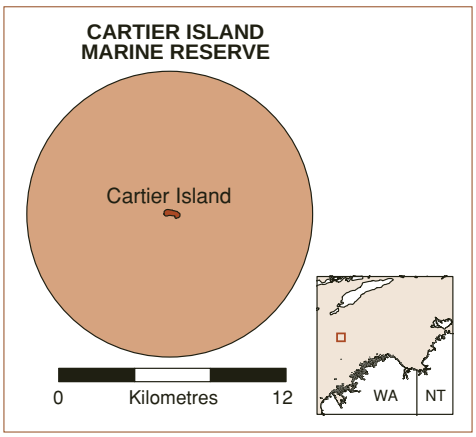
- Manage the service level agreement with the Australian Customs Service

Performance results 2003–04

- Regular meetings and consultation were held with the Australian Customs Service
- Warden training was provided for Australian Customs Service officers

Cartier Island Marine Reserve

www.deh.gov.au/coasts/mpa/cartier/index.html



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.

Location	Latitude 12°30′ South, Longitude 123°30′ East	
Area	17 200 hectares	
Proclamation date	21 June 2000	
IUCN category	Ia	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: oceanic shoals	
Management plan status	Current plan 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	$54 280[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Commercial permits	0	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by the Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and attending conferences.

International conventions and agreements	
Bonn Convention	4 of 160 listed Australian species
Other international agreements	Under a Memorandum of Understanding with Indonesia, 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 1 vulnerable 4 migratory 17 marine
	Recovery plans	1 recovery plan is being implemented (marine turtles)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
1	78	17	720	1265	40

Major monitoring efforts

A report was provided by the Australian Institute of Marine Science on the coral reef health monitoring conducted during 2003. The survey found significant evidence of coral bleaching and stocks of trochus and beche-de-mer to be low.

These findings support the decision to close Cartier reserve to Indonesian fishing from 1 July 2003.

Management arrangements

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

Future challenges

Major challenges are enforcing fishing and access restrictions; training of Australian Customs Service officers; and developing procedures for prosecuting repeat offenders.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Illegal access
- Overfishing

Outputs

- Enforce the closure of the reserve
- Enforce fishing restrictions
- Conduct strategic reef monitoring

Performance results 2003–04

- A determination for closure of the reserve was published on 28 May 2003. Based on cooperative arrangements with Coastwatch, the Australian Customs Service and the Department of Defence, the Director has enforced the closure of the reserve throughout the year
- Coastwatch and the Australian Customs Services undertook regular patrols. Indonesian vessels in the area were boarded and advised of restrictions. Suspected illegal activities were investigated and warnings issued
- The Australian Institute of Marine Science provided a report on monitoring conducted during 2003

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Safety is an issue because of the area's history as a defence practice area

Outputs

- Enforce the closure of the reserve

Performance results 2003–04

- A determination for closure of the reserve was published in May 2003 (see above)

Key performance area: Stakeholders and partnerships

Major issues

- Illegal Indonesian fishing

Outputs

- Revise and implement an integrated management approach for Indonesian fishing

Performance results 2003–04

- A contract was managed using AusAID funds for an alternative livelihood project in Roti, Indonesia, which aims to provide alternative sources of income for fishers who currently target Australian waters
- Consultation was undertaken with Indonesian officials and the Department of Agriculture, Fisheries and Forestry to address overfishing issues in the MoU Box (an area of the eastern Indian Ocean subject to a MoU between Australia and Indonesia signed in 1974 and reviewed in 1989) on a regional and cooperative basis. The Director contributed to implementing a MoU Box management strategy

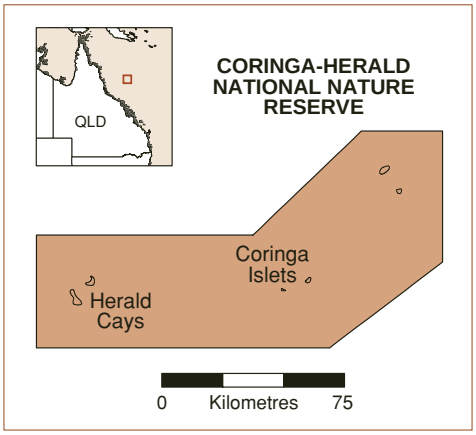
Key performance area: Business management

Major issues

- No issue of concern

Coringa–Herald National Nature Reserve

www.deh.gov.au/coasts/mpa/coringa/index.html



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 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° South, Longitude 149° East
Area	885 000 hectares
Proclamation date	16 August 1982
IUCN category	Ia
Biogeographic context	Tropical waters of the Coral Sea Islands Territory
Management plan status	Current plan expires 4 September 2008
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$21 475[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	49 visitor days recorded from 2 commercial tours	
Commercial permits	3 permits to conduct commercial tours	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Entire reserve is listed
Bonn Convention	8 of 160 listed Australian species
China–Australia Migratory Birds Agreement	14 of 81 listed species
Japan–Australia Migratory Birds Agreement	15 of 110 listed species

Environment Protection And Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 8 vulnerable 15 migratory 51 marine
	Recovery plans	2 recovery plans being implemented (great white sharks and marine turtles)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
30	27	5	> 342	>1000	16

Major monitoring efforts

The Australian Institute of Marine Science monitored the marine environment in April 2003 and the final report was received 2003–04. The outstanding feature was the low level of live hard coral. There was also strong evidence of damage from coral bleaching and some evidence of damage from storm waves. Densities of beche-de-mer were higher than the Ashmore and Cartier reserves, but lower than the Great Barrier Reef.

Monitoring turtles and birds continued with the assistance of staff and an active volunteer programme. The programme has run continuously since 1991. The long-term, and now regionally significant dataset, provides valuable information about these long-living species. Regular monitoring also led to the identification of a scale insect species that was damaging the Pisonia trees and control measures have been successfully introduced.

Management arrangements

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

Future challenges

Major challenges are to control scale insects, and to continue monitoring of illegal activities, reserve health (especially given the evidence of past bleaching events), seabirds, and turtles.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Possible illegal fishing
- Measuring health of reef

Outputs

- Enforce fishing restrictions
- Continue strategic reef monitoring programme

Performance results 2003–04

- Coastwatch flights and three patrols undertaken. No offences detected
- Final report of marine survey received in 2003–04

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- No issues of concern

Key performance area: Stakeholders and partnerships

Major issues

- Lack of awareness among stakeholders of reserve management prescriptions

Outputs

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

Performance results 2003–04

- Liaison undertaken with Coastwatch, Australian Customs Service, Department of Defence, relevant researchers and tour operators
- Visitors made aware of restrictions and minimal impact practices

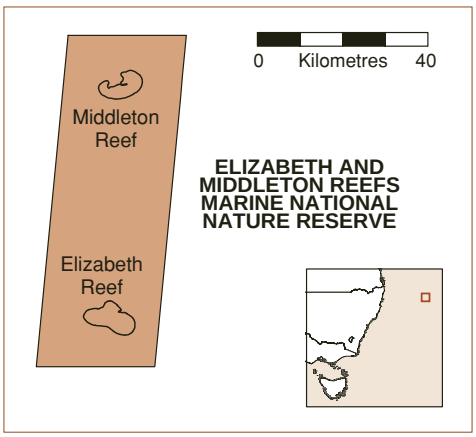
Key performance area: Business management

Major issues

- No issues of concern

Elizabeth and Middleton Reefs Marine National Nature Reserve

www.deh.gov.au/coasts/mpa/elizabeth/index.html



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 were once common along the New South Wales coast, but are now considered rare.

The reserve is a feeding ground for green turtles and marine mammals such as bottlenose dolphins and pilot whales.

Location	Latitude 30° South, Longitude 159° East
Area	188 000 hectares
Proclamation date	23 December 1987
IUCN category	Ia
Biogeographic context	Offshore warm temperate waters in the south of the Coral Sea Islands Territory
Management plan status	Current plan expired 23 March 2004 New plan in preparation

Other significant management documents	Management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$2981[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not recorded, numbers low	
Commercial permits	0	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Entire reserve is listed
Bonn Convention	8 of 160 listed Australian species
China–Australia Migratory Birds Agreement	3 of 81 listed species
Japan–Australia Migratory Birds Agreement	6 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	13 vulnerable 10 migratory 7 marine
	Recovery plans	2 recovery plans being implemented (great white shark, marine turtles)
Listed flora	None	

Major monitoring efforts

The Australian Institute of Marine Science monitored reserve health 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 sharks were observed, which suggests that the area is an important nursery for this species.

