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**Australian National Botanic Gardens  
Management Plan  
2002-2008**



## Foreword

The Australian National Botanic Gardens is a major scientific, recreational and educational resource. It is the original national collection and the world's most comprehensive display of living Australian native plants. It provides visitors with a memorable experience of the beauty and diversity of Australia's native flora. It contributes to a better understanding of Australia's plant species through the living collection, displays and, increasingly, internet access to a variety of authoritative information resources.

The Australian National Botanic Gardens (the Gardens) was established as a reserve by proclamation under subsection 7(2) of the *National Parks and Wildlife Conservation Act 1975* (Cth) on 17 September 1991. A copy of the declaration is at Appendix 1. The Director of National Parks, a Commonwealth statutory authority, assisted by staff of Environment Australia (the Commonwealth Department of the Environment and Heritage), is the Commonwealth's managing authority for the Gardens.

The *National Parks and Wildlife Conservation Act 1975* was replaced by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 16 July 2000. The proclamation of the Gardens is continued in force by the *Environmental Reform (Consequential Provisions) Act 1999* as if it had been made under the EPBC Act, and as if the proclamation stated that the purposes for which the Gardens was declared were: the increase of knowledge, appreciation and enjoyment of Australia's plant heritage by establishing, as an integrated resource, a collection of living and herbarium specimens of Australian and related plants for study, interpretation, conservation and display.

The Gardens contributes significantly to Environment Australia's national biodiversity conservation objectives and it is recognised both nationally and internationally for its role in promoting the protection, conservation and wise use of Australian plants. The developed sections of the Gardens, comprising 50 of the 90 hectares of the site, are listed on the Register of the National Estate under the *Australian Heritage Commission Act 1975* as an outstanding example of landscape design and horticulture using Australian native plants. The Gardens fulfills a number of more regional and local roles that are detailed in Chapter 2 of this Plan. It is important, therefore, the character and values of the Gardens continue to be preserved.

This is the second Management Plan for the Gardens. The first Plan ceased to have effect on 3 March 1999. This Plan has been prepared in accordance with the EPBC Act and within the framework of the National Strategy for the Conservation of Australia's Biological Diversity and Environment Australia's Corporate Plan.

The Plan sets out how the Gardens is to be managed, and in particular outlines initiatives to further diversify the living collection, redevelop outdated visitor facilities and infrastructure and to pursue modern technologies for management of the various collections, particularly in relation to providing information to client groups.

This Management Plan is intended to be in operation for a period of seven years after notice of its operation has been published in the *Commonwealth Government Gazette*, but may be amended or replaced sooner by another Management Plan for the Gardens.

**Peter Cochrane**

Director of National Parks

## Preface on Legislative Context

This Management Plan has been prepared in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) under which the Gardens is managed. The EPBC Act came into effect on 16 July 2000 and replaces the former:

- National Parks and Wildlife Conservation Act 1975 (Parks Act);
- Environment Protection (Impact of Proposals) Act 1974;
- Endangered Species Protection Act 1992;
- Whale Protection Act 1980; and
- World Heritage Properties Conservation Act 1983.

Copies of the EPBC Act and the *Environmental Reform (Consequential Provisions) Act 1999* may be purchased from Commonwealth Government shops or may be viewed on the Web at <http://www.austlii.edu.au/au/legis/cth> or <http://scaleplus.law.gov.au/>.

## Acknowledgments

The Director of National Parks is grateful to organisations and individuals who provided information and assistance during the development of this Plan. In particular the contribution of those who responded to the 'Have Your Say' brochure and provided comment on the draft Plan is gratefully acknowledged, as having significantly improved this Plan.

# Contents

## Foreword

## Preface on Legislative Context

## Acknowledgments

## Executive Summary

### **PART 1            PREAMBLE**

#### **Chapter 1            Introductory Provisions**

- 1.1                    Short Title
- 1.2                    Commencement and Termination
- 1.3                    Interpretation
- 1.4                    Administrative and Legislative Context
- 1.5                    Purpose and Content of a Management Plan
- 1.6                    IUCN World Conservation Union Category
- 1.7                    Booderee Botanic Gardens

#### **Chapter 2            Overview of the Australian National Botanic Gardens**

- 2.1                    Description of the Gardens, its Functions and Values
- 2.2                    Significance of the Gardens
- 2.3                    Visitors, Stakeholders and Partnerships
- 2.4                    Summary of Previous Management Plan Achievements
- 2.5                    Mission and Purposes

### **PART 2            MANAGEMENT ACTIONS**

#### **Chapter 3            Growing Australian Plants**

- 3.1                    Thematic Structure of the Gardens

- 3.2 Horticultural Management
- 3.3 Access to Genetic Resources
- 3.4 Monitoring and Curation of the Living Collections
- 3.5 Horticultural Focus
- 3.6 Horticultural Training

## **Chapter 4 Studying Australian Plants**

- 4.1 Centre for Plant Biodiversity Research
- 4.2 Development, Management and Curation of the Herbarium Collection
- 4.3 Biogeographic and Evolutionary Research
- 4.4 Plant Systematics Research
- 4.5 Visiting Scientists, Volunteers and Intern Programs
- 4.6 Database management
- 4.7 Networking and the World Wide Web

## **Chapter 5 Promoting Australian Plants**

- 5.1 Interpretation and Information Services
- 5.2 Education
- 5.3 The Gardens Library
- 5.4 Photograph Management
- 5.5 Recreation
- 5.6 Marketing the Gardens through Advertising and Promotion
- 5.7 Community Outreach

## **Chapter 6 Conserving Australian Plants**

## **Chapter 7 Site Environmental Management**

- 7.1 Environmental Context
- 7.2 Remnant Vegetation Management
- 7.3 Wildlife Management
- 7.4 Energy and Water Management

7.5 Waste Management

## **Chapter 8 Site Development**

8.1 Landscape

8.2 Buildings and Visitor Facilities

8.3 Access and Carparking

8.4 Infrastructure and Asset Management

8.5 Risk Management Strategies

8.6 Adjacent Lands

## **Chapter 9 Administration and Management**

9.1 Staffing

9.2 Funding and Financial Management

9.3 Occupational Health and Safety

9.4 Security and Law Enforcement

9.5 Visitor Services and Commercial Operations

9.6 Fundraising and Sponsorship

## **Chapter 10 Evaluation and Monitoring**

### **PART 3 APPENDIXES**

1. Gazette Notice of 17 September 1991 - Declaration of Australian National Botanic Gardens as a Reserve under the *National Parks and Wildlife Conservation Act 1975*.
2. Management Principles Applicable to the Gardens under IUCN Category IV
3. Chronology of Significant Events in the History of the Australian National Botanic Gardens
4. Convention on Biological Diversity (1992) - Relevant Articles
5. Recent Visitor Surveys - Summary of Findings
6. Schedule of Charges Applicable at the Gardens from 1 July 2000



7. Agreement between the Australian National Botanic Gardens and CSIRO for Management of the Centre for Plant Biodiversity Research - Objectives
8. Australian National Botanic Gardens Development Planning Guide - Key Recommendations
9. Possible Siting Options for a New Nursery

## **Glossary**

## **List of Tables**

- Table 1 Australian National Herbarium Collection (Canberra) October 1999

## **List of Figures**

- Figure 1 Australian National Botanic Gardens site location
- Figure 2 Building and landscape zones of the Gardens
- Figure 3 Major taxonomic and systemic plantings of the ANBG

## **Executive Summary**

The Australian National Botanic Gardens (ANBG) is established for the increase of knowledge, appreciation and enjoyment of Australia's plant heritage by establishing, as an integrated resource, a collection of living and herbarium specimens of Australian and related plants for study, interpretation, conservation and display.

The mission of the Gardens is 'to grow, study and promote Australian plants'.

This Management Plan for the ANBG sets out the future management of the Gardens for the next seven years.

Part One (Chapters 1 and 2) describes the Gardens itself, as well as the legislative context and other relevant background information. Part Two (Chapters 3 to 10) details the management actions that will be taken during the term of this Management Plan to support the Gardens' purpose and mission.

In addition to continuing ongoing and routine activities, the key outcomes the Gardens aims to achieve during the term of this Plan are described below.

### **Growing Australian plants (Chapters 3, 7 and 8)**

To improve the living collection by:

- relocating the nursery and redevelopment of the existing nursery site for new horticultural attractions such as displays of wetland plants;
- rationalising existing separate depot facilities and equipment;
- extending the rock garden and displays of Australian annual flowering plants; and
- developing thematic displays and/or interpretation on the origins of Australia's flora, including Gondwana;

### **Studying Australian plants (Chapters 4 and 6)**

Continue to participate in the Centre for Plant Biodiversity Research, with particular emphasis on:

- completing the co-location of the Australian National Herbarium collection, staff and laboratories;
- completing the database which captures the herbarium collection and integrates plant name and specimen data from the Australian National Herbarium with records for the living and photograph collections;

- facilitating and contributing to the development of the Australian Virtual Herbarium to electronically link herbarium data sets across Australia and make this data available to the community;
- developing additional interactive identification tools focusing on pea flowers, eucalypts, grevilleas and orchids;
- establishing a research program examining the origins of the Australian angiosperm flora using molecular, morphological and biological techniques; and
- developing effective spatial modelling tools to assist management of small or restricted populations, such as rare and threatened plants.

## **Promoting Australian plants (Chapters 5 and 6)**

Host major exhibits and educational activities and implement interpretive strategies to meet the identified needs of visitors to the Gardens. Major targets will include:

- redeveloping the core area visitor facilities including a new Visitor Centre (combining reception, display, public herbarium and retail facilities) and an associated core precinct area (plaza, cafe and environmental education functions) and redeveloping the existing Visitor Centre as a functions facility;
- achieving excellence in the environmental education program;
- improving the directional and orientation signage in the Gardens as part of a review of the thematic displays.
- Support a series of community outreach activities, particularly to:
  - increase and broaden membership of the Friends of the Gardens; and
  - expand the range of programs where volunteers can assist in the Gardens.

## **Administration and Management (Chapters 6, 7, 8 and 9)**

- Establish a best-practice facilities management system for the infrastructure and collections of the Gardens, with a first priority on completing an accurate detailed survey of the Gardens.
- Modernise infrastructure and service facilities to meet efficiency, safety and environmental standards, with particular focus on upgrading water supply and reticulation systems.
- Undertake further visitor surveys to assist in preparation of the next Management Plan.
- Evaluate management options for the southern extension.
- Pursue appropriate commercial partnerships and revenue raising opportunities.

# Part 1 Preamble

## 1. Introductory Provisions

### 1.1 Short Title

This Management Plan may be cited as the *Australian National Botanic Gardens Management Plan 2002 - 2008*.

### 1.2 Commencement and Termination

This Plan has been prepared and will come into operation under the *Environment Protection and Biodiversity Conservation Act 1999*. When approved by the Minister for the Environment and Heritage the Plan will be notified in the Commonwealth Gazette and will take effect from either a date specified by the Minister and included in the Gazette notice or the date of notification in the Gazette. The Plan must also be laid before both Houses of the Parliament within 15 sitting days after approval by the Minister and is then subject to disallowance by either House on a Notice of Motion given within a further 15 sitting days.

The Plan will cease to have effect seven years after commencement, unless it has already been amended or replaced by a new Plan made under the Act.

### 1.3 Interpretation

In this Management Plan:

'Act' or 'EPBC Act' means the *Environment Protection and Biodiversity Conservation Act 1999* and includes the Regulations and any Act amending, repealing or replacing the Act.

'Australian National Botanic Gardens' means the area declared under section 7 of the Parks Act to be the botanic garden of that name, and continued as a Commonwealth reserve under the EPBC Act by the *Environmental Reform (Consequential Provisions) Act 1999*.

'Biodiversity Convention' means the Convention on Biological Diversity done at Rio de Janeiro on 5 June 1992.

'CPBR' means the Centre for Plant Biodiversity Research and Australian National Herbarium, which is an unincorporated joint venture between the CSIRO and the Director of National Parks. The CPBR was established by agreement on 22 November 1993 and extended on 14 April 2000 for ten years.

'CSIRO' means the Commonwealth Scientific and Industrial Research Organisation established by the *Science and Industry Research Act 1949*.

'Director' means the Director of National Parks under the EPBC Act.

'Environment Australia' means the Commonwealth Department of Environment and Heritage.

'ER(CP) Act' means the *Environmental Reform (Consequential Provisions) Act 1999*.

'Gardens' means the Australian National Botanic Gardens.

'IUCN' means the International Union for the Conservation of Nature and Natural Resources - World Conservation Union.

'National Capital Authority' means the organisation of that name established by the *Australian Capital Territory (Planning and Land Management Act) 1988*.

'Parks Act' means the *National Parks and Wildlife Conservation Act 1975*.

'Regulations' or 'EPBC Regulations' means the *Environment Protection and Biodiversity Conservation Regulations 2000* made under the EPBC Act and includes any Regulations amending, repealing or replacing the Regulations.

## **1.4 Administrative and Legislative Context**

The Australian National Botanic Gardens is a Commonwealth reserve under the EPBC Act. Administration, management and control of Commonwealth reserves is the function of the Director of National Parks. The Director of National Parks, assisted by Parks Australia, part of Environment Australia, is responsible for the management of the Gardens and for administering the relevant parts of the EPBC Act and Regulations.

The EPBC Act (s.367) requires the Director to prepare management plans for Commonwealth reserves. When prepared the plans are given to the Minister for the Environment and Heritage for approval. A management plan is a 'disallowable instrument', and when approved must be tabled in each House of the Commonwealth Parliament. A plan may be disallowed by either House of the Parliament.

A management plan for a Commonwealth reserve has effect for seven years, subject to its being revoked or amended earlier by another management plan for the reserve.

The EPBC Act (s.362) requires the Director to exercise the Director's powers and perform the Director's functions to give effect to the management plan for a Commonwealth reserve, and the Commonwealth and other Commonwealth agencies must not perform functions or exercise powers inconsistently with the management plan.

Under the EPBC Act (s.367) a management plan for a Commonwealth reserve must provide for the protection and conservation of the reserve and must assign the reserve to one of the following IUCN categories:

- strict nature reserve;
- wilderness area;
- national park;
- natural monument;
- habitat / species management area;

- protected landscape / seascape; and
- managed resource protected area.

The provisions of a management plan for a Commonwealth reserve must not be inconsistent with the Australian IUCN reserve management principles for the IUCN category to which the reserve is assigned by the plan. The management principles are prescribed by the EPBC Regulations. The Gardens is assigned by this Plan to IUCN Category IV (habitat/species management area). The management principles for this category are at Appendix 2.

In preparing a management plan the EPBC Act also requires (s.368) that account must be taken of various matters. So far as relevant to the Gardens, these matters include:

- the regulation of the use of the reserve for the purposes for which it was declared (deemed by the ER(CP) Act in the case of the Gardens to be: the increase of knowledge, appreciation and enjoyment of Australia's plant heritage by establishing, as an integrated resource, a collection of living and herbarium specimens of Australian and related plants for study, interpretation, conservation and display);
- the encouragement and regulation of the appropriate use, appreciation and enjoyment of the reserve; the protection, conservation and management of biodiversity and heritage within the reserve;
- the protection of the reserve against damage; and
- Australia's obligations under agreements between Australia and one or more other countries relevant to the protection and conservation of biodiversity and heritage.

The EPBC Act (s.354(1)) prohibits certain acts from being done in a Commonwealth reserve except in accordance with a management plan. The acts are:

- kill, injure, take, keep or move a member of a native species; or
- damage heritage; or
- carry on an excavation; or
- erect a building or other structure; or
- carry out works; or
- take an action for commercial purposes.

These controls and restrictions do not affect certain traditional activities by Indigenous people (s.359A). It is also noted that provisions of the EPBC Act does not affect the operation of s.211 of the *Native Title Act 1993* which provides that holders of native title rights covering certain activities do not need authorisation required by other laws to engage in those activities (s.8 EPBC Act).

Mining operations are also prohibited unless the Governor-General has approved them and they are carried on in accordance with a management plan (s.355).

The EPBC Regulations regulate a range of activities in Commonwealth reserves, such as use of vehicles, littering, commercial activities and research. The Regulations are applied by the Director of National Parks, subject to and in accordance with the EPBC Act and management plans. The Regulations do not apply to the Director of National Parks or to wardens or rangers appointed under the EPBC Act. Activities that are prohibited or restricted by the EPBC Act may be carried out if they are authorised by a permit issued by the Director and/or they are carried out in accordance with a management plan.

The taking of an action in a Commonwealth reserve that will have a significant impact on the environment, or the taking of an action outside a Commonwealth reserve that will have a significant impact on the environment in a Commonwealth reserve, will be subject to the assessment and approvals provisions of the EPBC Act.

Actions that would be, or are likely to have, a significant impact on a specified matter of 'national environmental significance' will also be subject to the assessment and approval provisions of the EPBC Act. The matters of national environmental significance identified in the Act as triggers for the EPBC Act assessment and approval regime include:

- listed threatened species and communities;
- listed migratory species;
- such further actions as are prescribed by the EPBC Regulations under the Act.

Responsibility for compliance with the assessment and approvals provision of the Act lies with persons taking relevant 'controlled' actions. A person proposing to take an action that is, or the person thinks may be a controlled action must refer the proposal to the Minister for the Environmental and Heritage for the Minister's decision whether or not the action is a controlled action. Civil and criminal penalties may be imposed for breaches of the Act.

The EPBC Act also contains provisions that prohibit and regulate actions in relation to threatened species and migratory species.

The Gardens is required to operate under statutory obligations and works in cooperation with various government bodies.

The developed part of the Gardens is listed on the Register of the National Estate and the *Australian Heritage Commission Act 1975*, requires that the Australian Heritage Commission be consulted on any action which may adversely effect the heritage values of the Gardens. A Memorandum of Understanding has been developed between the Gardens and the Commission to facilitate consultative processes.

The Gardens is designated national land under the *Australian Capital Territory (Planning and Land Management) Act 1988* and developments require approval from the National Capital Authority.

Gardens staff work cooperatively with the Heritage Council of the ACT and with the Natural Resources Management Ministerial Council, particularly through the Endangered Flora Network.

## 1.5 Purpose and Content of a Management Plan

The purpose of this Plan is to describe the philosophy and direction of management for the Gardens for the next seven years. The Plan enables management to proceed in an orderly way, helps to reconcile competing interests, and identifies priorities for the allocation of available resources. The legal and policy conditions relevant to the Plan include the:

- Australian Heritage Commission Act 1975;
- Australian Capital Territory (Planning and Land Management) Act 1988;
- Environment Australia Corporate Plan and Environment Australia Service Charter;
- Environment Protection and Biodiversity Conservation Act 1999; and
- Environmental Reform (Consequential Provisions) Act 1999.

Under s.367(1) of the EPBC Act, a management plan for a Commonwealth reserve must provide for the protection and conservation of the reserve. In particular, the plan must:

- (a) assign the reserve to an IUCN category (whether or not a Proclamation has assigned the reserve or a zone of the reserve to that IUCN category); and
- (b) state how the reserve, or each zone of the reserve, is to be managed; and
- (c) state how the natural features of the reserve, or of each zone of the reserve, are to be protected and conserved; and
- (d) if the Director holds land or seabed included in the reserve under lease – be consistent with the Director’s obligations under the lease; and
- (e) specify any limitation or prohibition on the exercise of a power, or performance of a function, under the EPBC Act in or in relation to the reserve; and
- (f) specify any mining operation, major excavation or other works that maybe carried on in the reserve, and the conditions under which it may be carried on; and
- (g) specify an operation or activity that may be carried on in the reserve; and
- (h) indicate generally the activities that are to be prohibited or regulated in the reserve, and the means of prohibiting or regulating them; and
- (i) indicate how the plan takes account of Australia’s obligations under each agreement with one or more other countries that is relevant to the reserve (including the World Heritage Convention and the Ramsar Convention, if appropriate).

The provisions of a management plan must not be inconsistent with the Australian IUCN reserve management principles for the IUCN category to which the reserve or a zone of the reserve is assigned (s367(3)).

## 1.6 IUCN World Conservation Union Category

As outlined in section 1.4, under the EPBC Act, a Commonwealth reserve, and any zones within a reserve, must be assigned to an IUCN protected area management category. This plan assigns the Gardens to IUCN category IV, habitat/species management area.



The EPBC Act (section 347) prescribes characteristics for the IUCN categories. So far as relevant to this plan they are: 'habitat/species management area' — the reserve or zone contains habitat for one or more species.

The EPBC Act (section 348) requires the EPBC Regulations to prescribe principles for each IUCN category (***Australian IUCN reserve management principles***). Appendix 2 of this Plan sets out the Management Principles for IUCN protected area management category IV, as prescribed in Schedule 8 to the EPBC Regulations. These principles identify the purposes for which the Commonwealth reserve, or zone, assigned to the category are primarily to be managed. Of particular relevance to the Gardens is the final principle, which provides that if a reserve or zone is declared for the purpose of a botanic garden, it should be managed for the increase of knowledge, appreciation and enjoyment of Australia's plant heritage by establishing, as an integrated resource, a collection of living and herbarium specimens of Australian and related plants for study, interpretation, conservation and display.

## **1.7 Booderee Botanic Gardens**

The original proclamation of the Gardens included an area located in the Jervis Bay Territory within the boundaries of Jervis Bay National Park, which was established under the Parks Act.

In October 1995, both the Park and the Gardens annexe were declared as Aboriginal land under the *Aboriginal Land Grant (Jervis Bay Territory) Act 1986*, and title to the land was granted to the Wreck Bay Aboriginal Community Council. The Land Grant Act required the Council to lease the land to the Director, so that the land would continue to be managed as a national park and a botanic garden. Although the annexe was still legally part of the Australian National Botanic Gardens, for practical reasons its management was transferred at this time to the Jervis Bay National Park.

In 1997, the names of the Park and the annexe were changed to Booderee National Park and Booderee Botanic Gardens, at the request of the traditional owners.

In 1997, an agreement for the continuation of scientific and technical links between the Booderee and Australian National Botanic Gardens was formalised. This agreement detailed the areas of interest under the new cooperative arrangements.

The proclamation for the Australian National Botanic Gardens was amended in early 2000 to remove Booderee Botanic Gardens. The Booderee Botanic Gardens is now legally part of Booderee National Park, but is still managed as a botanic garden. However, a close working relationship between the staff of the Australian National Botanic Gardens and Booderee Botanic Gardens remains.

## 2. Overview of the Australian National Botanic Gardens

### 2.1 Description of the Gardens, its Functions and Values

Occupying a 90 hectare site on the lower slopes of Black Mountain in Canberra, the Australian National Botanic Gardens is a major scientific, educational and recreational resource. The location of the Gardens and adjacent sites is shown at Figure 1. 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. This is a significant achievement in Canberra's cold climate. The Gardens plant displays are grouped into three basic themes:

- taxonomic - displaying the diversity of plant life according to their botanical relationships;
- ecological and geographic - displaying groups of species from similar ecological and geographic areas; and
- horticultural - displaying plants which promote an appreciation of the horticultural values of native flora.

Most of the plants are grown in open-ground beds. Plants that cannot be grown outdoors are grown in glasshouses and plant pots. A nursery complex, including glasshouses, is used to propagate most plants grown at the Gardens.

The developed section of the Gardens is zoned (see Figure 2) to allow for consolidated development of buildings and necessary infrastructure. Zoning also provides for a vegetation buffer zone between the Gardens and the adjacent Canberra Nature Park and landscape zones along the Gardens other boundaries. The developed section of the Gardens is also listed on the Register of the National Estate. Section 8 discusses site development in further detail.

