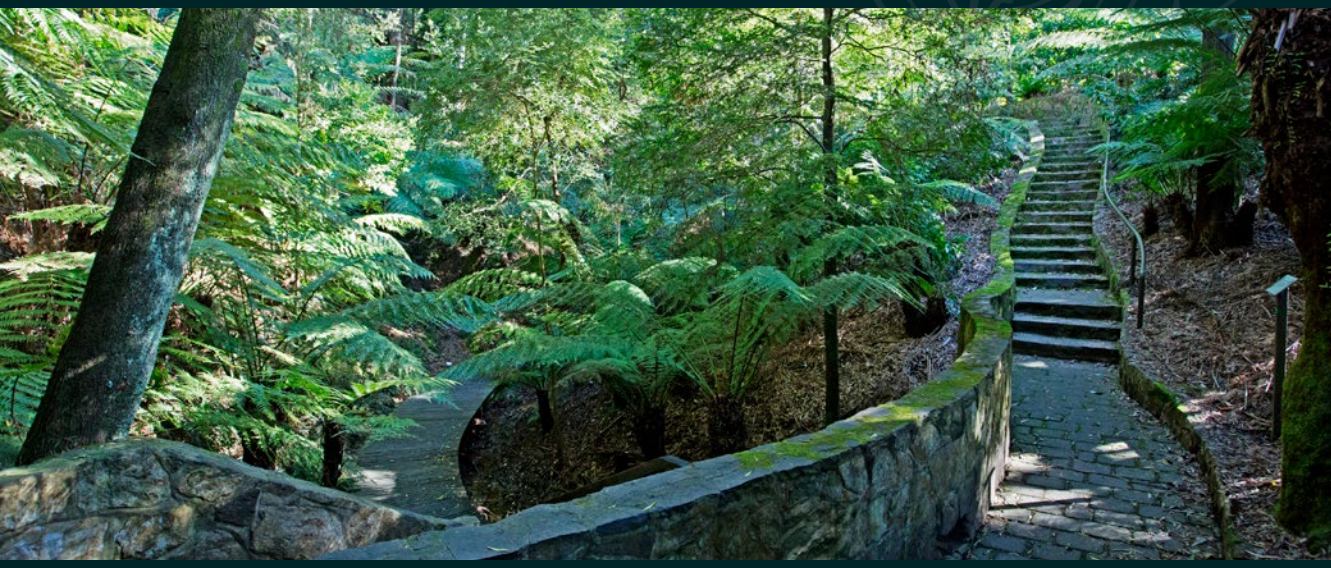
Australian Government
Director of National Parks

Australian National Botanic Gardens

Australian National Botanic Gardens
Management Plan 2022



Australian National
Botanic Gardens

Management Plan 2022

This management plan has been prepared by the Director of National Parks and sets out the way the Australian National Botanic Gardens will be managed for the next 10 years.

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ANBG vision

Australians value, conserve and appreciate our diverse plant heritage.

Foreword

The Australian National Botanic Gardens (ANBG), on the lower slopes of Black Mountain in Canberra, contains the world's most comprehensive display of living Australian native plants. The diverse living collection provides an inspirational place for learning, quiet contemplation and passive recreation.

The ANBG is valued for its scientific and horticultural research into Australian plants and related flora. It is recognised for its role in the dissemination of knowledge and information about Australian plants and for its contribution to plant conservation. The ANBG provides learning experiences focusing on Australia's unique flora and landscapes, and influencing public attitudes to the conservation of plants and the environment. Growing partnerships and collaborations will assist the ANBG to champion the conservation of Australian native plants through its work in ex situ conservation.

The Australian National Herbarium – jointly managed by the ANBG and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) – is among the world's largest collection of Australian plant specimens and supports cutting-edge research into the taxonomic and evolutionary origins of Australian plants.

The ANBG is a Commonwealth reserve under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is managed in accordance with the EPBC Act and its Regulations. It is a requirement of the Act that the Director of National Parks prepare management plans for Commonwealth reserves (s 366 of the EPBC Act). This management plan sets out the goals for the ANBG for the next 10 years, how this national institution contributes to botanical research and education on Australian plants, and how its iconic landscape will be managed for that period. The ANBG will demonstrate its continued commitment to increasing knowledge about the Australian flora through growing and showcasing a national collection representing Australia's plant diversity, undertaking world-class scientific and horticultural research, and informing the community through education programs that connect Australians to our unique natural heritage.

Jody Swirepik
Director of National Parks

Acknowledgements

The Director of National Parks is grateful to the many individuals and organisations who contributed to this management plan, in particular Parks Australia and Centre for Australian National Biodiversity Research staff; the Friends of the Australian National Botanic Gardens; botanic gardens across Australia and their friends and volunteer guides; and those who responded to the call to 'have your say' and made public comments that contributed to the development of this management plan.

Overview

National leadership role

Botanic gardens around the world play a significant role in ex situ conservation and exploration of global plant diversity. The range of scientific activities conducted by botanic gardens often includes conservation, propagation, horticulture, seed science, taxonomy, systematics, genetics and restoration ecology. Botanic gardens also provide learning experiences, including public education and linking plants and people.

In recent years the Australian National Botanic Gardens (ANBG) has placed greater emphasis on its scientific activities. As a national institution managed by the Australian Government, the ANBG has a responsibility to lead, build and share knowledge of our Australian flora. Additionally, the ANBG plays a key role in the development of plant information data systems to manage, monitor and disseminate data and information widely. This is increasingly important for evidence-based biodiversity policy and program development. This expansive data management infrastructure will be expected to accommodate the increasing diversity and scale of information emanating from the seed and horticulture research programs in future years.

Displaying the most comprehensive living collection of Australian native plant species in one location positions the ANBG to showcase best practice in the fields of conservation, taxonomy, horticulture and seed science.

With an aim to promote awareness, study and conservation of plant species diversity the ANBG has developed projects that target species threatened in the wild. At the time of preparing this plan, the Gardens hosts nearly 320 legislatively listed threatened species. This represents nearly a quarter of Australia's threatened taxa (as listed under the *Environment Protection and Biodiversity Conservation Act 1999*) held ex situ, and places the ANBG in a strong position to study factors that may help mitigate diversity loss. Collaborating with other Australian botanic gardens will bring together a larger, coordinated ex situ collection and associated research.

The development of the new National Seed Bank will provide much-needed laboratory and seed storage space for the increasing range of seed biology research being undertaken. This world-class facility together with ANBG's seed science expertise will attract other collaborators, providing significant national and international conservation outcomes.

Horticultural actions are important elements of in situ and ex situ plant conservation in botanic gardens. The expertise and capability of the ANBG team is suited to horticulture research linked to conservation outcomes. In advancing propagation knowledge, we experiment with innovative ways of effectively bringing new native species into cultivation, and plan to expand that program commercially in future.

The diversity of species in the ANBG collection provides a valuable resource of plant ecological information such as phenological indications of climate change. For plant functional characteristics, this diversity provides a large set of species in which to study functional trade-offs between species traits and plant performance. This will not only assist in propagation investigations but also contribute to studies on the resilience of native plants to changing climate, an area of research the ANBG plans to increase during the next 10 years.

Communication and education role

Promoting awareness and capacity building involving both the public and staff are important functions of modern botanic gardens, and in recent years such collaboration has had a strong focus on environmental education. Dissemination of the findings from the various research projects conducted at the ANBG is a key communication responsibility. Sharing this knowledge through interpretation in structured education programs, or through web and social media channels, not only helps to make information available to the wider community but also helps to build people's knowledge of plant conservation. Communicating stories about, for example, cracking germination secrets of a threatened species or discovery of a new fern species inspires Australians and connects them to the remarkable Australian flora.

Collaboration with other Commonwealth reserves

With plant diversity being lost at an unprecedented rate, there is an increased need to develop integrative conservation approaches for plants, particularly threatened species in the wild. With this approach the ANBG collaborates closely with other Commonwealth reserves to address various in situ plant conservation issues.

The ANBG partners with the terrestrial and island parks primarily around environmental challenges such as pressures from invasive species and safeguarding species from extinction. This has mostly centred around collaborative field studies, seed science and horticulture research directly supporting conservation needs. For example, the ANBG is providing expert support in spore germination of an endemic critically endangered fern from Christmas Island and techniques for propagation of a culturally significant quandong from Uluru.

These partnerships are notable in their 2-way transfer of skills, with the on-ground knowledge of parks natural resource managers and the ecological knowledge of traditional owners mixed with botanical scientific knowledge from the ANBG providing effective conservation solutions to help maintain the critical natural values of the reserves.

With innovative scientific research and linking humans to plant diversity and the functional role of plant species in the landscape, the ANBG is helping to secure a diverse range of threatened plant species and to lay the foundations for healthy ecosystems in the future. In this way ANBG research provides end-to-end solutions for understanding plant biodiversity and conservation, through its integrated 'living laboratories', from molecular facilities and seed science labs, through the living collections and horticultural practices, to the wild.

Partnerships

Partnerships of various types are a critical element of the ANBG's ability to achieve the outcomes proposed in this management plan. We will continue to actively participate in existing successful partnerships and to establish new relationships, ensuring recognition of the ANBG for its world-class research and conservation programs.

Partnerships are designed to add value and to draw on the expertise of a diversity of people and organisations who come to an issue from different perspectives. The ANBG will ensure the partnerships in which we participate have a common vision and that they function under principles of effective communication and collaborative decision-making.

Partnerships help to create a path forward, allowing public and private entities to align objectives and resources to more efficiently advance towards common goals. We will develop further cross-sector partnerships with both the public and private sectors, including the business community, industry and scientific institutions. Research partnerships are most likely to be innovation based.

Much of the scientific research at the ANBG is undertaken in partnership with other organisations. In particular, the Centre for Australian National Biodiversity Research (CANBR) is an extremely successful long-term partnership with CSIRO, based on a formal legal agreement with pooled resources. In this joint venture the ANBG will continue to cooperatively manage the Australian National Herbarium and to expand our scientific program conducting novel research into the taxonomy, systematics and conservation ecology of Australia's plant diversity.

Enduring partnerships operating with clearly agreed cooperative arrangements, such as CANBR, provide confidence and incentive for others to join and to contribute their expertise, particularly in pursuit of a shared research and development objective. In ensuring the Australian National Herbarium is able to adopt modern collection management practices and to manage and make accessible well-curated collections, the ANBG and CANBR will work with industry to investigate the application of emerging technologies such as artificial intelligence and machine learning.

Other partnerships will focus on continuing to build a rigorous conservation-focused research program that informs direct management actions. We will bring together interested parties with knowledge, skills and expertise to partner with ANBG staff addressing the many issues impacting Australian biodiversity. These partnerships will be both formal, with defined agreements, and more informal in nature, such as researchers and conservationists opportunistically collaborating and sharing knowledge to enhance our understanding of the biology and ecology of native plants or particular threatened species.

The ANBG will build on its reputation to deliver results with our conservation partners, and will invest in creating and maintaining effective research partnerships with diverse stakeholders. Conservation actions will often be addressed in consultation and partnership with other botanic gardens, local Indigenous custodians, land managers and other stakeholders.

In the case of critical ex situ plant conservation activities, the ANBG will continue to develop further collaborative teams with community and industry partners to share expertise and ideas in seed biology and to advance horticultural practices for the cultivation of Australian plants – and to apply findings to conservation management actions.

Other key partnerships operate at various levels. For instance, the ANBG's Biodiversity Informatics team supports the ANBG, CANBR, the Department of Agriculture, Water and the Environment and partners in their management of scientific collections by enabling the entry, curation, presentation and analysis of associated data. Nationally this team partners with other botanic gardens and the Atlas of Living Australia to integrate biodiversity datasets, which are delivered internationally to the Global Biodiversity Information Facility and other data exchange partnerships for systematic biological and conservation-based research.

The ANBG proposes to seek new opportunities to collaborate with Indigenous people during the period of this management plan. Incorporating traditional ecological knowledge into scientific investigations and conservation management projects will enhance the success of group efforts by drawing on the local knowledge and expertise of a wide range of individuals and groups who live in and intimately know the local environment.

Working with community groups can bring different insights and approaches to an activity. The ANBG will partner with local communities in projects where the collective effort benefits the outcomes. Our ongoing relationship with the Friends of the ANBG is invaluable and we will maintain this partnership so that the Friends have a personal sense of responsibility, involvement, commitment and enjoyment.

Since partnerships play a significant role in the ANBG's ways of working it is important that we pay attention to the means of maintaining existing relationships and to principles around establishing new partnerships. The ANBG will take care to ensure that for all our partnerships we continuously evaluate the collaboration's productivity, the perspectives of all partners, and the desired outcomes for success.

Summary

The Australian National Botanic Gardens (ANBG) has been growing, studying and promoting Australian plants and related flora for over 50 years. As a botanic garden and national institution managed by the Australian Government, the ANBG has a mandate to serve the nation by conserving its living and herbarium collections as significant records of the story of plants in Australia's cultural and natural heritage; by encouraging and supporting the cultivation, use and conservation of Australian plants; and as a custodian of the national story of Australia's unique flora.

The vision for the ANBG is that **Australians value, conserve and appreciate our diverse plant heritage**.

To achieve this vision, the ANBG's mission is to **inspire, inform and connect people with Australian flora**.

This management plan describes how the ANBG will be managed for the next 10 years, both as a Commonwealth reserve under the *Environment Protection and Biodiversity Conservation Act 1999* and as an institution playing a national role through the science and research activities associated with the knowledge and assets of the ANBG.

Part 1 of this plan is an introduction to the ANBG. It provides a description of the reserve and the institution, and details its vision, mission, goals and corporate values.

Part 2 is the management plan for the ANBG. It presents the legislative context and background information, followed by details of how the ANBG will be managed. This is structured around the 4 goals. Each goal is followed by a direction-setting statement that describes where the ANBG aspires to be in 10 years. Challenges are described, and policies and actions to achieve the 4 goals are set out. This plan aims to be strategic and for the most part does not outline specific details of daily operations.