Management arrangements

Coastwatch surveillance flights were undertaken, some with Department of the Environment and Heritage staff on board.

As an initial step in establishing long-term monitoring of the reefs using remote acoustic/video surveillance technology, a survey was conducted to assess site locations for equipment.

Royal Australian Navy and Australian Customs Service vessels undertook surface visits.

Future challenges

Major challenges are the implementation of biological monitoring, production of a management plan and monitoring for possible illegal activities in the area.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Possible illegal fishing
- Monitoring reef health

Outputs

- Enforce fishing restrictions
- Plan strategic reef biological monitoring programme

Performance results 2003–04

- No illegal fishing detected by Coastwatch flights
- Contract for site surveys (two for each reef) to identify locations for remote acoustic/video surveillance
- Service level agreement with Coastwatch that clarifies roles for strategic monitoring during 2004–05
- Reef health monitoring completed at Elizabeth Reef by Australian Institute of Marine Science. Poor weather prevented monitoring of Middleton Reef

Key performance area: Cultural heritage management

Major issues

- Possible interference with shipwrecks

Outputs

- Enforce protection of shipwrecks

Performance results 2003–04

- Advisory brochure distributed
- Coastwatch flights and occasional patrols detected no interference with shipwrecks

Key performance area: Visitor management and park use

Major issues

- No issues of concern

Key performance area: Stakeholders and partnerships

Major issues

- Continue good relationships with Coastwatch and researchers

Outputs

- Ensure relationships with partners are productive

Performance results 2003–04

- Liaison with Coastwatch, relevant scientists and tour operators
- Presentation of study data by Australian Institute of Marine Science

Key performance area: Business management

Major issues

- No issues of concern

Discovering rare plants in Kakadu

Hibiscus brennani *is amongst the rare plants found within Kakadu National Park.*

For many of the rare plants of Kakadu our knowledge is mostly limited to historical and anecdotal records or results of small surveys.

Kakadu has some 193 plants of conservation significance (listed under the EPBC Act or Northern Territory legislation). Many of these plants are confined to the sandstone plateau region of the park where on-ground research and survey activities are constrained by the rugged landscape. Some are known only from one or two historical records, or from very limited areas. For others, the historic records provide approximate locations only, and relocation of the sites has proven difficult.

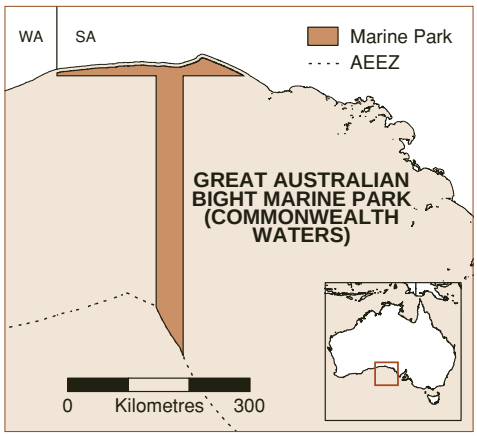
A helicopter and ground survey during 2003 by a team of Northern Territory herbarium botanists and park staff focused on 14 of the rarer species. Known localities and adjacent country where there was suitable habitat were searched. Six species, including several *Boronias, Calytrix inopinata, Helicteres Dlinifolia* and *Ochrosperma sulcatum* proved more abundant or more widespread than originally recorded, warranting an upgrade of their statutory listed status. The surveys yielded other positive results that improve understanding of other rare plants in Kakadu, highlighting the benefits of dedicated field surveys to infrequently visited areas.

During the course of the surveys, two potentially new species of plant were discovered, an Acacia and a Phyllanthus, with the Acacia known only from a handful of plants at one site on a rocky ridge. In addition, there were four new records for Kakadu, including *Calyrix faucicola, Gomphrena connata, Micraira dentata* and *Utricularia subulata*.

These new discoveries and improved data on rare plants are good news for Kakadu as many species occur on fire vulnerable sandstone habitats. Permanent monitoring plots established during these surveys, coupled with high precision GPS-based location data, will provide park management with baseline data for future monitoring of these rare plants.

Great Australian Bight Marine Park (Commonwealth Waters)

www.deh.gov.au/coasts/mpa/gab/index.html



Special features

The Great Australian Bight Marine Park (Commonwealth Waters) extends South Australia's protection of habitat for marine mammals, notably the endangered southern right whale *Eubalaena australis* and protected Australian sea lion *Neophoca cinerea*, to Commonwealth waters.

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. This 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.

Area	1 940 000 hectares
Proclamation date	22 April 1998
IUCN category	VI Marine Mammal Protection Zone Category VI (387 500 hectares) Benthic Protection Zone Category VI (1 608 500 hectares) Note: 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 status	Current plan expires 16 May 2005 and a review of the management plan has been completed. The second management plan is in preparation	
Other significant management documents	Service level agreement and subsidiary annual business agreements between Australian and South Australian Governments; and management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$189 373[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not recorded	
Commercial permits	1 scientific research permit issued; 37 commercial fishing permits current until 16 May 2005	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Bonn Convention	12 of 160 listed Australian species
China–Australia Migratory Birds Agreement	1 of 81 listed species
Japan–Australia Migratory Birds Agreement	4 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	5 endangered 9 vulnerable 12 migratory 37 marine
	Recovery plans	3 recovery plans being implemented (great white shark, marine turtles, and albatrosses and giant petrels)
Listed flora	None	

Management arrangements

The Great Australian Bight Marine Park is jointly managed by the Australian Government and the South Australian Government 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 the Environment and Heritage.

Major monitoring efforts

The South Australian Research and Development Institute provided a report of their 2002 survey of seabed biodiversity. The study covers both the South Australian and Commonwealth waters and had two main conclusions:

1. The Great Australian Bight Marine Park supports highly diverse ecosystems, with 811 species identified (mainly suspension feeders). Only larger specimens collected and identified.
2. The Benthic Protection Zone is well sited to represent benthic ecosystems and is significantly more diverse (432 species) than adjacent areas (300 species).

Future challenges

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

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Lack of baseline information

Outputs

- Initial baselines established
- Development of research plan covering:
  - Monitor the impact of known pressures on park values
  - Assess vulnerability of park values to use
  - Assess vulnerability of park values to debris and other identified risks
- Assess performance of marine park

Performance results 2003–04 (in cooperation with South Australian Government)

- Completed initial baseline studies of benthos
- Facilitated population studies on regional southern right whales and Australian sea lions
- Developed draft research plan

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

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

Outputs

- Review surveillance plans
- Aerial surveillance by Coastwatch, land-based surveillance by Yalata Land Management
- Litigation and development of enforcement policies
- Communications plan in place and implemented

Performance results 2003–04 (in cooperation with South Australian Government)

- Advertised annual closures
- Completed land surveillance and aerial patrols
- Civil proceedings for two incidents successfully conducted
- Investigated one other incident
- Contributed to review of compliance and enforcement procedures
- Prohibition on vessel entry to Marine Mammal Protection Zone gazetted
- Draft communications plan developed

Key performance area: Stakeholders and partnerships

Major issues

- Maintain productive relationships with partners

Outputs

- Annual business agreement with South Australia negotiated and implemented
- Development of compliance monitoring arrangements with Australian Fisheries Management Authority

Performance results 2003–04 (in cooperation with South Australian Government)

- Renewed annual business agreement
- Continued to make approaches to Australian Fisheries Management Authority and industry sectors about monitoring compliance
- Collaborative risk management with Australian Fisheries Management Authority

Key performance area: Business management

Major issues

- Complex administrative structures

Outputs

- Clear understanding regarding roles of individuals and committees

Performance results 2003–04 (in cooperation with South Australian Government)

- Communication among stakeholders improved

Great Australian Bight seabed survey

The Benthic Protection Zone of the Great Australian Bight Marine Park protects a representative sample of the seabed of the Great Australian Bight. Seabed trawling has been excluded in the Benthic Protection Zone since the Commonwealth waters area of the park was proclaimed in 1998.

During 2002, a team of scientists from the South Australian Research and Development Institute collected seabed life forms from 65 sites in and near the Great Australian Bight Marine Park. They also reviewed scientific information for the region and collated information on fishing activities near the park.

Reports completed in December 2003 show that the Benthic Protection Zone is home to an amazing 811 seabed species. Such rich diversity of species is comparable with areas of soft seabed in the Gulf of Carpentaria and the Antarctic shelf.