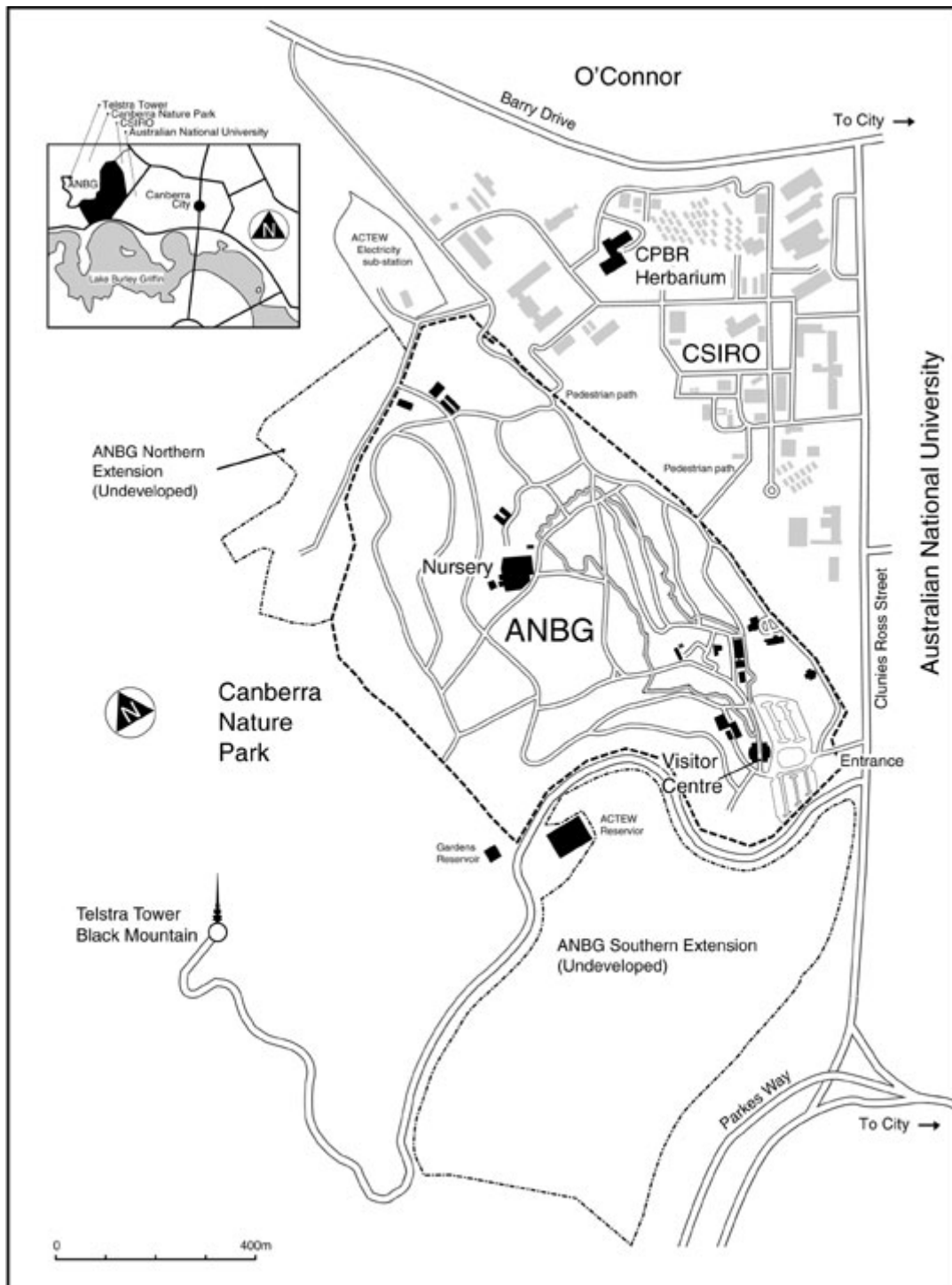


Figure 1. Australian National Botanic Gardens site location

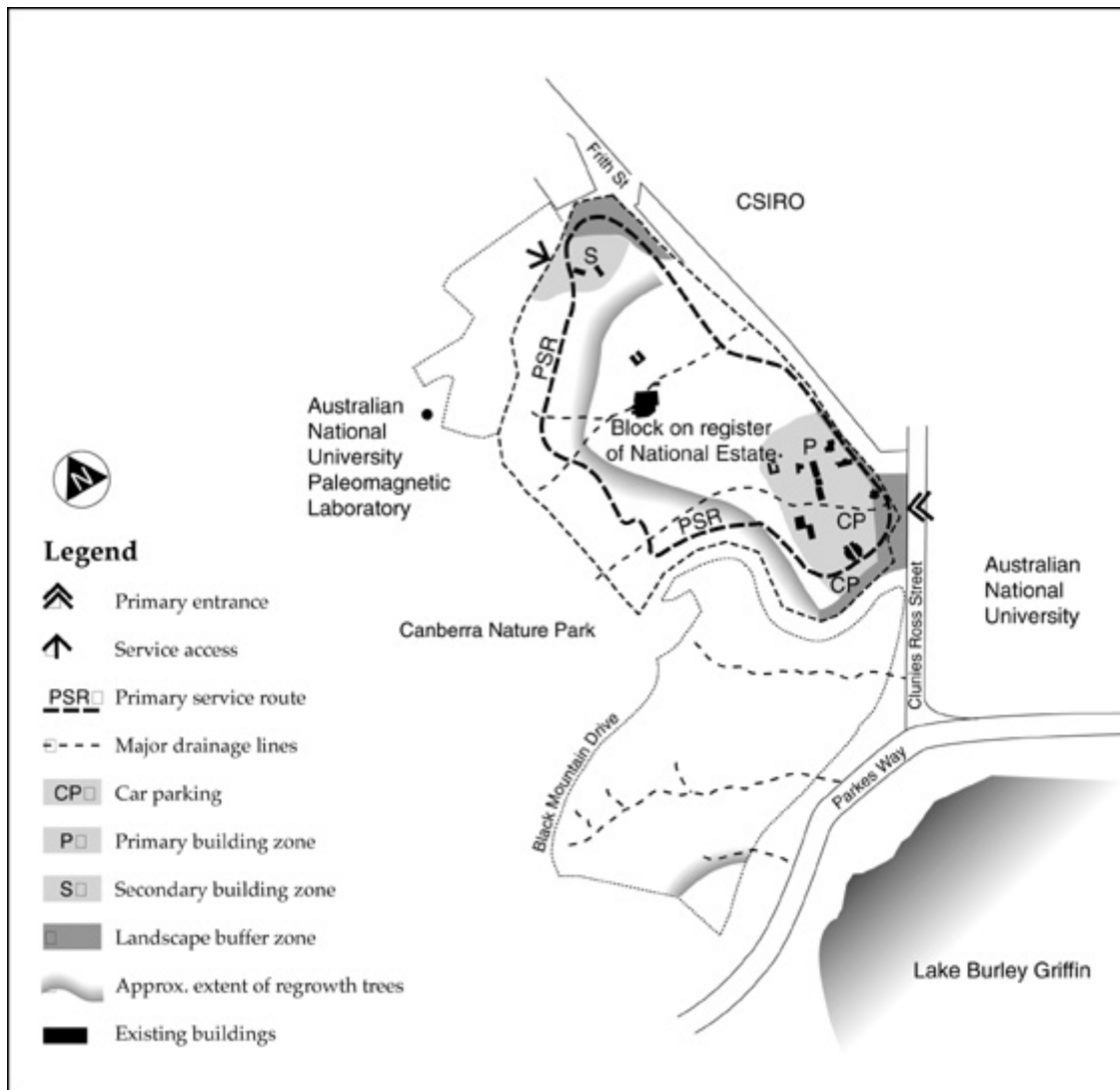


Figure 2. Buildings and landscape zones of the Australian National Botanic Gardens.

The Gardens' herbarium collections, together with those of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Plant Industry, form the Australian National Herbarium, managed by the Centre for Plant Biodiversity Research (CPBR). The herbarium is a major scientific resource consisting of around 1 265 000 specimens. Over 90% of the specimens are directly related to the study of the Australian flora, while others serve as records of naturalised species, weeds and plants in cultivation. The CPBR's collections include preserved plant specimens and their associated collection data.

Importantly, the herbarium also provides the scientific authentication for plants growing at the Gardens. The herbarium specimens and data, together with the Gardens' living collection and the data held on it, provide a major scientific resource for plant scientists, both nationally and internationally.

The Gardens' living and herbarium collections are complemented by a significant collection of well-documented photographs of Australian native plants and their habitats. Collections of living plants, seeds and herbarium specimens of plants known to be at risk of extinction in the

wild are maintained as part of the Gardens' contribution to plant conservation activities. A public reference herbarium is also maintained by the CPBR. Other specialist facilities on the Gardens site include a horticultural research laboratory, horticultural depots and a library.

The Gardens conducts its own research programs, mainly through the CPBR. Special interest areas include the horticultural development of Australian plants, and the classification of mosses, lichens, orchids, grevilleas, pea-flowers and tea trees. Major programs in recent years have included botanical data and information management, together with use of the Web as a tool to extend the dissemination of scientific and general information.

The Gardens is a major visitor destination for local, interstate and international visitors and it is an active participant in tourism programs. The Gardens also serves as a cultural and recreational venue. Concerts, theatre and dance performances and displays of art works have all proved to be popular attractions as have interpreted walks. A range of visitor facilities is provided including a Visitor Centre, Education Centre, café and shop.

Educational and community involvement programs at the Gardens cover a broad range of interests. Programs for educational organisations attract nearly 20 000 visits per year and a range of educational materials is produced for use on-site and off-site.

A program of exhibitions, practical demonstrations and lectures, publications and signs covering general and special interest topics have all contributed to the Gardens' informal learning environment.

A chronology of significant events in the development of the Gardens is at Appendix 3.

## **2.2 Significance of the Gardens**

### **National and International Significance**

The Gardens contribute 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. Relevant Articles of the Convention are at Appendix 4.

The Gardens also supports Australia's obligations under other such conventions as the:

- United Nations Framework Convention on Climate Change done at New York on 9 May 1992 (Convention on Climate Change), by promoting education, training and public awareness on the importance of sustaining plant biodiversity;
- Convention Concerning the Protection of World Cultural and Natural Heritage done at Paris, 23 November 1972 (World Heritage Convention), mainly by supporting the

network of listed sites through research, plant collections, horticultural and educational programs;

- Convention on Wetlands of International Importance especially as Waterfowl Habitat done at Ramsar, Iran, on 2 February 1971 (Ramsar Convention), particularly in relation to cultivation and conservation of rare and endangered aquatic plants; and
- Convention on International Trade in Endangered Species of Wild Fauna and Flora done at Washington on 3 March 1973 (CITES), particularly in relation to codes of practice on plant trade.

The Gardens maintains collaborative links with several key international organisations including the:

- International Association of Botanic Gardens;
- International Association of Plant Taxonomists;
- International Plant Propagators Society;
- International Union of Biological Sciences - Taxonomic Databases Working Group;
- International Organisation for Plant Information World Vascular Plant Checklist Project; and
- International Society for Horticultural Science

The Gardens' collections are used by a wide range of scientists, in Australia and internationally, for research into the biology and taxonomy of Australian plants. In addition, Gardens' staff share their technical expertise with other countries such as Indonesia, Papua New Guinea, Vanuatu, New Zealand and Pacific Island nations.

The Australian Cultivar Registration Authority is responsible internationally for the registration of cultivated varieties derived from Australian plants. It is based at the Gardens - as is the national office of the Australian Network for Plant Conservation, which links scientific and community organisations with an interest in plant conservation.

The Gardens is a leader in the development of standards for botanical information storage and exchange, and acts as custodian for a number of national botanical data sets.

The high quality of the Gardens landscape was recognised in 1991 by inclusion of the developed part of the Gardens on the Register of the National Estate, as the Gardens provides outstanding examples of landscape design and horticulture using Australian native plants.

## **Local and Regional Activities**

In promoting the tourist and educational aspects of the Gardens, close liaison is maintained with the following bodies:

- National Capital Attractions Association;

- Canberra Events and Tourism Corporation;
- Australian Education Council;
- Canberra Region Tourist Operators Association;
- Environment Education Association of Australia; and
- International Council of Museums (ICOM) Marketing and Public Relations Committee.

The Gardens participates in regional conservation projects where it can offer suitable expertise on sustainable management or horticultural requirements of Australian plants. The Gardens also acts as an information resource for native flower industries, assisting with advice on managing native flower crops or providing ideas on the development of new cultivars for export.

The Gardens has worked cooperatively with the local Aboriginal Ngunnawal group and has hosted activities to celebrate the National Aboriginal and Islander Day of Commemoration (NAIDOC) week.

## **2.3 Visitors, Stakeholders and Partnerships**

The Gardens is a major visitor destination used extensively by local residents and tourists. It provides beautifully landscaped environments in which visitors are encouraged to learn about and enjoy Australia's flora. About 350 000 people visit the Gardens each year, the peak months being January and October. Approximately 6,000 pages are accessed from the Gardens website each day.

Studies of visitor use, experiences and perceptions of the Gardens, and opinions about management options for the future were undertaken in 1987, 1992 and 1998. The results of the 1998 survey of visitors are summarised at Appendix 5.

Visitors to the Gardens are perhaps the most visible stakeholders. However, a wide range of organisations and institutions are also involved with the Gardens - locally, nationally and internationally (refer also to Section 2.2).

As a national institution managed by a Commonwealth Government agency, the Australian National Botanic Gardens has a responsibility to work cooperatively with other organisations to further its aims. Gardens staff liaise and work with organisations involved in the management of botanic gardens, herbaria and plant conservation. The Gardens is committed to making available its expertise and to disseminating the information it has acquired.

The Gardens encourages collaborative links in all its research and horticultural activities, particularly through the CPBR. There are many collaborative projects with other areas of both Environment Australia and CSIRO, as well as national and international organisations and individuals. The Gardens also contributes to the knowledge and skills base through active Visiting Scientist, Student Botanical Internship and Herbarium & Seedbank Volunteer programs.

## **Collaborative Links**

Collaborative links include the following organisations and groups.

### **Environment Australia**

- Australian Biological Resources Study (ABRS);
- Threatened Species and Communities Section (TSCS); and
- Environmental Resources Information Network (ERIN).

### **CSIRO**

- Division of Entomology;
- Division of Forestry;
- Division of Sustainable Ecosystems;
- Division of Land and Water; and
- Tree Seed Centre.

### **National**

- Council of Heads of Australian Herbaria and its committees such as the Australian Herbarium Information Systems Committee
- Australia Flora Foundation;
- Society for Growing Australian Plants;
- Plant Breeders Rights Office;
- Australian Systematic Botany Society; and
- Greening Australia

## **Cooperative Partnerships**

In addition to the collaborative links listed above, the Gardens has cooperative partnerships with four bodies whose offices or secretariats are based at the Gardens.

### **Council of Heads of Australian Botanic Gardens**

The Council of Heads of Australian Botanic Gardens comprises the eight Directors from Australia's major botanic gardens, one from each State and Territory. This organisation provides the basis for cooperation and exchange of information between major botanic gardens and the many regional gardens. The Gardens hosts the organisation's website, known as the Australian Botanic Gardens Forum.



### **Australian Network for Plant Conservation**

The Australian Network for Plant Conservation draws together a wide range of botanic gardens, public and private land management bodies, and individuals with an interest in endangered plants. Activities include cultivation of endangered plants, exchanging information, provision of training on conservation and assisting with research into endangered plants. The Gardens also hosts the Network's website.

### **Australian Cultivar Registration Authority**

The Australian Cultivar Registration Authority (ACRA) comprises a national committee with representatives from the Gardens, all the major State and Territory botanic gardens, the Nursery Industry Association of Australia, and the Society for Growing Australian Plants. The Authority registers cultivated varieties of Australian plants in accordance with the International Code of Nomenclature for Cultivated Plants. It also encourages horticultural development of Australian plants. The Gardens hosts the Authority's website. The Gardens, through the ACRA, also houses herbarium specimens for the Plant Breeders Rights Office.

### **Friends of the Gardens**

The Friends of the Australian National Botanic Gardens is the community support group for the Gardens. The Friends aim to increase community awareness of the scientific, educational, recreational and conservation roles of the Gardens as well as to raise funds to support these roles. They have an active program of activities for members and several special interest sub-groups. Many members contribute their time as volunteers in a range of Gardens projects (see also Section 5.7).

## **2.4 Summary of Previous Management Plan Achievements**

The following points summarise the major achievements against the objectives of the 1994–1999 Australian National Botanic Gardens Management Plan.

### **Studying Australian Plants**

- The CPBR was formed by combining the staff and collections of the Gardens herbarium and CSIRO herbarium, to produce the Australian National Herbarium, one of the largest herbarium collections in Australia. A purpose built facility was constructed on the adjacent CSIRO site to house the Centre.
- Information from the *Australian Plant Name Index* and from the living collections and Gardens' plant photograph collection was made available on the Web.
- The Gardens' Horticultural Research Unit completed several major projects in sustainable use of Australian plants.

## **Growing Australian Plants**

- Nursery production and plant-out increased, averaging around 15 000 plants per year.
- Many of the recommendations of the Australian National Botanic Gardens Development Planning Guide were implemented to a greater or lesser extent, largely dependent on resource levels. Visitor facilities and horticultural displays, particularly in the Clunies Ross Street entrance and carpark, the central core zone and the high visitation areas, were upgraded, with particular emphasis on the establishment of a no-steps main path throughout the major thematic displays. A Tasmanian alpine and heath theme and Sydney basin flora theme were completed and the rock garden was extended and improved.
- Fire security measures for the living collections and the Gardens herbarium collection were improved.
- Planning was completed for a combined horticultural and trades depot and a new nursery but sufficient funds were not available for their construction and the project was deferred.

## **Promoting Australian Plants**

The Gardens' educational programs had strong emphasis on conservation and sustainable management of Australian plants. Around 20 000 students access the programs annually, either at the Gardens or through the Web.

- Two major exhibitions on rare and endangered species occurred including the 'It's a Rare Thing' exhibit, as well as several smaller displays on Australia's plant heritage.
- The 'Aboriginal Plant Use Walk' through the Gardens was re-routed following the completion of the Main Path. A students' activity walk and booklet on 'Aboriginal Plant Use in South-Eastern Australia' was produced.
- A comprehensive visitor survey was completed in 1998.
- Through participation in the National Capital Attractions Association and other regional and national tourism bodies, staff played an active part in promoting the Gardens and the national capital as a prime tourist attraction.
- The Friends Group expanded its activities and a recruitment drive in 1998 saw the number of volunteers substantially increase.
- The use of volunteers in the public programs of the Gardens was expanded, with several intakes of voluntary guides and the establishment of an 'explainers' group to assist with school programs. Volunteers also participated in horticultural research programs, the Seedbank and in the herbarium.
- The Gardens was an active participant in the Council of Heads of Australian Botanic Gardens and maintained the website for the Australian Botanic Gardens Forum on

behalf of the Council. Active participation was also maintained in the Council of Heads of Australian Herbaria. The Gardens published the third edition of the *Directory of Australian Botanic Gardens and Arboreta* and also published it on the web.

- The Gardens maintained an active role in developing and promoting national and international standards for the exchange of botanical data through involvement with the Australian Herbarium Information Systems Committee (HISCOM). Through the CPBR, national botanical data sets such as the *Census of Australian Vascular Plants* and the *Australian Plant Name Index* were enhanced and made available to the international community through the Web. Gardens staff at the Centre also worked with herbaria at the Royal Botanic Gardens, Kew (UK) and with Harvard University (USA) to generate a worldwide list of plant names.

## **Policy and Management**

- A biodiversity conservation policy for the Gardens was completed. It emphasises the importance of an integrated approach.
- A review of staff requirements in relation to available salaries funding resulted in some staff reductions over the life of the Plan. A reorganisation of duties and procedures created efficiencies in some areas. The use of contractors was expanded to cover areas such as tree surgery and some repairs and maintenance services.
- Operational funding was sufficient to meet the basic requirements of the Gardens, while capital works funding allowed progress in redeveloping the Gardens glasshouses, improving visitor access and undertaking several medium-scale landscape developments. The Gardens herbarium was refurbished to improve fire safety standards and to consolidate the collections of cryptogams and conifers.

## **2.5 Mission and Purposes**

### **2.5.1 Mission**

Consistent with Environment Australia's vision of '*a natural and cultural environment, valued, enhanced and protected in harmony with the nation's social and economic goals*' and its mission of '*National leadership in the protection and conservation of the environment*'; the mission of the Australian National Botanic Gardens is: '*to grow, study and promote Australian plants*'.

This meets the requirements the EPBC Act. The Gardens' mission is consistent with the purposes for which the Gardens were established (see Foreword) and the Australian IUCN reserve management principles applicable to the Gardens as an IUCN category IV protected area (see Section 1.6 and Appendix 2)

### **2.5.2 Objectives**

To achieve the stated mission, the Gardens will strive to:

1. achieve excellence in the presentation of the Gardens to enable people of all ages, abilities and backgrounds to enjoy and appreciate the values of Australian plants and botanic gardens;
2. maintain and enhance integrated living, herbarium and photographic collections of Australian plants, supported by the library collection;
3. provide high quality information and an educational resource for government, industry, scientific institutions and the community;
4. conduct and encourage research using the Gardens' living and herbarium collections;
5. foster understanding of the origins and values(\*1) of Australia's plant biodiversity, while promoting its protection, conservation and wise use;
6. provide a national focus for, and work in effective partnership with, other organisations in matters concerning botanic gardens, herbaria and Australian plant biodiversity; and
7. maintain an accountable, innovative and receptive organisation that is responsive to clients and new circumstances and which values staff contributions.

\*1 – 'values' should be read as including environmental, cultural, economic, heritage and aesthetic values.

## Part 2 Management Actions

### 3. Growing Australian Plants

#### 3.1 Thematic Structure of the Gardens

**Aim: To provide recreational and learning experiences for visitors, and opportunities for scientific study, through the development of interpreted thematic plant displays.**

##### **Background**

The living collections of the Gardens have been developed to encourage public enjoyment, appreciation and use of the Australian indigenous plant life and for the conservation and study of Australia's plant heritage. The whole collection has conservation significance, particularly the collections of plants known to be at risk in the wild.

The existing planting themes have been developed in three broad areas as described below (see also Figure 3).

##### **Taxonomic**

Plant displays that illustrate the scientific classification of plants are a traditional and highly effective way to provide opportunities to compare the similarities and differences within taxonomic groupings. Many of the early plantings in the Gardens are organised in this way. They include the Eucalypt Lawn, *Acacia* (wattle) beds and the displays from the plant families Myrtaceae and Proteaceae.

##### **Ecological and Geographic**

Plant displays that group species from similar ecological or geographic areas provide opportunities for visitors to readily relate to and understand natural communities. These displays have a rich educational and interpretive potential. The best existing examples of these are the rainforest gully, mallee, the Sydney basin flora and the Tasmanian garden. Grouping species that originate from similar environments also facilitates management of their horticultural needs. Some displays, such as the Tasmanian garden, have been slow and difficult to establish and will be improved over time as additional collections of plants are made and a better understanding of their horticulture is developed.