The national focus for the ANBG is reflected in the majority of its 4 goals and the outcomes that it aims to achieve during the life of this plan.

Goal 1: Research supports an improved understanding of Australian plants for horticulture, botany and conservation

Outcomes:

- Increased knowledge of Australian plant biology, horticultural or germination processes relevant to storing and utilising ex situ collections or understanding species' tolerances to different environmental conditions
- Improved understanding of plant taxonomy, systematics and the evolutionary history of Australian and related floras
- Research findings influence management of biological collections, including priorities for future collections and succession planning
- Research findings directly contribute to plant conservation and management actions

- Research findings contribute to biosecurity, natural disaster and climate resilience policy and program needs
- New and enduring partnerships with diverse stakeholders' support ANBG research programs
- Research programs provide collaborative opportunities for tertiary students and early career researchers.
- Research programs provide collaborative opportunities for training and development of tertiary students and early career researchers.

Goal 2: Develop, manage and curate world-class physical and digital collections, providing information and knowledge about Australian plants

Outcomes:

- The collections are maintained to high curatorial standards
- Our national botanical collections contribute to safeguarding Australian plant species from extinction
- The ANBG is an accessible authoritative source for information about Australian plants
- The expanded National Seed Bank facilitates development of the ANBG's seed science capabilities and their applications

Goal 3: Engage and inspire communities in valuing and appreciating Australia's plant heritage

Outcomes:

- Learning and experiences that connect people with plants and inspire learning and understanding of the value of Australia's unique flora
- Share expertise to increase understanding of Australian plants and the role of the ANBG through enhanced use of diverse media
- Collaborations with tourism and education stakeholders raise awareness and increase engagement with the ANBG
- Information is readily accessible to the Australian community to foster understanding and appreciation of conservation and the sustainable use of biodiversity

Goal 4: Demonstrate best practice, innovation and sustainable management

Outcomes:

- Best practice business operations and appropriate financial and staff resources supporting the management of the ANBG and the implementation of this plan
- Risk is managed to ensure the health and safety of visitors and staff and the protection of the ANBG's valuable assets
- Excellence and innovation are displayed in the design and delivery of future developments

Contents

Part 1

Introduction to the Australian National Botanic Gardens

Functions of the ANBG

With a major development phase in the 1960s and its official opening in 1970, the Australian National Botanic Gardens (ANBG) became Australia's first botanic garden and research institution to specialise in native flora. With over 50 years experience in growing Australian plants, the ANBG has made important contributions to increasing knowledge, appreciation and enjoyment of Australia's unique plant heritage and landscapes. Its scientifically based collections of living, seed and herbarium specimens of Australian and related plants support a diversity of scientific and horticultural research.

The ANBG was declared as a reserve under the *National Parks and Wildlife Conservation Act 1975* on 17 September 1991, for the purpose of increasing 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 proclamation continued under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), which replaced the former Act on 16 July 2000.

Most of the scientific research at the ANBG is undertaken in partnership with other organisations. The Centre for Australian National Biodiversity Research (CANBR), formerly known as the Centre for Plant Biodiversity Research, is jointly managed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Director of National Parks through the ANBG. CANBR houses Australia's National Herbarium and aims to expand knowledge of Australia's plant diversity through scientific excellence in plant taxonomy and systematics, which involves identifying, naming and classifying different groups of plants.

Through CANBR, the ANBG has an important role in information technology, maintaining the national indexes of plant names and plant images, and making these publicly available via the internet. It is a key player in national initiatives such as Australia's Virtual Herbarium and the Atlas of Living Australia. The internet provides an effective way of distributing scientific and horticultural expertise to a global audience. Staff expertise is also shared through publications, specialist conferences, business meetings and education programs. CANBR provides an important conduit to link the community with current science and encourage learning and discovery.

The ANBG has led the way in growing Australian native plants and initiating research to introduce many native plants into horticulture. A number of species in the living collection are threatened in their natural habitats. The ANBG is increasingly involved in their conservation through cultivation and propagation trials, and seed collection for scientific study and storage in the seed bank or reintroduction into their native habitats. Collaborations between the ANBG and government agencies, non-government organisations, community groups and industry make an important contribution to vegetation restoration works and species recovery programs.

The ANBG is in a unique position to bring Australia's botanic gardens community together to work on national challenges such as climate and landscape change and helping to secure the nation's plant biodiversity through seed banking.

The ANBG takes an active role in inspiring appreciation and understanding of Australia's flora and ecosystems through its education and recreation programs. Among the programs for specialists is a Volunteer Botanical Training Program, and staff supervise postgraduate students and deliver lectures at the ANBG, CANBR and partner universities. Schools education programs include teacher training days and a range of curriculum-based programs for local and interstate schools.

The Director of National Parks is responsible for managing the ANBG, assisted by staff from the Australian Government department responsible for the EPBC Act. At the time of preparing this plan, this is the Department of Agriculture, Water and the Environment. The ANBG facilitates collaborations that contribute to national priorities in biodiversity conservation through its regional and national networks.

Description of the ANBG

The ANBG occupies an 85 hectare site on the lower eastern slopes of Black Mountain in Canberra and is a valuable part of the city's landscape. It is an integral part of a group of national research institutions including the Australian National University and CSIRO.

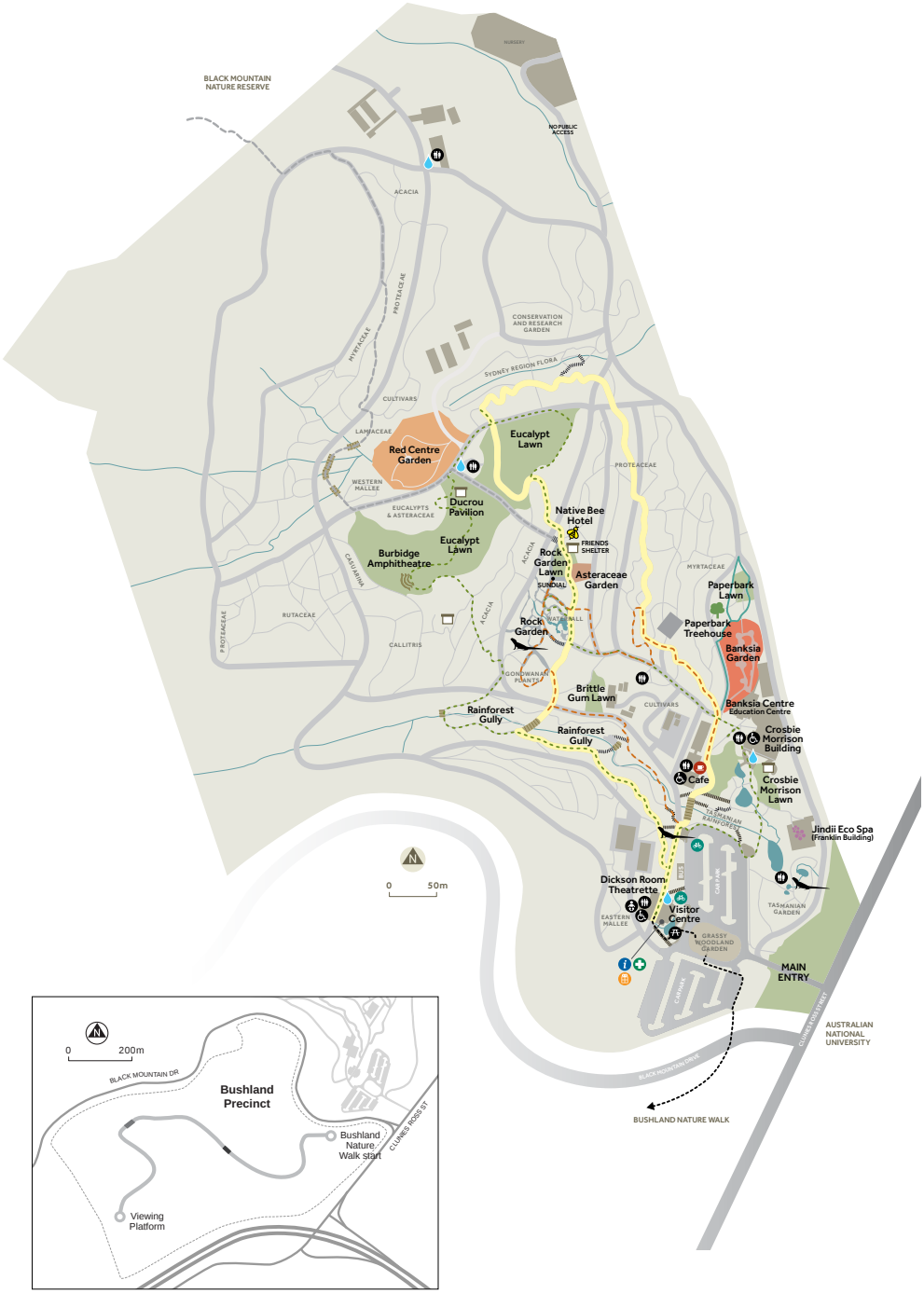
The ANBG site has several distinctive features including its comparative steepness and elevation and its vistas towards Canberra. The site's topography is characterised by a series of 5 broad ridges that fan out to the east and south-east and are separated by 4 incised gullies. The site's eastern and northern sections are protected from prevailing westerly winds.

The living collection is displayed in 35 hectares of the 85 hectare site. The topography of the site's central part provides a range of opportunities, and favourable microclimates, for displaying and managing the diverse living collection that has been developed to showcase Australia's flora and to educate and raise awareness about its biological diversity. The collection is a representation of Australia's flora and focuses on several broad themes including taxonomy, ecology and geography, horticulture, conservation and ethnobotany. The collection displays about one-third of all Australian flowering plant species and provides interpretation of iconic plants, such as eucalypts, banksias and wattles, and of different Australian landscapes.

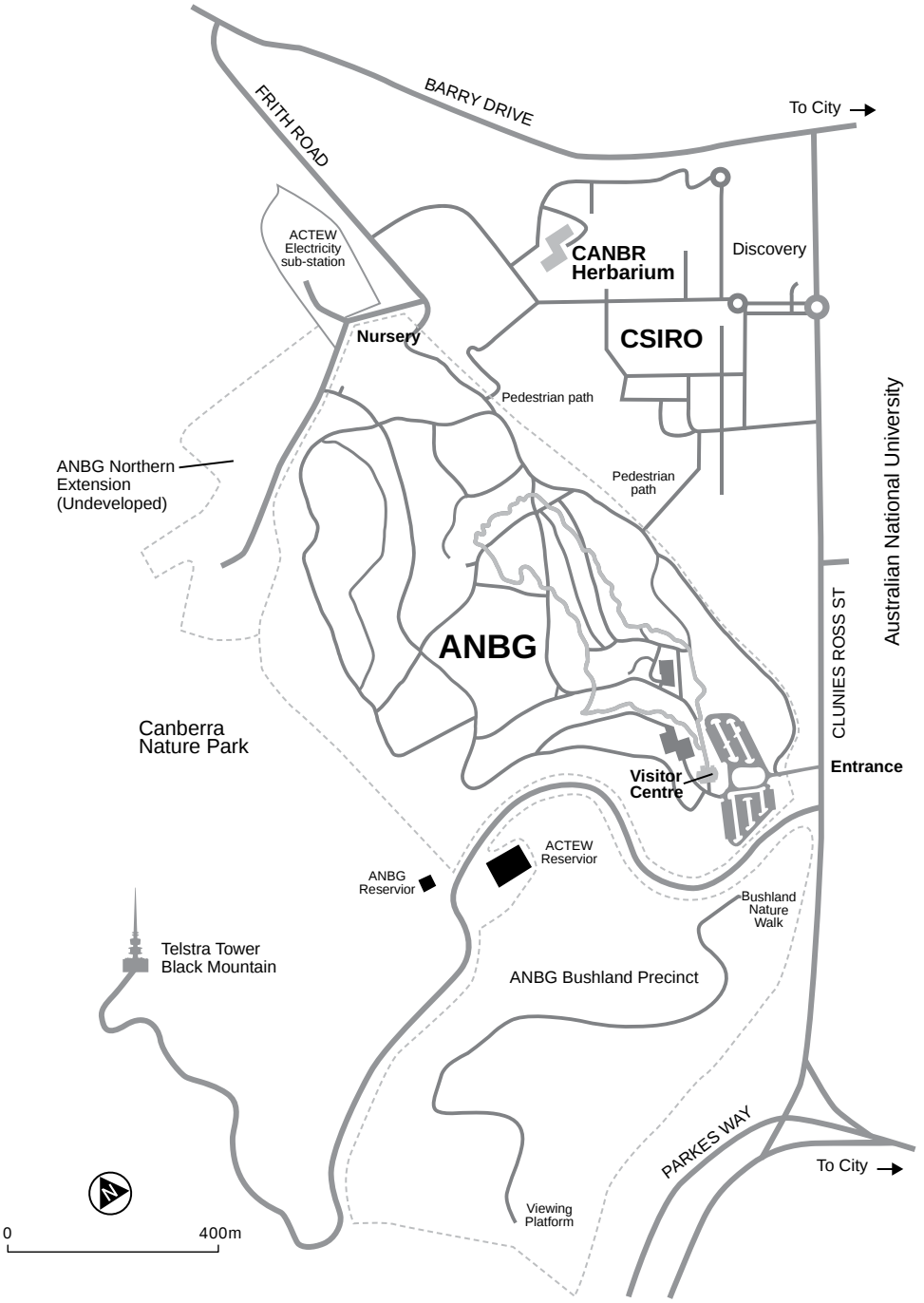
The ANBG is a haven for native fauna, especially birds. The site is also a haven for the local community and tourists seeking a place for passive recreation, for peaceful reflection, to socialise and to learn about Australian plants. As a safe environment to explore the Australian flora the ANBG plays a significant role in the health and wellbeing of our many visitors. It serves as a cultural recreation, entertainment and exhibition venue. An annual program of events attracts a diverse audience and provides opportunities to inspire interest in Australia's unique flora and fauna in an accessible nature-based setting.