Most of the species collected are known as suspension feeders – organisms that are attached to the seabed and feed from the water, such as sponges, sea squirts and lace corals. Many are endemic (not found anywhere else) to southern Australia. A small number of other species, such as starfish, worms and crabs, obtain most of their food from the seafloor, or are scavengers or hunters. This group is know as deposit feeders.

The analysis showed the ratio of suspension feeders to deposit feeders is high in comparison with other areas of soft seabed. This may reflect the coarseness of the sediments in the bight, the lack of terrestrial run-off, and the high plankton concentrations.

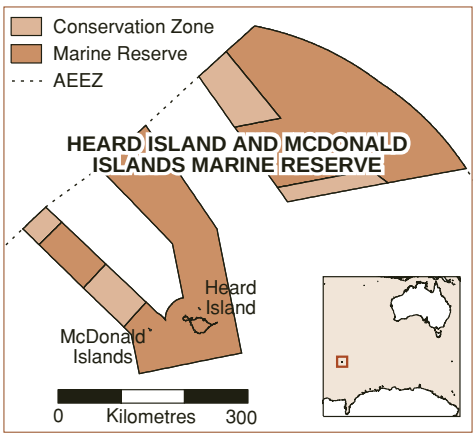
The analysis also revealed that at least two species of starfish, four species of soft coral and several species of sponges are new to science.

These results are the first step in establishing a baseline for assessing the performance of the park and the Benthic Protection Zone in particular. They are a reassuring first sign that the park is well placed to represent the region's continental shelf seabed communities.

For copies of the project reports go to: *www.deh.gov.au/coasts/mpa/publications/index.html#gab*

Heard Island and McDonald Islands Marine Reserve

www.aad.gov.au/himi_marine_reserve



Special features

The Heard Island and McDonald Islands Marine Reserve includes the World Heritage listed islands and territorial sea, plus an additional marine area extending in parts to the 200 nautical mile Exclusive Economic Zone (EEZ) boundary. The reserve is assigned to the IUCN category 'strict nature reserve' and covers an area of 65 000 square kilometres.

Key conservation values for the reserve include:

- diverse and distinctive benthic habitats supporting a range of slow growing and vulnerable benthos such as corals and sponges
- nursery areas for a range of fish stocks, including commercially harvested Patagonian toothfish
- largely intact ecosystems with negligible modification by humans and no recorded human-introduced species
- highly productive nutrient rich areas due to the confluence of key oceanographic fronts such as the Antarctic Circumpolar Current
- prime breeding and foraging areas for a number of land-based marine predators, including threatened albatross and seal species
- culturally significant remains from 19th and early 20th century sealing activities, and from the first Australian National Antarctic research expeditions

Location	Latitude 53°05' South, Longitude 73°30' East
Area	6 460 000 hectares
Proclamation date	16 October 2002
IUCN category	Ia
Biogeographic context	Sub-Antarctic area Interim Marine and Coastal Regionalisation for Australia region: Kerguelen Province

Management plan status	Public comment on notice of intent to prepare draft plan held between 19 March and 19 May 2003. Advanced draft plan prepared – to be released for public comment in the second half of 2004	
Other significant management documents	Draft cultural heritage management plan for the Atlas Cove area; Australian Antarctic science strategic plan 2000–05; and Quarantine risk assessment report – *The Probability of Introduction of Non-Indigenous Species to Heard and McDonald Islands: Taxa, Risks, and Mitigation*	
Financial	Operating	$230 000[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	28 scientists and support staff ashore, and 24 marine scientists and support staff at sea, in the reserve for a 10-week period during 2003–04 summer	
Commercial permits	1 permit was issued to allow a tour operator to access the marine area of the Heard Island and McDonald Islands Marine Reserve territory. No landings were made	

[a] This figure represents an informed estimate and does not include costs associated with the operational planning, scientific research, logistics or operational support for the 2003–04 Australian Antarctic science programme expedition to Heard Island. It is expected that much of the research and monitoring information gathered during the expedition will contribute directly or indirectly to the future management of Heard Island and McDonald Islands Marine Reserve. In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
World Heritage Convention	Natural criteria (i) and (ii), recognising its outstanding natural values
Convention on Wetlands (Ramsar, Iran 1971)	Ramsar Information Sheet prepared for proposed Heard Island and McDonald Islands Marine Reserve wetland (comprising the Heard Island and McDonald Islands Marine Reserve territory). Draft Ramsar Information Sheet to be circulated for public comment as part of draft management plan for the reserve
Bonn Convention	12 of 164 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; and 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 14 migratory 51 marine
	Recovery plans	1 recovery plan being implemented (albatross and 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 Heard Island and McDonald Islands Marine Reserve region.

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
7	47	0	34	168	229

Management Committee

Not applicable. 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 mounted a major research expedition to the Heard Island and McDonald Islands region over the summer of 2003–04. A team of 28 land scientists and support personnel and 24 marine scientists and support personnel undertook an ambitious 10-week research programme that focussed on

studies of glaciology, terrestrial ecology and predator/prey relationships. Data is still being analysed but notable findings include a new species of native daisy and the continuing decline of the Brown Glacier.

Future challenges

- Finalise a management plan for the reserve that is flexible enough to accommodate the dynamic environment but rigorous enough to provide a suitable level of environmental protection
- Maintain vigilance, with particular regard to quarantine, across all visits to the Heard Island and McDonald Islands Marine Reserve territory
- Effectively manage the reserve given it is unoccupied, very remote and rarely visited by the managing agency
- Develop further off-site means of providing information about the reserve and its management requirements
- Complete the Heard Island and McDonald Islands Marine Reserve conservation zone assessment

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Preventing wildlife disturbance
- Preventing human introduction of alien species
- Waste management
- Performance assessment and reporting

Outputs

- Environmental education of all reserve visitors
- Monitoring for alien species
- Ongoing opportunistic removal of past wastes
- Research and monitoring activities that facilitate performance assessment and reporting

Performance results 2003–04

- Ten-week research expedition undertaken during summer 2003–04, targeting studies of glaciology, terrestrial ecology, and Antarctic marine living resources
- Survey of distribution of *Poa annua* undertaken during 2003–04 expedition

- Wildlife approach guidelines prepared as part of Environmental Code of Conduct
- Report of independent quarantine risk assessment received, and recommendations implemented during 2003–04 expedition and incorporated into draft management plan
- Pre-existing waste removed from Atlas Cove, Spit Bay and Paddick Valley during 2003–04 expedition

Key performance area: Cultural heritage management

Major issues

- Loss/degradation of cultural heritage relating to Australian National Antarctic Research Expeditions (1947–54) and pre-Australian National Antarctic Research Expeditions (sealing) periods of occupation of Heard Island and McDonald Islands Marine Reserve

Outputs

- Recording and monitoring condition of heritage sites/items
- Managed decay of heritage items/sites

Performance results 2003–04

- Survey of cultural heritage sites at eastern end of Heard Island undertaken during 2003–04 expedition
- Stabilisation of some items in danger of loss through coastal erosion

Key performance area: Visitor management and reserve use

Major issues

- Ensuring safe and environmentally appropriate access
- Ensuring environmentally appropriate placement and maintenance of facilities
- Presenting the remote and isolated reserve to the wider community

Outputs

- Providing briefings and relevant materials to all visit organisers/visitors
- Development of Reserve Management Database and GIS (Geographic Information System)
- Access permits provide for appropriate access and use
- Use of off-site means to communicate the values of the reserve

Performance results 2003–04

- 2003–04 expeditioners comprehensively briefed on environmental management requirements

- Environmental Code of Conduct prepared
- Details collected for all sites used and equipment/markers left on Heard Island during 2003–04 expedition
- Maintenance of existing huts undertaken during 2003–04 expedition
- 2003–04 expedition obtained still and video images to represent reserve values
- Work commenced on developing a Heard Island web site and DVD

Key performance area: Stakeholders and partnerships

Major issues

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

Outputs

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

Performance results 2003–04

- Treaty between the Australian Government 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 signed on 24 November 2003
- Ongoing Australian Antarctic Division involvement in government initiatives to address illegal, unregulated and unreported fishing
- Web site developed to communicate 2003–04 expedition activities to the public

Key performance area: Business management

Major issues

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

Outputs

- Educate all visitors about reserve management requirements
- Finalise new management plan

Performance results 2003–04

- A draft management plan substantially completed with public comment period expected in second half of 2004

Making the most of southern expeditions

Glaciologists measuring the physical characteristics of Brown Glacier, Heard Island, as an indicator of climate change.