## Theme Plantings

- ① *Acacia*
- ② *Eucalyptus*
- ③ *Callitris*
- ④ Myrtaceae
- ⑤ Proteaceae
- ⑥ Casuarinaceae
- ⑦ Asteraceae
- ⑧ Rhamnaceae
- ⑨ Rutaceae
- ⑩ Myoporaceae
- ⑪ Monocotyledons
- ⑫ Gymnosperms
- ⑬ Gondwanan groups

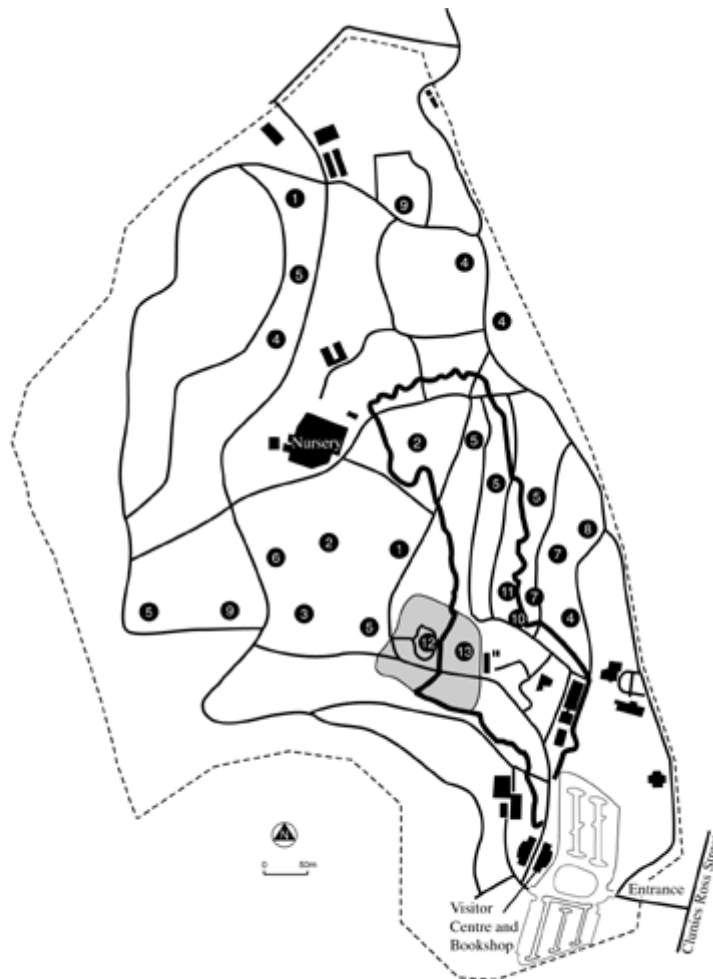


Figure 3. Major Taxonomic and Systematic Plantings of the Australian National Botanic Gardens

### Horticultural

Plant displays promoting an appreciation of the horticultural values of the native flora are used throughout the Gardens, both in display beds and as a complementary backdrop to more scientifically structured themes.

### Policies

- Themes for plant displays will feature Australian plants in a broad scientific, cultural and horticultural context, based on scientifically authenticated information.

### Management Actions

- Review the thematic charter for the Gardens to provide the masterplan for establishing new displays; such as wetlands flora, native grasses and annuals displays; and for redeveloping the existing array of interpretive displays (see also Section 8.1), in a way that takes into account the interpretive and educational potential of displays and plantings.

- Continue living collection and landscape redevelopment work, in a manner consistent with the thematic charter and priority display works identified by it.
- Carry out remedial work on existing planting displays where required to facilitate visitor enjoyment and ease of horticultural management.
- Develop or extend various planting themes as detailed below.
  1. Plant conservation: plant displays illustrating plants at risk in the wild, now used in education and interpretation programs, will be rationalised and extended to form a dispersed interpreted theme.
  2. Ethnobotany: interpretive programs based on plants used by indigenous people have been popular with visitors. The Aboriginal plant use walk was first developed in the 1970s and features plants used by Australia's indigenous people. In consultation with relevant Aboriginals a display interpreting plants used traditionally by local Aboriginal communities will be established and the Aboriginal plant use walk continued.
  3. Evolutionary Origins and Relations of Australian plants: the origins and relations theme will be developed as a logical broadening of the interpretation of the present Australian flora. A display featuring plants that have origins in the ancient supercontinent of Gondwana is currently under development (see also Section 4.3).

4. Tablelands grassy woodlands: the current theme sited in Section 175 below the Visitor Centre will be revamped and interpreted, and will take into account access needs of pedestrians in this area.<sup>5</sup>

5. Rainforest vegetation elements such as epiphytes, lithophytes, ground herbs and palms. These will be enriched in the rainforest taking advantage of the new boardwalks, and the general advancement of the vegetation canopy layer. Define and interpret a series of secondary thematic loops from the primary walk. These may include themes on Tasmanian flora, Sydney region flora, Myrtaceae (paperbarks, teatrees, lilly pillies) and Proteaceae (banksias, grevilleas, waratahs).

## 3.2 Horticultural Management

**Aim: To develop and implement best practice in horticultural management practices and procedures.**

### Background

Developing horticultural techniques that are suitable for Australian native plants has been an important role for the Gardens as its collections contain species which have not formerly been brought into cultivation. The Gardens has made a significant contribution to improving

understanding of the horticultural requirements of Australian plants by documenting successful techniques and by exchanging information with botanic gardens and other interested horticultural groups. Records of the natural conditions in which plants grow, made when collecting from the wild, have also contributed to the success of the Gardens' experimentation with horticultural techniques.

Experimentation has been mirrored in the nursery, where specific techniques have been developed for the propagation and maintenance of a large number of taxa. For example the Gardens has developed specialised vegetative propagation techniques for *Lycopodium* species and rare plants such as *Hakea pulvinifera*. The Gardens has also established suitable water management applications for hairy-leaved arid plants under propagation and cultivation.

The Gardens' living collections can be affected by a variety of pests and diseases, including insects, viruses, fungi and vertebrate pests such as rabbits, hares, rats and even some native animals such as Eastern Grey Kangaroos and Australian Wood Ducks. Pest and disease management measures are required to maintain the health and vigour of the collections. The orchid collections are particularly susceptible to infection from viruses and the Gardens' Orchid Research Group is currently developing and utilising micro-propagation techniques to produce virus-free plants from seed. Identification and monitoring of virus-infected orchids is undertaken in collaboration with scientists at the Research School of Biological Sciences at the Australian National University.

Particular attention is given to the management of naturally occurring trees and those introduced from other parts of Australia (see also chapter 7). A naturally occurring fungal pathogen, *Armillaria luteobubalina*, is known to occur on site and is responsible for areas of tree decline and death. This pathogen also restricts the range of non-tree species that can be grown in infected areas. Other pathogens such as the water-borne fungus, *Phytophthora cinnamomi*, are also known on site. Known pathogen occurrences are monitored and a range of measures taken to reduce further infection.

## **Policies**

- The Gardens will continue to develop and implement best practice horticultural management strategies for Australian plants based on scientific knowledge and on-site experimentation.
- The Gardens will continue to protect the plant collections from damage through monitoring, preventative measures and integrated pest management and control techniques. These may include the use of pesticides or herbicides or other poisonous substances, for insect, mite, viral, fungal and vertebrate pests.

## **Management Actions**

- Develop garden section plans to facilitate experimentation and documentation of techniques developed and used in the horticultural maintenance and management of Gardens' collections and plantings.



- Implement a program of monitoring for tree health and human safety and undertake tree surgery or removal as necessary.
- Develop glasshouse environmental control measures to better meet the cultural needs of the species as well as for conservation of energy.
- Revise the *Pest Management Manual* to provide guidelines for the management of pests, including pathogens such as *Armillaria*, and to meet current standards for safe handling, effective use and storage of pesticides.
- Refine and implement integrated pest management strategies.
- Undertake grafting programs for species in the plant families Lamiaceae, Proteaceae, Myoporaceae and Myrtaceae to improve their horticultural potential.
- Develop and implement propagation programs for plants which are unusually difficult to propagate.
- Monitor the occurrences of the fungal disease *Armillaria luteobubalina* and develop and implement strategic control methods for it. These may include removing tree stumps by excavation and burning and investigating the effects of mulching and soil moisture levels on the pathogen.
- Continue research in the identification and management of orchids infected with viruses.
- Develop and implement control methods for vertebrate animals that damage plant collections.
- Overhaul horticultural conditions in the rock garden. New soil mixes, from sustainable sources, together with improved and coordinated drainage and a new irrigation system will be the priorities for implementation.
- Engage the expertise of specialist external horticultural consultants where appropriate eg where subject expertise is not available on staff.

### **3.3 Access to Genetic Resources**

**Aim: To supply and obtain reciprocal access to plant materials for research, education, conservation or commercial purposes with appropriate benefit sharing.**

#### **Background**

A large number of requests for plant material (living plants, seeds or plant parts) are received from client groups including research and educational institutions, commercial enterprises and community groups. Material is supplied for promotional, scientific, educational, conservation, revegetation and commercial purposes.

Requests are managed under a *Plant Material Release Policy and Procedures* document developed by the Gardens. Each request is considered on its merits and in the context of various Commonwealth, State, Territory and international treaties and conventions. These may involve, for example, issues such as the ownership of the genetic material, the conditions of the permit under which material was originally collected, and the intellectual property rights vested in the material. Charges generally apply to plant material requests except where reciprocal exchange arrangements have been developed or in other exceptional circumstances (refer to Appendix 6).

In response to the Convention on Biological Diversity, the Royal Botanic Gardens at Kew has taken the initiative to have an agreed policy between botanic gardens of the world pertaining to access to the genetic resources in their collections and to benefits arising from that access. These benefits may include possible participation in scientific research based on the genetic material supplied, the fair and equitable sharing of research and development results, and commercial and other benefits arising from the use of genetic resources.

The Horticultural Research Unit manages a seed bank which has a major germplasm collection. The seed bank facilitates access to these genetic resources for conservation projects as well as functioning as a conservation project in its own right.

The Gardens also participates in regional conservation projects, offering expertise on sustainable management or horticultural requirements of Australian plants. For example, the Gardens participated in the Natural Heritage Trust 'Florabank' project with Greening Australia, which aimed to help community groups wishing to undertake revegetation projects by developing guidelines on seed supply and storage. The Gardens also completed a project utilising seed propagation techniques on native grasses for revegetating the upper Murrumbidgee catchment.

Access to biological resources, including genetic resources, in the Gardens may be affected by the development of regulations under section 301 of the EPBC Act to control access to biological resources in Commonwealth areas. Such regulations are being considered by Government following an inquiry held in 2000. Regulations may include empowering the Director, as the holder or manager of biological resources, to enter into benefit sharing agreements with applicants and mechanisms to ensure that the Minister or delegate is satisfied that research undertaken is done in accordance with this Management Plan and with no significant harm to the environment.

## **Policies**

- Conservation outcomes will be a high priority in shaping the direction of the management of the seed bank.
- Subject to the outcome of the Government's inquiry into access to genetic resources on Commonwealth lands, the Gardens will adopt the proposed Policy for Botanic Gardens of the World on Access to Genetic Resources ('The Kew Initiative').

- Where regulations are made under section 301 of the EPBC Act with respect to access to biological resources in Commonwealth areas, the Director will adopt management practices consistent with the regulations, including ensuring an appropriate benefit sharing agreement is in place.
- The Gardens will participate in the development of a national approach to access to genetic resources and benefit sharing, which should, so far as possible and subject to regulations under s301 of the EPBC Act, be consistent with relevant international agreements to which Australia is a party.
- Subject to consistency with management arrangements for access to biological resources made under s301 of the EPBC Act, plant material will be supplied only in accordance with the Policy for Botanic Gardens of the World on Access to Genetic Resources and include formal materials-supply agreements and efficient record keeping and tracking of material. A charge may apply for this service depending on the degree to which the supply enhances the Gardens' mission and aims (refer to Appendix 6).
- The Gardens will continue to undertake horticultural research and to maintain a seed bank.

### **Management Actions**

- The Gardens will continue to participate in Departmental and external policy development as it relates to access to biodiversity and protection of property rights.
- Links with conservation groups will be enhanced, in particular with community groups and institutional seed banks, through pursuing projects similar to 'Florabank' and the upper Murrumbidgee revegetation project.
- Procedures covering supply of plant material will be further developed to ensure they remain consistent with State and national legislation and international obligations.
- Seed processing, storage and testing facilities will be maintained and enhanced. A quality assurance system for the seed bank will be implemented.
- Recognising the considerable costs involved to the Gardens in the supply of plant material, charges will generally apply except where reciprocal exchange arrangements exist or in other circumstances such as where there is a demonstrable mutual benefit.
- The goal of developing a national germplasm inventory will be pursued.
- Commercial opportunities which could arise from release of plant material from the Gardens will be pursued together with appropriate partnerships with industry.

### **3.4 Monitoring and Curation of the Living Collections**

**Aim: To maintain comprehensive information on the status of the living collections for public information and to facilitate curation and research.**

#### **Background**

The living collections of the Gardens are an integral part of the organisation's scientific collection. Maintenance of an accurate data set and record system is fundamental to their management, providing the key to their scientific significance.

Much of the Gardens' botanical data is stored on a number of computerised and hard copy databases. Plant names, horticultural and botanical information, and the location in the Gardens of specific accessions, species and forms are all stored and managed in this way. The databases provide information to facilitate curation of the living collections, to label plants and to prepare interpretive material. Records of the Booderee Botanic Gardens are also maintained on the ANBG database and can be accessed by staff based at Booderee.

A census of the garden beds is conducted regularly to check names and accession details against current data. The census also ensures tags and labels are correct and properly secured. Labels carrying the current scientific names of plants are an important source of information for the public, visiting scientists, and staff. Providing this type of information is an important and defining function of botanic gardens. Gardens staff also provide technical advice on plant labelling at Booderee Botanic Gardens.

The numbering of Gardens sections has developed in association with the construction of new garden beds and landscape features.

Review is required to align the numbering system with standard gridmaps and allow for cross-referencing to geographic information systems.

#### **Policies**

- Records of plants grown in the Gardens will be maintained, enhanced and cross-linked with herbarium vouchers to reflect their fundamental importance to the public and scientific operations of the Gardens.
- The records will be enhanced and linked to other biological and geographical databases.

#### **Management Actions**

- Permanent labelling of plants will continue to be given a high priority especially in high visitation areas.
- An enhanced computerised recording system that gives every plant a unique identifier will be implemented in line with a new section numbering system.

- More detailed and efficient plant recording and assessment procedures and systems will be developed including the possible use of geographic information systems and improved databases.
- Maintenance strategies and procedures for thematic collections, such as conifers and the Rainforest Gully, will be developed, documented and implemented.

### **3.5 Horticultural Focus**

**Aim: To contribute to a greater understanding of the horticultural potential of Australian plants, their sustainable use and the potential to use this information in the service of conservation.**

#### **Background**

Horticultural research within the Gardens enhances the organisation's ability to maintain and expand the living collection, with benefits to ex situ conservation, and contributes to a useful wide-ranging and informative inventory of Australian plant resources. Horticultural research activities have been successful in attracting funding from both government and non-government sources.

The Gardens horticultural research also contributes to the economic and social development of Australia through the sustainable use of plants for food, health, fibre and amenity and ornamental horticulture. For example, the Gardens acts as an information resource for native flower industries, assisting with advice on managing native flower crops or providing ideas on the development of new cultivars for export.

#### **Policies**

- Conservation outcomes will be a high priority in shaping the direction of horticultural research.
- A major focus of horticultural research will be on horticultural requirements and potential of specific plant groups such as Orchidaceae.
- External funding and commercial and scientific partnerships which enhance research outcomes will be pursued for horticultural research.

#### **Management Actions**

- Technical advice and assistance will be provided in the development of species recovery projects, particularly within the local region.
- Specialised in-house horticultural knowledge will be assessed and collated for publication as resources permit.
- Public programs on the horticulture and biology of Australian native plants will be conducted.

## 3.6 Horticultural Training

**Aim: To provide a range of horticultural training opportunities for staff, students and visiting horticulturists.**

### Background

The Gardens assists with public horticultural enquires through reference to published texts and, for specialised enquires, by reference to experts within and outside the organisation. While staff resources do not permit the operation of an extensive horticultural advisory service, the Gardens disseminates horticultural information largely through professional contacts and publications. The Gardens also provides advice to government and other professional organisations on matters related to botanic gardens management.

A scheme has been established whereby apprentices with Cityscape, the ACT Government horticultural business, come to the Gardens to broaden their knowledge in relation to Australian plants. A work experience program for secondary school students is facilitated through the Education Service. Placements for local and international horticulture students are provided from time to time.

### Policies

- Provide timely and accurate information in answer to horticultural and botanic gardens enquires from the public, professional clients and government.
- Provide formal and on-the-job training for staff and students.

### Management Actions

- Provide training for staff in modern horticultural techniques and management practices.
- Provide training and work experience opportunities for secondary and tertiary students where there is a clear mutual benefit for the Gardens and the educational organisation involved.
- If resources permit, further establish horticultural traineeship positions.

## 4. Studying Australian Plants

### 4.1 Centre for Plant Biodiversity Research

**Aim: In partnership with CSIRO, contribute to the successful management of the Centre for Plant Biodiversity Research to enable it to conduct botanical and related research as a basis for the understanding, conservation, use and sustainable management of Australian plants.**

#### Background

The CPBR was formed in November 1993 as a joint venture between the Director of National Parks and CSIRO. The initial agreement to operate the Centre was reviewed in 1999 and extended until April 2010. The purpose of the CPBR is to provide a single institution and national focus for Commonwealth study of botanical diversity. Major aspects of the agreement between the Gardens and the CPBR are at Appendix 7.

The CPBR is composed of the Botany Section of the Gardens, the Australian Flora Resources and Management Program of CSIRO Plant Industry, and a portion of staff time from the Australian Biological Resources Study (Environment Australia). Importantly for the Gardens, the CPBR manages the Australian National Herbarium (ANH), the combined herbaria of the Gardens and the CSIRO.

Close links are maintained between the ANH and the Gardens so that the scientific value of the living and photograph collections and information about them continues to be enhanced and identification of the living specimens provided. Reciprocally, the Gardens living and photograph collections are used to enhance CPBR studies and the dissemination of scientific information.

The Gardens and CPBR work closely on all aspects of data management and in determining priorities for collections development activities and fieldwork. The CPBR manages a regional Public Reference Herbarium (covering the area south of Wollongong to the Victorian border and west to around Wagga - including naturalised exotic species and environmental weeds) and the Plant Enquiry Service for the general public and acts as an adviser on scientific matters.

The CPBR is governed by a Board comprising representatives from Environment Australia and CSIRO Plant Industry, with an independent external chair. Day-to-day management and running of the CPBR is through an Executive Committee of both Gardens and CSIRO staff, including the CPBR Director, the leaders of CPBR programs, a representative from the Australian Biological Resources Study and the ANBG Living Collections.

CPBR activities are financed by annual recurrent contributions from the parent organisations and the CPBR actively seeks external funding for research and other projects. Staff from the Gardens' Botany Section are seconded to the CPBR and remain subject to the terms and conditions of employment of Environment Australia.

In this Plan, emphasis has been placed on those research activities within CPBR which have the greatest input from staff of the Gardens.

### **Policies**

- The Director of National Parks will contribute to the management of CPBR through representation on the Board and its Executive in accordance with the agreement.
- In accordance with the agreement, the Director of National Parks will contribute staff, financial resources and botanical resources to CPBR to conduct research on the taxonomy, systematics, nomenclature, and the evolutionary and conservation biology of Australian plants, and to manage the Australian National Herbarium.
- The CPBR will effectively meet the needs of its parent bodies, the Director of National Parks and CSIRO (Plant Industry) and will encourage collaboration between its programs and those of the Gardens.

### **Management Actions**

- The Director of National Parks will be represented at meetings of the Board of the CPBR, and relevant senior staff of the Gardens will be part of the Executive managing the day-to-day operations of CPBR.
- The CPBR will be managed and operated as a collaborative venture with contributions of staff and other resources provided by the Director of National Parks and CSIRO on an annual basis.
- The CPBR will provide scientific authority, including reliable and verifiable scientific names, for the Gardens living collections, the Photograph Collection, and the interpretation functions of the Gardens.
- CPBR staff will contribute to the management of the Public Reference Herbarium primarily by carrying out collections for species not currently represented in the herbarium and keeping names of plants in the collection up-to-date with an aim to complete 90% regional coverage.



## 4.2 Development, Management and Curation of the Herbarium Collection

**Aim: Within the CPBR, to maintain a herbarium to the highest curatorial standards and to further develop a taxonomically and geographically representative scientific collection of preserved samples of Australian and related floras.**

### Background

The Australian National Herbarium is a national sample of Australia's plant biodiversity, housing around 1.3 million specimens.

It provides an extensive source of scientific data for plant systematics research and documentation, analyses of changes in distribution patterns due to climate and land use practices, and also functions as a reference base for the *Flora of Australia* project.

The herbarium houses vouchers for the Gardens, holds historical collections of heritage value and provides information and identification services. Specialist collections of international importance include:

- the world's most comprehensive collection of eucalypts;
- an extensive collection of the flora of northern Australia and New Guinea deriving from past CSIRO involvement in this area;
- Australia's largest collection of mosses, lichens and liverworts;
- a specialist tropical rainforest collection of 100 000 specimens housed in Atherton, Queensland; and
- comprehensive collections of *Melaleuca* and *Callistemon*; Orchidaceae; Sapindaceae; Lauraceae; Portulacaceae; and some sections of Poaceae, Rutaceae, Proteaceae, and Fabaceae.

The collections of the herbarium combine those of the CSIRO and ANBG. Physical amalgamation of these commenced in 1995 and is substantially complete, although full curation of the collections may take another eight to ten years to finalise. Material is incorporated with high levels of accuracy in identification, nomenclature and data validation. Plant groups under active research and groups of strategic importance to herbarium clients are given the highest priority in herbarium curation.

The combined collection (see Table 1) is housed at three geographically separate sites. The cryptogams (mosses, lichens, liverworts, hornworts, fungi, algae and ferns) and gymnosperms are located on the Gardens site and the angiosperms (flowering plants) are located on the Canberra (Black Mountain) CSIRO site. The Atherton site in north Queensland houses mainly rainforest species, with few specimens originating from the Gardens.

**TABLE 1**

Australian National Herbarium Collection (Canberra) October 1999

<b>Group Specimens</b>	<b>Total no. Specimens</b>	<b>Total no. Databased</b>	<b>Percentage Databased</b>	<b>Total no of Type Specimens.</b>
Dicotyledons	880 733	316 265	35.9	4 952
Monocotyledons	106 546	71 424	67.0	1 070
Gymnosperms	6 444	1 766	27.4	16
Pteridophytes	21 194	6 069	28.6	107
Mosses	85 467	48 816	57.1	168
Hepatics	26 250	12 558	47.8	77
Lichens	124 293	34 464	27.7	521
Fungi	7 411	3 372	45.5	57
Algae	6 914	284	4.1	1
<b>Total</b>	<b>1 265 252</b>	<b>495 018</b>	<b>39.1</b>	<b>6 969</b>

Note: A type specimen is the original specimen to which a scientific name is applied at the time of publication. It is the permanent archival standard for a scientific name.

The materials used in the preparation of specimens at the CPBR are of archival quality: they are designed to last for many centuries without physical or chemical breakdown. The buildings are secure, protected against fire, and have controlled environments. Specimens brought into the buildings are subject to quarantine and decontamination procedures. Pest management procedures such as fumigation and insect and fungal attack monitoring are conducted as required.

The Integrated Botanical Information System database links all the accession components and makes this information available for research and management purposes (refer also to Section 4.6). This data contributes to the national knowledge base through the Australian Virtual Herbarium, a collaborative on-line data resource for research and environmental decision making.