The southern Bushland Precinct (Map 1) contains remnant open forest dominated by *Eucalyptus rossii* and *E. macrorhyncha*. It is managed for conservation, wildlife habitat and education outcomes. In recent years a Bushland Nature Walk has been developed to provide visitors with access through this precinct, interpretation of many of the plants, and views of Lake Burley Griffin from a platform at the end of the trail.

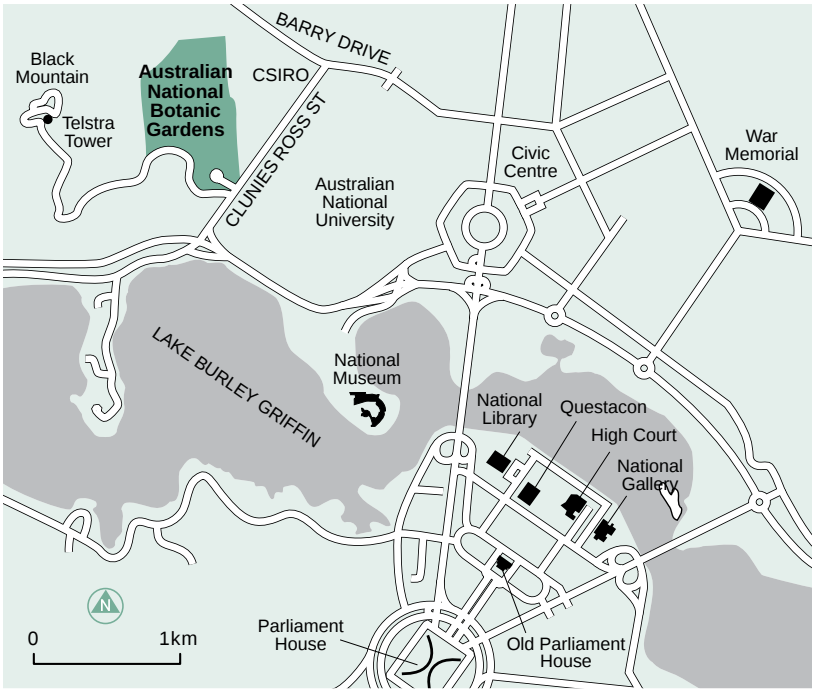
Map 1: Australian National Botanic Gardens site map



Map 2: The Centre for Australian National Biodiversity Research (CANBR) in relation to the Australian National Botanic Gardens



Map 3: Location of the Australian National Botanic Gardens in relation to Canberra city



Significance of the ANBG

The ANBG is Australia's only national institution to focus solely on Australian plants and related flora. Its collections knowledge base and research are of both national and international significance.

The ANBG's living collection of Australian native plants is one of the most comprehensive in the world. Furthermore, the ANBG makes an important contribution to taxonomy through CANBR, where research programs and collections provide a national focus for botanical data. The ANBG is seen as a centre for horticultural trials and learning in relation to Australia's flora, and makes a valuable contribution to native plant horticulture and display. Staff also provide horticultural expertise in collaborative conservation projects. The ANBG facilitates collaborations with Australia's other leading botanic gardens to enhance their work on Australia's national biodiversity conservation agenda.

The ANBG is an integral component of architect Walter Burley Griffin's vision for Canberra and contributes to the aesthetic quality of the national capital. It is listed on the Commonwealth Heritage List as being nationally significant for its unique landscape, environmental character and outstanding examples of landscape design and horticulture using Australian native plants.

There is a key role for the ANBG in reflecting the essence of Australian culture through interpreting its living collection. Since its official opening in 1970 by then Prime Minister John Gorton, the ANBG has challenged prevailing botanic garden design by presenting a bush-like landscape showcasing Australia's unique plant diversity. The ANBG's establishment has led to a diversification of botanic garden design and focus in Australia from the early colonial gardens displaying introduced plants, to a range of less formally designed botanic gardens specialising in the display of native flora. It has been the inspiration for many Australian regional botanic gardens focusing on their local flora.

The ANBG is a Commonwealth reserve under the EPBC Act and is managed to achieve the purposes for which it was proclaimed.

The ANBG remains an important resource to support Australians' increasing appreciation of their natural heritage and is considered to be of outstanding value to many Australians. This is reflected by the number of visitors to the ANBG and to its website. Strong support is provided by the Friends of the Australian National Botanic Gardens, a community support group with a large active membership.

The ANBG is significant for the following values:

Scientific values

- The ANBG conducts research into the taxonomy, horticulture and biology of native plant species based on the extensive herbarium collection linked to the living collection.
- The living collections (plants, seeds and other germplasm), with their national focus, provide a valuable resource for research into conservation and on the impacts of climate change and adaptation of native plants.
- The ANBG plays a valuable role in holding and disseminating knowledge on native plants.

Natural and cultural heritage values

- The ANBG was the first public garden composed of Australian native plants including a large number of rare and threatened plant species. It ensures the preservation of rare genotypes and provides some protection through cultivation.
- The ANBG is recognised on the Commonwealth Heritage List.
- The Australian National Herbarium holds a collection of preserved plant specimens closely associated with the living collection and has voucher specimens dating back to Joseph Banks's explorations during Captain Cook's voyage to Australia in 1770. The herbarium houses more than 8,000 type specimens – i.e. preserved specimens nominated by botanists to describe a new plant as the benchmark or standard for the name given to the species when it is first described.
- The ANBG library is a valued resource. It covers taxonomy, botany and the horticulture of Australian native plants and has a significant collection of international publications on cryptogams and orchids.

Conservation values

- The ANBG holds a significant living collection (of approximately 8,000 species), seed bank and gene bank essential for managing the risk of species loss in the wild.
- The ANBG provides an urban biodiversity haven, with more than 100 native bird species recorded on the site.

Education values

- The ANBG provides valued education for students from primary to tertiary levels across the nation, including horticultural and taxonomic training. The living collection is particularly important for this function.
- The ANBG demonstrates design excellence in construction of certain garden features, in particular the Rainforest Gully representing a geographic transect of Australia's east coast, the Red Centre Garden exhibiting plant species and ecological communities of Australia's arid centre, the Banksia Garden incorporating more than 80% of this iconic plant group, and the rockery area with its carefully composed combination of rocks, pools and running water.

Social values

- The community supports, appreciates and values the ANBG's unique flora and landscape.
- The ANBG provides a venue for relaxation and reflection in a natural setting and provides public access to a large variety of native species, with flowering displays throughout the year.
- The ANBG is an important tourist attraction and offers a wide range of visitor experiences.
- The ANBG is regarded as a safe place for members of the community to learn about and appreciate Australia's flora.
- The ANBG is sought out as a destination for people's health and wellbeing.

Aesthetic values

- The ANBG is an important component of Canberra's Central National Area landscape setting and provides vistas of major Canberra features including Parliament House.
- The ANBG has aesthetic characteristics and amenity valued by the community, with an attractive park landscape, contrasting native vegetation, waterforms and rockforms.

Future direction statement

The ANBG's future direction is guided by its vision, mission, goals and corporate values.

ANBG vision

That Australians value, conserve and appreciate our diverse plant heritage.

ANBG mission

To inspire, inform and connect people with Australian flora.

To achieve its vision and mission, the ANBG will continue to prioritise scientific and horticultural research that contributes to the description, classification and understanding of Australian plants and builds knowledge to support the conservation and sustainable use of Australian plants. The ANBG's work will be influenced by the examination and understanding of current threats to Australia's biological diversity, such as climate and landscape change. The ANBG will facilitate national and international policy and practice that continues to support the work of Australia's botanic gardens in biodiversity conservation.

The living collections will be managed to be the nation's pre-eminent scientific collections of well-documented Australian plants and seeds and will be housed in a garden based on state-of-the-art horticulture practices for all visitors to enjoy. ANBG staff will continue to work with community and industry partners to advance horticultural practices for the cultivation of Australian plants.

The ANBG will be the accessible gateway to Australian plant information and knowledge and will continue to maintain strong partnerships to ensure its importance to Australian society through supporting world-class research and education. Its programs combining traditional knowledge, art and science, and collaborations with botanic gardens and national and state institutions, will enrich Australian society, build botanical knowledge and inspire conservation of Australia's unique plants.

ANBG goals

The management prescriptions in this plan are structured around 4 goals. The goals support the purpose for which the ANBG was declared, give direction to the management of the ANBG consistent with its International Union for Conservation of Nature (IUCN) category and applicable Australian IUCN reserve management principles, and complement the ANBG's vision and mission. The goals are:

1. **Research supports an improved understanding of Australian plants for horticulture, botany and conservation.**
2. **Develop, manage and curate world-class physical and digital collections, providing information and knowledge about Australian plants.**
3. **Engage and inspire communities in valuing and appreciating Australia's plant heritage.**
4. **Demonstrate best practice, innovation and sustainable management.**

Part 2

Management plan for the Australian National Botanic Gardens

Background

This part first sets out the context in which the Australian National Botanic Gardens (ANBG) management plan was prepared. It describes previous plans and the network of legislative requirements and international agreements that underpin the strategic direction of this plan. It then sets out how the ANBG will be managed for the next 10 years.

Previous management plans

This is the fourth ANBG management plan. The first management plan was in operation from 1993 to 2001. The second management plan came into operation on 9 January 2002 and ceased to have effect on 8 January 2009. The third management plan came into effect on 29 May 2012 and ceased on 29 May 2022. Previous planning tools that apply to the work of the ANBG are summarised in Appendix A.

Section 357 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires the Director of National Parks to manage a Commonwealth reserve following the expiration of a management plan in accordance with the International Union for the Conservation of Nature (IUCN) management principles for the IUCN category to which the reserve was assigned under an expired management plan.

Structure of this management plan

The plan reflects the multidisciplinary nature of the ANBG. It presents strategic priorities for the next 10 years, grouped under 4 broad goals, that will guide the management of the Commonwealth reserve and the associated living, seed and herbarium collections, as well as providing broad direction for the ANBG's scientific and educational roles.

The structure of this plan reflects the Parks Australia Strategic Planning, Evaluation and Reporting Framework, a set of priorities based on Australian Government policy and requirements for the management of Commonwealth reserves under the EPBC Act.

Success in delivery of this management plan will be measured against performance measures specified in Portfolio Budget Statements and the Director of National Parks Corporate Plan.

Planning process

Section 366 of the EPBC Act requires the Director of National Parks to prepare management plans for each Commonwealth reserve. In doing so the Director of National Parks must (under s 368 of the Act) seek comments from members of the public and the relevant state or territory government. For this plan, this included a call for community members to prepare written submissions on a range of issues including climate change, management, curation of the living collection, visitor experiences, environmentally sustainable management and the role of science.

Introductory provisions

Name

This instrument is the *Environment Protection and Biodiversity Conservation (Australian National Botanic Gardens Management Plan) Instrument 2022*.

Commencement

This instrument commences on 20 May 2022.

Note: This instrument will cease to have effect 10 years after it took effect (unless it has already been revoked): see section 373 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Authority

This instrument is made by the Minister under subsection 371(1) of the *Environment Protection and Biodiversity Conservation Act 1999* on the day it is approved under subparagraph 370(3)(b)(i) of that Act.

Repeal

The *Australian National Botanic Gardens management plan* approved by the Minister on 21 May 2012 is repealed.

Interpretation (including acronyms)

In this management plan:

Access to biological resources means sampling biological resources of native species for research and development of any genetic resources, or biochemical compounds, comprising or contained in the biological resources.

Australian National Botanic Gardens or **ANBG** means the area declared as a reserve by that name under the *National Parks and Wildlife Conservation Act 1975* and continued under the EPBC Act pursuant to the *Environmental Reform (Consequential Provisions) Act 1999*. It also means the scientific and educational institution associated with the reserve and its living and herbarium collections.

Australian National Herbarium or **ANH** means the herbarium of that name operated jointly by the ANBG and CSIRO through the Centre for Australian National Biodiversity Research.

Australian Network for Plant Conservation means the organisation of that name whose mission is to promote and develop plant conservation in Australia.

Australian Plant Image Index or **APII** means the national collection of images and illustrations of Australian flora managed by the ANBG.

Biological diversity or **biodiversity** means the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. It includes diversity within species and between species, and diversity of ecosystems.

Biological material means, but is not limited to, plants, plant parts or propagation material (such as seeds, spores, cuttings, roots, bulbs, corms or leaves, also known as germplasm), biological resources, fungi or other fungal material, and any other material of plant, animal, fungal, microbial or other origin and the genetic resources contained therein.

Biological resources means genetic resources, organisms, parts of organisms, populations and any other biotic component of an ecosystem with actual or potential use or value for humanity.

Born-digital image means an image that originates in a digital form, in contrast to an image that originates as a negative, transparency or other physical medium that is later scanned to become a digital image. Born-digital images are usually captured using digital cameras or similar equipment.

Botanic Gardens Australia and New Zealand Incorporated means the chief body representing the interests of botanic gardens in Australia and New Zealand. It promotes the interests and activities of these botanic gardens and of botanic gardens generally and enhances the state of botanic gardens for the benefit of the community.

CANBR Agreement means the Agreement for the Operation of the Centre for Australian National Biodiversity Research between the Director of National Parks and the Commonwealth Scientific and Industrial Research Organisation, as varied from time to time.

Central National Area means the area of land within the Australian Capital Territory designated by that name under the provisions of s 10(1) of the *Australian Capital Territory (Planning and Land Management) Act 1988*.

