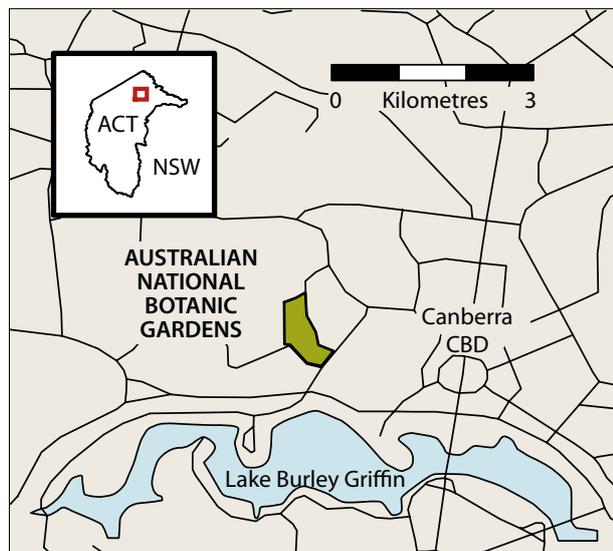


# Australian National Botanic Gardens

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 a nation's native species as a principal goal. Approximately one-third of the known flowering plant species that occur in Australia and about half the known eucalypt species are represented in its living collection. The ANBG is a national showcase for the horticultural use of Australia's native plants. It is a partner in the Australian National Herbarium which provides the scientific identification of plant species represented in the living collection and scientific information on Australian plants.

The ANBG contributes to meeting Australia's obligations under international environment conventions to which

Australia is a signatory. In particular, the Convention on Biological Diversity recognises the importance of botanic gardens in *ex situ* and *in situ* conservation, research, training, plant identification and monitoring, raising public awareness, providing access to genetic resources, and global cooperation in the sustainable use of plant biodiversity. The ANBG provides expert participation and contributes scientific data to the Global Biodiversity Information Facility and other international biodiversity projects.

<b>Location</b>	Latitude 35°16' South, Longitude 149°06' East
<b>Area</b>	85 hectares
<b>Proclamation date</b>	17 September 1991
<b>IUCN category</b>	Category IV
<b>Biogeographic context</b>	Displays plants from a diverse range of climatic and biogeographic regions—alpine to tropical, coastal to central desert
<b>Management plan</b>	Second management plan expired 9 January 2009. A draft third management plan is in preparation for release for public comment in 2010–11
<b>Other significant management documents</b>	Risk Assessment and Management Schedule; ANBG Masterplan (National Capital Authority); ANBG Fire Procedures 2008; Agreement for the Establishment and Operation of the Centre for Plant Biodiversity Research (CPBR) between the Director of National Parks and the Commonwealth Scientific and Industrial Research Organisation (CSIRO); CPBR Strategic Plan

<b>Financial</b>	Operating	\$9.652 million
	Capital	\$1.336 million
	Revenue	\$10.448 million
<b>Visitors</b>	429,109 to site 107,498 to visitor centre	
<b>Living plants</b>	Planted in 2009–10: 4,000 Total number of taxa in the living collection: 6,077 Total number of registered plants in the living collection: 80,441	
<b>Herbarium specimens</b>	Specimen records added to database in 2009–10: 11,119 Specimen records in database: 857,279 Total number of specimens in collection approximately 1.2 million: 899,265 items databased, plus approximately 300,000 not databased	
<b>Australian Plant Name Index</b>	Names added to APNI data base in 2009–10: 10,530 Total names in APNI database: 215,807	
<b>Australian Plant Census</b>	Names added to APC database in 2009–10: 2,299 Total names in APC database: 19,431	
<b>Australian Plant Image Index</b>	Images added in 2009–10: 6,481 Total number of images in collection: 63,315	
<b>Permits</b>	16 commercial activity permits; 39 wedding licences; 78 licences to publish 514 photographs from the collection; 4 research permits	