## **Policies**

- The Australian National Herbarium will continue to maintain and develop its broad representation of Australian and related plants, both taxonomically and geographically.

- The collections will concentrate on all the major plant groups except algae and micro-fungi, with the taxonomic focus of the collection being vascular plants, the major groups of non-vascular plants and macro-fungi.
- The collections will be maintained to high archival standards, in secure environment controlled buildings, and curated to contemporary taxonomic standards.
- Basic data from the collections and other resources of the Australian National Herbarium will be made freely available through Australia's Virtual Herbarium.

### **Management Actions**

- Options will be pursued for increasing the space and improving the housing of the collections, particularly through greater integration with the CPBR.
- The Australian National Herbarium will continue to maintain high curatorial standards for the specimens in its care. The specimens will be stored and handled according to modern standards of herbarium curatorial practice.
- The identity of specimens will be kept as current as possible, according to the latest accepted taxonomic revisions. The associated collections of spirit material, wood samples, floral dissections and other collection components will continue to be maintained to the same standards as the main collection.
- An active field collection program will continue to collect taxa under-represented in the collection, taxa of research interest, and taxa from areas that are poorly known botanically. Collecting permits will be obtained from the authorities concerned and reports on collecting activities will be provided to those authorities.
- Herbarium data will be managed in accordance with national and international standards to facilitate its contribution to the Australian Virtual Herbarium.
- The Australian National Herbarium will continue to be involved in an active specimen loans and exchange program with other recognised herbaria throughout Australia and internationally. Specimen acquisition will also occur through collection by staff members and through donations and exchanges. The database will be maintained and populated with the data associated with the Australian National Herbarium holdings, their location and their status. Additional resources will be sought to accelerate databasing in association with the establishment of the Australian Virtual Herbarium.
- The CPBR will provide botanical identification services to the Gardens.
- The Australian National Herbarium will provide a plant enquiry and identification service. Charges as detailed in Appendix 6 will apply to this service for professional or commercial individuals or organisations, unless there is a demonstrable mutual benefit involved. These charges will be reviewed periodically.

- The Australian National Herbarium will house and maintain voucher specimens of plants in the Gardens' living collections, plants photographed for the Photograph Collection (where applicable) and other botanical research and survey projects. These specimens will be curated to the highest archival standard and reliably identified according to the most recent and reliable botanical publications.
- The Australian National Herbarium will lend its specimens to other recognised herbaria for taxonomic and systematic research in line with the access to genetic resources policy outlined in Section 3.3. In return, it will borrow specimens from other institutions to facilitate its own research and will follow the agreed loan conventions of herbaria.
- Duplicate specimens will be deposited in herbaria which are located in the State or country of origin, herbaria which are actively working on or with interests in the taxa, herbaria with a regional interest in the collecting site, and selected major overseas herbaria.
- A Disaster Management and Recovery Plan will be completed and implemented.
- There will be integration of specimen and information processing activities which will include documenting collections management procedures. Staff will be trained in these procedures.
- Residual data capture for the Australian Plant Name Index will continue and there will be significant progress with synonymy including the integration with, and contributions to, the International Plant Name Index.
- Increased efficiency will be achieved on electronic data capture using portable computers and database technology during fieldwork.
- The Director will pursue tax deductibility for donation of botanical specimens.

### **4.3 Biogeographic and Evolutionary Research**

**Aim: To contribute, through the CPBR, to a greater understanding of Australian plants and their biogeographic and evolutionary origins.**

#### **Background**

One of the major objectives of the CPBR is to contribute to understanding of the relationships and origins of continental and offshore Australian plants. This is reflected in the composition of the collections and in the research priorities. In addition to a focus on Australian taxa, the Australian National Herbarium aims to achieve a good representation of plants from surrounding countries and from continents that were previously part of the larger Gondwana land mass. Specimens from more distant countries are also included in the collections if they are closely related to the Australian taxa. The Herbarium also includes specimens from a wide range of exotic species growing in Australia.

The needs of botanical research programs and the regional themes of the Gardens' living collections have directed priorities for field collecting of vascular plants to a large extent. Additional collecting trips for vascular plants have been undertaken specifically to complete gaps in the Herbarium collection. Collection of non-vascular plants has been more wide ranging because these plants do not feature prominently in the living collections.

### **Policies**

- Maintain the geographic focus of CPBR collections and research activity upon continental Australia and Australian territories.
- Areas of known or suspected botanical significance or with high numbers of endemic or rare and endangered taxa will continue to be of high research and collecting priority.

### **Management Actions**

- The CPBR will continue to collect, manage and study plant specimens from all regions of Australia.
- Fieldwork will concentrate on areas known to be under-surveyed botanically or on areas with a problematic flora. Intensive fieldwork will also be undertaken at known and expected localities for rare or threatened plant taxa.
- Field trips will be coordinated between the CPBR and Gardens.
- Collections and research activity will extend to the southwest Pacific, southeast Asia and the Gondwanan land masses to the extent necessary to elucidate the origins and relationships of Australian plants (see also Section 3.1).

## **4.4 Plant Systematics Research**

**Aim: To contribute, through the CPBR, to a greater understanding and knowledge about the systematics, evolution, taxonomy, distribution and conservation biology of major groups of Australian native plants and their relatives.**

### **Background**

The main input by the Gardens to research at the CPBR is through the expansion of knowledge on plant systematics. Advances in technology have made new areas, such as molecular biology, increasingly important in plant systematics. To take advantage of these tools, staff undertake collaborative projects with other institutions.

Major systematic projects carried out by staff in the CPBR involve systematic and phylogenetic studies in Orchidaceae, Myrtaceae, (particularly *Eucalyptus*, *Melaleuca*, *Syzygium* and *Leptospermum*), Caryophyllales (Amaranthaceae, Caryophyllaceae,

Portulacaceae), Asteraceae, Fabaceae, Malvaceae, Lauraceae, Araliaceae, Proteaceae (especially *Grevillea*), Zamiaceae, Pteridophytes, Bryophytes, and lichens.

Wherever possible, the taxonomic research effort of the CPBR is compatible with the long-term requirements of the Australian Biological Resources Study's *Flora of Australia* project, a multi-volume series documenting all Australian plants.

The CPBR is also involved in the development of interactive computer-based identification tools such as EUCLID and Australian Tropical Rain Forest Plants.

## **Policies**

- The Gardens' input into research and collections foci of the CPBR will continue to be the morphology, taxonomy, systematics, evolutionary biology and conservation of the Australian and related floras.
- In the immediate future the major focus of taxonomic and systematic research at CPBR will be the Orchidaceae, Myrtaceae, Asteraceae and Fabaceae.
- Ancillary research programs will examine the taxonomy and systematics of *Grevillea*, *Astrotricha*, *Leptospermum*, selected tropical plant families, and some families within the mosses, liverworts and lichens and the objectives of the *Flora of Australia* project.

## **Management Actions**

- Gardens staff at the CPBR will continue to study the morphology of living and preserved plant specimens to increase understanding of their taxonomy and systematics, making use of the Australian National Herbarium, the laboratories, the living collections and field studies. Biochemical studies, anatomical studies, and plant biology and breeding studies will augment this work.
- The systematic research programs of the CPBR will be applied to elucidate the classification, origin and phylogeny of the families Orchidaceae, Myrtaceae, Asteraceae and the legumes, the genera *Grevillea*, *Astrotricha*, and *Leptospermum*, and some cryptogam groups.
- Staff will prepare scientific and popular accounts of their investigations; a major focus of publication and the research effort will continue to be the priorities of the *Flora of Australia* project. Major contributions to the *Flora of Australia* on Orchidaceae will be made.
- Pending the securing of external funding, production of multimedia interactive keys to important and complex plant groups will be completed. They will focus on family keys, Orchidaceae, *Grevillea*, *Eucalyptus*, and Fabaceae.
- Consideration will be given to expanding the cryptogam research program to cover new areas of taxonomic expertise.

## **4.5 Visiting Scientists, Volunteers and Intern Programs**

**Aim: To contribute to a greater understanding of Australian plants by encouraging the study of, and contribution to, the botanical collections by bona fide individuals.**

### **Background**

#### **Visiting Scientists and Scientific Associates**

The Gardens and the CPBR encourage use of the collections and facilities by staff from other organisations and by bona fide individuals who are studying Australia's plants. The quality of the collections is enhanced through study and annotation by active and qualified researchers.

Researchers who are staff from other organisations, and who are formally acknowledged by the Gardens and CPBR as Visiting Scientists, are accorded specific access privileges.

The Gardens and CPBR also maintain a Scientific Associate program. These people may be either enthusiastic amateurs or professional botanists who spend much of their time in the field searching for particular taxa of interest. They also include retired staff or other professionals who spend time at the Gardens or CPBR working on various projects.

#### **Herbarium Volunteer Program**

Herbarium Volunteers play an important part in the working life of the Australian National Herbarium, allowing trained staff more time for curatorial activities. Volunteers are selected from members of the public eager to assist with the preparation of the collections and they are provided with training in specimen mounting techniques. Herbarium staff provide supervision, guidance and training. Volunteers work at both the Gardens and CSIRO sites. Volunteers mount about 10 000 specimens each year.

#### **Student Botanical Intern program**

The collections of the Australian National Herbarium and the large body of professional and technical expertise held by the staff of the Gardens and CPBR provide a useful training environment for tertiary students of botany. With this in mind, the CPBR offers a Student Botanical Internship Program with its major focus on the Australian National Herbarium. The Program provides some formal instruction and an intensive period of work experience in a herbarium and research environment. The Program operates during January and February of each year and has the support of the universities, many of which recognise the program for credit points for their students.

Canberra Institute of Technology students and work-experience students are offered field placements in the Gardens' living collection and the nursery. The Gardens also offers horticulture apprentices work experience.

## **Research Permits**

Research in Commonwealth Reserves (including the ANBG) that involves actions affecting native species and or is carried on for commercial purposes is prohibited by EPBC Act unless carried on in accordance with a management plan (s.354(1)(a) and (f)). Scientific research generally in Commonwealth Reserves is prohibited by the EPBC Regulations (r.12.10) unless carried on in accordance with a management plan or a permit issued by the Director of National Parks, or if certain other exceptions apply (regulation 12.06). Access to biological resources for research purposes may also be subject to regulations made under s.301 of the Act.

## **Policies**

- The Gardens and CPBR will maintain a Visiting Scientist and Scientific Associate program in which accredited individuals are given access to the collections and facilities to study and to collect plants for the living and herbarium collections.
- The Australian National Herbarium will continue to maintain an active Herbarium Volunteers Program, providing suitable volunteers with defined access to the collections and facilities.
- Volunteers will be provided with a safe and ergonomically sound work environment and they will be covered by the appropriate workers compensation insurance.
- The CPBR will continue to recruit suitably qualified and enthusiastic second and third year tertiary students to the Student Botanical Intern Program.

## **Management Actions**

- Visiting Scientists, Scientific Associates who spend time in the CPBR, ex-staff, or other professionals, may, at the discretion of the CPBR management, be provided with access to facilities to allow them to carry out their research.
- Scientific Associates will be trained in the techniques of botanical collecting and instructed in the obligations imposed by permits for plant collecting. Where this is acceptable to the permit-issuing bodies, associate collectors will be provided with institutional collecting permits.
- Volunteers with appropriate technical abilities will be actively recruited and provided with a range of tasks such as mounting or packaging specimens and assisting in the processing of loans and exchanges.
- Staff of the CPBR will provide participants in the Student Botanical Internship Program with formal instruction and supervision on the activities and tasks of the Herbarium. Students will receive formal certification of their participation in the scheme.



- Where necessary and considered by the Director of National Parks to be appropriate in accordance with this Plan, permits may be issued under the EPBC Regulations to carry out scientific research, including research that involves taking native species.
- Research that involves access to biological resources will also be managed in accordance with the Management Actions set out in Section 3.3 of this Plan.

## 4.6 Database Management

**Aims: a) To manage and enhance an accurate and responsive integrated database of botanical information and to provide information to the community, researchers and government.**

**b) To facilitate and contribute to the establishment of Australia's Virtual Herbarium (AVH) as a community resource for research and environmental decision-making.**

### Background

The computer-based Integrated Botanical Information System (IBIS) is a relational database that forms the link between the Herbarium collections, the living collections, the photographic collection, and the bibliographic material held in the library

Significant databases for which the Gardens and the CPBR have responsibility, brought together or integrated within IBIS, include the:

- Australian National Herbarium Specific Information Register;
- Gardens' Living Collections database;
- Gardens' Photograph Collection;
- Australian Plant Name Index;
- Census of Australian Vascular Plants; and
- Australian Weeds database.

The CPBR takes an active role in developing national and international standards for botanical data exchange through its involvement in national projects such as the Herbarium Information Systems Committee, Herbarium Information Standards and Protocols for the Interchange of Data. The CPBR also participates in international projects such as the Taxonomic Databases Working Group of the International Union of Biological Sciences, the International Organisation for Plant Information World Vascular Plant Checklist project, and the International Plant Names Project.

The CPBR is a prime contributor to the establishment of Australia's Virtual Herbarium, a project which will link the botanical databases of Australia's herbaria and facilitate access to, and use of, the data in them. A major component of the establishment of the virtual herbarium

is the input of data not held in electronic form and the implementation of data exchange protocols currently in development. The AVH will serve as a community resource of reliable botanical information for botanists, land managers and the general public.

## **Policies**

- Provision of appropriate access to plant biodiversity data for use by the community, researchers and government will be a priority through the Gardens and CPBR web servers and the Australian Virtual Herbarium.
- The Gardens and CPBR will jointly be responsible for, or for contributing to, the coordination, maintenance and updating of important national botanic databases developed by the Gardens, other relevant programs of Environment Australia, and CSIRO.
- The CPBR will take an active role in the development of national and international standards for botanical data exchange. The CPBR will employ best practice in design and implementation of these standards and use them in projects such as Australia's Virtual Herbarium.

## **Management Actions**

- Complete the database which captures the herbarium collection and, through the CPBR, progressively computerise and integrate herbarium records into a unified database management system. This data will contribute Australia's Virtual Herbarium.
- The botanical databases of the Gardens will be amalgamated with those of CSIRO Plant Industry and dynamic links will be maintained between the names on the herbarium specimens and names applied to living plants in the Gardens and photos of plants in the Photograph Collection.
- Contemporary standards of design and content such as Herbarium Information Standards and Protocols for the Interchange of Data will be employed in all database applications and the Gardens and CPBR will promote best-practice in the management of herbarium data as part of their contribution to Australia's Virtual Herbarium.
- The combined Australian Plant Name Index and Census of Australian Vascular Plants data sets will be redesigned to link with other data sets, including the Herbarium, living collections and photograph collections. This combined data set will be the primary plant name authority file for all CPBR and Gardens database applications and will be a foundation data-set for Australia's Virtual Herbarium. A user-friendly interface will be developed and incorporated.
- Selected images of botanical items and material relevant to the management of the collection will be stored on the IBIS database and made accessible on the CPBR network for use in projects such as Australia's Virtual Herbarium.

- The CPBR will develop basic expertise in spatial information systems and ensure that its applications and data adhere to contemporary spatial data best practice.
- An on-line geographic information system will be provided on the CPBR network and website, both for management of the Gardens and CPBR, and for publication of Gardens and CPBR information.
- There will be timely entry of new taxonomic and nomenclatural information into the Australian Plant Name Index.
- There will be timely entry of herbarium specimen records following new accessions from exchange and collection. Strategic groups of plants will be entered, and the legacy of other collections not yet stored in the database will be addressed as part of the contribution to Australia's Virtual Herbarium.
- High level input will be provided to national and international fora on the development of international standards for botanical data exchange to reflect the needs of the botanical community.
- Support will be given to integrating the Australian Plant Names Index with the International Plant Names Index, in collaboration with the Royal Botanic Gardens, Kew, and the Harvard University Herbaria.

## **4.7 Networking and the World Wide Web**

**Aim: To maintain an efficient network of computing facilities for the Gardens and CPBR and to provide general access to relevant botanical data, information and appropriate information-processing tools.**

### **Background**

The Gardens and CPBR employ state-of-the-art computing hardware to provide an efficient internal CPBR network to take advantage of World Wide Web (Web) facilities and to connect to other organisations as needed. Specialised hardware, such as scanners and high quality printers for herbarium labels, is shared through the network. The CPBR network also handles backup and archiving of file systems.

The Gardens and CPBR Web servers provide access to textual and graphic information about the Gardens and the CPBR and information from CPBR databases. The Web also provides connection to information produced by other botanical and environmental institutions and links have been made to these resources as they have been published on the Web. The Web is the primary vehicle for access to projects such as Australia's Virtual Herbarium.

### **Policies**

- The CPBR will employ contemporary information management technology to provide efficient tools for the management and dissemination of botanical information.

- Access to the Web for the delivery and retrieval of data and information will be a cornerstone of the information processing infrastructure of the CPBR and the Gardens.

### **Management Actions**

- Connection to external organisations will be maintained so users have access to remote network services and facilities.
- Information in the form of documents and access to the database will be published on the CPBR network and made available for scientific research and environmental management.
- Appropriate security measures will continue to be taken to prevent unauthorised access and to minimise malicious or unintentional damage to the CPBR network and databases. The back-up strategy will ensure that data are recoverable in the event of a catastrophic system failure.
- An upgrade and implementation program will be undertaken to ensure access to the latest versions of licensed software and that such software is properly installed and supported.
- Hardware will be upgraded in a timely manner to ensure that the Gardens and the CPBR are not constrained by obsolete technology. In all cases, Government Open Systems Interconnect Profile (GOSIP) and industry standards will be followed.
- The Gardens and CPBR Web site will be maintained in accordance with the Commonwealth *Government Online Strategy*.
- Staff training and instruction in the use of new applications and equipment will be provided when applications and equipment are installed, consistent with and where possible within the framework of Environment Australia's information technology training programs. Training will take the form of computer-aided instruction packages, formal training and on-the-job instruction and experience. Self-instruction will be encouraged.

## 5. Promoting Australian Plants

### 5.1 Interpretation and Information Services

**Aim: To encourage people of all ages and backgrounds to learn about and value Australian plants while enjoying their visit to the Gardens.**

#### Background

The Gardens provide opportunities for people of all ages, abilities and backgrounds to learn about and enjoy Australia's flora through information and interpretive programs.

The Visitor Centre is the prime point of contact for visitors to the Gardens and staff are available there to answer visitors' questions about the Gardens. A shop, occupied and operated under a licence granted by the Director of National Parks, also forms part of the Centre. Although surveys show that around 40 per cent of visitors make use of the Visitor Centre, the proportion would be higher if the Centre was better integrated into the main pedestrian flow patterns into the Gardens proper and would improve the revenue potential of the shop (see Chapter 8).

The Visitor Centre also provides a venue for exhibitions covering a wide range of topics such as vegetation types, plant groups, animal-plant interactions, human uses of plants, conservation and botanical art. Where appropriate, these are linked with outdoor activities in the Gardens and supported with printed material and digital media. The exhibitions are also made available, usually in a modified form, to regional botanic gardens or other suitable venues for exhibition.

The CPBR manages the Public Reference Herbarium which is currently located in the Visitor Centre. Visitors and those studying the regional flora are encouraged to use this resource to identify their own plant specimens or collections. Visitors can also leave plant specimens to be identified by the Gardens scientific staff (refer also to Section 4.2).

Leaflets are provided on a range of aspects of the Gardens and Australian plants, including a general guide, self-guided walks, plant groups, facts and figures, memorials and bibliographies. Donations, through an honour system, are requested to cover costs of the information leaflets.

Interpretive signs and descriptive labels along major walking paths supplement the plant identification labels in the Gardens. These signs contain information about the plants and their place in the natural ecosystem or use in past and present human cultures.

The Friends Volunteer Guides have become a significant addition to the information and interpretation programs, providing a positive experience for both the guides and those participating in the tours.

## **Policies**

- The Visitor Centre will be open to visitors and operated by staff on all days that the Gardens is open. The Visitor Centre will be maintained as an inviting and attractive place for visitors with staff available to answer enquires and direct visitors to plants or places of interest (see also Section 8.2).
- Exhibitions on a wide range of topics related to Australian plants and the environment will be displayed in the Visitor Centre.
- Interpretive information about the plants and the environment will continue to be strategically placed around the Gardens.
- Volunteer Guides will be encouraged to maintain an active service, providing a human face to the Gardens' interpretive program.

## **Management Actions**

### **Visitor Centre**

- Exhibitions will be prepared by the Gardens or borrowed from other institutions, and will be changed several times each year. A range of different types of exhibitions will be programmed, focusing on the broad theme of Australian plants and the environment, and designed to appeal to a variety of tastes.
- Maps and interpretive information leaflets focusing on various plant groups and their cultivation will be produced and distributed from the Visitor Centre. In particular a new visitor guide will be produced and there will be a review of leaflet structure. The public will continue to be encouraged to make donations to cover the cost of producing leaflets.
- The Public Reference Herbarium will be maintained. Its use by the public will be encouraged and facilities such as reference books, computer access to the Web and interactive digital plant identification keys will be provided. A review of the operation of this Herbarium will be conducted to ensure the resource meets public expectations and can be adequately used by them.

See Section 8.2 for development proposals in relation to the Visitor Centre.

### **Outdoor Interpretation and Orientation**

- A sign manual will be prepared to promote greater consistency in the style of interpretive and orientation signs.
- A plan will be developed outlining priority interpretive messages for various audiences and methods to convey them.
- Signs describing the basic theme for a garden bed will be placed in strategic locations around the Gardens. These will match the style of the directional signs and replace the old signs.

- In conjunction with redevelopment of plant displays and paths (refer also to Section 8.3), priority will be given to improving visitor orientation methods along the main path, which may include signs, path distance markers, and landmarks (including artworks).
- A series of secondary thematic loops from the primary walk will be defined and interpreted. These may include themes on Tasmanian flora, Sydney region flora, Myrtaceae (paperbarks, teatrees, lilly pillies) and Proteaceae (banksias, grevilleas, waratahs). (refer also to Section 8.3).
- Environmental monitoring stations will be considered as part of the interpretation of site micro-climatic conditions.

#### **Volunteer Guided Tours**

- A Volunteer Guide program will be supported and encouraged as part of the interpretive strategy, with the overall aim of providing a high quality daily tour service. Training programs will be held from time to time when necessary.
- Staff will pursue opportunities for including volunteers in a broad range of Garden's programs.

## **5.2 Education**

**Aims: a) To provide programs and resources for educational institutions, their staff and students; and for the public.**

**b) To assist people to learn about Australian plants and the environment and to develop skills and interests in horticulture.**

### **Background**

The Gardens' education service prepares and provides learning materials and training to teachers wishing to use the Gardens as a teaching resource. The formal education program is aimed mainly at primary and secondary students. As a result, it is broad-reaching across the curriculum, but has a focus on botany, horticulture and environmental education. There is strong emphasis on cultural studies of the uses of native plants by indigenous and non-indigenous Australians. Education assistants (called Explainers) are recruited and trained to help deliver the program. They are employed on a needs basis to lead groups in educational activities at the Gardens and assist with other education activities.

The Gardens has strong links with local tertiary institutions and encourages their use of its facilities. The ANBG also cooperates with groups such as the University of the Third Age in providing facilities for senior citizens to pursue educational programs. As part of this broad educational program, the Banks Centre provides community education programs including horticulture, special education and programs for seniors.

Work experience placements are also provided for secondary and tertiary students and others within various sections of the organisation.