Centre for Australian National Biodiversity Research or **CANBR** means the research centre of that name (formerly known as the Centre for Plant Biodiversity Research) established and managed by the Director of National Parks and CSIRO under the CANBR Agreement. The Australian National Herbarium is managed through CANBR.

Commonwealth reserve means a reserve established under Division 4 of Part 15 of the EPBC Act.

Commonwealth Scientific and Industrial Research Organisation or **CSIRO** means the Australian Government agency of that name established by the *Science and Industry Research Act 1949*.

Convention on Biological Diversity or **CBD** means the international agreement of that name, ratified by Australia on 18 June 1993. The convention has 3 main objectives: the conservation of biological diversity, the sustainable use of the components of biological diversity, and the fair and equitable sharing of the benefits arising from the use of genetic resources.

Convention on International Trade in Endangered Species of Wild Fauna and Flora or **CITES** means an international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Council of Heads of Australasian Herbaria Incorporated or **CHAH** means the association of that name incorporated under the *Associations Incorporation Act 1991* (ACT). The objective of CHAH is to promote the discovery, documentation and delivery of taxonomic, systematic and botanical knowledge and information relating to plant, algal and fungal biodiversity in its broadest sense.

Council of Heads of Australia's Botanic Gardens means the national council of that name, established by representatives from Australian capital city botanic gardens as a forum for information sharing, discussion and coordination of strategic initiatives for the gardens' mutual benefit and for the benefit of their communities.

Curation of the living collection means the management of the living collection including acquisition; horticultural, nursery and seed banking practices; deaccessioning; maintaining plant records, including updating, labelling, mapping and ensuring information is current; and preserving the collection for current and future research, conservation, education and exhibition/display needs.

Department means the Australian Government department responsible for the EPBC Act. At the time of preparing this plan, this is the Department of Agriculture, Water and the Environment or such other department or agency that succeeds to the functions of the department.

Director of National Parks means the Director of National Parks continuing as a corporation under s.514A of the EPBC Act and includes Parks Australia and any person to whom the Director of National Parks has delegated powers and functions under the EPBC Act in relation to the ANBG.

Extended Specimens are a perspective where biodiversity specimens extend beyond the singular physical object (e.g., herbarium specimen, living garden collection) to potentially limitless additional physical preparations and digital resources.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), including Regulations under the Act, and includes reference to any Act amending, repealing or replacing the EPBC Act.

EPBC Regulations means the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) and includes reference to any Regulations amending, repealing or replacing the EPBC Regulations.

Ethnobotany is the scientific study of the relationships that exist between people and plants, including folklore, religion, Indigenous use and agricultural customs.

Ex situ conservation means the conservation of components of biological diversity outside their natural habitats.

Friends of the Australian National Botanic Gardens or **the Friends** means the Friends of the Australian National Botanic Gardens Inc. incorporated under the *Associations Incorporation Act 1991* (ACT).

The Gardens means the ANBG.

Genetic resources means any material of plant, animal, microbial or other origin that contains functional units of heredity and that has actual or potential value for humanity.

Germplasm means plants, plant parts or propagation material (such as seeds, spores, cuttings, roots, bulbs, corms or leaves, also known as biological material) that can be used to generate plants.

Herbarium collection means the national collection of Australia's plant biodiversity managed by the Australian National Herbarium.

In situ conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

Integrated Botanical Information System or **IBIS** means the relational data systems that link data held in the various collections of the ANBG, the Australian National Herbarium, the Australian Plant Image Index and the Australian Plant Name Index.

Integrated conservation management means that all streams of conservation activity, both in situ and ex situ, contribute towards conservation objectives, are consistent with each other and with the relevant legislation and general policy, and resolve conflicts between potentially conflicting objectives and interests.

International Union for Conservation of Nature or **IUCN** means the global environmental network of that name, a democratic union that brings together member states (countries), non-government organisations, United Nations agencies, companies and local communities to discuss and promote solutions to international environment and development challenges.

Living collection means the living resources that form the basis of the work of the ANBG, including the accessioned and non-accessioned garden collections, glasshouse collections, seed bank and nursery collections.

Management plan or **plan** means this management plan for the ANBG, the *Environment Protection and Biodiversity Conservation (Australian National Botanic Gardens Management Plan) Instrument 2022* unless otherwise stated.

Management principles means the Australian IUCN reserve management principles set out in Schedule 8 of the EPBC Regulations.

Minister means the minister administering the EPBC Act.

National Capital Authority means the organisation of that name established under the *Australian Capital Territory (Planning and Land Management) Act 1988* or such other department or agency that succeeds to the functions of the National Capital Authority.

Parks Australia means the agency that assists the Director of National Parks in performing their functions under the EPBC Act. At the time of preparing this plan, the agency assisting the Director of National Parks is the Parks Australia division of the Department of Agriculture, Water and the Environment.

Parks Australia staff means staff who are employees of the Department to assist the Director of National Parks.

Pest means any animal, plant or organism that has, or potentially has, an adverse economic, environmental or social impact.

Schedule of Charges means the charges determined and imposed by the Director of National Parks under s 356A of the EPBC Act in relation to the ANBG.

Staff means employees of the department assigned to duties to assist the Director of National Parks.

Sustainable use means the use of components of biodiversity and resources in a way and at a rate that does not lead to the long-term decline of biodiversity, thereby maintaining biodiversity's potential to meet the needs and aspirations of present and future generations.

Voucher or **voucher specimen** means a representative specimen of a plant or animal that serves as a basis of study and is retained as a reference.

Legislative context

EPBC Act

Objects of the Act

The objects of the EPBC Act as set out in Part 1 of the Act are:

a. to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and

b. to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and

c. to promote the conservation of biodiversity; and

ca. to provide for the protection and conservation of heritage; and

d. to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and Indigenous peoples; and

e. to assist in the co-operative implementation of Australia's international environmental responsibilities; and

f. to recognise the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and

g. to promote the use of Indigenous people's knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.

Establishment of the ANBG

The ANBG was declared a reserve on 17 September 1991 under the *National Parks and Wildlife Conservation Act 1975*, which was replaced by the EPBC Act in July 2000. It continues as a Commonwealth reserve under the EPBC Act, pursuant to the *Environmental Reform (Consequential Provisions) Act 1999*, which deems the ANBG to have been declared for the purpose of 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.

Director of National Parks

The Director of National Parks is a corporation-sole pursuant to s 514A of the EPBC Act and a corporate Commonwealth entity for the purposes of the *Public Governance, Performance and Accountability Act 2013* (Cth). The corporation is constituted by the person appointed to the office that is also called the Director of National Parks under s. 514F or s. 514G of the EPBC Act.

The functions of the Director of National Parks (s 514B) include the administration, management and control of the ANBG. The Director of National Parks generally has power to do all things necessary or convenient to enable them to perform their functions (s 514C). The Director of National Parks has powers under the EPBC Act and EPBC Regulations, including powers to prohibit or control some activities and to issue permits for activities that are otherwise prohibited. Their functions and powers are also exercised in accordance with this plan.

Management plans

The EPBC Act (ss 366 and 368) requires the Director of National Parks to prepare management plans for Commonwealth reserves and sets out the content of a plan and matters to be taken into account when preparing a management plan. Once prepared, a plan is given to the Minister for approval. A management plan is a 'legislative instrument' for the purposes of the *Legislation Act 2003* (Cth) and as such, must be registered under that Acton the Federal Register of Legislation. Following registration the plan is tabled in each House of the Commonwealth Parliament and may be disallowed by either House on a motion moved within 15 sitting days of the House after tabling.

A management plan for a Commonwealth reserve ceases to have effect 10 years after it took effect or so far as the instrument provides otherwise, unless it is revoked earlier or replaced by another management plan for the reserve.

Control of actions in Commonwealth reserves

The EPBC Act (s 354) prohibits certain acts from being done in a Commonwealth reserve except in accordance with a management plan, and provides that in certain circumstances those acts are criminal offences (s 354A). The actions include:

- 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.

Mining operations are prohibited in the ANBG by the EPBC Act (s 355) except when authorised under a management plan.

The EPBC Regulations empower the Director of National Parks to control a range of other activities in Commonwealth reserves, such as camping, use of vehicles, littering, commercial activities and research. The Director of National Parks applies these Regulations subject to, and in accordance with, the EPBC Act and the relevant management plan. Activities that are prohibited or restricted by the EPBC Regulations may be carried out if they are authorised by a permit issued by the Director of National Parks and/or carried out in accordance with a management plan, or if another exception prescribed by reg 12.06(1) of the Regulations applies.

Access to biological resources in Commonwealth areas (which includes in Commonwealth reserves) is regulated under Part 8A of the EPBC Regulations. Access to biological resources is also managed under ss 354 and 354A of the EPBC Act if the resources are members of a native species and/or if access is for commercial purposes.

Fees and charges

Under s 356A of the EPBC Act the Director of National Parks may, with the Minister's approval, determine and impose charges for entering or using the ANBG or part of the ANBG, using services or facilities provided by the Director of National Parks in or in connection with the ANBG, and parking or stopping vehicles in the ANBG. At the time of preparing this plan, charges are in place for:

- parking
- plant identification services
- photographic services
- education services
- public programs such as school holiday and early childhood programs, and staff-guided services
- use of buildings and sites
- ANBG staff services for event and venue management.

These charges may be reviewed during the life of the plan and new charges set (see also Section 4.2, Financial sustainability).

Fees may also be prescribed by Schedule 11 of the EPBC Regulations in relation to issuing permits. At the commencement of this plan there are no fees in place under the EPBC Regulations for issuing permits at the ANBG.

Environmental impact assessment

Actions that are likely to have a significant impact on 'matters of national environmental significance' are subject to the referral, assessment and approval provisions of chapters 2 to 4 of the EPBC Act (irrespective of where the action is taken).

At the time of preparing this plan, the matters of national environmental significance identified in the EPBC Act relevant to the ANBG are:

- nationally listed threatened species and ecological communities
- listed migratory species.

The referral, assessment and approval provisions also apply to actions on Commonwealth land that are likely to have a significant impact on the environment and to actions taken outside Commonwealth land that are likely to have a significant impact on the environment on Commonwealth land. The ANBG is Commonwealth land for the purposes of the EPBC Act.

Responsibility for compliance with the assessment and approvals provisions of the EPBC Act lies with persons taking relevant 'controlled' actions. A person proposing to take an action that they think is or may be a controlled action should refer the proposal to the Minister for the Minister's decision as to whether the action is a controlled action. The Director of National Parks may also refer proposed actions to the Minister.

Flora and fauna protection

The EPBC Act contains provisions (Part 13) that prohibit or regulate actions in relation to listed threatened species and ecological communities, listed migratory species, cetaceans (whales and dolphins) and listed marine species. The EPBC Act also contains provisions (Part 13A) that prohibit or regulate the movement of wildlife specimens, ensuring that Australia complies with its obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The EPBC Act defines wildlife as an animal/specimen derived from an animal or a plant/specimen derived from a plant.

The living and herbarium collections include examples of listed threatened species in ex situ conservation and preserved as herbarium specimens.

As part of the ANBG's work, voucher specimens are often sent to other herbaria, nationally and internationally. Article VII (paragraph 6) of CITES provides an exemption from the provisions relating to regulation of trade in specimens of species included in Appendices I to III for non-commercial loan, donation or exchange between scientists or scientific institutions

registered by a management authority of their state. The EPBC Act also allows for the Minister to determine exemptions to ss 303CC, 303CD and 303DD of the Act, where the movement of the specimen is taken to be part of a registered non-commercial exchange of scientific specimens between scientific organisations.

Heritage protection

At the time of preparing this plan, the ANBG is a listed place on the Commonwealth Heritage List under the EPBC Act for the following significant heritage values:

- The ANBG has rare and endangered native plant species in cultivation in its living collection. Public gardens of this type are rare and it is the first public garden composed essentially of Australian native plants, with some related species (Criterion B).
- It is a research and teaching site with an extensive herbarium collection linked to the living plant collection; this is rare on such a scale in Australia (Criterion C).
- The site's aesthetic characteristics are valued by the community. They comprise an attractive park landscape with a well-balanced integration of spaces and form; interest from the vegetation details of the variety of native species; contrasts of small and large plants, waterform, rockform and colour; vistas of major Canberra features including Parliament House; and many attractive views across Lake Burley Griffin (Criterion E).
- The ANBG demonstrates a high degree of technical achievement with its living collection linked to the herbarium collection. It also demonstrates design excellence in construction of certain garden features, in particular the Rainforest Gully, which represents a geographic transect up the east coast of Australia, and the rockery area with its carefully contrived combination of rocks, pools and running water. The ANBG is innovative in being the first public garden composed essentially of Australian native plants with some related species (Criterion F).

The ANBG's Commonwealth Heritage values are set out in Appendix B.

In relation to Commonwealth Heritage listed places, the EPBC Act heritage protection provisions (ss 341A to 341ZH) relevantly provide:

- for the establishment and maintenance of a Commonwealth Heritage List, criteria and values for inclusion of places in the list and management principles for places that are included in the list (ss 341C, 341D and 341Y)
- that Commonwealth agencies must not take an action that is likely to have an adverse impact on the heritage values of a place included in the Commonwealth Heritage List unless there is no feasible and prudent alternative to taking the action, and all measures that can reasonably be taken to mitigate the impact of the action on those values are taken (s 341ZC)
- that each Commonwealth agency that owns or controls Commonwealth Heritage listed places must:
  - make a written plan to protect and manage the Commonwealth Heritage values of each of its Commonwealth Heritage places (s 341S)

- prepare a written heritage strategy for managing those places to protect and conserve their Commonwealth Heritage values. The strategy must address any matters required by the EPBC Regulations, and not be inconsistent with the Commonwealth Heritage management principles (s 341ZA)
- identify Commonwealth Heritage values for each place, and produce a register that sets out the Commonwealth Heritage values (if any) for each place (and do so within the time frame set out in their heritage statements) (s 341ZB).