<b>International conventions and agreements</b>	
<b>World Heritage Convention</b>	Supports Australia's World Heritage sites through botanical research, scientific plant collections, plant identification, botanical information management and horticultural and educational programs
<b>Wetlands (Ramsar) Convention</b>	Supports Australia's obligations under the Ramsar Convention through access to plant identification services and data on aquatic plants in the Australian National Herbarium, and by delivering information on Australia's aquatic plants through its website
<b>Other agreements</b>	Collaborates with international organisations including: <ul style="list-style-type: none"> <li>• Botanic Gardens Conservation International</li> <li>• International Association of Plant Taxonomists</li> <li>• International Plant Propagators Society</li> <li>• International Union of Biological Sciences Taxonomic Databases Working Group</li> <li>• International Plant Name Index (Royal Botanic Gardens, Kew, and Harvard University)</li> <li>• Global Biodiversity Information Facility</li> <li>• International Organisation for Plant Information World Vascular Plant Checklist Project</li> <li>• Species 2000</li> <li>• Millennium Seed Bank Project</li> <li>• American Public Gardens Association</li> <li>• Global Strategy for Plant Conservation</li> </ul>

<b>Environment Protection and Biodiversity Conservation Act 1999</b>	
<b>Heritage</b>	On Commonwealth Heritage List

## Management arrangements

The ANBG is managed by an Executive Director supported by a General Manager, both appointed by the Director of National Parks. Since 1993 the ANBG has been a partner in the Centre for Plant Biodiversity Research, a joint research venture with CSIRO Plant Industry which incorporates the Australian National Herbarium. The herbarium retains voucher specimens for research and environmental studies and for plants at the ANBG.

## Monitoring

ANBG staff stocktake the living collection and record information on plant locations, plant deaths and the overall health of the collection. This information is linked electronically to scientifically documented 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 to the ANBG's living specimens and used in public interpretation. New accessions help to document the occurrence and distribution of plants in Australia.

Kangaroo, wallaby and rabbit populations are monitored to alert management to threats to the living collection. A venomous snake management plan monitors snake interactions with people.

## Future challenges

Major challenges are:

- securing sufficient resources to achieve government and national priorities
- finalising the third management plan
- reviewing the living collection and proposing strategies for its future management
- integrating climate change considerations into management and research
- finalising a new agreement between the Director of National Parks and CSIRO for the continuation of the Centre for Plant Biodiversity Research.
- securing future expanded accommodation for the Australian National Herbarium collections
- acquiring the latest information technology to improve taxonomy and systematics research.

## Report on performance by key result areas

### KRA1: Natural heritage management

#### Major issues

- Water management and associated infrastructure
- *Ex situ* conservation
- Enhancing the living collection
- Managing plant record information, including introducing **geographic information system** (GIS) technology to living collection management

#### Actions

- Increase water use efficiency and sustainability
- Position the ANBG as a leader in *ex situ* conservation including seed banking
- Review the scope and operations of the living collection
- Use GIS to accurately map the living collection

#### Performance results 2009–10

- Secured a more reliable and sustainable water supply for irrigating the living collection. The National Capital Authority granted authorisation for the ANBG to extract water from Lake Burley Griffin and a pipeline for the non-potable water supply was installed between the lake and the ANBG. Works were commenced to distribute this water through the ANBG's irrigation system (see case study on page 17)
- Continued a program for *ex situ* alpine plant conservation supported by a three-year partnership between the ANBG, Australian National University, University of Queensland and the Friends of the ANBG. The program studies how climate change will affect the reproductive ecology and demography of Australian alpine flora. Eight field trips to the Mount Kosciuszko area were undertaken and 94 seed samples were collected

- Conducted recruitment for a coordinator of the Australian Seed Bank Partnership which will be based at the ANBG
- Completed a review of the living collection with recommendations for the collection's future management and new opportunities for its development
- Engaged a temporary GIS officer to begin developing GIS capability and commenced digital mapping of the ANBG
- Rehabilitated the old nursery site to prepare for a new display of the living collection
- Continued to display approximately one-third of the plant species occurring naturally in Australia, in a managed horticultural setting

#### **KRA4: Use and appreciation of protected areas**

##### **Major issues**

- Visitor services including signage, interpretation and education programs
- Education programs need to be aligned with the Australian science curriculum, focusing on Australia's natural and cultural heritage
- Visitor programs and outreach
- Monitoring and evaluating visitors' satisfaction and needs

##### **Actions**

- Progress development and installation of interpretive, information and directional signage
- Review and redevelop current education programs to incorporate 'hands on, minds on' learning for students
- Redevelop the online education program booking system
- Use social media platforms to engage with a wider audience
- Develop a calendar of public programs, events and temporary exhibitions targeting key audiences
- Conduct visitor surveys to measure visitor satisfaction and determine future needs
- Encourage greater visitation through a range of programs and initiatives