## **Policies**

- The educational facilities, programs and resources of the Gardens will be designed for people of all ages, abilities and backgrounds and will be publicised to encourage people, particularly those in educational institutions, to make use of them.
- The educational programs of the Gardens will operate with a cross curriculum approach, with a focus on the biology and horticulture of Australian plants and the natural environment. Special emphasis will be placed on the uses of native plants by indigenous and non-indigenous Australians and on understanding the importance of Australia's biodiversity and the need to protect it.
- The Gardens will encourage teachers to bring students to the Gardens rather than provide living plant material to schools.
- The Gardens will consult with relevant Aboriginal people in the development of indigenous education programs.
- Charges will apply for some programs to assist with the provision of consumable materials and resources (refer to Appendix 6).

## **Management Actions**

### **General Programs**

- Kits and information packages will be produced on a range of topics to meet the needs of teachers and current curricula, and to encourage sound conservation and environmental practices.
- Activities for students at the Gardens will involve both indoor and outdoor activities, with emphasis on the use of self-guided 'Discover' activities on various themes.
- For local and regional schools, emphasis will be placed on professional development for teachers to enable them to become more confident in effectively using the Gardens' facilities, requiring less staff and Explainer contact with groups.
- A limited number of work experience and vocational training placements will be accepted in various areas of the Gardens each year.
- Strong links will be established with CSIRO's Green Machine and Discovery Centre and other relevant education programs to provide teachers and students with complementary packages of biological programs on Black Mountain.
- The Gardens will incorporate information technology and other practical solutions and investigate the establishment of a multimedia initiative through sponsorship, to further develop the education program. This will focus on environmental activities for



students and the wider community with the aim of increasing understanding and commitment to the environment.

- Tertiary level programs will be developed on request, using the available expertise of the Gardens and tailored to the needs of the tertiary institution.
- The Australian National Herbarium will continue to offer a two-month summer internship to students in the life sciences. The internship will enable students to undertake training in the operation and management of a scientific botanical collecting institution in return for a considerable input of volunteer labour (refer also to Section 4.4).
- Various areas of the Gardens will provide work experience placements from tertiary institutions in consultation with those institutions.

### **Community Education**

- The Gardens will continue to present programs and activities to celebrate National Aboriginal and Torres Straight Islander Day Observance Committee (NAIDOC) Week (in consultation with relevant Aboriginals).
- The Australian Science Festival, Wattle Day and other celebratory events will continue to be the focus of some education programs.
- The Gardens will continue to offer facilities to work in partnership with adult community organisations such as the University of the Third Age and Painting with Parkinsons.
- Opportunities to develop new community partnerships will be actively investigated, with a focus on training programs for Volunteer Guides, Staff Development and the Community.
- The Gardens will present a range of community education programs focusing on Australian native plants - their horticulture, biology and use; and biodiversity and conservation.

### **Special Education**

- Programs at the Banks Centre that cater for people with disabilities will, where practicable, be integrated with other educational and recreational activities being undertaken in the Gardens. Adults and children from non-English speaking backgrounds will be catered for.

### **Explainers**

- An education assistance program, called the Explainers, will form part of the Education Service programs. Recruitment and training will be conducted as required.

## 5.3 The Gardens Library

**Aim: To support the mission of the Gardens by the provision of timely and high quality information services.**

### Background

The Gardens Library is an integral part of the Gardens, developing with the Gardens under various management arrangements of the last forty years. The Library is currently managed as a branch of the Environment Australia Library and shares its catalogue, which is accessible through the Web, with the Environment Australia Library.

The Library provides services to staff and volunteers of the Gardens, and its resources are also available to related institutions and members of the public. The Library collections include books, journals, maps and multi-media materials.

An archival collection including published and unpublished material relating to the history and activities of the Gardens is held in the Library, as is a collection of rare books and special editions. The Australian Biological Resources Study (ABRS) publications are held as a discrete collection.

Well-established networks for loans and exchange of information operate with the CSIRO Black Mountain Library, together with libraries of other major Australian botanic gardens, and through membership of the Council on Botanical and Horticultural Libraries and the Environment Librarians Network.

The Library participates in the Gardens Volunteer program, accepting and assisting volunteers as part of the management program.

### Policies

- Management policies and procedures of the Gardens Library will be developed in accordance with those of the main Environment Australia Library.
- The Gardens Library will be maintained and managed at the Gardens site, with the collection reflecting the thematic focus of the living and herbarium collections, the conservation and horticulture of Australian plants, and education about biodiversity and the Australian environment.
- Library services will be available to Gardens staff and associates such as CPBR staff, student interns, Friends of the Gardens, volunteer guides and Explainers. Arrangements may be made to provide access for others such as researchers, students, staff from related institutions and the general public.
- The Library will accept suitable donations and may accept material under government tax incentive schemes.

## **Management Actions**

### **Access to the Library and Library Services**

- The Library will be open Monday to Friday, 9am to 4.30pm, with access for non-Gardens associates by appointment or prior arrangement.
- The Library catalogue and other Library resources will be available to the general public through the Web.
- Some restrictions on loans will apply for certain categories of Library materials and Library clients. For example, rare books are not available for loan.

### **Library Services**

- Library services to clients will be provided in a timely and efficient manner and the library collections and services will be promoted to clients. For example, the Library will take advantage of electronic information systems and the Library website will continue to be developed.
- Cooperative links with other institutions will be maintained and utilised, including the Australian inter-library loan network and links with CSIRO and major Australian botanic gardens libraries and environmental libraries.

### **Collection Management**

- The collections will be housed to ensure material is readily available for clients while also being preserved in optimal conditions with adequate space provisions. For example, special conservation measures will be used for certain collections where required.
- The Disaster Management and Recovery Plan will be further developed and implemented in conjunction with the Herbarium.

## **5.4 Photograph Management**

**Aim: To further develop the collection of photographs of Australian plants and their habitats to promote Australian plants, their conservation and cultural values.**

### **Background**

The Gardens has an active policy of building a collection of photographs of all Australian plants. Photographs are taken by staff and are sought from a range of photographers throughout Australia.

Photographs showing the development of the Gardens, horticultural practices, examples of landscape design and other images used for educational purposes or historical records

supplement the collection. Data from the photographs are linked with those of the herbarium and living collections through the Gardens computer database.

Original photographs are not released from the collection but duplicates or digital images are supplied to publishers and loaned for lectures or similar purposes. Access to the collection is granted to individuals and organisations to promote interest in our native flora and, where the Commonwealth's copyright is administered by the Gardens, the Gardens licenses publishers to reproduce photographs from the collection. There is a charge for this service (refer to Appendix 6).

The Web is now the prime mechanism for disseminating the scope of the collection to prospective users. Descriptions of all photographs are accessible through the Web and low-resolution images are gradually being made available for viewing.

## **Policies**

- The curation of the photographic collection will be continued and enhanced and the photographs will be stored under the most appropriate archival conditions for their day-to-day management.
- The Gardens will continue to act as custodian of copyright for photographs taken by staff in the course of their duties, or for copyright of photographs donated to or purchased by the Gardens.
- The data associated with photographs will continue to be transferred to the Gardens' computer database and associated electronic image storage technology will be implemented.
- The Gardens will license publishers to reproduce images and will provide duplicates or digital images of photographs for educational and promotional purposes.
- Charges will apply in certain instances for costs associated with licences, handling and duplication of photos for reproduction (refer to Appendix 6).
- Charges apply for the capturing of images of the Gardens and its plants, and for filming in the Gardens, for commercial purposes (refer to Appendix 6). Charges may be waived or discounted if these activities assist in promoting the Gardens' stated mission.

## **Management Actions**

### **Promotion of the Collection**

- The use of the collection by publishers from both the private and public sector will be encouraged. The best promotion for the collection is a photo credit acknowledging the Gardens alongside photographs published in a range of books and magazines.
- Images will be stored on Kodak Photo CD or a similar medium and then transferred to the Gardens website allowing international promotion of the collection.

- Students will be encouraged to visit the collection on-line and become aware of its scope and availability.

#### **Sources for Photographs for the Collection**

- Staff will be encouraged to photograph plants in the Gardens and in the field and place them in the collection.
- The wider botanical community will be encouraged through promotional materials, direct approaches and awareness raising activities to donate or bequeath reliably identified, high quality photographs to the collection.
- The Gardens will promote the use of the government's tax incentive schemes to encourage suitable donations to the collection and facilitate this process.

#### **Commercial Access to the Collection**

(refer also to Appendix 6)

- A charge will apply for use of photographs published from the collection. Electronic transmission of licensed images through the Web will be implemented when practicable.
- Duplicate slides may be purchased for educational purposes. The purchase price does not include the right to reproduce the slides or publish the photographs.

#### **Public Access to the Collection**

- The transfer of images to the Gardens' website will continue as a means of making the collection accessible to the public.
- Access to the physical collection may be permitted by appointment.
- The Gardens will evaluate the feasibility of establishing a new shopfront to provide more direct public access to the photographic collection and, if feasible and resources permit, establish and implement it.

#### **Scientific Access to the Collection**

- Photographs associated with, and linked to, herbarium specimens in the Australian National Herbarium and the living collections will be progressively incorporated into the photograph collection.
- Photographs from the collection will be used to illustrate interactive CD keys and other multi-media products being produced by the Australian scientific community, and the Gardens will seek to become an active partner in their production.
- Botanical sites on the Web may be permitted to make links to photographs on the Gardens website.

## 5.5 Recreation

**Aim: To encourage visitor use that is consistent with the educational and horticultural values of botanic gardens.**

### Background

For many visitors recreation is an important part of their visit to the Gardens. Enjoyment of the site fosters positive community attitudes toward botanic gardens and Australian plants and motivates visitors to learn from the setting and make use of the Gardens botanical and educational resources.

The Gardens organises a variety of outdoor recreational activities, including musical performances and theatre, as well as particular activities for the young. These programs endeavour to meet the needs of people with a wide range of ages and abilities. Holiday programs for children using games or making creatures out of seeds and fruits, for example often link or merge with more formalised educational programs. Catering for community interests such as art and craft, entertainment and exercise form part of planning suitable recreational experiences for visitors to the Gardens' site.

The Gardens Bookshop and Café provide services for visitors (see also Chapter 9) to enhance the pleasure of their visit and reinforce the experience with a souvenir or literature. Marketing these facilities is also an important part of attracting visitors to the Gardens. A range of other visitor services including private functions (particularly weddings) and hire of facilities is part of the Gardens' function and helps support the institution and its programs through revenue enhancement. Activities which do not interfere with the enjoyment of other visitors to the Gardens are encouraged.

The EPBC Act (s.354(1)(f)) prohibits commercial actions in Commonwealth reserves except in accordance with a management plan. The EPBC Regulations contain provisions that may be relevant to the carrying on of recreational and associated activities in the Gardens for example r.12.39 prohibits collection of money or goods as gifts from the public. Recreational activities that are prohibited by the Regulations may be carried out under a permit issued by the Director of National Parks, or in accordance with a management plan.

### Policies

- Recreational activities consistent with the mission and objectives of the Gardens will be promoted to encourage people of all ages, abilities and backgrounds to enjoy botanic gardens.
- A program of musical and similar entertainments which appeals to a wide cross-section of the community will be implemented.
- The Gardens visitors will be encouraged to use the Café and Bookshop, and these facilities will be maintained to a high standard through the contributions of licensees and the Gardens.

- Designated venue spaces will be available for hire for appropriate private functions, where these are in keeping with the organisation’s vision and do not impede enjoyment of the Gardens by other patrons (refer to Appendix 6).
- Other charges may be payable for use of the Gardens for recreational purposes (refer to Appendix 6).
- The Friends of the Gardens may, in accordance with prior written approval given by the Director of National Parks, conduct recreational activities on a commercial basis (by charging a fee) or collect donations in connection with recreational activities, without a permit issued under the Regulations,

### **Management Actions**

- Recreational classes related to Australian plants and the natural environment will be conducted by ANBG staff and other parties.
- Programs for people with disabilities or special needs will be integrated with activities for the wider community to provide access for all and special account will be taken of the needs of the elderly.
- The Gardens will work closely with the Friends in the development of recreational programs such as musical entertainment.
- Holiday programs for children will be organised from time to time. People with special expertise may be contracted to present school holiday programs at the Gardens.
- The Gardens will establish innovative and enjoyable facilities to cater for children’s play, with an emphasis on plant biodiversity themes. Community input together with that of suitable design and ‘play’ consultants will be sought to assist in determining the nature of these facilities, to ensure they will appeal to younger children and to meet relevant safety standards (refer also to Section 8.2).
- Where necessary and considered appropriate by the Director of National Parks in accordance with this Plan, permits may be issued for recreational activities.

## **5.6 Marketing the Gardens through Advertising and Promotion**

**Aim: To increase appropriate use of the Gardens by the community through promotional activities.**

### **Background**

Strategies aimed at raising public awareness of Australia’s flora and the unique nature of the site have been implemented to increase visitor numbers. An annual program of paid advertising is undertaken. The Gardens also contributes to a variety of publications, including local newspapers, gardening journals, specialist periodicals, industry newsletters, radio and television advertisements. The content promotes the Gardens in general, and any special

events and programs. Information displays have been used to illustrate Gardens activities at local events such as Floriade and Canberra Festival, and at other venues interstate.

The Gardens regularly participates in activities, such as local and interstate promotions undertaken by the National Capital Authority and Canberra Events and Tourism Corporation. It also works cooperatively with other attractions and neighbours such as Canberra Nature Park, in developing and promoting joint programs, such as the Black Mountain Summit Walking Trail.

Promotional videos have been produced for national distribution to television stations throughout Australia and permanent displays have been positioned in prominent Canberra tourist attractions.

The Gardens has expanded its marketing base by participating as an official event in such programs as the National Science Festival and Floriade. Promotional activities associated with these and other local events have included radio quiz programs with Gardens-related questions and the provision of Gardens' products or services as prizes and give-aways. With the cooperation of the Friends of the Gardens, a poster featuring bush foods was developed and has proved a popular promotional item.

The Gardens' continued membership in the National Capital Attractions Association places it in an excellent position to maintain strategic partnerships with other key institutions concerned with encouraging tourism to the region.

In recent years, efforts have been made to promote the Gardens through concerts and special events. Generous media sponsorship has assisted in promoting Gardens programs on television and radio.

Interviews and editorials in local and national radio programs, and in newspapers, have generated interest in the Gardens and Australia's plants. Media releases issued by the Gardens have been well received.

## **Policies**

- Promotional activities, including paid advertising, will be undertaken to encourage visitation to the Gardens and to raise awareness of Australian plants.
- Cooperation will continue with other visitor attractions, industry partners and tourism authorities in Canberra and interstate.
- Media and industry sponsorship will be sought whenever appropriate.
- Events will be arranged to focus public attention on seasonal attractions.



## Management Actions

### Advertising

- A program of paid advertising will be developed for print and electronic media with both local and national target audiences.
- Joint advertising with the shop and cafe and the Gardens will be pursued.
- The Gardens may use opportunities for free community advertising.
- Media releases and editorials will reflect the activities and progress of the ANBG, and opportunities for interviews with ANBG staff will be used to promote the Gardens.
- Gardens staff will be encouraged to take up suitable opportunities to act as guest speakers at local events.
- A new travelling display will be completed to promote the Gardens locally and interstate.
- The Friends of the Gardens will be encouraged to join with the Gardens in joint promotional projects and to use their newsletter to promote Gardens' activities.
- Volunteer Guides will be recruited, trained and supported to continue their role as a major promotional resource for the Gardens (see also section 5.1).

## 5.7 Community Outreach

**Aim: To maintain active links and involvement with the community at a local, national and international level.**

### Background

The Gardens recognises that there is a need for strong community involvement in its activities and that many people wish to actively support its work by contributing their time and effort. It has actively and successfully encouraged the development of a support group, the Friends of the Australian National Botanic Gardens Inc., which was established in 1990 and incorporated in 1992.

The Friends is a non-profit community-based organisation whose goals are to:

- liaise closely with Gardens management to help bring about mutual advantage;
- increase community awareness of the scientific, horticultural, conservation, educational, cultural and recreational functions of the gardens;
- conduct activities for the benefit of the members;
- raise and expend funds to enhance the continuing development of the Gardens; and
- maintain a high standard of Friends service.

The Gardens continues to support the Friends in a number of their endeavours. The Friends receive promotional space in the Visitor Centre, office space, a lounge for their members, space for the Craft Group, a propagation area for the Growing Friends, and support for the production of their newsletter. The Director of the Gardens and the liaison officer are *ex-officio* members of the Friends Council. The Friends also invite the staff of the Gardens to elect one committee member to represent the views of staff on the Council.

Volunteers play a valuable role in the work of the Gardens. The most obvious role of volunteers from a visitor's point of view is the Volunteer Guides Service, which provides regular tours of the Gardens. Volunteers also contribute a substantial amount of their time to many of the Herbarium and Seedbank activities. Volunteers have also produced the interpretive handout sheet *In Flower this Week* in printed form since 1985 and as a website since 1993. Recognition of the work of volunteers during the International Year of Volunteers is planned through the hosting of the National Volunteer Guides Conference and the release of the daisy *Helichrysum 'Helping Hand'* in conjunction with Volunteering Australia to celebrate volunteer achievement.

In May 1992, volunteers working at the Gardens came under the umbrella of the *Commonwealth Employees' Rehabilitation and Compensation Act 1988*, which provides for workers compensation insurance in the event of any mishap in the workplace.

For those people who cannot get to the Gardens due to distance or lack of mobility, the Gardens provides an active website. This site carries a wide range of information about the botany and horticulture of Australian plants, photographs of Australia's flora and a weekly update of what is in flower. About 6000 pages are accessed from the Gardens website each day from more than 100 countries.

## **Policies**

- The Gardens will foster the community support group called the Friends of the Australian National Botanic Gardens.
- The Gardens will foster and manage a volunteer work program to cater for members of the community who wish to participate in a range of unpaid work in the Gardens.
- The Gardens will provide a website to encourage a wider national and international community to take an interest in Australian plants, the Gardens and its aims and activities.
- The Gardens website will provide links to other web sites which have as their prime focus topics relating to Australian plants or botanic gardens, or to institutions or sites of relevance to the research role of the Gardens or the Centre for Plant Biodiversity Research.

## **Management Actions**

### **Friends of the Australian National Botanic Gardens Inc**

- The Gardens will continue to foster good relations with the Friends, to provide office and lounge space, to support the production of their newsletter and to cooperate in the staging of special events. It will work closely with the Friends to increase and broaden their membership, both locally and nationally.
- The Gardens will continue to offer space for sub-groups of the Friends where possible. A plant propagation area will also be provided.
- Where necessary and considered appropriate by the Director of National Parks in accordance with this Plan, permits may be issued to the Friends to undertake commercial activities and collect donations on the site (refer also to Section 5.5 in relation to commercial activities and collection of donations in connection with approved recreational activities). The Director of National Parks may also grant licences or enter into contracts with the Friends for the conduct of appropriate commercial activities.
- The Gardens will provide a liaison officer to facilitate cooperative arrangements between the Friends and Gardens management, and encourage staff involvement in Friends activities.
- The Director of National Parks will continue to offer the Friends free entry and parking at the Gardens and offer their members concession rates for the hiring of facilities.
- The Gardens will inform the Friends of projects and activities for which they can provide positive input in financial and other ways.
- The Gardens will provide space on its Web server for the Friends to manage a Web page to promote their activities.

### **Volunteers**

- Volunteers will be encouraged to contribute their time and labour to the Gardens and staff will be trained to supervise and provide guidance to volunteers in an appropriate manner. Care will be taken in choosing tasks suitable for volunteers.
- Volunteers will be registered and records will be kept of the times that each volunteer is working in the Gardens to satisfy the requirements of the workers compensation regulations.
- The Volunteer Guides will continue to be supported and training programs will be continued to maintain guides' expertise and confidence in dealing with visitors. New training programs will be arranged when necessary.
- The Herbarium will continue to encourage volunteer workers while providing on-the-job training in various tasks related to the scientific study of Australian plants (refer also to Section 4.5).

**World Wide Web (The Web)**

- The Gardens will maintain a prominent presence on the Web.
- The Web will be used to promote the Gardens and as an educational tool, disseminating information about Australian plants and their cultural significance to the public. In addition, it will be used to make the various national botanical data-sets for which the Gardens has custodianship freely available to the public.
- The Gardens may make space available on its Web server for the Council of Heads of Australian Botanic Gardens and other bodies of relevance to Australian botany or botanic gardens.

## 6. Conserving Australian Plants

**Aim: To contribute to the conservation and sustainable use of Australia's plant biodiversity.**

### Background

The United Nations Convention on Biological Diversity recognised both the opportunity and responsibility of botanic gardens to promote public awareness of the values of natural heritage and the importance of its preservation and sustainable use and management. The Gardens achieves this through horticultural displays, indoor exhibitions, education programs, cooperation with other conservation organisations, and research into Australian plants.

The Gardens established the original national flora collection, and at a current total of around 7000 species, it remains the most comprehensive display in existence of living Australian plants. This includes some 367 rare or threatened species, of which 57 are on the national endangered list. In establishing the collections and displays, horticultural techniques have been developed that are useful in ex situ cultivation, reintroduction and population rebuilding, and vegetation restoration works. The Gardens cooperates with State and Territory conservation management authorities in a number of specific regional recovery plans, such as those concerning *Rutidosia leptorrhynchoides*, *Grevillea iaspicula*, *Grevillea wilkinsonii*, *Hakea pulvinifera* and *Astrotricha roddii*.

Through its collaboration with the CSIRO in the CPBR, the Gardens contributes to the assembling and updating of the inventory of Australian plant biodiversity, and to the clarification of conservation biology of the flora and vegetation.

### National and Regional Roles

The Gardens gives a high priority to working cooperatively with other organisations involved in plant conservation both within Australia and overseas. It played a leading role in the establishment of Botanic Gardens Conservation International by the International Union for the Conservation of Nature in 1987.

The Gardens promotes the concept of a nationally integrated network of plant conservation activities, particularly by hosting the national office of the Australian Network for Plant Conservation (ANPC). The integrated approach to plant conservation adopted by the ANPC draws together botanic gardens, conservation management organisations, private sector businesses and individuals committed to the conservation of rare or threatened Australian plants and plant communities.

The Gardens also contributes to a range of Commonwealth Government programs including wildlife permitting and enforcement activities, threatened species protection, and several programs within the Natural Heritage Trust, such as the National Weeds Program and Bushcare.

## **Policies**

- The Gardens will conduct public programs to raise public awareness of plant conservation issues.
- Horticultural and botanical research relevant to the conservation, sustainable use and management of Australian plants will be undertaken.
- The Gardens will provide a national focus for, and national and international leadership in, the conservation of plant biodiversity. In particular, it will:
  - contribute to a national database of rare or threatened Australian plants;
  - cooperate with other conservation-oriented groups in species recovery activities;
  - provide support for a network of Australian regional botanic gardens and kindred institutions to promote conservation and sustainable use of Australian plants; and
  - develop an ex situ collection of plants and seed of rare or threatened taxa for use in recovery plans and interpretive and educational programs, and as a gene bank.