Expeditions to the sub-Antarctic are expensive and require a lot of planning. So when a ship finally sets sail for the southern reaches of the globe, it is important to make the most of it.

When the Australian Antarctic Division mounted a major research expedition to the Heard Island and McDonald Islands region over the 2003–04 summer, its team of 52 scientists and support personnel knew they had their work cut out.

The expeditioners undertook an ambitious 10-week research programme, covering studies as diverse as glaciology, terrestrial ecology and predator/prey relationships.

Much of the data are still being processed, but some of the preliminary findings give an idea of the scope of the expedition's work.

Studies of Brown Glacier, on the eastern side of Heard Island, showed that the length of the glacier had shrunk by 50 metres since 2000–01, and by more than a kilometre since 1950. The thickness of ice in the glacier was also found to have decreased by up to 11 metres on its lower slopes and four metres on its upper slopes.

The team installed markers and automatic weather stations to improve the monitoring of Brown Glacier. They hope the equipment will give insights into the broader effects of climate change in the Southern Ocean, and further south towards Antarctica.

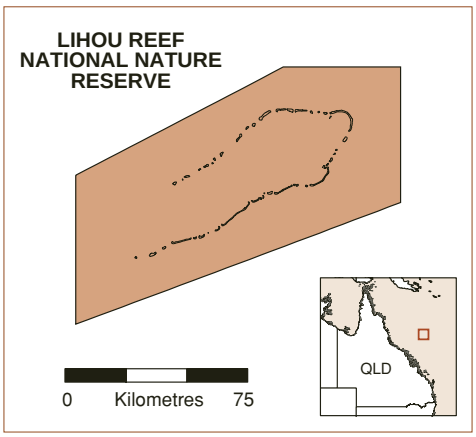
A single specimen of a daisy was discovered at Heard Island for the first time, increasing the number of recorded flowering plant species to 12.

The expeditioners also continued a seabird census at the south-eastern end of the island, which provides baseline information on the distribution and abundance of seabirds. The census will allow ongoing monitoring of trends relating to natural and human pressures.

The team also monitored over 250 animals, including seals, penguins and albatrosses, which were tagged and tracked via satellite, providing a unique picture of their foraging activity.

Lihou Reef National Nature Reserve

www.deh.gov.au/coasts/mpa/lihou/index.html



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 species of dolphins and whales 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 species of landbird 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° South, Longitude 152° East
Area	843 000 hectares
Proclamation date	16 August 1982
IUCN category	Ia
Biogeographic context	Coral Sea Islands Territory
Management plan status	Current plan expires 4 September 2008
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	$107 500[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	128 visitor days recorded from 2 commercial tours	
Commercial permits	3 permits were issued for commercial tours	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Entire reserve is listed
Bonn Convention	8 of 160 Australian listed species
China–Australia Migratory Birds Agreement	12 of 81 listed species
Japan–Australia Migratory Birds Agreement	15 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 8 vulnerable 15 migratory 51 marine
	Recovery plans	2 recovery plans are being implemented (great white shark and marine turtles)

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
30	24	5	>342	>1000	~7

Major monitoring efforts

Monitoring of reef health was undertaken by the Australian Institute of Marine Science during March 2004. A major coral bleaching event was in progress at this time. Bleaching does not mean that the coral is dead and some recovery may occur if the period of high sea surface temperature is not sustained.

To determine the full impact of the bleaching event, a repeat monitoring programme is scheduled for spring 2004.

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 impacts and recovery from coral bleaching, and surveillance of the area for possible illegal activities.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Possible illegal fishing
- Measuring health of reef

Outputs

- Enforce fishing restrictions
- Continue strategic reef monitoring programme

Performance results 2003–04

- Coastwatch flights detected no illegal fishing
- Strategic monitoring of coral reef commenced in 2003–04

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- No issues of concern

Key performance area: Stakeholders and partnerships

Major issues

- Awareness of reserve management prescriptions among stakeholders

Outputs

- Consult with key stakeholders

Performance results 2003–04

- Management liaised with Coastwatch, relevant scientists and tour operators
- Advisory brochure prepared and distributed

Key performance area: Business management

Major issues

- No issues of concern

Pulu Keeling National Park video documentary

Pulu Keeling has one of the world's largest breeding populations of the red-footed booby.

A video highlighting the natural, cultural and historical values of the Pulu Keeling National Park was launched at the Western Australia Maritime Museum in Fremantle on 17 June 2004. A special display was prepared to support the launch and both the display and video will feature in the museum for a 10-week period.

The Pulu Keeling reserve is located in a remote part of the Indian Ocean and access is very difficult. The purpose of the video is to increase awareness of the natural, cultural and historical values of the island for those who are unable to visit the park.

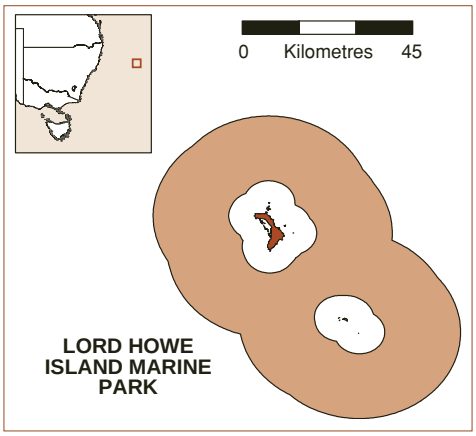
The documentary covers:

- Evolution and colonisation of coral atolls
- Access to the park
- Historical use of the island
- The Emden story
- Salvage of the Emden shipwreck
- Crabs, seabirds, vegetation, eels and reef flats

The Cocos Tourism Association has supported the exhibition with a display covering both Cocos-Keeling and Christmas Island. The exhibition featuring the video is scheduled to run until 28 August 2004 and has proven very popular with visitors to the museum.

Lord Howe Island Marine Park (Commonwealth Waters)

www.deh.gov.au/coasts/mpa/lordhowe/index.html



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°40′ South, Longitude 159°10′ East	
Area	300 000 hectares	
Proclamation date	21 June 2000	
IUCN category	IV	
Biogeographic context	Waters surrounding oceanic islands on seamounts; biota combine tropical and temperate taxa; east of Central Eastern Province Pelagic Biotone; and Memorandum of Understanding with New South Wales Marine Parks Authority for on-ground management	
Management plan status	Current plan expires 24 September 2009	
Other significant management documents	Management plan implementation schedule; and risk assessment and management schedule	
Financial	Operating	$25 990[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Commercial permits	0	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
World Heritage Convention	Listed for its outstanding natural universal values; criteria (iii) and (iv)
Bonn Convention	10 of 160 Australian listed species
Japan–Australia Migratory Birds Agreement	2 of 110 listed species

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

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
4	11	Not known	447	536	Not known

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 Australian Government parks.

The New South Wales Marine Parks Authority conducts on-ground management of the Australian Government 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. New South Wales Water Police has also conducted surface patrols from the mainland.

Major monitoring efforts

The Australian Institute of Marine Science was contracted to undertake the first survey of seabed biodiversity in the park. A habitat map is being produced using both this data and data from further surveys of the adjoining state park.

The Norfolk Ridge Australia New Zealand cooperative study between Australia and New Zealand conducted an exploratory survey to study the biodiversity of the area surrounding the Australian Government marine park.

Future challenges

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

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Illegal longline fishing within the park

Outputs

- Enforcement of fishing restrictions
- Training and authorisation of enforcement staff

Performance results 2003–04

- Coastwatch aerial surveillance conducted regularly
- New South Wales Marine Park Authority conducted surface patrols
- All reports of longline fishing were investigated – none confirmed
- Lord Howe Island New South Wales Marine Park Authority manager functioning as EPBC Act warden

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- No issues of concern

Key performance area: Stakeholders and partnerships

Major issues

- Cooperation from community and New South Wales Marine Parks Authority
- Community support for management plan

Outputs

- Active participation on advisory committee and steering committee
- Community knowledge of management plan

Performance results 2003–04

- Lord Howe Island Advisory Committee meetings held and consultation carried out with Lord Howe Island Steering Committee

Key performance area: Business management

Major issues

- Continued assistance from New South Wales Marine Parks Authority

Outputs

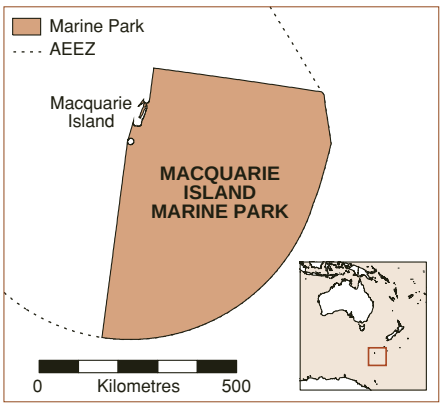
- Negotiate and implement annual business agreement with New South Wales Marine Parks Authority

Performance results 2003–04

- Annual business agreement for 2003–04 successfully negotiated and implemented

Macquarie Island Marine Park

www.deh.gov.au/coasts/mpa/macquarie/index.html



AEEZ: Australia's Exclusive Economic Zone.