The prescriptions in this management plan are consistent with Commonwealth Heritage management principles and other relevant obligations under the EPBC Act for protecting and conserving the heritage values for which the ANBG was declared.

The ANBG is declared National Land under the *Australian Capital Territory (Planning and Land Management) Act 1988* and developments in the ANBG require approval from the National Capital Authority.

Penalties

Civil and criminal penalties may be imposed for breaches of the EPBC Act.

Purpose and content of a management plan

The purpose of this management plan is to describe the philosophy and direction of management for the ANBG for the next 10 years in accordance with the EPBC Act. The plan enables management to proceed in an orderly way, helps to reconcile competing interests, and identifies priorities for the allocation of available resources.

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

a. assign the reserve to an IUCN protected area 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 of National Parks 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 may be 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); and

j. if the reserve includes a National Heritage Place:

   i. not be inconsistent with the National Heritage management principles; and

   ii. address the matters prescribed by regulations made for the purposes of paragraph 324S(4)(a); and

k. if the reserve includes a Commonwealth Heritage place:

   i. not be inconsistent with the Commonwealth Heritage management principles; and

   ii. address the matters prescribed by regulations made for the purposes of paragraph 341S(4)(a).

The EPBC Act (s 368(3)) also requires the Director preparing a management plan to take various matters into account. In respect of the ANBG, these matters include:

- the regulation of the use of the reserve for the purposes for which it was declared
- the protection of the special features of the reserve, including objects and sites of biological, historical, palaeontological, archaeological, geological and geographical interest
- the protection, conservation and management of biodiversity and heritage within the reserve
- the protection of the reserve against damage
- Australia's obligations under agreements between Australia and one or more other countries relevant to the protection and conservation of biodiversity and heritage.

IUCN category and zoning

As noted above, a Commonwealth reserve management plan must assign the reserve to an IUCN protected area category. In addition, a management plan may divide a Commonwealth reserve into zones and assign each zone to an IUCN category. The category to which a zone is assigned may differ from the category to which the reserve is assigned (s 367(2)).

The provisions of a management plan must not be inconsistent with the management principles for the IUCN category to which the reserve or a zone of the reserve is assigned (s 367(3)).

International agreements

This management plan takes account of Australia's obligations under relevant international agreements and the specific role that the ANBG can play in supporting national obligations under such conventions.

Convention on Biological Diversity

Australia ratified the United Nations Convention on Biological Diversity (CBD) on 18 June 1993 and the CBD came into force in December 1993. The CBD's objectives are:

- the conservation of biological diversity
- the sustainable use of its components
- 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.

The ANBG plays an important role in achieving these objectives through the implementation of the Global Strategy for Plant Conservation (Secretariat of the CBD undated) and the Global Taxonomy Initiative. The ANBG leads the negotiation, coordination and reporting of plant conservation targets and actions in Australia through its hosting of the National Focal Point for the Global Strategy for Plant Conservation. It also provides representation to the international taxonomic community through its hosting of the National Focal Point for the Global Taxonomy Initiative. More specifically, its collections and the application of skills in such areas as taxonomy, botanical research, conservation, education and awareness raising, propagation and cultivation contribute significantly to the implementation of the CBD in Australia. Articles of the CBD relevant to the ANBG include Articles 6 to 10, 12, 13, 15, 17 and 18.

Nagoya Protocol

In November 2010 Australia, as a member of the Conference of Parties to the Convention on Biological Diversity, adopted the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.

The protocol establishes a framework for access to genetic resources for research activities and for sharing the benefits from their use or the use of associated traditional knowledge. Access to biological resources in Commonwealth areas such as the ANBG is regulated under the EPBC Act and EPBC Regulations (see also Section 2.7, Access to biological resources).

United Nations Framework Convention on Climate Change

The ANBG contributes to the United Nations Framework Convention on Climate Change through the implementation of the National Strategy and Action Plan for the Role of Australia's Botanic Gardens in adapting to Climate Change. The ANBG plays an important role in coordinating a national safety net for Australia's plant species through ex situ conservation, delivering integrated and easily accessible information about Australian plant species, and increasing national community awareness of climate change and facilitating an effective response.

Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention)

The ANBG contributes to the World Heritage Convention by supporting the network of listed sites through research, plant collections, horticultural programs and educational programs.

Convention on Wetlands of International Importance (Ramsar Convention)

The Ramsar Convention is relevant to the ANBG in relation to cultivation and conservation of rare and endangered aquatic plants. To date this is an undeveloped area. However, the ANBG's expanding work in alpine-related research may lead to greater contributions to work relevant to this convention.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The ANBG and the Australian National Herbarium are scientific registered institutions under CITES. This helps facilitate scientific exchange of specimens needed to conduct taxonomic and species-conservation research. CITES Article VII (paragraph 6) provides an exemption from the provisions relating to regulation of trade in specimens of species included in Appendices I to III for non-commercial loan, donation or exchange between scientists or scientific institutions registered by a management authority of their state. This exemption covers herbarium specimens; other preserved, dried or embedded museum specimens; and live plant material that carries a label issued or approved by the management authority. The exemption applies to legally acquired plant specimens that are under the authority of the registered scientific institutions.

How the Australian National Botanic Gardens will be managed

This section outlines the process for assigning the ANBG to an IUCN category. Subsequent sections outline 4 goals for the ANBG, describe a broad management direction to be taken in the next 10 years and present prescriptions (policies and actions) to help achieve these goals.

Assigning the ANBG to an IUCN category

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 (s 367(3) of the EPBC Act).

The EPBC Act requires this management plan to assign the ANBG to an IUCN category consistent with the purposes for which it was declared. The ANBG was declared for the purposes of conservation, display and protection of flora, scientific research and education, consistent with the characteristics for IUCN protected area category IV, habitat/species management area.

The EPBC Act (s 348) requires the EPBC Regulations to prescribe principles for each IUCN category. These principles are the *Australian IUCN reserve management principles* for the category.

Of particular relevance to the ANBG is the final Australian IUCN reserve management principle (5.07) for category IV prescribed in clause 5.07 of Schedule 8 of the EPBC Regulations, which provides that::

> ... 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.

Aim

Manage the ANBG in accordance with an IUCN category that provides for appropriate use of the reserve while protecting its natural and cultural features.

Issue

An appropriate management category needs to be assigned to ensure appropriate protection, conservation and use of the reserve.

What we are going to do

Policy

The ANBG is assigned to IUCN protected area category IV, habitat/species management area, and will be managed in accordance with the management principles set down in Schedule 8 of the EPBC Regulations.

Action

Ensure that management actions are undertaken in accordance with the relevant Australian IUCN reserve management principles.

Performance indicator

The following indicator will be used under this plan to measure performance:

- Degree of management compliance with the relevant Australian IUCN reserve management principles.

SCIENCE AND RESEARCH

Goal 1: Research supports an improved understanding of Australian plants for horticulture, botany and conservation

Direction setting

In its more than 50-year history the ANBG, with partners, has developed extensive, globally renowned expertise in plant taxonomy, systematics, ecology, seed biology and horticultural science. This expertise, underpinned by well-curated scientific collections (see Goal 2), is further supported by new and established cross-sector partnerships. This combination positions the ANBG well to advance the fields of plant science necessary for conserving Australia's plant biodiversity.

The ANBG will continue to lead collaborative, multidisciplinary research that builds our understanding of plant biodiversity and conservation for regional, national and international audiences. This goal will be achieved through collaboration, chiefly through the Centre for Australian National Biodiversity Research (CANBR), a joint venture partnership between the ANBG and CSIRO. The ANBG's and CANBR's research focus on taxonomy, systematics and population ecology will support efforts to ensure Australia's biodiversity is healthy and resilient in the face of threatening processes such as climate change, landscape degradation, fires, and invasive pests and diseases.

Horticulture and seed science priorities, underpinned by living and seed collections, will focus on informing conservation management actions, particularly for rare and threatened species and ecological communities. This includes investigating the propagation requirements of Australia's unique flora and continuing research both in situ and ex situ. This will support the horticultural industry, contributing to Australia's environmental, economic and social development. The ANBG will also continue to support conservation research and management actions across Commonwealth reserves.

The ANBG will invest in building and maintaining effective research partnerships with diverse stakeholders – in particular, seeking new opportunities to collaborate with traditional owners. Combining traditional knowledge with Western science will provide a more comprehensive understanding of our native flora and its cultural importance.

The ANBG will evaluate our research programs and adapt them to meet emerging priorities, to embrace new technologies and scientific techniques, and to share knowledge with a wider audience. We will invest in building research capability and succession planning to retain and improve specialist skill sets and to foster the next generation of researchers. Through these initiatives, and building on past success, the ANBG will aspire to be a key contributor in plant taxonomy, systematics, ecological, horticultural and seed science research. The ANBG's research will continue to provide evidence based scientific outcomes informing national biodiversity and conservation related policies and programs.

Goal topics

1.1 Horticulture and seed science

1.2 Plant taxonomy, systematics and ecology

1.3 Research applications: conservation and restoration, biosecurity, natural disaster and climate resilience

Performance indicators

- Number of research collaborations (including partnerships) and diversity of collaborators
- Number of co-authored peer-reviewed publications is stable or increasing annually
- Number of applied conservation programs the ANBG contributes to through the provision of plant germplasm, expertise or practical action

Outcomes

- Increased knowledge of Australian plant biology, horticultural and germination processes relevant to storing and utilising ex situ collections or understanding species' tolerances to different environmental conditions
- Improved understanding of plant taxonomy, systematics and the evolutionary history of Australian and related floras
- Research findings influence management of biological collections, including priorities for future collections and succession planning
- Research findings directly contribute to plant conservation management actions
- Research findings contribute to biosecurity, natural disaster and climate resilience policy and program needs
- Research programs provide collaborative opportunities for training and development of tertiary students and early career researchers.
- New and enduring partnerships with diverse stakeholders' support of ANBG research programs

1.1 Horticulture and seed science

Background

The ANBG's research, in collaboration with CANBR and partners, focuses on the conservation of Australian plants, particularly through ex situ methods of seed banking and horticultural propagation. We give priority to threatened species and communities listed under the EPBC Act, species with little known biological or horticultural information, species of ecological significance and research that will contribute to improving both conservation and translocation outcomes to protect against further loss of Australia's biodiversity. This includes species of cultural and conservation priority in Commonwealth reserves.

The ANBG actively curates living plant, seed and germplasm collections as a scientific resource and maintains uniquely detailed supporting data linked to verified herbarium specimens. This enables us to manage the ANBG as a living laboratory, trialing and documenting cultivation methods for many Australian plant species. The knowledge gained contributes both to conservation and to economic opportunities in the horticultural industry. The ANBG also maintains research laboratories, glasshouses and research plots in the living collection that enable manipulative experiments to better store and utilise our germplasm (biological material for propagation) collections or understand species' likely responses to future environmental changes.

Strengthening evidence-based horticultural research – in collaboration with CANBR, other research institutions, government departments, botanic gardens, conservation agencies and community groups – will enhance the ANBG's ability to curate and utilise its living and seed collections, refine its horticultural practices and support integrated approaches to conservation.

The ANBG's research and applied horticultural outcomes have been used by the horticultural industry, conservation agencies, community groups and individuals working in land care and conservation. Our ongoing research programs will therefore make important contributions towards Australia's economic and social wellbeing.

Aims

- Build a scientifically rigorous horticultural and seed science program that addresses the cross-cutting priorities of the ANBG, Commonwealth reserves and research collaborators and is responsive to emerging conservation priorities.
- Share knowledge of the cultivation of Australian plants and their sustainable use through public access to research results.
- Share knowledge of the seed biology and ecology of Australian plants through publication of research results.
- Build effective research partnerships that advance horticultural and seed science, and apply research findings to conservation management actions.
- Define the need for a commercial plant release program and, if necessary, develop a business case to test its value to the ANBG.

Issues

- The demand for collaboration in horticultural and seed science is greater than the available capacity, particularly facilities and equipment.
- Growth in programs and partnerships requires associated growth in business administration support.
- The ANBG's horticultural science needs promotion to raise our profile as a scientific institution in the botanical and scientific communities, in the Australian Government and more broadly.
- Better documentation of horticultural practices and research findings will help us retain and build corporate knowledge, inform planning and management of the living collection and inform future priorities.

- The ANBG needs careful, long-term succession planning in horticultural and seed science and conservation.
- Wild collecting is not suitable for some species and their ex situ conservation will require alternative seed or plant sources.
- Ex situ conservation methods need to be customised for some rare plant species that may not be suitable for conventional seed banking or horticulture.

What we are going to do

Policies

1.1.1 The ANBG will prioritise horticultural and seed research projects with consideration of:
- the broader policy context and priorities of the ANBG, CANBR and other research partners
- identified gaps in knowledge of Australian and related plants, and conservation priorities.

1.1.2 The ANBG will review, develop and implement recommendations relating to its curatorial framework, with a focus on developing a 5-year living collection plan that links with the research strategy.

Actions

1.1.3 Conduct rigorous horticultural and seed research that contributes to knowledge of Australian plants and their conservation.

1.1.4 Continue an active field collecting program to enhance the ANBG's living collection and seed bank, to support integrated conservation approaches.

1.1.5 Trial new and refine existing propagation techniques to bring new species into cultivation.

1.1.6 Conduct targeted research to understand:
- how to conserve seed and other plant germplasm long term
- what drives germination of native seeds
- how early life history traits influence plant responses to environmental stress.

1.1.7 Investigate new research techniques and approaches that apply horticulture and seed science outcomes to conservation challenges, for example integrated ex situ conservation techniques, translocation, restoration, seed production areas, and protocol proofing.