## **Management Actions**

- Biodiversity conservation and environmental sustainability will be strong underlying messages in education programs, indoor exhibitions and interpreted planting themes. Threatened plants will be grown and interpreted in prominent places within the Gardens and their status will be indicated where appropriate.
- The Gardens will support the Australian Network for Plant Conservation and continue its involvement with Botanic Gardens Conservation International. It will cooperate with kindred organisations in staff exchange activities related to conservation.
- The Gardens and the CPBR will work closely with other government agencies on programs promoting vegetation and landscape conservation, threatened species conservation, and the protection of natural ecosystems from invasive weeds, both on and off reserves.
- The Gardens and the CPBR will contribute to the ongoing development of a national threatened species database, and document threatened plants in the Herbarium, the living collections and the photograph collections.
- The Gardens will collect and maintain genetically significant living stocks of threatened species including variants, particularly those of the local region, and collaborate with other institutions in developing a national endangered flora collection.
- Development of horticultural protocols for conservation purposes will focus on propagation and seed storage.
- There will be maintenance and further development of the seed bank as a repository for rare or threatened species.

- Propagation material of rare or threatened plants will be made available to regional botanic gardens and kindred organisations with a conservation focus.
- Regional botanic gardens and kindred institutions will be encouraged to raise awareness of conservation issues with the loan of relevant display material and educational resources developed at the Gardens.

# 7. Site Environmental Management

## 7.1 Environmental Context

**Aim: To contribute to environmentally sound practices in the ACT region through environmentally responsible horticultural and site management.**

### Background

The Gardens strives to ensure that its activities demonstrate sound environmental practices, consistent with its status as a national institution.

The development of the Gardens adjoining Canberra Nature Park has required particular attention to minimising the potential for plants grown at the Gardens to become weeds in the Park. A buffer zone is maintained around the site where it borders the Canberra Nature Park and this is regularly monitored. Cultivation of plants with known weed potential is carefully managed to limit the possibility of their spread. The Gardens has also advised organisations selling plants from the site about plants with weed potential.

The Gardens position as part of the Sullivans Creek catchment has implications for both the quality and quantity of water released from the site. Water is currently collected through a stormwater drainage system before being discharged into Sullivans Creek. Water use in the Gardens is discussed further in Section 7.4.

Building and horticultural developments at the Gardens are planned with consideration for direct and indirect environmental impacts. The use of recycled materials is encouraged where appropriate and preference is given to plantation-grown timber products. Contractors working on site are contractually obliged to meet current ACT and Commonwealth environmental regulations.

Recycling of waste from offices, the cafe and horticultural activities is also encouraged.

### Policies

- The Gardens will continue to manage its site in an environmentally responsible manner.

### Management Actions

- Water management and irrigation practice will be reviewed (see Section 7.4).
- The review of the *Australian National Botanic Gardens Design Guidelines* (Section 8.1) will include consideration of environmentally responsible practices.
- Woody and herbaceous weed removal in areas immediately adjacent to the Gardens will be conducted with the permission of the landholders.



## 7.2 Remnant Vegetation Management

**Aim: To retain healthy remnant and regenerating native vegetation on the Gardens site for conservation and wildlife habitat and as a buffer between the developed gardens and the surrounding Canberra Nature Park.**

### Background

Large areas of remnant and regenerating native vegetation have been retained on the site managed by the Gardens. Many of these are adjacent to extensive areas of bushland in the Canberra Nature Park on the eastern slopes of Black Mountain. The natural vegetation in this area is primarily dry open eucalypt forest with some remnant woodland on the lower slopes. The dominant tree species in the open forest are *Eucalyptus mannifera*, *E. rossii* and *E. macrorhyncha*. The understorey is a relatively sparse mixture of shrubs and tufted grasses.

This vegetation provides a buffer zone for fire and weed control between the developed gardens and surrounding Canberra Nature Park. A fire control irrigation system exists within the buffer zone along the western and southern boundaries. Firebreaks are maintained along fence lines in these areas.

A weed eradication program along the Gardens' boundaries prevents exotic and native plants spreading to the surrounding Canberra Nature Park. In 1996 much effort was devoted to removing dense infestations of *Acacia baileyana* growing in the southern precinct of the Gardens.

Many naturally occurring trees remain in the developed part of the Gardens, particularly the northerly and westerly parts. Some of these trees are in decline because of changes in soil moisture regimes, damage to their roots and trunks from earlier developments, or because of the effect of pathogens including *Armillaria* or *Phytophthora* (see also Chapter 3). Old, large trees with hollows are retained even when dead (if they do not pose a safety threat) for the benefit of wildlife. Other smaller trees, dead or in serious decline and without obvious habitat value, are removed to allow for development as well as for aesthetic and safety reasons.

A previously constructed nature trail and bark hut, situated in the undeveloped western part of the Gardens, were decommissioned because of lack of resources to maintain the trail or to prevent vandalism to the hut. Walking tracks have been constructed throughout the adjoining slopes of Black Mountain, and Canberra Nature Park manages these.

### Policies

- Pockets of remnant vegetation which extend into the developed parts of the Gardens will be retained with only minor modifications, such as canopy reduction or the inclusion of ecologically appropriate understorey plantings. Mature trees will be retained wherever feasible for their landscape or wildlife habitat values.

- Invasive species will be managed to minimise their impact on the living collection and adjacent conservation areas.

### **Management Actions**

- The southern and western boundaries of the Gardens will continue to be managed as a fire buffer zone between the higher forested slopes of Black Mountain and the developed landscape zones of the Gardens.
- Weed control programs will be continued to prevent the spread of both exotic and native species from the developed part of the Gardens into the undeveloped areas and adjacent conservation areas. This will address in particular *Acacia baileyana* and remnant exotic species in the southern section of the Gardens.
- The Gardens will assist where practicable with land conservation projects, such as Greencorps activities, on neighbouring lands.

## **7.3 Wildlife Management**

**Aim: To maximise the value of the Gardens as habitat for native wildlife to the extent consistent with the Gardens' botanical, horticultural and visitor services functions.**

### **Background**

The cultivation of flora from many parts of Australia has provided a variety of habitats within the Gardens, resulting in a reliable, year-round food supply which wildlife, particularly birds, now exploit. For example, the construction of water and rock features has provided enhanced habitat for Eastern Water Dragons. The impact of developments at the Gardens includes consideration of the potential impact on native wildlife.

Wildlife in the Gardens has been the subject of a number of research studies by staff, students of the Australian National University and others. Guided tours focussing on native animals, particularly birds, have been provided. Nocturnal tours to locate and view arboreal mammals have also been conducted.

While it is not the charter of the Gardens to display native wildlife, the importance and value of wildlife in the Gardens is well recognised as is the need to manage various species to protect the living collection.

Some native species, such as ducks and kangaroos, have increased in number due partly to the modifications of the environment of the Gardens. Wood duck numbers, for example, build up very quickly over a breeding season and cause problems by grazing plants, spreading weed seeds and fouling areas of the site. Brown snakes are frequently sighted in the Gardens over the hottest months and cause particular concern when present around the busy carpark, cafe and Visitor Centre areas.

Eastern grey kangaroos have on occasions caused extensive damage to the Gardens living collections by trampling and grazing plants. In conjunction with wildlife authorities, it has been necessary to manage kangaroo numbers. A kangaroo management plan has been developed in consultation with ACT Government authorities, which is consistent with the EPBC Act.

The use of chemicals in the Gardens is recognised as a potential threat to wildlife, particularly birds and beneficial invertebrates, and there has been a considerable reduction in the use of chemical pesticides in recent years.

Exotic animals such as cats, foxes, rats, dogs and blackbirds are found in the Gardens. All such animals pose various threats to native wildlife through predation, competition for food and shelter and transmission of disease.

## **Policies**

- The Gardens will be managed in a manner to allow sustainable populations of native animals consistent with the mission of the Gardens to ‘grow, study and promote Australian plants’.
- Native wildlife in the Gardens will be protected and managed under the provisions of the EPBC Act. Research likely to lead to better understanding and management of species that damage the living collections or cause other problems in the Gardens will be encouraged. Such research and study will be managed through a system of permits issued under the relevant legislation.
- Education and interpretive programs will continue to draw attention to the value of the Gardens as habitat for wildlife and promote an understanding of plant-animal interdependence.

## **Management Actions**

- Populations of native animals and their impact on the site will be monitored and decision guidelines and management strategies developed and implemented in consultation with relevant parties and consistent with relevant legislation.
- Where necessary for preserving or protecting the Gardens, or protecting persons or property in the Gardens, and subject to the other Management Actions in this Section, exotic and native species may be killed, taken or moved from the Gardens.
- The populations of exotic animals including rats, foxes, rabbits and cats and their impact on the site will be monitored and appropriate management strategies to reduce their impacts developed and implemented.
- Expert advice on wildlife management methods will be sought where required.
- The perimeter fence will be maintained to prevent animal immigration, particularly cats, rabbits, foxes and kangaroos (in accordance with the kangaroo management plan). Refer also to Section 8.6.

- Gardens staff will be trained in snake handling techniques so that snakes can be removed safely from busy areas to the less frequented areas of the Gardens.
- Nocturnal tours for wildlife viewing will be managed by permit in order to protect plantings, reduce disturbance to roosting or nesting birds and manage out of hours access.
- Visitors and staff of the Gardens will be encouraged, through literature or seasonal signboards, to take reasonable precautions in relation to snakes that can be encountered on the site.

## 7.4 Energy and Water Management

**Aim: To provide reliable, efficient and cost-effective water and power supplies to Gardens facilities and provide safe, efficient and environmentally sensitive reticulation of services throughout the site.**

### Background

The Gardens is serviced by electricity, gas and water supplies from the local distribution systems.

Three major electricity supply lines service the site. Two overhead power lines service the northern area. The southern area is serviced by an underground supply service, which is partly reticulated through the site by overhead lines. A further supply line services the Franklin Building in the southern part of the Gardens.

Gas is supplied to both northern and southern areas and is separately metered for each area.

Water supply is vital to the management of Gardens collections and it is all currently supplied from the ACT water supply. An extensive irrigation system, controlled by a number of isolated electronic irrigation controllers, covers the site to support the Gardens' extensive plant collections. This accounts for around 98 per cent of Gardens water use.

The Gardens has investigated the potential for using water from alternative sources such as Lake Burley Griffin, and groundwater from bores. To date they have not been considered feasible or suitable for horticultural use. A water audit of the Gardens was conducted in 1997 to determine ways in which the Gardens could more efficiently use water, particularly in relation to irrigation practices and technology.

As a result of the 1997 study, training was provided to all horticultural staff on modern irrigation practices and some new irrigation technology was installed for trials. Investigation of water losses from the system also resulted in the location and repair of a number of leaks from the ageing water reticulation system.

While water use in buildings is low in comparison to irrigation use, a program of water efficiency measures such as the installation of dual flushing cisterns in toilets and preventive maintenance of plumbing fittings is conducted on an ongoing basis.

The quantity and quality of stormwater released from the site is a matter of concern because of its potential effect on the surrounding environment. Limited opportunities exist on site to retain stormwater, and the quantity of water released has implications for stream flow beyond the site. The use of fertilisers as part of the horticultural management of the plant collections is carefully controlled to minimise the potential for excessive nutrient release from the site.

The most energy intensive sector of the Gardens is the nursery, where glasshouses are used to hold collections of tropical and sub-tropical plants and heated beds provide the necessary conditions for plant propagation. Several glasshouses at the Gardens have been renovated to include thermally efficient materials. Energy savings of around 40 per cent are expected from these works but further work is required to enhance the energy efficiency of nursery operations.

Air-conditioning, heating and cooling in buildings also accounts for significant energy use. The age and quality of construction of some site buildings does not promote energy efficiency. Remedial works have been undertaken where practical.

The Gardens aims to operate in an environmentally responsible manner.

## **Policies**

- The Gardens will maintain and enhance energy and water supply systems to provide for safe, efficient and effective operation of the Gardens.
- The Gardens will monitor energy and water use to assist in the development and implementation of botanic gardens' environmentally responsible management practices.
- The energy and water use requirements of new developments and refurbishments shall be considered as an integral part of the planning process.

## **Management Actions**

- The Gardens will consider energy efficiency when planning and siting new buildings and infrastructure; when renovating and repairing existing infrastructure; or when expanding plant collections that cannot be grown outdoors in Canberra's climate.
- Assessment will be made of the feasibility of using sustainable power sources in landscape features, and in building or infrastructure developments.
- Appropriate developments that result in significant improvements in energy and water use efficiency will be interpreted to the public.
- The use of energy and water will be regularly monitored and reported annually.
- Irrigation practices and infrastructure will be regularly reviewed to develop management techniques to conserve water use and to improve the health of the plant collections. Underground reticulation of power supplies in heavily visited areas of the Gardens will be investigated and implemented where feasible.

- Contractual agreements with energy and water providers, and site infrastructure related to the supply of these commodities, will be reviewed regularly to maximise cost-effectiveness.
- Ongoing review of irrigation technology and management practices will be undertaken to ensure the Gardens can adopt the most efficient approaches practicable.
- The potential for water recycling and the use of naturally occurring drainage lines in the management of plant collections will be investigated. In particular, the rainforest gully flood mitigation works will employ water retention and recycling to improve water use efficiency.
- The water quality of run off from the site will be monitored and a study conducted into options for managing the quality and movement of water on-site, and appropriate measures introduced as resources permit.
- Section management plans will be developed for plant collections requiring intensive water use, with a view to maximising plant health and water use efficiency.

## 7.5 Waste Management

**Aim: To adopt management practices that minimise waste generation and promote recycling of waste materials.**

### Background

The Gardens produces waste products related to horticultural management, site development, visitor use and office based activities.

General waste collection and disposal services are managed under contract. Bulk materials and non-recyclable plant waste are delivered to authorised waste disposal sites by Gardens staff.

The bulk of waste generated at the Gardens is related to sound horticultural management and consists largely of plant material. Where possible, and giving consideration to horticultural hygiene practices, waste plant materials are chipped and composted on site for reuse as mulch. Limited release of waste plant material for firewood, or for use in craft activities, is also undertaken from time to time. Material that cannot be reused is sent to landfill sites in the ACT.

Site developments including new landscape features, buildings and infrastructure requirements generate waste products such as concrete and excavation spoil and building materials. Contractors are encouraged to comply with *the Development Control Code for Best Practice Waste Management in the ACT*.

The Gardens has, wherever possible, adopted the waste management strategy outlined in the ACT Government's waste strategy for Canberra *No Waste by 2010*. The ANBG has instituted a 'no bins' policy to encourage visitor awareness of waste disposal issues. The policy has

been largely successful, with very little litter being generated by public use of the site. Recycling collection facilities are available for public use. The cafe also separates glass and metal products for recycling.

Most offices at the Gardens are provided with paper recycling facilities and staff are encouraged to sort high quality paper products for this purpose.

### **Policies**

- The Gardens will develop and apply model waste management practices throughout the site.
- Rubbish bins will not be provided for visitor use.

### **Management Actions**

- Plant material will be recycled on site wherever feasible and in accordance with sound horticultural management practices. In particular, materials recycling collection depots will be established.
- Investigations will be made to replace non-recyclable products with feasible alternatives.
- Waste disposal practices for chemicals and hazardous substances will be conducted in accordance with relevant Standards and legislation as a minimum.

## 8. Site Development

### 8.1 Landscape

**Aim: To enhance the Gardens' landscape values while reflecting the horticultural, scientific, educational and recreational roles of the Gardens.**

#### Background

The Gardens is an important component of the landscape setting of the Central National Area of Canberra. The location of the Gardens on the eastern slopes of Black Mountain provides strong visual links to prominent landmarks such as Parliament House, Lake Burley Griffin and Canberra's inner hills.

A significant component of the landscape character of the Gardens is the extensive tree cover, composed of trees native to the Canberra district and those planted from other parts of the continent. In the developed sections of the Gardens, these trees form part of a the variety of botanical displays that have been developed in a naturalistic style, while still reflecting the Gardens' role as a scientific and educational institution.

The undeveloped areas of the Gardens, in what is known as the southern precinct, are of environmental value and scientific interest. Substantial parts of these areas were disturbed or cleared in the nineteenth and early twentieth centuries and the vegetation is characterised by regrowth woodland. While various suggestions have been made for use of the southern precinct, the steepness of the site, together with difficulties accessing the site from the northern precinct, pose substantial constraints for development for public use. Consequently the area is currently maintained largely as a natural precinct with limited public access by guided tour.

The 1992 *Development Planning Guide* forms the broad masterplan for development of the site during the life of this Plan (refer to Appendix 8 for a precis). A zoning plan for the Gardens, based on the National Capital Authority masterplan for the Gardens site is shown at Figure 2, this includes an indication of the major natural drainage lines on site.

#### Policies

- Landscape developments at the Gardens will be carried out with reference to the key recommendations of the 1992 *Australian National Botanic Gardens Development Planning Guide*, reflecting the educational, functional, and recreational needs of visitors while giving full consideration to the horticultural and scientific roles of the Gardens.
- Landscape developments will:



- maintain and enhance the site's importance as part of the landscape of the national capital, consistent with the National Capital Plan;
  - not adversely affect the heritage values of the Gardens, defined in the listing of the Gardens on the Register of the National Estate; and
  - consider impacts on native wildlife and the environment.
- The living collections will be maintained and developed in a manner that illustrates the different ways Australian plants can be used and presented.
  - The landscape development of the Gardens will take advantage of potential visual and functional links to adjacent sites.

**Management Actions** (Refer also to Sections 3.1 and 8.2)

- A new lake, wetland and hanging swamp exhibit and adjacent native grass meadow will be established on the site of the current nursery, after the nursery is redeveloped at a more suitable site.
- New botanical displays will be designed and implemented including:
  - an arid lands display in the northern precinct of the Gardens;
  - an orchid display, in a conservatory;
  - additional rock garden plantings; and
  - displays of Australian annual flowering plants.
- Lookouts, orientation stations, and rest areas in strategic locations will be developed by selective tree removal or thinning, path reconstruction and provision of site furniture.
- The feasibility of establishing walking trails to areas adjacent to the Gardens including ANU and CSIRO Discovery Centre will be explored.
- Options for future management of the southern extension will be evaluated.
- The existing Australian National Botanic Gardens Design Guidelines will be revised and broadened to include detailed design themes for site furniture, lighting, signs and building exteriors.
- Displays illustrating how to use Australian plants in a residential context will be developed.

## 8.2 Buildings and Visitor Facilities

**Aim: To ensure buildings and visitor facilities meet the needs of visitors and staff while conserving the landscape and environmental values of the site.**

### Background

Buildings on the Gardens site reflect the diverse scientific, educational and recreational functions of the organisation. Buildings include public facilities such as a Visitor Centre, Cafe, education facilities, Ducrou pavilion and public toilets. Specialised facilities include nursery glasshouses, the herbarium, horticultural depots and a research laboratory. Office accommodation is provided for Gardens staff and, from time to time, the Gardens offices also accommodate other staff from Environment Australia.

A number of buildings are inappropriately sited and no longer meet the functional needs of the organisation. The *Australian National Botanic Gardens Development Planning Guide* and the National Capital Authority *Masterplan for the Australian National Botanic Gardens* provide siting guidelines for the consolidation of buildings within the Gardens.

### Policies

- The Gardens will strive for excellence in the design, siting and construction of new buildings and visitor facilities, giving particular consideration to protecting the environmental and aesthetic amenity of the living collections and any potential impact on the Gardens' wildlife.
- The recommendations of the *Development Planning Guide* (refer to Appendix 8) will be progressively implemented.
- Future building developments will be consolidated so that similar functions are established consistent with activity zones to maximise operational efficiency and minimise functional conflicts between visitor, staff and service requirements.
- Energy efficiency and environmentally sustainable building technologies, work efficiency, staff amenity and occupational health and safety will be given thorough consideration in the maintenance or redevelopment of all infrastructure and service facilities.

### Management Actions

Projects outlined in the *Development Planning Guide* will be progressively implemented (subject to budgetary considerations and, where appropriate, the preparation of business plans). The first priority will be the relocation of the nursery to a stable site close to access via the Gardens' northern service gate. The Gardens will also consider appropriate opportunities for partnerships to sell plants from the site. Preliminary options for siting of the nursery are shown at Appendix 9. Further priorities are:

- i. redevelopment of the existing nursery site, once the nursery has been relocated, to complement the Eucalypt lawn and provide improved visitor facilities and attractions for the summer concerts (refer also to Section 8.1);
  - ii. redevelopment of the Top Cottages, Top Depot and Dump to provide a new horticultural works centre including a combined horticultural depot, trades workshop and storage areas;
  - iii. relocation of the Visitor Centre and shop and rationalisation of associated core precinct facilities in and around the existing cafe;
  - iv. pending iii), re-development of the old visitor centre as a function centre;
  - v. provision of children's play and exploration facilities (refer also to Section 5.5).
- The Gardens will request that the National Capital Authority review the masterplan for the Gardens to reflect the evolving functional requirements of the Gardens.

### **8.3 Access and Carparking**

**Aim: To provide visitors and staff with safe and efficient access routes into and around the Gardens.**

#### **Background**

The Gardens is maintained largely as a pedestrian zone, with limited vehicle movement to allow for deliveries and service activities. The site is steep and this poses a number of access challenges. Existing access routes around the site reflect the history of the development of the site. Bitumen sealed roads, built to conventional suburban standards, provide access for vehicles and pedestrians. Narrower pedestrian paths, surfaced in a variety of ways, wind through the plant displays. Some areas of potential conflict between vehicles and pedestrians exist, particularly at the entrance to the Gardens from the carpark.

In recent years a main pedestrian circulation route has been constructed in the southern sector of the developed portion of the Gardens. It was built to disabled access standards wherever possible. This route links many of the major displays and provides a good introductory route for visitors. The use of motorised wheelchairs is permitted and the Gardens supplies several motorised scooters for visitors with disabilities wishing to explore the site in this way.

Carparking for around 220 vehicles, including buses, is provided inside the Gardens gates. Unsealed land adjacent to the entrance is occasionally used when the main carparks are full. A modest charge applies for car parking (refer to Appendix 6).

Part of the operations of the Gardens is based at the CPBR at the nearby CSIRO Black Mountain site. Several pedestrian and light vehicle links are maintained between the sites.

## **Policies**

- The Gardens will seek to enhance access to all areas of the site consistent with function, security, safety and public use, with particular emphasis on incorporation of access for people with disabilities wherever practical.
- Carparking fees will be set at a level comparable to ACT Government carparks.

## **Management Actions**

- A series of secondary paths, in association with the existing main loop path, will be established to guide visitors through major plant displays such as those within the Eucalypt lawn area, the Rutaceae section, the rainforest gully, Sydney Basin display and, pending its completion, the new nursery facility (public access sections). This will be carried out as part of a rationalisation of a number of the minor trails in these areas.
- Guidelines for the management of vehicular traffic throughout the Gardens will be prepared with a view to further reducing conflict with pedestrian movement. In particular, pedestrian access to the Gardens from the main carpark will be improved to provide better separation of vehicle and pedestrian thoroughfares. This will also create a better sense of arrival.

## **8.4 Infrastructure and Asset Management**

**Aim: To ensure that infrastructure assets are managed and maintained to meet the functional requirements of the Gardens in an efficient and cost-effective manner.**

### **Background**

The diverse functions of the Gardens require a complex infrastructure that includes buildings, glasshouses, irrigation, specialist plant and equipment and a range of visitor facilities.

Major cyclical maintenance for infrastructure is currently out-sourced to private contractors, following a history of management of these assets by Commonwealth agencies. A staff plumber maintains the Gardens' irrigation system and a wide range of minor repairs are also undertaken by staff.

The transition from infrastructure management and maintenance by government agencies to the private sector requires the development of an active program of asset management based on life-cycle costing techniques.

### **Policies**

- The Gardens will maintain and manage infrastructure assets to meet the functional, safety, energy-efficiency and aesthetic requirements of a public scientific and educational organisation.

- The maintenance requirements of new infrastructure will be considered as part of the planning and budget process.
- An asset procurement plan will be developed annually.