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 and wandering albatross.

Location	Latitude 56° South, Longitude 161° East
Area	16 200 000 hectares
Proclamation date	27 October 1999
IUCN category	IV (10 500 000 hectares) 1a (5 700 000 hectares)
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Macquarie Province
Management plan status	Current plan expires 25 September 2008

Other significant management documents	Management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$50 000[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	7 tourist ships with a total of 450 passengers transited the reserve	
Commercial permits	0	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), 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
Bonn Convention	8 of 160 listed Australian species
China–Australia Migratory Birds Agreement	1 of 81 listed species
Japan–Australia Migratory Birds Agreement	3 of 76 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 4 migratory 46 marine
	Recovery plans	Albatrosses and giant petrels – implemented Sub-Antarctic fur seal and southern elephant seal recovery plan in preparation Southern right whale recovery plan in preparation
Listed flora	None	

Major monitoring efforts

An agreement is in place with Australian Antarctic Division to develop a research and monitoring strategy for Australian Government sub-Antarctic marine protected areas.

Monitoring on Macquarie Island has revealed significant increases in rodent and rabbit populations. This requires the development and implementation of a feral pest eradication programme. These feral pests species have a major impact on marine wildlife species that forage in the Macquarie Island Marine Park.

Management arrangements

The Tasmanian Government manages Macquarie Island and its surrounding waters out to three nautical miles. The Director is responsible for the management of the marine park.

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 is working with the Tasmanian Government to develop a service level agreement in relation to Macquarie Island marine protected areas.

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 investigate the feasibility of monitoring and collecting marine debris on Macquarie Island, and continue to secure Coastwatch support and investigate other surveillance and observer platforms (fishing and tourism industry and government agencies) for monitoring of possible illegal activities.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

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

Outputs

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

Performance results 2003–04

- Coastwatch taskings submitted; no surveillance was conducted (tasking is a specific task requested by the Department of the Environment and Heritage to Coastwatch, involving flight surveillance over the reserve)
- Contractual arrangements in place with the Tasmanian Department of Primary Industries Water and Environment for Stage 2 of the pest eradication project on Macquarie Island
- Contract in place to develop a research and monitoring strategy for sub-Antarctic reserves managed by the Director

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- No issues of concern

Key performance area: Stakeholders and partnerships

Major issues

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

Outputs

- Service level agreement with Tasmanian Government, focusing on Macquarie Island marine protected areas
- Regular surveillance

Performance results 2003–04

- Planning for a service level agreement with the Tasmanian Government, particularly in relation to Macquarie Island
- No Coastwatch surveillance conducted due to insufficient Coastwatch resources

Key performance area: Business management

Major issues

- No issues of concern

Visiting Heard Island and McDonald Islands – the director's cut

Giant petrels are amongst the interesting wildlife found at Heard Island and McDonald Islands.

The isolation and extreme weather conditions of the Heard Island and McDonald Islands Marine Reserve means that only a select few have experienced this unique environment first hand.

The reserve's isolation created a bit of a problem for its manager – the Australian Antarctic Division – which is required to let the community know about the reserve's outstanding World Heritage values. This is normally done in other reserves by catering to visitors and providing visitor-friendly facilities and interpretation.

The answer to this dilemma was simple – if you can't bring the community to the site then bring the site to the community!

The Australian Antarctic Division is getting into the high-tech world of multi-media. A Heard Island web site is being created, and CDs and DVDs are being produced. More conventional public presentations and displays will also be used.

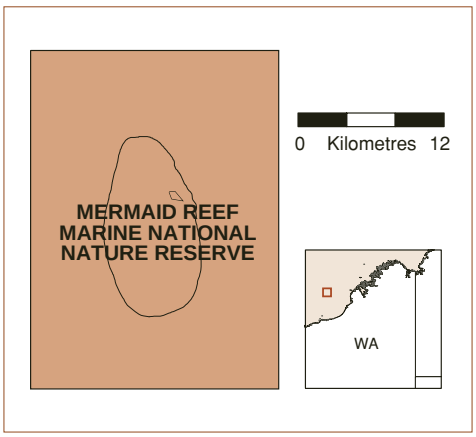
Nevertheless, DVDs and web sites need images and footage and the reserve is a little out of the way for your average camera crew. The answer to this problem involved a unique 'multi-skilling' exercise.

A professional film-maker was hired to train members of the 2003–04 Australian Antarctic programme expedition to the reserve on how to use slide film, digital cameras and digital video cameras. And it seems the crash courses have paid off.

The photographs, virtual reality panoramas and video images will become the public face of the marine reserve. They will be appreciated by thousands of people, which is, of course, a director's dream.

Mermaid Reef Marine National Nature Reserve

www.deh.gov.au/coasts/mpa/mermaid/index.html



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 are the most morphologically perfect examples of shelf-edge reefs occurring in Australian waters. Each reef includes spectacular and unusual underwater topography and life forms that have attracted international recreational divers.

Approximately 233 species of coral and 688 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 composition, and in the relative abundance of species.

Location	Latitude 17°05′ South, Longitude 119°40′ East
Area	54 000 hectares
Proclamation date	10 April 1991
IUCN category	Ia
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: oceanic shoals
Management plan status	Current plan expires 16 May 2007

Other significant management documents	1999 Memorandum of Understanding with Western Australian Department of Fisheries and Western Australian Department of Conservation and Land Management; management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$2097[a]
	Capital	$45 000
	Revenue	Not applicable
Visitors	Approximately 200	
Commercial permits	9 commercial tour operator permits	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Bonn Convention	12 of 160 Australian listed species
China–Australia Migratory Birds Agreement	13 of 81 listed species
Japan–Australia Migratory Birds Agreement	8 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	2 endangered 7 vulnerable 13 migratory 48 marine
	Recovery plans	2 recovery plans implemented (white sharks and marine turtles) Humpback whale recovery plan in preparation
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
13	19	18	688	Not known	No land plants

Major monitoring efforts

The Australian Institute of Marine Science monitored reserve health during June 2003. Early in 2004, the final report was received by the Department of the Environment and Heritage.

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 in density 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 Western Australian 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 for possible illegal activities; and ensuring the reserve's conservation values and management arrangements are understood by visitors.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Anchor damage
- Monitoring reserve health

Outputs

- Investigate and install moorings
- Conduct strategic reef monitoring

Performance results 2003–04

- Mooring design and three mooring sites determined
- Report provided by Australian Institute of Marine Science on reef monitoring

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Visitors understand reserve values and uses

Outputs

- The general public and reserve visitors appreciate its values and use it appropriately

Performance results 2003–04

- Information sheet provided to people asking about Mermaid Reef – also available on Internet

Key performance area: Stakeholders and partnerships

Major issues

- Effective management of the reserve by the management service provider

Outputs

- Effective Rowley Shoals Steering Committee and service level agreement

Performance results 2003–04

- Service level agreement in place with the Western Australian Department of Conservation and Land Management
- The Department of the Environment and Heritage and the Western Australian Department of Conservation and Land Management are working together on a commercial tour operator permit assessment process and the installation of moorings

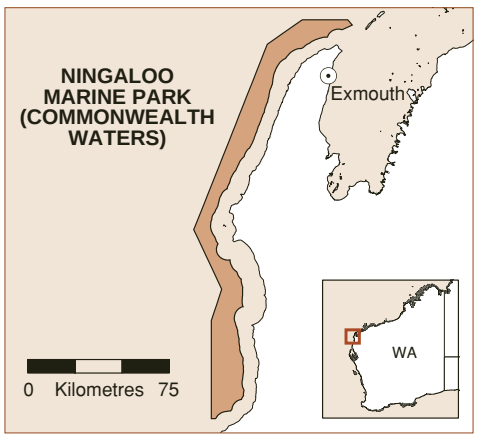
Key performance area: Business management

Major issues

- No issues of concern

Ningaloo Marine Park (Commonwealth Waters)

www.deh.gov.au/coasts/mpa/ningaloo/index.html



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 close 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 are very common all along the coast, with several breeding rookeries. Of particular interest is the presence of the whale sharks – the world's biggest species of fish.