##### **Performance results 2009–10**

- Received a total of 429,109 visitors. Visitation for February (46,865), March (57,260) and April 2010 (52,224) was the highest for these months on record. Visitors to the visitor information centre numbered 107,498, 25 per cent of the total visitation to the ANBG
- Installed 66 new directional signs in September 2009 to enhance visitor orientation
- Installed information signs along the main path
- Revised all ANBG education programs and tailored the programs to meet the needs of interstate and local school students. Continued to redevelop programs to incorporate the national curriculum and inquiry-based learning techniques
- Hosted 9,520 school and tertiary students from 191 schools in ANBG education programs (59 per cent of students participated in ANBG-run programs and 41 per cent in *Do It Yourself* programs run by their own teachers). Schools from every state and territory included the ANBG on their Canberra excursion itinerary
- Distributed education resource material to schools and teachers. This included copies of the floral emblems of Australia and Bush Foods posters and the *Canberra Times* education supplement
- Completed the ANBG Education Strategy and reviewed education policies and procedures. This included redeveloping the online education booking system

- Implemented a successful events program including:
  - NAIDOC Week (July 2009)
  - Wattle Day (1 September 2009)
  - Christmas Concert (5 December 2009)
  - Summer Concert Series (9–31 January 2010)
  - Music and Dances and Weddings (7 February 2010)
  - Footprint EnviroFest (14 March 2010)
  - International Biodiversity Day (22 May 2010)
  - World Environment Day (5 June 2010)
  - Bush Magic: Storytime in the Gardens (first Friday of every month)
- Promoted the cultural, artistic and scientific values of Australian native plants through exhibitions including 'Greening Silver City', 'Celebrate Our Wattle', 'Tree of Trees', 'Friends School Photographic Exhibition', 'Replant', 'Nature's Canvas', 'Friends Botanical Art Group Exhibition', 'Friends School Photographic Retrospective', 'National Parks Association Photographic Exhibition' and 'Australian Plants Bonsai Exhibition'
- Received departmental approval for the Social Media Policy in March 2010. The ANBG social media Twitter and Facebook sites were launched in April 2010 to facilitate engagement with a national and international audience and a wider demographic
- Installed six pedestrian counters in January 2010 to monitor visitor flow throughout the ANBG
- Produced a 2010 commemorative calendar to celebrate the 40<sup>th</sup> anniversary of the official opening of the ANBG on 20 October 1970. In total 2,000 calendars were distributed to key stakeholders and sold to the public through the Botanic Bookshop

## **KRAS: Stakeholders and partnerships**

### **Major issues**

- Supporting and participating in national and international botanical forums including the Council of Heads of Australasian Herbaria, Council of Heads of Australian Botanic Gardens, Global Biodiversity Information Facility, Taxonomy Research and Information Network, Atlas of Living Australia, Encyclopaedia of Life and Taxonomic Databases Working Group
- Servicing the department's and CSIRO's need for technical and scientific advice on Australian plants
- Developing new partnerships with government and non-government organisations
- Continuing a collaborative partnership with the Friends of the ANBG
- Supporting and engaging with the Australian Cultivar Registration Authority, the Australian Network for Plant Conservation and Greening Australia
- Ongoing support for the Centre for Plant Biodiversity Research
- Fostering opportunities and partnerships with new stakeholders

### **Actions**

- Continue the ANBG's active leadership role with the Council of Heads of Australian Botanic Gardens
- Continue strategic partnerships and cooperative data management with the Taxonomic Databases Working Group, Global Biodiversity Information Facility, Taxonomy Research and Information Network and Atlas of Living Australia
- Continue the Australian National Herbarium's engagement in the Council of Heads of Australasian Herbaria
- Undertake and promote the services that the ANBG and Centre for Plant Biodiversity Research can provide to the department and CSIRO in the form of technical and expert advice
- Continue to develop the positive partnership between the ANBG and the Friends of the ANBG
- Continue hosting the Greening Australia Community Seed Bank, the Australian Cultivar Registration Authority and the Australian Network for Plant Conservation on the ANBG website
- Continue the joint ANBG–CSIRO partnership in the Centre for Plant Biodiversity Research