1.1.8 Build and maintain effective research partnerships and collaborations to enhance horticultural and seed science.

1.1.9 Seek funding opportunities to support horticultural and seed research.

1.1.10 Document and disseminate research findings and applied horticultural knowledge through open-access publications and databases.

1.2 Plant taxonomy, systematics and ecology

Background

The organisational integration between the ANBG and CSIRO through CANBR has enabled a unique opportunity for world-leading botanical research. CANBR was formed in November 1993 as a joint venture partnership between CSIRO and the Director of National Parks (specifically through the ANBG). The ANBG and CANBR bring together the research programs, scientific collections (see Goal 2), databases, expertise and collaborations needed to sustain an Australian plant knowledge hub, which is critical for meeting the needs of Australian governments and their policy and program partners.

CANBR's major function is to document Australia's biological diversity through establishing the taxonomic identity and relationships of native plants, their geographic distribution and their ecological relationships. CANBR's systematics and evolution program helps determine the diversity, distribution, interrelationships and genetic composition of the Australian and related floras. CANBR biodiversity informatics systems and services enable the capture and analysis of associated research data, ensuring it becomes readily accessible to support further research and applications (see also Section 2.6, Botanical databases).

Through its research, CANBR aims to contribute to basic and applied teaching through educational resources, training programs and other outreach programs. It aspires to produce tangible, acknowledged results that contribute towards improved conservation management policies and programs for Australia's ecosystems.

The joint venture partnership has built a strong national and international reputation for research excellence, particularly in the fields of taxonomy, systematics, conservation ecology and biodiversity informatics. Together the ANBG and CANBR will continue to build on these strengths, adding ongoing value through expertise, facilities, new opportunities and partnerships.

Aims

- Earn recognition for CANBR, in partnership with the ANBG, as a national centre of research excellence by:
  - making significant contributions to a greater understanding of the taxonomy, systematics, biogeography and evolutionary origins and distribution of major groups of Australian flora and their relatives, fungi and lichens, and the broader ecological role these play
  - exploring opportunities that bring together traditional biological and ecological knowledge with Western science
  - presenting biodiversity knowledge that informs the conservation and sustainable use of researched taxa.
- Through research undertaken at the ANBG and CANBR, raise our profile in the scientific community, in the Australian Government and more broadly.

Issues

- Scientific research needs to be strengthened through acquisition of additional resources and partnerships.
- CANBR needs to build greater institutional capacity in taxonomy and systematics, including through careful, long-term succession planning of research and technical expertise.
- Research priorities and projects would benefit from better integration across the joint venture.

What we are going to do

Policy

1.2.1 We will ensure alignment between the ANBG, CANBR and National Seed Bank strategic and management plans by developing a research strategy that addresses research priorities, succession planning, partnerships and strategies for securing additional funding.

Actions

1.2.2 Deliver on the CANBR Agreement (2022–2032), between CSIRO and the Director of National Parks.

1.2.3 Conduct novel research into the taxonomy, systematics and ecology of Australasian plants, fungi and lichens to continue building our collective biodiversity knowledge.

1.2.4 Disseminate biodiversity data, information and knowledge through a diverse range of academic publications and open-access, non-academic media according to agreed guidelines.

1.2.5 Conduct targeted research and field sampling of taxa and geographic areas that are understudied, are taxonomically unresolved or are of conservation concern.

1.2.6 Produce and disseminate authoritative taxonomic data to inform decision-making for research, policy and land management, including biosecurity threat and climate change responses in Australia.

1.2.7 Continue to contribute CANBR data to the Atlas of Living Australia, the Global Biodiversity Information Facility and other relevant data exchange partnerships for systematic, biological and conservation-based research.

1.3 Research applications: conservation and restoration, biosecurity, natural disaster and climate resilience

Background

The ANBG, together with CANBR, recognises the critical importance of conserving plant diversity and of threatened plant species management. The 2 organisations in partnership will continue to undertake scientific research with a strong focus on practical outcomes that will help conserve Australia's biodiversity. This includes investigating the increasingly complex factors that affect the maintenance, loss and restoration of biodiversity; evolutionary and ecological processes that contribute to diversity; and conservation requirements of individual species and ecological communities.

Botanic gardens have an increasingly prominent role in the long-term preservation and recovery of plant species, primarily through the collection and management of 'insurance' plant material ex situ, their associated scientific and horticultural expertise, and their ability to apply these skills to translocation, restoration and environmental monitoring. Conserving Australia's native plant species and threatened ecological communities requires concerted effort, and the ANBG (including CANBR) strives to be a major contributor at regional, national and global levels. The ANBG has previously conducted much of this work in partnership with Commonwealth mainland and island reserves, the Australian Alps and other regions. This work will continue, helping to secure a diverse range of threatened plant species.

The ANBG, in partnership with CANBR and others, will continue to build a rigorous conservation-focused research program that informs direct management actions. Future research and applied conservation priorities will build on organisational expertise in particular taxonomic groups, population ecology, rare and threatened species, alpine flora, and seed banking and horticultural research. This effort will continue to provide fit-for-purpose information for policies, programs and activities integral to the maintenance of Australia's biodiversity – including the management of current and future biosecurity threats – preparing for and responding to natural disasters and plant adaptation to our changing climate.

Aims

- Build and maintain expertise in the conservation and sustainable use of Australia's plant biodiversity and plant responses to environmental change.
- Build a rigorous research program that generates knowledge required for effective conservation management actions.
- With CANBR, collaboratively assist Australia's capacity to undertake conservation and rewilding for biodiverse and resilient ecosystems.
- With CANBR, apply expertise and research findings to help secure threatened species in Commonwealth reserves and in the local region.
- Where possible, develop conservation actions in consultation and partnership with other botanic gardens, local Indigenous custodians, land managers and other stakeholders.
- Increase the depth and diversity of our genetic material to maximise utility for research and conservation applications.

Issues

- The ANBG needs to build greater institutional capacity to meet growing demand for conservation research and to enable succession planning.
- We need to better understand the adaptation of Australian flora to current and future threats.
- The pace of environmental and climatic change is challenging and presents new and emerging threats to Australian plant conservation.
- The ANBG should attract more partners and resources by better publicising outcomes of its conservation research.

What we are going to do

Policies

1.3.1 The ANBG will establish cross-organisational research priorities that inform conservation management action, including through a new 5-year living collection plan and research strategy and the National Seed Bank Strategy 2020–2025.

1.3.2 We will publish and revise the ANBG Conservation Policy every 5 years.

1.3.3 We will actively support the Parks Plant Conservation Strategy, providing expertise and effort to achieve collaborative conservation outcomes in Commonwealth reserves.

Actions

1.3.4 Identify knowledge gaps and priorities for ecosystems, habitats and species where conservation research will effectively contribute to sustaining evolutionary and ecological processes of Australia's biodiversity.

1.3.5 Develop conservation actions that:

- are underpinned by innovative, sound and robust knowledge
- are strategic, innovative, coordinated and collaborative
- are adaptive and responsive to new information
- engage the community and encourage participation in conservation actions.

1.3.6 Work collaboratively with parks, gardens and biosecurity managers to develop and implement integrated conservation actions that help address biosecurity threats in parks and gardens and in natural environments.

1.3.7 Work collaboratively with parks, gardens, peak bodies and land managers to develop and implement integrated conservation actions that help address the impacts of natural disasters (such as floods and fires) and of climate change.

1.3.8 Work to prioritise publications that inform partners and end users about outcomes from our conservation research.

COLLECTIONS AND KNOWLEDGE MANAGEMENT

Goal 2: Develop, manage and curate world-class physical and digital collections, providing information and knowledge about Australian plants

Direction setting

The ANBG manages a number of nationally significant scientific and cultural collections, which together contribute significantly to our knowledge, understanding and appreciation of Australia's plants. The living horticultural and seed collections are linked to herbarium, image, library and specialised genetic collections through our comprehensive data systems. The data and information from these physical and digital collections is used for a wide range of research, policy and program applications – both nationally and globally.

As in previous decades, the ANBG will continue to curate its living plant and National Seed Bank collections as important representations of Australia's unique plant diversity. Several parts of the collection are displayed to illustrate ecosystems and landscapes, such as the Rainforest Gully and the Red Centre Garden. Increasingly, conservation will influence the development of the living collection and seed-banking priorities.

As part of CANBR, ANBG staff will contribute to the development and management of the collections of the Australian National Herbarium (ANH). The ANH is a nationally focused scientific collection documenting the diversity of the Australian flora (and the flora of neighbouring countries). It underpins taxonomy, systematics, conservation ecology and other forms of research undertaken at the ANBG and CANBR. The ANH also maintains reference vouchers for the living plant, seed bank and image collections – allowing changes in botanical understanding over time to be reflected through all linked collections.

Genetic resources are held in several ANBG and CANBR collections. Increasingly these resources are called upon for national and international research projects and conservation activities.

The ANBG's library and archive maintains many important books, journals and artworks that document Australia's natural heritage and the history of the ANBG.

Collection managers will strive to find ways to promote and make greater use of the various collections held by ANBG and CANBR, while taking care to ensure their intrinsic values are not compromised. There will be a greater emphasis on using the collection to connect people with plants through various display, design and communication techniques, and we will encourage learning at all ages.

Together the ANBG's many individual collections form a unique, integrated national collection that needs to be carefully maintained and further developed over the coming decade. These collections will allow the development of an improved understanding of Australia's biodiversity, emerging biosecurity threats, the impacts of climate change, and conservation and restoration.

Goal topics

2.1 Living collection

2.2 Seed collection

2.3 Herbarium collection

2.4 Image collection

2.5 Library and archive collection

2.6 Botanical databases

2.7 Access to biological resources

2.8 Genetic resources

2.9 Climate change impacts

2.10 Remnant vegetation and wildlife management

Performance indicators

- Annual audits of the curatorial standards of each of the collections indicate a high degree of compliance with collection policies and curation standards
- There is an increase in the percentage of known Australian plants represented in the collections
- There is an annual increase in the use of our botanical data systems and data

Outcomes

- The collections are maintained to high curatorial standards
- Our national botanical collections contribute to safeguarding Australian plant species from extinction
- The ANBG is an accessible authoritative source for information about Australian plants
- The expanded National Seed Bank facilitates development of the ANBG's seed science capabilities and their application

2.1 Living collection

Background

The living collection, including the plants growing in the garden and nursery, is one of the ANBG's most important assets. It is the world's largest living collection of Australian plants and is largely wild sourced and scientifically documented with voucher specimens stored at the ANH. The collection reflects Australia's plant diversity and represents around one-third of known flowering plant species that occur in Australia. This provides an important resource for conservation management, science and learning and makes a significant contribution to botanical and horticultural knowledge. The collection is currently displayed according to several themes including taxonomy, ecology and geography, horticulture, conservation, Indigenous culture and practices, and mixed plantings for general aesthetic effect.

The ANBG will continue to give high priority to working cooperatively with various organisations on biodiversity conservation. We will maintain existing collaborations and build new relationships by hosting such organisations as the Australian Network for Plant Conservation, the Australian Seed Bank Partnership, Botanic Gardens Australia and New Zealand Incorporated, and the department's Australian Biological Resources Study.

Under ss 354 and 354A of the EPBC Act, a person may not kill, injure, take, trade, keep or move a member of a native species except in accordance with a management plan. The EPBC Regulations also prohibit taking animals and plants into the ANBG, and cultivating plants in the ANBG, except with the approval of the Director of National Parks.

Certain actions in relation to members of species listed under Part 13 of the EPBC Act are prohibited, except when carried out in accordance with a management plan or authorised by a permit issued by the Director.

Aims

- Manage and build the living collection in line with the ANBG's curatorial framework and international curatorial standards. We will prioritise new collections to support collaborative conservation and research activities.
- Encourage the use of the living collection for scientific research and education.
- Increase the ANBG's horticultural research capability.
- Maintain current and comprehensive living collections data.
- Share knowledge about the living collections, including advances in horticultural practices.
- Manage the health of the ANBG collections, with minimal impact from weeds, invertebrate pests, and pathogens.
- Eradicate detrimental incursions as quickly and cost-effectively as possible.
- Transfer living material in and out of the ANBG in a way that minimises and mitigates the risk of collections becoming weeds of concern, and the potential transfer of pests and diseases.

Issues

- The ANBG curatorial framework needs to consider advances in relevant plant science, including genetics and conservation research.
- Further work is required on the proactive management of known biosecurity threats to the living collection, including pests, weeds and diseases.
- We need to maintain and manage all trees, including those that naturally occur on the site and those introduced from other parts of Australia, for their conservation value and public safety.
- The curatorial framework needs to consider decision-making for prioritising resource investment – for example, whether new collections of rare and threatened species should increase the total number of species or increase the diversity of particular species represented ex situ.

What we are going to do

Policies

2.1.1 The ANBG will manage the living collection to high curatorial standards in accordance with our curatorial framework, and develop the collection to display a representation of Australia's flora.

2.1.2 The ANBG will develop and implement and document best practice horticultural management based on scientific knowledge, on-site experimentation, sustainable horticultural practices and staff expertise. We will facilitate benchmarking of horticultural practices through botanic gardens industry groups such as the Council of Heads of Australian Botanic Gardens and Botanic Gardens Australia and New Zealand Incorporated.

2.1.3 Priorities for new collections and research will be informed by the shared priorities of the ANBG and CANBR, collaborative conservation and research programs, and relevant Australian Government policies and strategies.

2.1.4 The ANBG will protect the living collection from damage through documented integrated pest management programs.

2.1.5 The Director of National Parks may take, or issue permits to take, actions concerning native species (including species listed under Part 13 of the EPBC Act) that are otherwise prohibited by the EPBC Act where they are necessary to implement this plan or to preserve or protect the ANBG, protect or conserve biodiversity, or protect people or property.