Location	Latitude 22°30′ South, Longitude 113°40′ East	
Area	244 000 hectares	
Proclamation date	20 May 1987, 5 August 1992, 6 April 2004	
IUCN category	II	
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Ningaloo	
Management plan status	Current plan expires 2 July 2009	
Other significant management documents	Memorandum of Understanding with Western Australian Department of Fisheries and Western Australian Department of Conservation and Land Management; annual business agreement; and management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$151 984[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not available	
Commercial permits	16 permits to carry out commercial charter fishing tours	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Bonn Convention	12 of 160 listed Australian species
China–Australia Migratory Birds Agreement	9 of 81 listed species
Japan–Australia Migratory Birds Agreement	9 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 12 vulnerable 17 migratory 59 marine
	Recovery plans	1 being implemented (great white shark)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
20	34+	18+	Not known	Not known	0

Major monitoring efforts

The Australian Institute of Marine Science was contracted to undertake the first survey of seabed biodiversity in the park. A habitat map is being produced using both this data and data from surveys of the adjoining Ningaloo Marine Park located within the state waters. 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 Western Australian Department of Conservation and Land Management and Western Australian Department of Fisheries conduct on-ground management of the reserve under a Memorandum of Understanding with Director of National Parks.

The Department of the Environment and Heritage works with these agencies on issues affecting both the Western Australia park and the Australian Government 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

Key performance area: Natural heritage management

Major issues

- Management of charter fishing tours
- Incorporation of the two expired petroleum exploration permits (Western Australia 24-P Parts 2 and 3) into the reserve in line with the management plan

Outputs

- Ensure compliance with permits and conditions by commercial charter tour operators
- Proclamation of area covered by the expired petroleum exploration permits

Performance results 2003–04

- Distributed a brochure to inform commercial fishers and charter fishing tour operators of management arrangements
- Western Australian 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
- The area of the reserve was increased by approximately 12 per cent, to 244 000 hectares and proclaimed on 6 April 2004

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Longlines accidentally drifting into reserve during commercial fishing operations

Outputs

- Negotiate protocol with industry

Performance results 2003–04

- Liaison with industry during negotiation of longline retrieval protocol

Key performance area: Stakeholders and partnerships

Major issues

- Ensuring complementary approaches with the adjoining state reserve

Outputs

- Contribute to planning process for state component of the reserve

Performance results 2003–04

- Planning process discussed with state
- Department of the Environment and Heritage attended planning meeting and liaised with Ningaloo Management Committee

Key performance area: Business management

Major issues

- Effective management of contracts with management service providers

Outputs

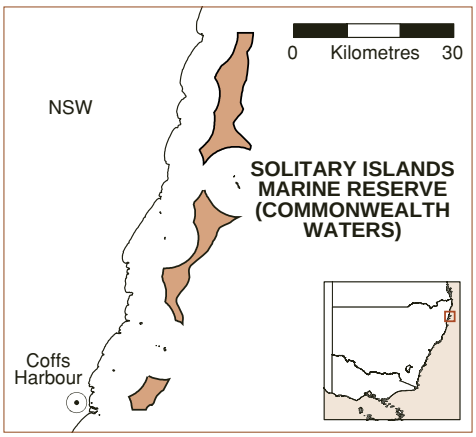
- Negotiate and implement annual business agreements

Performance results 2003–04

- Annual business agreements in place covering research, visitor management, education, and compliance and enforcement

Solitary Islands Marine Reserve (Commonwealth Waters)

www.deh.gov.au/coasts/mpa/solitary/index.html



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 extents.

The reserve is home to a number of species that are listed as endangered or vulnerable under Commonwealth legislation or international agreements. These include dolphins, humpback whales, grey nurse sharks, black cod, bleekers devil fish, little terns, and other seabirds.

The reserve and the adjacent state 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; little penguin and muttonbird nesting areas; and overall diversity and beauty.

Location	Latitude 30°00′ South, Longitude 153°22′ East
Area	15 680 hectares
Proclamation date	3 March 1993
IUCN category	VI overall (Ia 80 hectares, IV 3700 hectares, VI 11 900 hectares)
Biogeographic context	Interim Marine and Coastal Regionalisation for Australia region: Manning Shelf
Management plan status	Current plan expires 3 April 2008

Other significant management documents	Service level agreement with New South Wales; annual business agreements, management plan implementation and performance report, incorporating risk assessment	
Financial	Operating	$80 380[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Not known	
Commercial permits	6 commercial fishing permits; 9 commercial tour operators permits; and 3 recreational diving permits	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Bonn Convention	14 of 160 listed Australian species
China–Australia Migratory Birds Agreement	9 of 81 listed species
Japan–Australia Migratory Birds Agreement	11 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 4 vulnerable 24 migratory 33 marine
	Recovery plans	2 recovery plans implemented (marine turtles and grey nurse sharks)
Listed flora	None	

Numbers of native species recorded in the park					
Mammals	Birds	Reptiles	Fish	Invertebrates	Plants
25	42	Not known	Not known	Not known	0

Management arrangements

The New South Wales 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 New South Wales Marine Parks Authority and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) continue to monitor movements of grey nurse sharks between aggregation sites, including at Pimpernel Rock in the reserve.

The New South Wales Marine Parks Authority continues to remove and monitor debris at Pimpernel Rock and also commenced a reef habitat mapping programme that included the reserve.

Future challenges

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

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Illegal fishing within the sanctuary zone

Outputs

- Enforce fishing restrictions

Performance results 2003–04

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

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Managing impacts of diving in sanctuary zone

Outputs

- Manage dive operations

Performance results 2003–04

- 18 permits issued. No infringements of conditions detected

Key performance area: Stakeholders and partnerships

Major issues

- Ongoing engagement from community and government representatives

Outputs

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

Performance results 2003–04

- Participated on advisory and steering committees

Key performance area: Business management

Major issues

- Continued assistance from New South Wales Marine Parks Authority

Outputs

- Endorse and manage annual business agreement with New South Wales Marine Parks Authority

Performance results 2003–04

- Annual business agreement successfully implemented

Monitoring of the Marine Protected Areas

Researchers from the Australian Institute of Science undertook monitoring at Elizabeth Reef with support from the Australian Customs Service.

Scientific monitoring of the Australian Government's marine reserve estate has been a major focus over the past 18 months. The goal is to identify the values and habitats of the reserves and provide ongoing monitoring to assist with their managements.

Techniques used to survey the reserves include mapping of the seafloor, towing underwater video cameras and some sampling of material from the seafloor. This gives a clear picture of the characteristics of the seafloor and the ecological communities present. Baited video camera stations are also used to provide an indication of the fish and sharks that are present in the areas.

In recent months surveys were completed within the Commonwealth reserves located at Lord Howe Island and Ningaloo. The surveys have provided invaluable information on the values of the reserves.

At Ningaloo, at least four separate filter feeding communities (sponges and octocorals) were identified. These communities were found on patches of hard seafloor. Research is also being conducted on the feeding and movement of whale sharks.

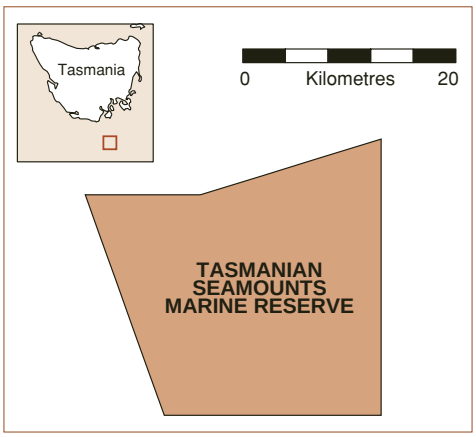
Surveys at Lord Howe Island identified seven separate seafloor habitats. The rarely seen Ballina angelfish appeared 12 times in the towed video footage. The area also supports a high density of sharks, particularly the Galapagos whaler shark, which is only known within Australia at this reserve and the nearby Elizabeth and Middleton Reserve.