### **Management Actions**

- A ‘best practice’ facilities and assets management system will be established for assets and infrastructure of the Gardens and will include the use of life-cycle costing techniques.
- A detailed survey of the site will be completed to enable improved site infrastructure documentation.
- A program of replacement for plant, equipment and other infrastructure with high maintenance requirements, high energy use and low functional efficiency will be implemented, initially focusing on the nursery and horticultural facilities.

## **8.5 Risk Management Strategies**

**Aim: To adopt appropriate risk management strategies that ensure the security and protection of assets and infrastructure and the safety of all site users.**

### **Background**

The Gardens’ role as a public, scientific and educational organisation requires particular attention to the risks associated with collections’ security, infrastructure protection and matters of staff and public safety.

Bushfire incursion from adjacent bush presents a significant risk to the site and the various collections, as well as to staff and visitors. The Gardens works cooperatively with Environment ACT and the Rural Fire Service in conjunction with ACT Emergency Services volunteer groups to maintain and implement bushfire prevention and control plans.

The undeveloped parts of the Gardens on the southern and northern extensions are managed essentially as wild areas and may be subject to bushfire from within and outside the site. The northern extension is managed to periodically remove weeds such as blackberries and to reduce the overall fuel load. Access for fire fighting vehicles to this area is available from an adjacent road. Access to the southern extension is limited to the summit road to Black Mountain and some tracks around the ACT Government reservoir.

To protect the living collections, infrastructure and buildings on the developed part of the site from bushfire the ANBG has developed an integrated fire protection and control strategy involving several elements. Hazard reduction programs focus on removal of available ‘fuel’ from strategic areas such as boundary fence lines and on prescription burning of strategic areas on the western side of the Gardens. The use of a high pressure, high volume boundary

sprinkler system is complemented by an extensive system of standpipes, fire hydrants and overhead truck-filling hoses, for the use of fire fighting services, throughout the site. Maintenance and regular testing of these systems is given high priority. This testing revealed a major fault in the power supply to the boundary sprinkler pumphouse in 2000, which was able to be repaired before the bushfire season.

All buildings at the Gardens are monitored and alarmed for fire and smoke. A system of fire wardens is in place with designated staff as Chief and Deputy Chief and as Wardens and Deputy Wardens in the various buildings. Training of these wardens in fire responses and procedures is carried out periodically, as are general fire evacuation drills. Hand-held extinguishers and fire hoses are provided in all of the buildings on the site. All fire warning and fighting equipment is independently inspected and tested on a regular basis.

The Herbarium buildings on both sites feature an internal water sprinkler system and have hand-held extinguishers and fire hoses situated throughout. A Very Early Smoke Detection Alarm provides early warning of potential fire situations. Additionally, the Herbarium on the Gardens site is fitted with an external water drench system.

Other security issues arise from occasional acts of vandalism to plant displays and infrastructure. Staff are encouraged to report such incidents to enable rapid remedial action. Measures are undertaken to avoid and minimise theft and to limit damage by contractors unfamiliar with the site and damage resulting from the impact of large visitor numbers.

The Herbarium collections are housed in secure, weatherproof buildings that have security patrols at night. The specimens are stored in robust steel compactus units (vascular specimens and ferns) or steel cabinets (non-vascular specimens), with closed shelving to reduce contact and damage. The Photograph Collection is housed in fire-resistant safes.

In 1997, the Gardens, with CPBR staff input, commenced development of an interim Disaster Management and Recovery Plan for its buildings, including those used by the CPBR. The Plan will outline risk abatement measures and the procedures and mechanisms to recover and restore collections in the case of damage.

Hazards at the Gardens are monitored through a site Occupational Health and Safety Committee, assisted by technical advisers from the Department of the Environment and Heritage and external organisations. Staff also have a high awareness of safety and risk management issues, and this is reinforced through training. Cyclic maintenance arrangements are aimed at ensuring the safety of plant, equipment and other infrastructure and conformance to current safety standards and regulations.

As more contractors are used to complete works on the Gardens site, a number of procedures and improvements to site documentation have been required to maintain high levels of safety. Contractors are required to be fully conversant with safety procedures and to have accurate site documentation to ensure that hazards are clearly identified.

The Gardens living plant collections also are at risk from pathogens such as *Armillaria luteobubalina* and these issues are discussed in chapter 3.

## **Policies**

- The Gardens will work in conjunction with the ACT Government, volunteer agencies and adjoining landowners to implement and regularly review bushfire management strategies for the site.
- Current measures to protect the infrastructure and buildings of the living, seed, herbarium and photograph collections will be maintained and improved where necessary to meet or exceed relevant standards.
- Damage associated with visitor use of the Gardens will be monitored and appropriate temporary protective measures or redesign of landscape features undertaken as required.
- Appropriate and regular training will be provided for staff in dealing with hazardous, emergency and disaster situations.
- The Gardens will continue to monitor risk and hazards with a view to progressively improving the safety of the site for all users.
- Contract documentation and management will emphasise the necessity and legal requirements for safe work practices by contractors and particular consideration of public safety.

## **Management Actions**

- Risk management will be included in annual operational planning
- Liaison with the Rural Fire Service, the managers of the North Canberra Nature Park and CSIRO will continue to ensure compatibility of policies and procedures.
- The ANBG will work with Canberra Nature Park to further develop fire management plans for the undeveloped areas of the site on the southern and northern extensions.
- Regular fire hazard reduction activities will be continued and regular fire procedure training programs and evacuation drills will be conducted.
- Protection of the plant displays and other infrastructure will be considered when organising special events likely to attract large numbers of visitors.
- Vehicle movements around the Gardens site will be limited to essential traffic. Vehicles belonging to contractors and suppliers will be restricted to defined access points.
- Security measures at the nursery will be reviewed and implemented to reduce the risk of theft from the collections.
- Contract security firms and Gardens staff will be used in a surveillance capacity to limit the extent of theft and vandalism.

- A comprehensive Disaster Management and Recovery Manual for the whole site, including both Herbarium buildings, will be prepared and maintained and staff trained appropriately.
- A program to improve site infrastructure documentation will be implemented with a particular emphasis on potential hazards and their management.
- Regular meetings of the Gardens Site Occupational Health and Safety Committee will be held.
- A regular review of contract documentation and management procedures will be conducted to ensure compliance with safety standards.
- The existing sprinkler system will be extended into gardens surrounding the library building.

## **8.6 Adjacent Lands**

**Aim: To maintain and enhance cooperative relationships with adjacent site users and other stakeholders.**

### **Background**

The Gardens shares boundaries with Canberra Nature Park, CSIRO and with uncommitted Crown land owned by the ACT Government. The Gardens is situated opposite the Australian National University and shares an access road to the north of the site with the University's Paleomagnetic Laboratory. The developed sectors of the Gardens are bounded by a 2.5 metre high fence that is primarily intended to exclude animals and to maintain security.

A description of the Gardens' boundaries was defined when the site was proclaimed a reserve under the former Parks Act and further refinement of the cadastral boundaries of the site has been a matter of ongoing discussion with the National Capital Authority.

Parts of the Gardens' scientific operations are based at the CPBR's Australian National Herbarium at the CSIRO Black Mountain site. This means that both pedestrian and light vehicle access between the Gardens and CSIRO sites are required.

The Gardens Development Planning Guide recommended the Gardens consider the acquisition of areas of uncommitted land for the development of a new entrance from Clunies Ross Street. This area, and some other areas of uncommitted land, are partly disturbed and have significant numbers of woody weeds.

### **Policies**

- The Gardens will act cooperatively with surrounding sites in matters relating to the maintenance of boundary areas, fences and shared resources such as roads.



## **Management Actions**

- Discussions with the National Capital Authority and adjacent site owners concerning the definition of the cadastral boundaries of the site will be conducted.
- The Director will investigate further the possibility of acquiring uncommitted land on its eastern boundary, including the possibility of a land swap with the ACT Government.
- Maintenance agreements with Gardens' neighbours for the management of lands along its boundary and along road verges will be developed where possible. Control of weeds along the Gardens boundary, particularly in the area of uncommitted land, will be a priority.

## 9. Administration and Management

### 9.1 Staffing

#### Aims:

- a) To maintain a staffing structure and skills base to manage the Gardens, in accordance with this Plan; and**
- b) To manage staff in a manner which recognises their importance as key assets of Environment Australia and facilitates high levels of job satisfaction and productivity.**

#### Background

All staff of the Gardens are employees of Environment Australia employed under the Commonwealth's *Public Service Act 1999* and the conditions of service for staff are covered under the Environment Australia Certified Agreement. The general duties of staff are to assist the Director of National Parks in carrying out the Director's functions under the EPBC Act.

Many of the programs of the Gardens are labour intensive, particularly those involved with horticultural activities, professional botanical services and visitor contact. Maintaining high standards of horticultural maintenance and visitor and professional services has presented a number of management challenges in a contracting public sector environment. A number of activities formerly conducted by staff have been contracted to outside service suppliers and a range of procedural changes have been made to improve staff productivity. Engagement of temporary staff to assist with periods of intensive horticultural and visitor activity has also assisted in maintaining high standards. Temporary staff also assist with the preparation and delivery of education programs.

An active volunteer program operates at the Gardens. This program has facilitated significant community involvement in the operation of the Gardens and expansion of a range of services, particularly in education and interpretation programs. For insurance and occupational health and safety purposes, volunteers are deemed to be staff.

#### Policies

- The Director Gardens will seek to maintain appropriate staffing levels and skills to enable the Gardens to be managed in accordance with this Management Plan and to enable the key objectives of the Plan to be met.
- Opportunities for career development will be maintained through appropriate training, development activities, staff rotation and higher duties.

- Benchmarking and market testing approaches will be used where appropriate to ensure outputs are being delivered in a cost effective manner. Where a business case exists, further outsourcing of activities may be considered.
- Volunteers will be used to enhance Gardens programs where appropriate.

### **Management Actions**

- The Gardens will participate in Environment Australia's approaches to improve cost effectiveness through benchmarking, market testing and outsourcing.
- As part of the development of an annual operation plan for the Gardens, staff requirements and training needs will be identified.
- Opportunities for suitable staff exchanges to other positions within Environment Australia or with other botanic gardens will be pursued.
- Regular staff awareness meetings will be held to facilitate communication between all staff.
- Access to a range of appropriate courses, seminars and counselling services will continue to be offered to staff. (Refer to Section 5.7 for management actions associated with volunteers)

## **9.2 Funding and Financial Management**

**Aim: To seek ongoing funding for the Gardens to implement this Plan; and to ensure expenditure of funds and management of the Gardens meets the obligations of the Director of National Parks under the EPBC Act and the *Commonwealth Authorities and Companies Act 1997*.**

### **Background**

Funds for management of the Gardens come from the Australian National Parks Fund under the EPBC Act. The principal sources of the moneys of the Fund are prescribed by section 514S of the EPBC Act. They are: money appropriated by the Commonwealth Parliament for the purposes of Environment Australia and allocated by the Secretary for the management of Commonwealth reserves; amounts paid to the Director of National Parks in respect of leases, licences and permits granted or issued by the Director; and, charges determined and imposed by the Director under section 356A of the EPBC Act for entering or using a Commonwealth reserve or part of a Commonwealth reserve and using services or facilities provided by the Director.

Gardens staff are responsible for management of the Garden's budget, within the Commonwealth government's purchasing and financial guidelines, the requirements of the EPBC Act, and the Director's obligations under the EPBC Act and the *Commonwealth Authorities and Companies Act 1997*. In line with Commonwealth government policy,

accounts are maintained on an accrual accounting basis and decisions regarding capital works and infrastructure must consider total life cycle costings.

Section 514T of the EPBC Act prescribes how the Director of National Parks may apply the money of the Australian National Parks Fund. Principally the moneys must be used in payment or discharge of the costs, expenses and other obligations incurred by the Director in the performance of the Director's functions. As an authority for the purposes of the *Commonwealth Authorities and Companies Act 1997* the Director is also subject to the requirements of that Act.

The Gardens' main scientific functions are conducted jointly with CSIRO Plant Industry through the CPBR. CSIRO Plant Industry acts as the agent for the Centre, administering funds for operational purposes. Salaries for Gardens staff at the Centre and maintenance and capital costs of Gardens assets are met from the Gardens budget allocation.

Revenue from Gardens programs is principally used to extend the range and diversity of programs and services available for clients of the Gardens. Sources of revenue include licence charges for the operation of the Gardens' cafe and shop; charges for activities such as weddings, commercial photography and the hire of facilities; charges for the use of the Gardens' photograph collection; 'user pays' education and recreational programs, and charges for professional services. In late 1998 a modest charge for car parking was also introduced. External funding from a variety of government and industry sources has also been instrumental in ensuring an active program of horticultural research. Charges were reviewed in June 2000 to take into account the introduction of the Goods and Services Tax. A schedule of fees at 1 July 2000 is at Appendix 6. These charges may be reviewed and amended during the life of this Plan.

Allocation of funds for specific programs varies according to functional and program requirements. In the 2000/2001 financial year the operational budget (excluding salaries and capital expenditure) was \$1,407,000; which was distributed to the following programs:

- Corporate support and infrastructure: \$626,000;
- Living collections and horticultural research: \$221,000;
- Botany and botanical research: \$281,000;
- Integrated Botanical Information System: \$64,000
- Visitor Services: \$158,000
- Visual Resources: \$20,000
- Externally funded (including the Council of Heads of Australian Botanic Gardens): \$37,000.
- The revenue for the financial year was \$160,000 and capital expenditure (including building maintenance) was \$637,000.

## **Policies**

- Purchasing procedures will meet Commonwealth purchasing and procurement guidelines and the Director of National Parks' obligations under the *Commonwealth Authorities and Companies Act 1997*, and the Director's Chief Executive Instructions.
- Fees and charges may apply to various services and programs of the Gardens. These may be waived or discounted where activities assist in promoting the Gardens' stated mission.
- Fees and charges related to the *Copyright Act 1968* may be imposed.
- Revenue raised by Gardens programs and charges under the EPBC Act will be used to enhance the range of programs and services available to clients.

## **Management Actions**

- As part of the development of annual operational plans, Gardens managers will develop annual costed program proposals, including estimates of revenue where appropriate, for Garden programs.
- Expenditure and revenue reviews will be conducted regularly.
- Staff will be provided with training necessary to ensure compliance with Commonwealth purchasing guidelines and other relevant statutory and procedural requirements.
- A training program will be implemented to improve staff business skills appropriate to the aims and values of the Gardens.
- The schedule of charges will be reviewed regularly and may be varied in accordance with the EPBC Act.

## **9.3 Occupational Health and Safety**

**Aim: To create a safe and healthy environment for staff, volunteers and visitors.**

### **Background**

The Gardens strives to operate in a way which at least meets the *Occupational Health and Safety (Commonwealth Employment) Act 1991* and which promotes high levels of health and safety awareness.

A workplace Occupational Health and Safety Committee oversees hazard reduction strategies for the Gardens. The committee conducts regular inspections of workplaces and work practices to ensure appropriate standards are met. Training in safe work practices is provided for all staff. Further discussion of risk management practices is provided in Chapter 8.

Visitor safety is a particular priority and potential hazards to visitors are under constant review. A number of staff and contractors have been trained in first aid to assist in the care of visitors. Bushfire and high winds have been identified as risks with particular potential to cause injury, and emergency evacuation and closure procedures have been developed and are regularly tested. Closure of particular sections of the Gardens is also necessary from time to time, particularly during Canberra's icy winters, when pedestrian paths become slippery.

### **Policies**

- The Gardens will strive to ensure a safe and healthy site for staff and visitors through compliance at a minimum with relevant legislation, training, promotion of health and safety issues, hazard minimisation strategies and documentation, review and improvement, of safety procedures.

### **Management Actions**

- A regular program of workplace and work practice inspections will continue to identify and document potential hazards for staff and visitors, and review their management.
- Hazard reduction programs will continue with particular emphasis on tree management, bushfire prevention, trip and slip and other hazards.
- Safety training and awareness programs will continue with an emphasis on safe use of equipment, hazardous chemical use, and the risk associated with ultra-violet exposure.
- Aspects of capital works and maintenance programs related to improvements to staff and visitor safety will be investigated. These may include improvements to chemical storage and disposal facilities, path maintenance and replacement, and improved lighting for after-hours activities.

## **9.4 Security and Law Enforcement**

**Aim: To protect Gardens assets and ensure awareness of, and compliance with, relevant laws associated with the Gardens.**

### **Background**

A perimeter fence provides security of Gardens assets with after-hours patrols by a commercial security firm. Buildings are fitted with secure locking and alarm systems. Visitors using non-public buildings are required to wear nametags that indicate they are authorised to use the facilities.

Gardens rangers and a number of other staff are trained to appropriate Commonwealth Law Enforcement Standards and have powers to enforce the EPBC Act and the Regulations. Members of the Australian Federal Police are *ex officio* wardens under the EPBC Act and the Australian Federal Police are consulted in relevant matters. Counselling and warning of

people in breach of the Regulations has generally proved a successful strategy in promoting awareness of Regulations and compliance with them.

## **Policies**

- The Gardens will maintain levels of security consistent with ensuring the protection of its assets.
- The Gardens will promote public awareness of Regulations under the EPBC Act as they pertain to the Gardens.
- Consistent with the EPBC Act and Regulations, compliance enforcement will be carried out by appropriately trained staff.

## **Management Actions**

- In relation to compliance and enforcement, the Gardens will:
  - provide information
  - regulate traffic and visitor movement in the Gardens
  - provide for the proper use of Gardens facilities
  - take all reasonable steps to prevent illegal activities.
- Commercial security arrangements will be reviewed and improved to maintain high levels of performance.
- Building security will be reviewed and enhanced where feasible.
- Up-to-date lists of assets and portable items of value will be maintained and reviewed on an annual basis.
- Compliance and enforcement will be carried out by selected trained field staff who are appointed as wardens and rangers under the EPBC Act.

## **9.5 Visitor Services and Commercial Operations**

**Aim: To encourage the development of appropriate commercial operations which enhance the range of services available for Gardens clients, and which promote the aims and values of the Gardens.**

### **Background**

The Gardens currently provides a range of visitor services, some of which are provided by third parties under contractual arrangements with the Director of National Parks. The café, Visitor Centre shop and parking operations are currently operated by contractors. These operations contribute a high proportion of revenue generated by the Gardens.

The Gardens works with commercial partners to ensure high service levels are maintained, appropriate visitor management strategies are in place and that opportunities for cross-promotion and involvement in joint activities are available. Commercial partners are also encouraged to make financial contributions to increasing their business through improving infrastructure and in product development such as of souvenirs and publications.

Partnerships with commercial operators offer a way to enhance the range and quality of visitor services and improve visitor infrastructure at the Gardens while generating revenue to support the Gardens' core programs. Services which may involve commercial parties include: wedding and special event management, concerts, theatre performances and horticultural advice.

A range of other commercial opportunities which are consistent with the aims of the organisation have been explored. A report titled *Revenue Raising Opportunities*, commissioned by the Gardens in 1996, identified key areas for development of commercial opportunities within the Gardens. The report also recommended the establishment of a foundation to assist in securing private sector support for the organisation.

Clearly, attracting private sector support for specific attractions or programs has potential to benefit the Gardens. Any such ventures will first need to be assessed as economically viable and consistent with the aims and objectives of the Gardens. Some development proposals, such as one to establish a native plant nursery at the Gardens, have met resistance from the nursery industry. In this case, the Gardens has instead encouraged the Friends of the Gardens to propagate plants as an educational and recreational activity, while generating funds to support the group.

## **Policies**

- Commercial activities and partnerships will be pursued where they can directly contribute to the aims and objectives of the Gardens and encourage appropriate visitor use of the site.
- The ANBG will work in partnership with commercial providers to ensure high levels of customer service and to facilitate opportunities for joint activities and cross promotion.
- Where necessary and considered appropriate in accordance with this Plan the Director of National Parks may: issue permits in accordance with the EPBC Regulations; grant leases or licences; or, enter into contracts for commercial activities to be conducted for the provision of services and facilities in the Gardens.

## **Management Actions**

- The Gardens will operate in a fair, ethical and professional manner in its commercial relationships.
- The Gardens will continue to manage contractual arrangements for the operation of a shop, cafe and parking services. Other commercial ventures and partnerships that



are consistent with and/or promote the stated mission and aims of the Gardens will also be explored, and where necessary and considered appropriate in accordance with this Plan the Director of National Parks may: issue permits in accordance with the EPBC Regulations; grant leases or licences; or, enter into contracts for commercial activities to be conducted in the Gardens.

- Existing commercial operators at the Gardens may continue and will be encouraged to contribute private funding to expand and support their business ventures, improve infrastructure and develop products and publications associated with and relevant to the Gardens.
- As part of planning and financing of future programs and attractions, the Gardens will pursue appropriate commercial partnerships.

## 9.6 Fundraising and Sponsorship

### **Aim: To increase the financial support for the Gardens through activities and donations sourced from the community.**

The Director of National Parks has power under the EPBC Act (s.514C(2)) to accept gifts, devises and bequests made to the Director whether on trust or otherwise, and to act as trustee of moneys or other property vested in the Director upon trust.

The Gardens has received donations, sponsorship and bequests in kind. However, philanthropic financial support for the Gardens has been relatively small.

With the development of the Friends of the Gardens, the Gardens has begun to benefit from an injection of funds from their various initiatives. In recent years the Friends have contributed money to purchase garden furniture, offer staff bursaries, support the cost of musical entertainers and support other projects within the Gardens.

Bequests of funds to the former Australian National Parks and Wildlife Service have, from time to time, enabled the Gardens to establish new facilities. The construction in 1999 of the Ducrou Pavilion on the Eucalypt lawn was made possible through a bequest.

### **Policies**

- Donations, sponsorships, and bequests for purposes appropriate to the Gardens' needs will be actively sought.
- Where funds are provided for a specific purpose, they will be used for that purpose or for other purposes agreed to by the donor. The Director of National Parks may refuse or dispose of inappropriate bequests.
- The Director will encourage and support the Friends of the Gardens in their attempts to raise money for the Gardens through various initiatives appropriate to a national botanical institution.

## **Management Actions**

### **Fundraising**

- An orderly marketing approach will be developed to raise funds for the Gardens. The Friends of the Gardens will be invited to be involved in these fund-raising efforts in whatever capacity they consider appropriate, consistent with this Plan.
- Independent advice will be sought to define the Gardens product, its position in the market place, target groups, and how best to appeal to the community and potential donors.
- Staff will be made aware of the need to embrace new sources of funding for the Gardens and will be encouraged to support the strategy.
- A communication campaign will be undertaken to effectively position and establish the Gardens' needs publicly to convey that the Gardens is a unique entity, important to the community and worth supporting financially.
- The Gardens will seek to broaden its volunteer base to include people of standing in the community, willing to endorse and support the role of the Gardens.

### **Sponsorship**

- The Director will seek and accept financial sponsorship for the Gardens from appropriate sources and for appropriate purposes.
- Appropriate sponsorship in kind will be encouraged, especially from the media and industries associated with horticulture, landscaping and scientific pursuits.
- Where the Gardens accepts financial or in-kind sponsorship, appropriate acknowledgment of the donor will be displayed in a manner previously agreed to by the Director and the donor.
- Professional expertise will be sought to assist in development of a sponsorship policy setting out the issues relevant to negotiating, obtaining and maintaining sponsorship and the development of sponsorship packages.