2.1.6 Organisations and individuals may carry out research on and monitoring of the living collection, including taking actions covered by ss 354 and 354A and Part 13 of the EPBC Act either:

- in collaboration with the Director of National Parks, under an agreement
- in accordance with a permit issued by the Director of National Parks.

2.1.7 The ANBG will encourage and support relevant research and monitoring. Permits authorising research and monitoring will be issued in accordance with the requirements of the EPBC Regulations. The Director may authorise research and monitoring if the activity is consistent with this plan, including if the research and monitoring activity: will not threaten the conservation status of a species or ecological community; will not adversely impact upon the ANBG values; and whether the research activity can reasonably be done outside the ANBG.

Actions

Plant records

2.1.8 Maintain accurate and comprehensive living collections data to support research, accessibility of horticultural information and integrated conservation management.

2.1.9 Maintain and improve plant labelling and record keeping of the living collection in accordance with the ANBG Living Collection Policy and operational guidelines. Complement labelling through thematic interpretation of selected collections.

Collection management

2.1.10 Bring new plants into the living collection according to priorities established in the curatorial framework, including the Living Collection Policy. This may include plants propagated in the National Seed Bank (see Section 2.2), plants acquired through collaborations with reputable partners, and plant material sustainably collected from wild populations.

2.1.11 Work with the National Seed Bank, CANBR and partnering organisations to investigate the propagation requirements and growing conditions of Australian native plant species.

2.1.12 Update the following strategies every 5 years:

- The Living Collection Policy and the Conservation Policy
- A succession plan for the acquisition and retirement of plants in the living collection
- The Tree Management Strategy, including a succession replacement plan and a maintenance program for monitoring tree health and human safety
- Clear protocols for relevant stakeholders to follow when receiving or supplying living material to and from third parties.
- A biosecurity strategy for monitoring plant health and documenting any identified pests or diseases.
- A site-wide pest management strategy that complies with legislation, policy and integrated pest management principles.

2.2 Seed collection

Background

The National Seed Bank, located in the ANBG, holds living seed and germplasm (such as spore) collections of Australian native plant species from all over the country. The National Seed Bank specialises in collections of alpine and grassland species from south-eastern Australia, and species from Australia's Commonwealth terrestrial reserves, a point of difference in the seed-banking sector. The collection is geographically comprehensive (at a continental scale), with temporal depth (from the early 1960s onwards) and significant taxonomic breadth (numerous families, genera and species).

Our seed bank and germplasm collections will be made and stored for long-term preservation. This will allow the collection to be available for scientific research and for supporting land management and in situ conservation actions.

Aims

- Increase the seed and germplasm storage capacity and capabilities for conservation insurance (against extinction), exchange and research purposes.
- Increase the species richness and genetic diversity of seed and germplasm held in the collections.
- Increase and share knowledge of the seed biology of Australian native plants, to inform conservation management actions and ecological research.

Issues

- Collection targets drive a significant part of National Seed Bank work. The curation and management of these living collections and their associated data is a significant requirement, necessary to achieve the best conservation outcomes from our collecting efforts.
- Strategic planning and ongoing resourcing are required to adopt new technologies, equipment, manage data and operate a new facility management.
- Conservation of non-seed species is increasingly required.
- Some species are challenging to store in the seed bank (e.g. plants with unorthodox seeds not suitable for storage) or cannot be sustainably collected from wild populations (e.g. have low seed production in the wild).

What we are going to do

Policies

2.2.1 The collections will be curated in accordance with the National Seed Bank Strategy 2020–2025, which guides long-term germplasm collection management.

2.2.2 Priorities for new collections and research will continue to focus on alpine and grassland species, and species represented in Australia's Commonwealth terrestrial reserves.

2.2.3 Other collection priorities will be informed by the shared priorities of the ANBG and CANBR, collaborative conservation and research programs such as the Australian Seed Bank Partnership, and Australian Government policies and strategies.

Actions

2.2.4 Transition to a new National Seed Bank facility that expands seed storage and research capabilities.

2.2.5 Continue making research-driven and insurance seed collections for priority species and communities, to meet collection targets. Strategically undertake additional (non-target) collecting from time to time to support emerging research and conservation priorities.

2.2.6 Optimise seed processing and data collection workflows.

2.2.7 Integrate new data acquisition, such as digital imaging of collections, within existing linked ANBG data systems.

2.2.8 Implement and maintain a viability testing program, in line with international seed-banking standards.

2.2.9 Conduct research and collection management to enable conservation of 'exceptional species' through non-seed germplasm or seed production. This may be achieved in collaboration with the living collection, e.g. through vegetative (non-seed) propagation.

2.3 Herbarium collection

Background

CANBR's Australian National Herbarium (ANH) is a scientifically defensible, irreplicable and readily accessible record of Australasian plant biodiversity over more than 2 centuries. Jointly managed by the ANBG and CSIRO through CANBR, the ANH collections are located at CSIRO Black Mountain (vascular plants) and the ANBG (non-vascular plants and fungi).

ANH collections data are linked through the ANBG's botanical databases (see Section 2.6) to the living collection, to the seed bank and to related data systems and applications such as the Australian Plant Image Index (APII). The ANH's herbarium specimens provide important ongoing vouchers. These allow us to maintain linked collections, such as the living plants of the ANBG garden collections, in accordance with our existing and future understanding of Australia's plant heritage.

Aims

- Through the ANH, grow our national and international role and impact as a leader in collections management, specimen-based research, and digital data content and delivery through 3 key themes:
  - collection scope and integrity
  - intensifying data and digital collections exposure
  - innovative and collaborative applications of herbarium data.

Issues

- Physical storage of the herbarium collection and associated buildings needs to be regularly assessed, especially the current separation of collections and staff across 2 sites.
- The CSIRO New Collections Accommodation project is a significant development within the first 5 years of this plan (2022–2026). It will require a broad range of ANH operational changes that will need careful transition management.
- A new collections management system needs to be developed and implemented to significantly improve data capture and management. Care will be needed to manage the transition to avoid loss of functionality/applicability to ANBG, especially for the linked living and genetic collections.
- ANBG and CANBR need to monitor the impact emerging technologies may have on ANH collections management, including:
  - artificial intelligence and machine learning
  - the Herbarium Digital Imaging Project
  - less disruptive incremental advancements aimed at improving efficiency (e.g. improved field book data capture).

What we are going to do

Policies

2.3.1 Herbarium collections will be maintained to high archival standards in secure, environmentally controlled buildings, and curated to contemporary taxonomic standards.

2.3.2 The ANH will provide scientific authority, including reliable and verifiable scientific names, for the ANBG living collection, the seed bank and the APII.

2.3.3 The broad representation of Australian and related floras in the ANH, both taxonomically and geographically, will be maintained and further developed with a focus on vascular plants, non-vascular plants, macrofungi and lichens.

2.3.4 The ANH will provide a plant enquiry and identification service. Charges may apply for services provided to professional or commercial individuals or organisations.

2.3.5 Promote the use of genetic material from the ANBG living collection to support research. The value of this material is reliant on the ANH collection's high-quality provenance data (see also Section 2.8).

2.3.6 Maintain existing and develop new Australasian herbarium policies and procedures collaboratively through the Council of Heads of Australasian Herbaria (CHAH).

Actions

2.3.7 Contribute ANH collections and data towards projects undertaken by ANBG and CANBR staff, collaborative researchers and other research, policy and program requirements.

2.3.8 Augment the taxonomic, spatial and temporal representation of the ANH collections, aligned with ANBG and CANBR priorities.

2.3.9 Apply new technologies to specimen workflows, helping to improve efficiencies, reduce manual handling and increase specimen and data accessibility.

2.3.10 Reduce ANH legacy collections backlog.

2.3.11 Make ANH 'dark matter' collections and data more readily accessible for users (e.g. orchid cards, line drawings, data sheets, photographic images).

2.4 Image collection

Background

ANBG image collections are managed through the CANBR partnership. The APII, which is the largest of these collections, is a valuable national and international resource for images of Australian plants in the wild and in cultivation. The non-plant portions of the collections provide a visual record of the development of the ANBG from its earliest days.

Most new images are now received in a born-digital format but there is a significant legacy collection of physical materials including 35-millimetre transparencies, photographic prints and negatives, line art, botanical illustrations and other media. APII images and the associated metadata are made available online through the ANBG and CANBR websites.

APII images support the management of ANBG collections, research, education and outreach. APII contains a growing photographic record of Australia's plant species diversity and ecological communities.

Aims

- Develop, maintain and preserve the image collections as an authoritative source of images of the Australian flora and the development history of the ANBG.
- Digitise an increasing proportion of images and make them available online with associated metadata.
- Link the image collection effectively to other ANBG and CANBR collections and to national and international partnerships.
- Make images readily accessible to both internal and external users under appropriate licensing arrangements.

Issues

- Ongoing digitisation of the image collection is desirable to increase accessibility and to improve long-term storage conditions for images. This requires adequate resourcing.
- Copyright conditions have become increasingly complex over time, due to the wide range of original image sources and varying permissions given by photographers. This complicates licensing images for use by third parties.

What we are going to do

Policies

2.4.1 The ANBG will store images under appropriate archival conditions for access, use, management and preservation.

2.4.2 Priority will be given to incorporation of images associated with and linked to:

- ANH herbarium specimens
- other herbaria in the Australasian Virtual Herbarium network
- plants in the ANBG living collection
- images with an equivalent quality of associated metadata.

2.4.3 The ANBG will continue to accept donations and bequests of images, with a strong preference for images that are linked to herbarium voucher specimens or are supplied by clients under Creative Commons (or equivalent) licensing arrangements.

2.4.4 The ANBG will opportunistically explore agreements with the holders of other image collections to enable reciprocal use of images.

Actions

2.4.5 House the physical collections in optimal archival conditions for preservation, including adequate space provisions.

2.4.6 Increase digitisation of the legacy collection to minimise the need for physical handling and access.

2.4.7 Make the digital image collection available online via the ANBG and CANBR websites and through national and international initiatives such as the *Flora of Australia*.

2.4.8 Build and maintain both the physical and digital collections of images to support the scientific and educational roles of the ANBG and CANBR.

2.5 Library and archive collection

Background

The ANBG library and archive collections are a comprehensive resource for research on topics relating to Australian botany and horticulture. They also play a significant role in preserving the historical record of a national institution, from the initial planning to the present. The library's physical holdings incorporate scientific and popular literature in a wide range of formats, multimedia materials, the ANBG's collection of artworks, and a collection of rare books and special editions.

The library resources and services are an integral part of the ANBG and support the specialist work of ANBG and CANBR staff and volunteers. The library also provides important services to the wider department, other botanical and research institutions, visiting researchers and members of the public.

Aims

- Provide timely and high-quality library information services and resources that support the ANBG's mission.
- Develop, maintain and preserve the library and archive collections in order to ensure their ongoing use and significance.
- Collect and appropriately archive relevant records and historical material related to the ANBG's development.

Issues

- We need to maintain the relevance of the ANBG library in the context of Parks Australia, other departmental libraries and CSIRO.
- Storage requirements for the ANBG library will increase as the collection develops.

What we are going to do

Policies

2.5.1 Management of the ANBG library and archives will be consistent with industry best practice and, so far as possible, complement that of other Australian Government libraries.

2.5.2 The library and archives will be maintained and managed at the ANBG site, with the collection reflecting the thematic focusing on:

- the living and herbarium collections
- conservation and horticulture of the Australian and related flora
- education about biodiversity and the Australian environment.

2.5.3 The ANBG library and archives will support networks for loans and exchange of information with the CSIRO Black Mountain Library, libraries of other major botanic gardens and Libraries Australia's document delivery service, and through membership of the Council on Botanical and Horticultural Libraries.

Actions

2.5.4 Provide library services to clients in a timely and efficient manner and promote the library collections and services to new and existing users.

2.5.5 House the physical collections to ensure material is readily available for clients while also being preserved in optimal conditions.

2.5.6 Build and maintain an appropriate collection of books, journals, maps, artworks and electronic resources that supports the scientific, horticultural and educational roles of the ANBG and CANBR.

2.5.7 Enhance, maintain and use cooperative links with libraries and user groups currently in the Agriculture, Water and Environment portfolio and other relevant institutions.

2.5.8 Register, catalogue, preserve and maintain selected material relevant to the ANBG's history as a permanent archive.

2.6 Botanical databases

Background

The ANBG's Biodiversity Informatics team supports the ANBG, CANBR and partners in their management of scientific collections by enabling the entry, curation, presentation and analysis of associated data. Managed through the Integrated Botanical Information System (IBIS), these data link ANBG and CANBR collections as Extended Specimens. IBIS brings together data, processes and services to support the management of preserved herbarium specimens, ANBG living and seed collections, genetic samples and image collections.

The Biodiversity Informatics team also enables the ANBG, CANBR, Parks Australia (specifically the Australian Biological Resources Study) and national and international partners to maintain and enhance up-to-date names and taxonomic databases.

Aims

- Maintain and enhance comprehensive scientific applications and databases for the ANBG and CANBR collections to facilitate curation, operational management and research.
- Ensure integration between ANBG and CANBR collections to create consistency and minimise duplication through effective data and process management strategies.
- Employ contemporary information management technology to provide effective infrastructure and tools to manage and disseminate biodiversity information for use by governments, researchers and the community.
- Lead and partner in vendor-supplied business solutions appropriate to botanical data systems and exchange.

Issues

- The scope of applications developed and managed by IBIS requires balancing 'business as usual' support (to keep applications technically up to date and fix issues) against the delivery of new functionality and capacity.
- The business knowledge underpinning the applications IBIS maintains is increasingly complex and specific to the biodiversity domain.
- Access to appropriate technical skill sets to maintain systems is challenging. Critical succession planning is essential for ensuring long-term, sustainable support for the business needs of the ANBG, CANBR and collaborative partners.
- The move to cloud-based hosting and support requires adequate ongoing infrastructure, hosting and support resourcing.