A monitoring programme has been developed and implemented for the six coral reef reserves managed by the Director. Monitoring for these reserves includes water temperature, live coral cover, trochus, beche-de-mer and fish. The surveys highlighted the low densities in some reserves of species targeted by Indonesian fishers, including trochus, trepang and shark. High numbers of these same species were found in reserves where there has been effective protection over a long period.

Evidence of coral bleaching was also observed at some reefs. A major coral bleaching event was detected at Lihou Reef National Nature Reserve. Coral bleaching does not necessarily result in the death of coral and resurveying of the reserve is scheduled for 2005 to determine the extent of the damage.

Tasmanian Seamounts Marine Reserve

www.deh.gov.au/coasts/mpa/seamounts/index.html



Special features

The Tasmanian Seamounts Marine Reserve covers 15 of the approximately 70 seamounts that arise from water depths of between 1000 and 2000 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°20′ South, Longitude 147°20′ East
Area	38 900 hectares
Proclamation date	19 May 1999
IUCN category	Ia Below a depth of 500 metres is a highly protected zone (Ia) Upper 500 metres is a managed resource zone (VI)
Biogeographic context	Cold temperate waters offshore of the Tasmanian (demersal) province and the Southern Pelagic Province
Management plan status	Current plan expires 25 June 2009
Other significant management documents	Management plan implementation and performance report, incorporating risk assessment

Financial	Operating	Not applicable[a]
	Capital	Not applicable
	Revenue	Not applicable
Visitors	Unknown	
Commercial permits	0	

[a] In addition, $274 775 was spent across the 13 marine reserves managed by Parks Australia on training wardens, travel (on management-related expenses for the whole estate), workshops and conference attendance.

International conventions and agreements	
Bonn Convention	12 of 160 Australian listed species
Japan–Australia Migratory Birds Agreement	1 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	4 endangered 15 vulnerable 16 migratory 14 marine
	Recovery plans	2 recovery plans implemented (albatrosses and giant petrels, marine turtles) Southern right whale recovery plan in preparation
Listed flora	None	

Major monitoring efforts

A consultancy was let to the Cooperative Research Centre – Reef Research Centre to deliver a strategic plan for research and monitoring across the Australian Government's existing and proposed temperate marine protected areas, including Tasmanian Seamounts Marine Reserve.

Future challenges

Major challenges are to implement a strategic plan for research and to continue monitoring across the Australian Government's existing and proposed temperate marine protected areas, including Tasmanian Seamounts Marine Reserve; and further develop and implement a compliance and enforcement plan for the reserve, including the monitoring of possible illegal activities.

Report on performance by key result areas

Key performance area: Heritage management

Major issues

- Possible illegal fishing by commercial fishers
- Improve understanding of reserve's ecological processes

Outputs

- Fishing restrictions enforced
- Research and monitoring programme in development

Performance results 2003–04

- Coastwatch aerial surveillance requested on a regular basis – surveillance provided occasionally, due to Coastwatch resource constraints
- No illegal fishing incidents
- Consultancy let to Cooperative Research Centre – Reef Research Centre to develop a strategic research and monitoring plan for temperate marine protected areas, including the Tasmanian Seamounts Marine Reserve

Key performance area: Cultural heritage management

Major issues

- No issues of concern

Key performance area: Visitor management and park use

Major issues

- Monitoring of possible illegal activities, particularly fisheries

Outputs

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

Performance results 2003–04

- Periodic surveillance conducted

Key performance area: Stakeholders and partnerships

Major issues

- No issues of concern

Key performance area: Business management

Major issues

- No issues of concern

Keeping out the aliens

Scientists monitor vegetation at Heard Island. Preventing the introduction of alien species is a high priority for protecting the species native to this remote reserve.

There are not many places left in the world that you can't get to very quickly. There are even fewer places where people have yet to leave their mark. It is therefore hard to believe that Heard Island and McDonald Islands have no known human-introduced species. Indeed, these wild and isolated places are regarded as among the most biologically pristine areas on the planet.

A lot of time and energy is being spent on ensuring it stays that way. It goes without saying that the best strategy for keeping the islands' World Heritage-listed ecosystems intact is to prevent the arrival of alien species in the first place.

Active monitoring for new species and rapid response procedures are vital and will continue. But successful 'quarantining' of these islands hinges on high-quality education campaigns and strictly enforced requirements to clean and inspect all clothing and equipment before leaving for the islands.

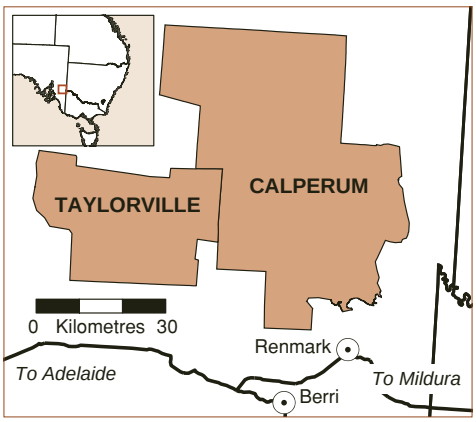
The Australian Antarctic Division recognises the need to build on already stringent quarantine practices and wants to incorporate these improvements into the new Heard Island and McDonald Islands Marine Reserve management plan. To achieve this, the Australian Antarctic Division commissioned an independent ecological risk assessment in 2003.

The report, *The Probability of Introduction of Non-Indigenous Species to Heard and McDonald Islands: Taxa, Risks, and Mitigation*, concluded that the islands' pristine status is not guaranteed. It said that continuing visitation and climate warming make it more likely that alien species could be introduced to the islands.

The major threats are rodents, which have caused major changes to ecosystem function and local species extinctions on many other sub-Antarctic islands. However, invasive vascular plants and invertebrates could also severely affect the local ecosystem diversity.

Calperum and Taylorville Stations

www.deh.gov.au/parks/biosphere/bookmark



Special features

Calperum and Taylorville stations are adjacent pastoral leases in the Riverland area of South Australia. Both properties are key components of the Bookmark Biosphere Reserve, which has a total area of 900 000 hectares. The Bookmark Biosphere Reserve forms part of the UNESCO Man and the Biosphere Programme, which includes 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. Taylorville is also a key habitat for the nationally endangered black-eared miner *Manorina melanotis*.

While conservation of biodiversity 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 old growth mallee and its dependent species.

Location	Latitude 34° South, Longitude 141° East
Area	337 800 hectares
Status	Pastoral leases in South Australia are owned by the Australian Government through the Director of National Parks Calperum was acquired in 1993, Taylorville in 2000
IUCN category	Calperum – not applicable Taylorville – IV (habitat management area)
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Murray–Darling depression

Management plan status	A management plan covering both properties is being prepared	
Management arrangements	Managed by Austland Services Pty Ltd (a company established by the Australian Landscape Trust) under contract to the Director of National Parks. Current contract runs from 1 May 2003 to 30 June 2008. Contract funding provided through the Natural Heritage Trust	
Other significant planning documents	Biosphere reserves Seville strategy and statutory framework	
Financial	Operating[a]	$715 000
	Revenue	$569 000
	Capital	$18 000
Visitors	119 day visitors 474 campers	

[a] Represents the funding provided by the Director of National Parks – at least matching funding is also provided by Austland Services

International conventions and agreements	
Convention on Wetlands (Ramsar, Iran 1971)	Part of Calperum included in Riverland Ramsar site
Bonn Convention	38 of 160 listed Australian species
China–Australia Migratory Birds Agreement	10 of 81 listed species
Japan–Australia Migratory Birds Agreement	10 of the 110 listed species
Other international agreements	Major component of Bookmark Biosphere Reserve

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 5 vulnerable 41 migratory 34 marine (primarily birds which are not exclusively marine)

	Recovery plans	2 recovery plans being implemented (malleefowl and black-eared miner)
Listed flora	Species	1 vulnerable
	Recovery plans	No plans being prepared or implemented

Major monitoring efforts

A tree monitoring programme at Lake Merreti (river red gum and black box dieback) has identified a complex underground salinity event as the probable cause of the widespread death of mature trees. A targeted monitoring and research programme is proposed to identify the precise source of the saline water and to develop appropriate management responses.

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

Future challenges

Identifying and implementing environmentally sustainable industries on Calperum Station remains an ongoing challenge. Access to sufficient water to re-establish natural flooding and drying regimes over Calperum's wetlands is also a challenge in the face of competing demands for water resources. Protection of old growth mallee on Taylorville Station from fire and other potentially threatening impacts is a major priority. Completing the management plan will be a major priority for 2004–05.