### **Bequests**

- The Director will encourage and facilitate financial bequests for general or specific purposes, and, when requested, provide appropriate clauses to be inserted in the donor's will.
- Financial bequests for specific purposes will be accepted only when the purpose is consistent with this Plan.
- Bequests in kind will be encouraged, such as appropriate collections for the library, the photograph collection and for herbarium specimens and equipment.
- The Director will encourage people to discuss other potential bequests in kind.

- The Gardens will develop a bequest policy document clearly setting out the issues relevant for those making bequests and the requirements for the acceptance of bequests by the Gardens.

## 10. Evaluation and Monitoring

This Management Plan has generally been developed on the basis that resources similar to those of 1999/2000 will be available. To construct some new facilities (Section 8.2) new funding based on the successful presentation of a business case will be required. Where appropriate, other funding sources and partnerships will be investigated.

Review of the Plan may be carried out at any time, although an annual review of progress in implementing the Plan will be instituted. Annual reviews will examine the extent to which management strategies have been implemented and the extent to which they are meeting the stated objectives and goals. They will also consider how available resources might best be allocated to meet the range of objectives identified.

Mechanisms for such reviews will be incorporated into the work plan for each section within the Gardens.

An additional independent review will be carried out towards the end of the duration of this Plan, with the following terms of reference:

- a) to consider each prescribed management action and determine whether or not it was carried out;
- b) to evaluate the performance of each prescribed action in relation to the aim or aims it was intended to serve;
- c) in the case of any prescribed action that was not implemented or which failed to achieve the desired outcome, to determine the cause;
- d) to report the results of (a), (b) and (c) above to the Director of National Parks together with an overall assessment of the delivery of the Plan in relation to its aims; and
- e) in the light of this Plan's performance, to recommend to the Director of National Parks any changes to the objectives and prescribed actions that should be considered during the preparation of the next plan.

Not less than two years before the cessation of the Plan, a comprehensive visitor survey will be conducted to determine visitation levels and patterns, visitor satisfaction or otherwise with the facilities and services offered by the Gardens and visitor perceptions of the appropriate future direction for the Gardens. This information will be used in the future planning of the Gardens.

# Part 3 Appendixes

## Appendix 1

### Gazette Notice of 17 September 1991 - Declaration of Australian National Botanic Gardens as a Reserve under the *National Parks and Wildlife Conservation Act 1975*.



#### PROCLAMATION

Commonwealth of Australia

By His Excellency the  
Governor-General of the  
Commonwealth of Australia

HAYDEN

Governor-General

I, WILLIAM GEORGE HAYDEN, Governor-General of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, being advice that has taken into consideration a report by the Director of National Parks and Wildlife, under subsection 7 (2) of the *National Parks and Wildlife Conservation Act 1975*:

- (a) declare the area constituted by the areas specified in the Schedule to be a reserve; and
- (b) assign to that reserve the name "Australian National Botanic Gardens"; and
- (c) specify the depth of 1,000 metres below the surface of any land within the reserve as the depth to which the subsoil beneath that land is to be taken to be within the reserve; and

specify the depth of 1,000 metres below the sea-bed beneath any sea within the reserve as the depth to which the subsoil beneath that sea-bed is to be taken to be within the reserve.

28925 Cat. No. 91 6689 1  
ISSN 1032-2345  
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## Appendix 2

### Management Principles Applicable to the Gardens under IUCN Category IV

(1) The reserve or zone should be managed primarily, including (if necessary) through active intervention, to ensure the maintenance of habitats or to meet the requirements of collections or specific species based on the following principles.

(2) Habitat conditions necessary to protect significant species, groups or collections of species, biotic communities or physical features of the environment should be secured and maintained, if necessary through specific human manipulation.

(3) Scientific research and environmental monitoring that contribute to reserve management should be facilitated as primary activities associated with sustainable resource management.

(4) The reserve or zone may be developed for public education and appreciation of the characteristics of habitats, species or collections and of the work of wildlife management.

(5) Management should seek to ensure that exploitation or occupation inconsistent with these principles does not occur.

(6) People with rights or interests in the reserve or zone should be entitled to benefits derived from activities in the reserve or zone that are consistent with these principles.

(7) If the reserve or zone is declared for the purpose of a botanic garden, it should also be managed for the increase of knowledge, appreciation and enjoyment of Australia's plant heritage by establishing, as an integrated resource, a collection of living and herbarium specimens of Australian and related plants for study, interpretation, conservation and display.

## Appendix 3

### Chronology of Significant Events in the History of the Australian National Botanic Gardens

- 1933 The Advisory Council of the Federal Capital Territory recommended to the Minister of the Interior that a botanic gardens be established in Canberra.
- 1935 Dr Bertram Dickson, head of the CSIR Division of Plant Industry, completed a report to the Minister of the Interior on the establishment of a botanic gardens.
- 1949 Prime Minister Ben Chifley and the Director of the Royal Botanic Gardens, Kew, Sir Edward Salisbury, planted trees at a ceremony to formally initiate the Gardens.
- 1960 The Minister of the Interior confirmed that the main feature of the Gardens in Canberra would be an 'indigenous collection'.
- 1966 The first building - housing the Herbarium, botanists' offices and the Library - plus a depot and three staff cottages were built within the Gardens.
- 1967 The Gardens in Canberra were open to the public for the first time.
- 1970 The Canberra Botanic Gardens was formally opened by Prime Minister John Gorton.
- 1981 The Gardens was extended from 49 hectares to 90 hectares with the addition of land to the south (37 hectares) and the north (3.5 hectares).
- 1990 The Friends of the Australian National Botanic Gardens was established.
- 1991 The Governor-General proclaimed the Gardens a reserve under the National Parks and Wildlife Conservation Act 1975.
- 1991 The developed parts of the Gardens were placed on the Register of the National Estate.
- 1993 Memorandum signed with CSIRO to amalgamate the Gardens and CSIRO Plant Industry herbaria and establish the Centre for Plant Biodiversity Research.
- 1996 Australian National Botanic Gardens Management of the Booderee (Jervis Bay) Botanic Gardens was transferred to Booderee National Park.
- 2000 Proclamation of the Australian National Botanic Gardens amended to remove the Jervis Bay annexe. The annexe, known as Booderee Botanic Gardens, became legally part of the Booderee National Park.
- 2000 Agreement to operate the Centre for Plant Biodiversity Research renewed for 10 years.

## Appendix 4

### Convention on Biological Diversity - Relevant Articles

The Biodiversity Convention has the following as its objective under Article 1:

*“the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.”*

Other Articles of the Convention which are relevant to the work of the Australian National Botanic Gardens are:

Article 6	General Measures for Conservation and Sustainable Use
Article 7	Identification and Monitoring
Article 8	In situ Conservation
Article 9	Ex situ Conservation
Article 10	Sustainable Use of the Components of Biological Diversity
Article 12	Research and Training
Article 13	Public Education and Awareness
Article 15	Access to Genetic Resources (and benefit sharing)
Article 17	Exchange of Information
Article 18	Technical and Scientific Cooperation



## Appendix 5

### Recent Visitor Surveys - Summary of Findings

Studies of visitor use, experiences and perceptions of the Gardens, and opinions about management options for the future were undertaken in 1987, 1992 and 1998. The 1998 survey of visitors (over 16 years of age) revealed the following visitor profile:

- About 57 per cent of visitors are from the Canberra-Queanbeyan area, 31 per cent of visitors were resident in other parts of Australia, and 12 per cent were visiting from overseas.
- About 57 per cent of all visitors are female and more than half (60 per cent) of all visitors are over 40 years of age. Over a quarter of the visitors (28 per cent) reported visiting the Gardens with children.
- About 58 per cent of visitors had a university degree with a further 15 per cent having TAFE, technical or business college qualifications.
- About 61 per cent of visitors were Australian born; of those born overseas, almost two thirds (66 per cent) were born in an English speaking country.
- During the period of the survey, 31 per cent of visitors were at the Gardens for the first time (but only 8 per cent of the locals were visiting for the first time). Almost four out of every ten visitors (39 per cent) could be classified as frequent visitors, having been to the Gardens at least once in the previous month.
- Most visitors (85 per cent) arrived at the Gardens by car; even among overseas visitors 58 per cent arrived by car with only 15 per cent using public buses.
- About 18 per cent of visitors spent less than one hour in the Gardens, but over half (52 per cent) stayed between one and two hours.

## Appendix 6

### Schedule of Charges Applicable at the Gardens from 1 July 2000

Under s.356A of the EPBC Act, subject to the approval of the Minister, the Director of National Parks may determine and impose charges for:

- a) entering or using a Commonwealth reserve or part of a Commonwealth reserve; and
- b) using services or facilities provided by the Director in or in connection with a Commonwealth reserve; and
- c) the parking or stopping of vehicles in a Commonwealth reserve; and
- d) the mooring or landing of vessels in a Commonwealth reserve; and
- e) the landing of aircraft in a Commonwealth reserve; and
- f) the use of vehicles and vessels in a Commonwealth reserve.

The following is a schedule of charges under the EPBC Act which were applicable at the Australian National Botanic Gardens from 1 July 2000. The majority of these charges applied prior to this date but the rates of each charge altered from 1 July 2000 to take into account the Goods and Services Tax.

The schedule is provided for information only and does not form part of the Management Plan.

Charges for each of the services may be waived or discounted where the Director believes there will be a demonstrable benefit to the Gardens or its mission which is 'to grow, study and promote Australian plants'.

Conditions apply to each of the services listed, and details of these conditions are available by contacting the Gardens' Visitor Centre.

Charges are reviewed regularly and may change during the life of this Plan.

Charge	General Description
\$1.00 per hour	Parking fee – per hour
\$4.00 per day	Parking fee – all day
\$10.25	Plant enquiry service – identification service
\$5.40	Plant enquiry service – data entry and geocoding
\$22.00/hour preparation	Plant material release

\$86.50 each	Photographic collection – Reproduction for commercial use – reduced fees may be negotiated for commercial use of more than 40 images
\$28.00 each	Photographic collection – Reproduction for approved non-commercial use of copyright images
\$21.50 each	Photographic collection – Handling charge for copyright images returned unused (commercial)
\$6.50 each	Photographic collection – Handling charge for copyright images returned unused (non-commercial)
\$6.50 each	Photographic collection – Purchase of projection quality duplicate slides of copyright images (non-commercial use)
\$43.25 each	Photographic collection – Reproduction fee, duplicate slides of copyright images for commercial website use.
\$32.50	Photographic collection – Reproduction fee, for electronically transferred copyright images for commercial website use
\$108.00	Wedding photography per 2 hours
\$2.15	Education services – Explainer costs
\$2.70	Education services – resource material costs (if applicable)
\$216.00	Function facility hire – Theatrette, Joseph Banks building or Dickson room (per day)
\$108.00	Function facility hire – Theatrette, Joseph Banks Building or Dickson Room (per half day)
\$325.00	Function facility hire – Crosbie Morrison Building (per day)
\$162.50	Function facility hire – Crosbie Morrison Building (per half day)
\$162.50	Function facility hire – Ducrou Pavilion (per half day)
\$270.00	Outdoor space hire

## Appendix 7

### **Agreement between the Australian National Botanic Gardens and CSIRO for Management of the Centre for Plant Biodiversity Research – Objectives**

The objectives of the Centre are:

1. to be a National Centre of research excellence in the fields of plant systematics and conservation biology, as a basis for conservation and sustainable management and use of Australian vegetation;
2. to develop and manage scientific collections of Australian and related floras as the Australian National Herbarium, a permanent record of Australian plant diversity, and as a resource for research on these floras, and to provide the scientific authenticity of the ANBG.
3. to provide a national focus for and play a role in national botanical database management, and to represent and promote Australia internationally within the botanical database management field;
4. to pursue research, education and training relevant to Centre programs and objectives;
5. to ensure that the two Parties add value to each other and the Centre, through their differing backgrounds and disciplines, and, through the Centre, serve the Parent Bodies and stakeholders, including the Living Collections of the Parties; and
6. to maximise the benefits flowing from applications of Centre Intellectual Property.

The initial Agreement to establish the CPBR was signed in 1993.

A revised Agreement for ten years was signed in April 2000.

## Appendix 8

### Australian National Botanic Gardens Development Planning Guide - Key Recommendations

Recognising the need for a long-term development strategy, in 1991 the Gardens commissioned consultants to prepare a 10-year Development Planning Guide for the Canberra site. The brief required the consultants to recommend ways of rationalising existing site facilities and functions and integrating them with proposed developments in the context of the Gardens' unique natural and cultural heritage.

It should be noted that many of the recommendations of the Guide have already been implemented or are no longer considered appropriate in the form in which they were originally proposed. However, many of the recommendations form the basis for development proposals put forward in this Plan.

The Development Planning Guide divided the site into four precincts:

- a Southern Precinct comprising the undeveloped section of the Gardens south of the Black Mountain Drive.
- a Core Precinct around the entrance and major buildings.
- a Central Precinct covering the major developed display areas; and
- a relatively undeveloped Northern Precinct to the north of the Nursery.

The key recommendations of the Development Planning Guide are as follows:

1. Construct a new public entrance off Clunies Ross Street, redevelop the existing entry road and carpark, provide additional car parking, bus setdown/parking and disabled parking and relocate the existing Visitor Information Centre to a new building adjacent to the Rainforest Gully.
2. Construct a new higher and lower order plants herbarium, refurbish the existing botany/library building and refurbish the existing herbarium to provide research laboratories, offices and meeting rooms.
3. Refurbish the existing Visitor Information Centre as additional office accommodation.
4. Demolish the Public Programmes Building (north) and refurbish the southern end and existing kiosk for the Visitor Services section and Friends of the Australian National Botanic Gardens.
5. Construct a new kiosk/brasserie and central public plaza, The Common, immediately north of the Rainforest Gully.

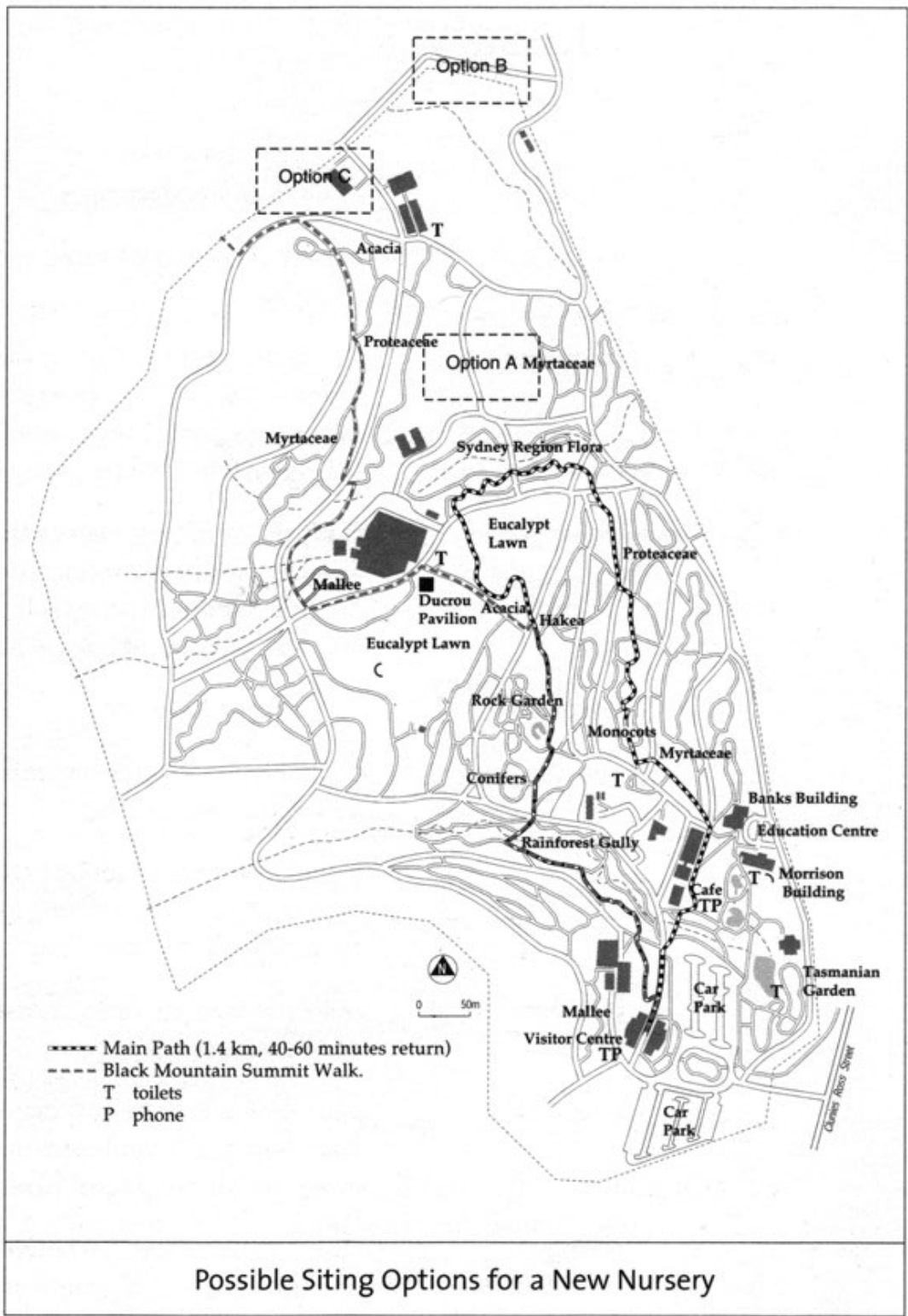
6. Construct a primary pedestrian walkway incorporating three self-contained loops in the Northern, Central/Core and Southern Precincts.
7. Reconstruct existing road and walkway system to provide a hierarchy of circulation routes by:
  - a) constructing new primary pedestrian walkways
  - b) reconstructing existing roads as primary and secondary pedestrian walkways
  - c) barring vehicular access to selected walkways.
  - d) Limit all on site transport, maintenance and service vehicles to electrical operation or other low noise, low energy mode. Limit vehicle speeds to 15km/hr.
8. Construct a new public entrance, carpark, and Visitor Information Centre in the Northern Precinct adjacent to Frith Street.
9. Construct a new lake, wetland and hanging swamp exhibit and adjacent native grass meadow on the site of the current nursery and construct a new nursery (with some public access), horticultural and trade depots as a consolidated facility adjacent to the new northern entrance.
10. Develop lookouts, interpretive stations and rest areas in strategic locations by selective tree removal/thinning and path reconstruction.
11. Develop the Northern Precinct as a thematic xeric garden.
12. Construct an underpass to Black Mountain Drive.
13. Develop the Southern Precinct as a thematic, cool climate garden incorporating a Gondwana theme, an Orchid Conservatory, Australian National Bonsai Collection, Alpine/Macquarie Island House and terrestrial orchid trail.
14. Develop each of the six primary gullies as thematic ecosystem exhibits such as the Otway Ranges and Barrington Tops.
15. Investigate the feasibility/cost/benefit of:
  - a) relocating Black Mountain Road between Clunies Ross Street and the water storage tank to a new location along the western boundary, with access from Frith Street
  - b) a roundabout at the Black Mountain/Clunies Ross Street intersection.
16. Initiate planning negotiations to incorporate into the gardens:
  - a) the land north of Parkes Way to facilitate development of the Southern Precinct

- b) a section of the provisionally abandoned John Dedman Parkway to provide a new and safer main public entrance to the gardens off Clunies Ross Street
  - c) a section of the provisionally abandoned John Dedman Parkway to provide a second public entrance to the gardens in the Northern Precinct
  - d) concessions for the design, operation and management of:
    - i. a public restaurant
    - ii. retail plant sales outlet
    - iii. people mover system
    - iv. royalties from the release of plant species and cultivars to the nursery industry.
17. Initiate further planning and design investigation into:
- a) a comprehensive interpretive program
  - b) facilities construction guidelines for all components of the built environment
  - c) a people mover system
  - d) a comprehensive fire protection system and evacuation procedure
  - e) the integrated planning and design of new displays, trails, recreation facilities and land management practices along the western boundary of the gardens in consultation with the Canberra Nature Park, Black Mountain.
18. Redevelop sections of the No Steps Trail to facilitate access by the disabled.
19. Construct a Tropical Conservatory at the western end of the Rainforest Gully.
20. Streetscape Clunies Ross Street and Frith Street to create grand tree lined boulevards leading to the gardens.
21. Initiate planning discussions into the realignment of the ANU Paleomagnetology Laboratory access road to a position north of the Northern Precinct.
22. Construct a restaurant in the north-eastern corner of the primary carpark.
23. Develop a major children's garden and playground "The Magic Forest" adjacent to The Common and new kiosk.
24. Maintain a 30 metre wide fire protection zone inside the gardens northern, western and south western boundaries incorporating wherever possible a management trail 20 metres inside the property boundary.

25. The existing security arrangements should be comprehensively reviewed and consideration given to an electronic surveillance system.
26. Redevelop the existing rockery and expand and consolidate the existing Sydney Basin and Brindabella exhibits.



# Appendix 9



## Glossary

arboreal	living in or amongst trees
angiosperm	a plant which has its seeds enclosed in an ovary
biodiversity	also biological diversity, the variety of all life forms - the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part
biogeography	study of the natural distribution of plants and animals, including consideration of how they disperse, barriers to dispersal, and geological and ecological events of the past
bryophytes	mosses and liverworts
calcicole	plant adapted to growing on limestone or soils derived from limestone
cultivar	a garden variety; a propagated selection from a species population, differing in some horticulturally desirable way
cryptogams	collective term for fungi, mosses, lichens and liverworts
dicotyledon	a plant of one of the two major groups of flowering plants (Angiosperms), characterised by a seed with two seed leaves (cotyledons)
ecology	study of the interaction between living things and their physical, chemical and biological environment
endangered species	a species likely to become extinct unless the circumstances and factors threatening its abundance and survival cease to operate, or its numbers have been reduced to such a critical level or its habitats have been so drastically reduced that it is in immediate danger of extinction
ethnobotany	study of plants used by humans
ex situ	off site; away from natural situation or location
flora	range of plant species occurring in a given area, site, ecological community, and so on
Gondwana	the ancient southern supercontinent which, in the last 100 million years, split into fragments that drifted apart to produce the present southern hemisphere continental arrangement
graft	artificially produced organic fusion of a branch taken from one plant (scion) and attached to another (rootstock)

habitat lives	home environment or general community type in which an organism lives
heath	a community dominated by low to medium-height (to 1.5 metres) sclerophyllous shrubs
herbarium	a collection of dried, pressed or preserved plant specimens with associated relevant data
in vitro	in sterile culture in glass containers, on, for example, agar medium
mallee	a sclerophyllous shrub or small tree that is multi-stemmed from a tuberous woody rootstock; a plant community dominated by this growth form
micropropagation	propagation of tissue, organs, embryo, seed, and so on, using sterile culture, and in vitro methods
monocotyledon	a plant of one of the two major groups of flowering plants (Angiosperms), characterised by a seed with a single seed-leaf (cotyledon), flower parts arranged in threes, and leaves with parallel veins; for example, grasses, lilies, palms
morphology	study of structure or form
mycorrhizal	of fungi that grow in association with the roots of other plants
nomenclature	names or terms forming a set or a system
pathogen	organism that causes disease
phylogeny	study of evolutionary origins
sclerophyll	plant with leaves containing much woody tissue, giving the leaves a hard, harsh feel
systematics	the classification of living things into groups based on phylogeny
taxon/taxa	grouping(s) of plants and animals
taxonomy	the theory and practice of describing, naming and classifying plants and animals
vascular plants	higher plants, including flowering plants, conifers and ferns
xeric	dry; used in a general sense to refer to communities that, because of their structure (open canopy in particular), are particularly subject to drying from sun, wind, and so on.