## Performance results 2009–10

- Continued ANBG membership of technical working groups under the Global Biodiversity Information Facility and Taxonomic Databases Working Group
- Continued the close collaboration between the ANBG seedstore and Greening Australia, including joint field collecting, seed storage and management. The ANBG provided Greening Australia with space and irrigation for seedling production
- The Australian National Herbarium continued to play a driving and coordinating role on behalf of the department for projects undertaken by the Council of Heads of Australasian Herbaria. This included continued work with Australia's Virtual Herbarium, and the Australian Plant Census
- The Centre for Plant Biodiversity Research continued its close association with the Taxonomy Research and Information Network, housing the network's core staff and participating in projects such as systematic and diversity studies of weeds of national significance and biodiversity information management
- The ANBG and Centre for Plant Biodiversity Research entered into a partnership with the Australian Biological Resources Study and the Atlas of Living Australia to develop and manage a common taxonomic infrastructure for the Australian Faunal Directory, the Flora of Australia, the Australian Plant Census and the Australian Plant Name Index, and to develop web services including a species profile template for the Atlas of Living Australia
- The Centre for Plant Biodiversity Research participated in a 'Bush Blitz' collaborative biodiversity survey in Darkwood Nature Reserve near Dorrigo, NSW, coordinated by the Australian Biological Resources Study. The results of these surveys will contribute to such projects as Australia's Virtual Herbarium and the Atlas of Living Australia
- The Friends of the ANBG ran the annual students' photographic competition and the autumn and spring plant sales; published quarterly newsletters; provided volunteer guided walks each day and facilitators for the Botanical Resource Centre twice a week; and supported the ANBG's annual summer concerts in January 2010
- The Australian Cultivar Registration Authority, based at the ANBG, documents the nomenclature of cultivated plants in the Australian Plant Name Index database. Funding was secured from private donors and the horticulture industry to enhance the index's cultivar data and add scanned pdf documents of the original cultivar descriptions
- The Australian Network for Plant Conservation, based at the ANBG, continued to conduct workshops in plant conservation techniques throughout the country and continued to produce its quarterly newsletter
- The Centre for Plant Biodiversity Research partnership in the new Australian Tropical Herbarium in Cairns was continued. The ANBG and the Centre for Plant Biodiversity Research successfully provided database services to support the tropical herbarium's collections management

## KRA6: Business management

### Major issues

- Finalisation of the third management plan
- Effective budget management to meet increasing operational costs
- Ongoing development and retention of staff
- Minimisation of operational risks to staff and visitors

### Actions

- Develop the third management plan
- Align the strategic risk assessment and business planning timelines to ensure that resources meet existing and emerging needs
- Investigate new revenue opportunities to offset operational costs
- Continue staff development through targeted training programs, regular communication and a team-based approach to projects
- Embed risk management principles in project planning and operational processes

## Performance results 2009–10

- Developed the draft management plan for public consultation in early 2010–11
- Addressed the challenge posed by increases in the cost of water through the new project to extract water from Lake Burley Griffin
- Maintained and improved staff consultation, involvement and capacity building through training, staff working groups and planning sessions
- Ensured staff health and safety through regular occupational health and safety committee meetings and applying risk management principles in developing capital works projects and operational plans

## KRA7: Biodiversity science, knowledge management and use

### Major issues

- Nationally consistent names for Australian plant species
- Systematics and classification of Australian plant species
- Taxonomic botanical research and documentation
- Developing the horticultural knowledge base
- Integrating the living collection database, herbarium database and image database
- Improving access to botanical information and images to assist in responding to plant conservation, natural resource management and environmental change
- Awareness of, and engagement with, national and international collaborative biodiversity projects

### Actions

- Maintain and curate the Australian National Herbarium collections and associated data content, and links to related information
- Make botanical data, information and expertise available to the national and international botanical communities and to the public
- Develop and maintain the Australian Plant Name Index and the Australian Plant Census to provide an up-to-date listing of flowering plants in Australia as a consensus view of the Australian botanical community
- Undertake taxonomic and systematic research, publish and disseminate research findings, and make data available to the research community and the public
- Develop, maintain and promote authoritative scientific databases of Australian plant information and make this information accessible online using contemporary data standards
- Integrate the department's plant and animal name databases with ANBG databases to allow more consistent management and delivery of biodiversity data
- Expand the extensive plant image collection and improve electronic management and access to the digital collection
- Position the ANBG as a key agency for disseminating information on conservation and environmental change issues in botanic gardens
- Drive national collaborative biodiversity information accession, management and delivery projects