Report on performance by key result areas

Key performance area: Natural heritage management

Major issues

- Reverse land degradation
- Feral animal and weed control
- Fauna management

Outputs

- Wetlands restoration and revegetation activities
- Feral animal control programmes concentrating on pigs, foxes and rabbits
- Monitoring of native animal populations

- Contribute to recovery programmes for threatened birds

Performance results 2003–04

- Management regimes for Lake Merreti and Lake Woolpolool reviewed by independent consultant and revised management regimes being investigated in light of findings
- Existing fox control programme continued and monitoring suggests fox density remains low
- Ongoing monitoring programmes continued
- Participated in recovery programmes for malleefowl and black-eared miner

Key performance area: Cultural heritage management

Major issues

- Aboriginal heritage

Outputs

- Protection of known cultural sites

Performance results 2003–04

- Fenced 40 hectares of floodplain sand dune containing evidence of Aboriginal occupation

Key performance area: Visitor management and reserve use

Major issues

- Management of tourism impacts

Outputs

- Management of day-to-day recreational use

Performance results 2003–04

- Visitors to the area managed satisfactorily

Key performance area: Stakeholders and partnerships

Major issues

- Use of volunteers
- Governance arrangements

Outputs

- Promote, support and oversee extensive volunteer involvement
- Participate in Bookmark Biosphere Community Committee

Performance results 2003–04

- 370 individual volunteers donated over 4068 hours during the year
- Participated in 10 meetings

Key performance area: Business management

Major issues

- Property maintenance
- Management planning
- Sustainable industry development

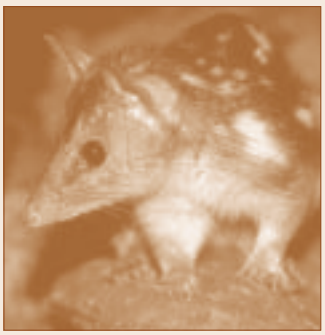
Outputs

- Maintain Director's infrastructure
- Compile first formal management plan for Calperum and Taylorville stations
- Undertake native plant and seed production

Performance results 2003–04

- Automated watering system around Calperum Homestead installed and working effectively; management trails and boundary fencing maintained
- Slow progress on management plan due to competing work priorities
- Floriculture continued to be adversely affected by weather and market conditions. Production of native seed in commercial quantities for revegetation work being investigated

Goannas and cane toads



Relocation of some northern quoll to offshore islands was part of the strategy for protecting this species from the impacts of the cane toad.

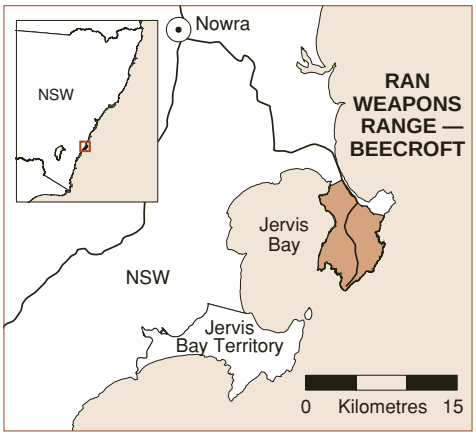
Cane toads arrived at the southern boundary of Kakadu National Park in 2001 and are now well established across most of the park. An early casualty of the toads was the northern quoll *Dasyurus hallucatus*. A programme to translocate some quolls from Kakadu and near Darwin to offshore toad free islands has, to date, proven successful.

Cane toads are also believed to threaten goanna populations. Anecdotal records from the gulf country suggest that goannas are hard to find once toads arrive. Goannas are a significant food and cultural resource for the Aboriginal people of Kakadu and their decline has implications, not only on the biodiversity of the park, but also traditional culture.

Staff from Charles Darwin University have been monitoring goannas using ground surveys and radio tracking. The results so far indicate that about half the populations of the larger goanna species *Varanus gouldii* and *V. panoptes* disappear as toads become established. The situation may become worse if toad numbers continue to rise as expected. The project will also provide baseline data for future monitoring of goanna recovery.

There are no feasible means to control cane toads in Kakadu, however park staff are working with the board of management and Charles Darwin University to increase awareness by park visitors and traditional owners about the toads' effect on goannas.

Royal Australian Navy Weapons Range – Beecroft Peninsula



Special features

Beecroft Weapons Range occupies most of Beecroft Peninsula, the northern peninsula of Jervis Bay in New South Wales. The peninsula offers a wide range of experiences for visitors, including spectacular views from rugged cliffs, wide expanses of flowering heath, patches of remnant rainforest, secluded beaches and beautiful bays. The area is also home to several threatened plant and animal species and is used by migratory species.

Art and occupation sites of cultural significance to local Aboriginal people have been recorded, and the Point Perpendicular lighthouse has heritage significance. The area's generally low weed status, in part because of its history of limited disturbance and public access, is an important feature.

When not being used for defence purposes, Beecroft Weapons Range is open to the public. The range is popular with campers and other recreational users, including rock-climbers, whale watchers and fishers. It is also used for scientific research.

Location	Latitude 35° South, Longitude 151° East
Area	4020 hectares
Status	Australian Government land within New South Wales used by the Department of Defence for training and weapons testing. Declared a public area under the Defence Act 1903 on 28 October 1987
IUCN category	Not applicable
Biogeographic context	Interim Biogeographic Regionalisation for Australia region: Sydney Basin
Management arrangements	Services for the management of both the range's natural and cultural heritage and its visitors were provided by Parks Australia through a Memorandum of Understanding with the Department of Defence. This will cease early in the 2004–05 financial year

Other significant planning documents	Beecroft Peninsula Environmental Management Plan is the principal policy document for management. As part of this, a works programme is agreed annually between the Director of National Parks and the Department of Defence. Other significant planning documents include a fire management plan; weed control strategy; and vertebrate pest control strategy	
Financial	Operating	$680 000
	Revenue	$680 000
	Capital	Not applicable
Visitors	56 620	
Commercial permits	Not applicable	

International conventions and agreements	
Bonn Convention	9 of 160 listed Australian species
China–Australia Migratory Birds Agreement	6 of 81 listed species
Japan–Australia Migratory Birds Agreement	4 of 110 listed species

Environment Protection and Biodiversity Conservation Act 1999		
Listed fauna	Species	1 endangered 5 vulnerable 36 migratory 5 marine
	Recovery plans	1 recovery plan being implemented (eastern bristlebird)
Listed flora	Species	3 endangered
	Recovery plans	None

Major monitoring efforts

Bird surveys conducted at Beecroft this year revealed a number of EPBC Act listed migratory species. These species included whimbrels *Numenius phaeopus*; eastern curlews *Numenius madagascarensis*; whistling kites *Haliastur sphenurus*; white-bellied sea eagles *Haliaeetus leucogaster*; grey goshawks *Accipiter novaehollandiae*; and tawny grassbirds *Megalurus timoriensis*.

Future challenges

The arrangement between Parks Australia and the Department of Defence for the environmental management of Beecroft Weapons Range ceased early in the 2004–05 financial year following the decision of the Department of Defence to employ their own staff. Responsibility reverted to the Department of Defence in August 2004.

Beecroft Peninsula – an environmental success story

Small mammal populations have increased following the control of foxes. Poison baits are buried to target foxes and avoid accidental poisoning of other species.

The Royal Australian Navy Weapons Range at Beecroft Peninsula seems an unlikely place for an environmental success story. Military exercises and constant bombardments don't seem to fit neatly with the conservation of our natural environment. Yet this scenic coastal region at Jervis Bay in New South Wales is leading the way.

Parks Australia and the Department of Defence have worked together to manage the range's environment, which is no easy task. It is a delicate juggling act, balancing the competing interests of conservation, recreation and heritage protection across a 4000 hectare active military site.

But Parks Australia staff have been extremely effective. They have succeeded in controlling feral animals, especially foxes. This has resulted in the recovery of small native mammal populations. They have also maintained the low weed status of the range (one of its major conservation values) and have recorded the many cultural heritage sites of the Jerrinja people.

In recognition of these conservation successes, Beecroft Peninsula is now being used as a secure translocation site for the endangered eastern bristlebird *Dasyornis brachypterus*. This says much about the cooperation that exists between these two seemingly disparate organisations, as well as the dedication and skill of Parks Australia staff. The good work will continue when the Department of Defence resumes environmental management of the Peninsula in August 2004.