## Performance results 2009–10

- Databased 11,060 herbarium specimens with a total of 856,972 collection specimens now recorded in the database and available to the public through the internet
- Kept data in the Australian Plant Name Index up to date
- Updated the Australian Plant Image Index to make 6,481 additional images accessible on the internet
- Made significant progress on an agreed list of scientific names for Australia's flowering plants, including higher level taxonomy, through management of the Australian Plant Name Index and the national collaborative Australian Plant Census project. The project is endorsed by the Australian Government and by state and territory herbaria

- Commenced data collation for an agreed list of scientific names for Australian liverworts and hornworts through the Australian Plant Census project
- Maintained the Census of Vascular Plants of the ACT, including adding the hornwort and liverwort groups
- Negotiated a contract for a partnership with the Atlas of Living Australia to redevelop the nomenclature and taxonomic infrastructure for Australian plant and animal species in association with the Australian Biological Resources Study. This will effectively combine Australian Government plant and animal names data through a common interface
- Collaborated with the Atlas of Living Australia and the Taxonomy Research and Information Network to develop specifications for species profiles for managing digital biodiversity data. The Atlas of Living Australia also provided additional computer hardware to support increased demand for biodiversity name services
- Redeveloped the living collection information system
- Appointed research and technical staff to the Centre for Plant Biodiversity Research to undertake spatial analyses and research into the occurrence and distribution of Australian plants
- Commenced redevelopment of the ANBG website to update content, enhance the site's presentation and improve site navigation
- Continued research on the ecological function, structure and small-scale dynamics of grassland communities in south-eastern Australia, using grasslands in the West Wyalong district as model systems. A paper on this work was accepted for publication in the journal *Global Change Biology*
- The ANBG and Centre for Plant Biodiversity Research participated in national and international biodiversity information management and technical infrastructure projects including the Atlas of Living Australia, the Australian Faunal Directory, the Taxonomy Research and Information Network, the Australian Plant Census, Australia's Virtual Herbarium, the Global Biodiversity Information Facility, the Encyclopedia of Life and the Taxonomic Databases Working Group
- Researchers completed 21 scientific papers or publications resulting from research undertaken at the Australian National Herbarium. Areas of study included Australian Orchidaceae, Amaranthaceae, Rutaceae, Myrtaceae, Malvaceae, Portulacaceae, Mimosaceae, Santalaceae, weeds and bryophytes
- The Australian Plant Image Index undertook a contract to collect, database and manage images of weeds for the department's Weeds Australia website
- The Centre for Plant Biodiversity Research was contracted by the NSW Roads and Traffic Authority to document and manage translocation and conservation of three species of orchids threatened by the Bulahdelah bypass highway realignment

## Case Study: Water for the future at the Australian National Botanic Gardens

Construction is well under way on an exciting new water project at the Australian National Botanic Gardens.

Since its inception, the Gardens has relied on a supply of Canberra's normal drinking water for all its supply requirements including irrigation—the vast majority of its water use.

The changing climate, the recent years of drought, a focus on sustainability and the rising cost of drinking water led the Director of National Parks to commission a report investigating alternative water sources for the Gardens.

The report recommended that, subject to appropriate licensing, the most cost-effective and reliable supply of water for the Gardens was Canberra's Lake Burley Griffin.

In 2007, the Gardens applied for a water allocation licence to extract 170 megalitres per year from the lake. The National Capital Authority granted a temporary licence to extract the water. In the future the ACT Government will look after the licensing agreement.

In 2009, the Australian Government provided \$1.5 million through the Water for the Future plan to fund the water extraction project, including a new pipeline to the Gardens. The Director of National Parks committed a further \$1.4 million to the project.

The Gardens engaged Engon Pty Ltd to develop specifications, engineering drawings and tender information for the construction phase. Gardens' staff carried out the tender documentation and project management for the construction phase.

Construction began in April 2010, after the Gardens secured approvals from many ACT and Australian Government agencies. Draincorp Pty Ltd was the successful tenderer for this work.

The project is on schedule to be watering the living collection from non-drinking water by this summer. Using water from Lake Burley Griffin ensures long-term sustainability by reducing the Gardens' operational costs and reliance on Canberra's drinking water supply. The project is expected to free up around 170 megalitres of drinking water per year for other uses in Canberra.



*A new pipe network to water Gardens' plants with non-drinking water from Lake Burley Griffin will help provide a more sustainable future for the collections.  
Photos: ANBG*