What we are going to do

Policies

2.6.1 Under the CANBR Agreement, the ANBG and CANBR will be jointly responsible for, or for contributing to, coordinating, maintaining and updating important national botanic databases developed by the ANBG, other relevant departmental biodiversity programs and CSIRO.

2.6.2 ANBG and CANBR data collections will be managed in accordance with national and international collaborations (e.g. CHAH, the Atlas of Living Australia and the Catalogue of Life) and standards (e.g. Darwin Core) for the effective management and sharing of botanical information.

2.6.3 The ANBG will contribute expertise and concepts that aid in the design and implementation of national and international systems and biodiversity data exchange standards.

Actions

2.6.4 Maintain IBIS on a stable, supported, cost-effective platform for all scientific systems and data collections.

2.6.5 Enhance ANBG living collections system capacity to better enable horticultural collection curation and strategic policies (see also Section 2.1).

2.6.6 Optimise seed collection data workflows (see also Section 2.2).

2.6.7 Integrate new seed data acquisition, including the digital imaging of seed collections, with linked ANBG data systems (see also Section 2.2).

2.6.8 Work with CSIRO to deliver a new collections management system for herbarium-associated data (see also Section 2.3), including integration with other ANBG and national collections.

2.6.9 Work with CSIRO to digitally connect high-resolution (digitised) herbarium specimen images to relevant ANBG collections.

2.6.10 Deliver a digital asset management system as a scientific image depository for ANBG, CANBR and partners (see also Section 2.4).

2.6.11 Provide web services for ANBG and CANBR to agreed Australian taxonomic concepts, through the National Species List and associated databases.

2.7 Access to biological resources

Background

Access to biological resources in Commonwealth areas is regulated under Part 8A of the EPBC Regulations. If the biological resources are native species or the access is for commercial purposes, it is also covered by ss 354 and 354A of the EPBC Act. Taking, keeping or moving a member of a native species is prohibited under the EPBC Act, except when carried out in accordance with a management plan or authorised by a permit issued by the Director of National Parks. The purpose of accessing material must be consistent with the aims of the ANBG and not compromise research being conducted at the ANBG or CANBR.

Before the ANBG supplies material, the recipient must sign an agreement in which the purpose is described and the recipient agrees to use the material for that purpose only and not pass it on to a third party without permission from the ANBG. A permit is also issued.

Where the ANBG supplies material for use outside Australia, it does so in compliance with the Convention on International Trade in Endangered Species (CITES). Accordingly the ANBG only supplies CITES-listed material to institutions that are similarly registered under the facilitated scientific exchange system.

Aims

- Ensure that information regarding the release of biological material is current, relevant and accessible to the public and staff.
- Enable staff to easily access publications and reports arising from the use of biological material for research purposes.
- Develop an online fit-for-purpose permit application and management system.

Issues

- Building awareness of the value of the ANBG living collection and other biological resources could help to raise our profile nationally and in the Australian Government.
- Biological resource material that the ANBG acquires needs to meet high standards of scientific integrity and ethical and legal standards related to provenance (including prior informed consent and mutually agreed terms).

What we are going to do

Policies

2.7.1 The ANBG will encourage and facilitate access to its living collection and other biological resources for scientific research and conservation applications, in a manner that is consistent with Australia's international obligations and with legislative requirements.

2.7.2 Fees may be charged for release of plant material in accordance with Schedule 11 of the EPBC Regulations (see also r.18.03 of the EPBC Regulations).

2.7.3 Acquisition of biological resources for the ANBG collections will be on mutually agreed terms, with prior informed consent, and the material will be used in a manner consistent with the agreed terms.

2.7.4 The ANBG will not acquire biological resources from organisations or individuals that do not meet the requirements of the EPBC Act and Regulations (where applicable) and international obligations.

2.7.5 Access will be given to biological resources in accordance with Part 8A of the EPBC Regulations (where applicable), including the conditions of any exemption from Part 8A, and in accordance with international obligations.

2.7.6 Reports and publications arising from the use of biological material will be obtained, recorded and stored in a location accessible to staff.

2.7.7 Visiting scientists, scientific associates, ex-staff and other professionals may be provided with access to the collections and facilities to undertake research, to study, and to collect plants for the living and herbarium collections.

Actions

2.7.8 Maintain best practice procedures to facilitate access to the living collection and other biological resources in accordance with international obligations and relevant legislative requirements.

2.7.9 Develop and/or adopt guidelines for assessing the provenance and scientific integrity of biological resource material to be accepted into the ANBG collections.

2.7.10 Develop, and make readily available, clear and transparent procedures consistent with international obligations and legislative requirements for the provision of biological resources for research, including at the genetic and molecular level.

2.7.11 Develop agreements requiring that the use of the ANBG collections and other biological resources from the site is recognised and acknowledged and that the ANBG is kept informed of relevant publications, data and research activities.

2.7.12 Enter into benefit-sharing agreements where access to ANBG biological resources is for commercial purposes or potential commercial purposes.

2.8 Genetic resources

Background

Many of the ANBG's and CANBR's collections are biological and therefore contain genetic material. Our preserved collections can be appropriate for genetic research. Our living collections can be used to generate material for genetic research and breeding programs.

The genetic resources of the ANBG's living collection, the National Seed Bank's seed collections and the Australian National Herbarium's specimens and other genetic samples are maintained and made available as part of Extended Specimens for researchers. Over recent years, the number of requests to access the diverse and in some cases extremely rare genetic material available through the ANBG has increased, especially from international researchers.

The ANBG's collections have played an important role in understanding seed germination, taxonomy, systematics, and the health and viability of wild plant populations. The utility of these genetic resources is growing. Traditionally research in this area has focused on relationships among species and with increasing tools and reduction in costs there is greater focus on within-species patterns e.g. population structure. Therefore, we are working to increase the genetic diversity that is represented in ANBG's ex situ collections, and through management of collections as maternal lines to enable more conservation uses and outcomes. Horticulturally genetics has proven important for attractive cultivar form selections (e.g. the Purple Paramour form of *Banksia robur*) and for selecting more robust genetic stock for propagation and ex situ conservation.

The ANBG has adopted the Common Policy Guidelines for Participating Institutions: Principles on Access to Genetic Resources and Benefit-Sharing to guide it in providing access to biological material and sharing benefits arising from the use of that material. The ANBG makes efforts, where possible, to share benefits from the use of genetic resources with the owners of the land from which the original material was obtained. The benefits may be non-monetary or monetary (in the case of commercialisation).

Aims

- Through partnership with CANBR:
  - link our many genetic resources, as IBIS Extended Specimens, to allow for more consistent curation and record keeping
  - promote these genetic resources and make them available for a wide range of research projects and conservation outcomes
  - strategically link and expand our genetic resource collections with national and international collaborative efforts (e.g. the Genomics of Australian Plants initiative working with CHAH).
- Make greater efforts to share the benefits arising from the use of biological material with the owners of the land from which the material came, and foster expertise in this area for relevant staff.

Issues

- Genetic sequencing and data storage can be resource intensive. We need to grow these capabilities through CANBR. Staff and associated researchers need training and skill development to more effectively collect, document and curate genetic collections and their associated data.
- Where the benefit from the use of genetic resources is monetary, the ANBG needs to fairly and equitably share this with landowners. Identifying relevant landowners for legacy collections can be challenging.

What we are going to do

Policies

2.8.1 The ANBG will collect, manage and curate its genetic resources in accordance with specific best practice policies and guidelines (e.g. *Genebank Standards for Plant Genetic Resources for Food and Agriculture 2014, Plant germplasm conservation in Australia 2021*).

2.8.2 The ANBG will encourage and facilitate access to its genetic resources for a broad range of research and conservation outcomes, in a manner that is consistent with Australia's international obligations and relevant legislative requirements.

2.8.3 Availability of plant material for genetic research is discoverable for researchers and other end users via IBIS databases (Section 2.6).

2.8.4 The ANBG will fairly and equitably share monetary and non-monetary benefits with landowners where feasible, in accordance with the Common Policy Guidelines for Participating Institutions: Principles on Access to Genetic Resources and Benefit-Sharing.

Actions

2.8.5 Include genetic collections and data to maximise value of our specimens (extended specimens) in the ANBG and CANBR and with international linkages.

2.8.6 Manage ANBG genetic resources in accordance with changing national and international treaties, policies and collaborative initiatives.

2.8.7 Take opportunities to develop ANBG staff skills and to collaborate with others with genetic expertise, adding value to ANBG's and CANBR's capacity and capabilities.

2.9 Climate change impacts

Background

Botanic gardens, in partnership with herbaria, will play an increasingly critical role in ex situ plant conservation in response to climate change impacts on ecosystems and natural populations of plant species. The ANBG provides an enduring bank for diverse plant genetic resources in the form of living collections, seed banks and gene banks (see also Section 2.8). These resources are a safety net to prevent loss of wild species and populations under increasing climatic stressors.

The ANBG and CANBR hold unique knowledge on where plants grow in the wild and how best to propagate and grow them outside their natural ranges. This knowledge will continue to be refined over the coming decade and made available for scientists and the community to use in their research and conservation efforts (see Goal 1).

The ANBG living collections are also likely to face challenges from climate change impacts. Our horticulturalist will need to take into account changing temperature and water regimes.

Aims

- Provide a safety net for wild plant species through the ANBG living collection and the seed bank.
- Provide knowledge and expertise to support climate change research through seed, horticultural and field-based research, plant species distribution and plant taxonomy (see Goal 1).
- Recognise, plan for and respond to the potential impacts of climate change on the ANBG's collections.

Issues

- There are data gaps and significant uncertainties in understanding the impacts of climate change on the living collection and how to maximise the resilience of the site to potential impacts.
- The ANBG needs to consider the likely impacts of climate change including:
  - challenges in maintaining a sustainable water supply to irrigate the living collection
  - increased fuel loads and fire danger, particularly in the surrounding Canberra Nature Park
  - changes in abundance and distribution of some plant and animal species in the wild creating potential threats to the living collection and to the ANBG's scientific and educational roles
  - extreme weather events and the associated risks to the collections, staff, lessees and visitors
  - increases in pests due to the potential for new introduced pests acclimatised to our changing climate.

What we are going to do

Policy

2.9.1 As parts of the ANBG landscape change in response to climate change in ways that are of concern, the Director of National Parks, in consultation with experts and stakeholders, will decide on further monitoring requirements and will implement protective, rehabilitative or adaptive measures where feasible and appropriate.

Actions

2.9.2 Review and update the ANBG Water Management Strategy to evaluate whether there are improvements in our water use that could increase efficiency.

2.9.3 Share climate change lessons learnt with other botanic gardens through existing and future collaborative opportunities e.g. Climate Change Alliance of Botanic Gardens, in collaboration with Council of Heads of Australian Botanic Gardens initiatives and policies as they are developed.

2.9.4 Develop a working group with other botanic gardens to share information and knowledge about ex situ species management with changing climate.

2.10 Remnant vegetation and wildlife management

Background

The ANBG has a large area of native vegetation with its associated wealth of biodiversity and biological interactions. The ANBG is a wildlife habitat and performs an important role as a fauna refuge in Canberra's Central National Area. This role as a refuge is expected to increase because of the ANBG's permanent water sources, the habitats created through its cultivation and display of Australian flora, and the predicted effects of a changing climate on neighbouring lands. Maintaining a national cultivated garden in association with the resulting changes in wildlife activity is expected to present increasing challenges. Fauna that will require ongoing monitoring include kangaroos, wallabies, snakes, nuisance birds and invasive animals such as rabbits, cats, foxes and rats.

Under ss 354 and 354A of the EPBC Act, a person may not kill, injure, take, trade, keep or move a member of a native species except in accordance with a management plan. The EPBC Regulations also prohibit taking animals and plants into the ANBG and cultivating plants in the ANBG, except with the approval of the Director of National Parks.

Actions taken in accordance with a management plan in relation to members of species listed under Part 13 of the Act are exempt from prohibitions that would otherwise apply under the EPBC Act.

Under reg 12.10 of the EPBC Regulations scientific research may not be undertaken in the ANBG unless it is provided for by, and carried out in accordance with, a management plan in force for the ANBG, or is authorised by a permit or under certain other conditions (reg 12.06). Research that involves taking, keeping or moving native species, or is undertaken for commercial purposes, is prohibited by ss 354 and 354A of the EPBC Act except where it is undertaken in accordance with a management plan.

Aims

- Maintain a healthy remnant ecosystem that both promotes the regeneration of native vegetation and the conservation of wildlife habitat and acts as a buffer between the living collection and the surrounding Canberra Nature Park.
- Make the ANBG a valued habitat for native wildlife.

Issues

- Robust monitoring and associated scientific data are needed to assess and manage impacts and risks of climate change.
- Regular vertebrate pest monitoring is needed to inform and implement a vertebrate pest management strategy.

What we are going to do

Policies

2.10.1 Pockets of remnant vegetation that extend into the developed parts of the ANBG will be retained with only minor modifications, such as canopy reduction and ecologically appropriate understorey plantings. Mature trees will be retained, subject to risk assessment, for their landscape and wildlife habitat values.

2.10.2 The ANBG will be managed in a manner that provides habitat for sustainable populations of native animals.

2.10.3 The Director of National Parks may take, or issue permits to take, actions concerning native species, including species listed under Part 13 of the EPBC Act, that are otherwise prohibited by the EPBC Act where they are necessary to implement this plan, preserve or protect the reserve, protect or conserve biodiversity, or protect people or property in the ANBG.

Actions

Remnant vegetation management

2.10.4 Manage the ANBG's boundaries as a fire buffer zone between the higher forested slopes of Black Mountain and the developed landscape zones of the ANBG.

2.10.5 Implement weed control programs to prevent the spread of both exotic and native species from the developed part of the ANBG into the undeveloped areas and adjacent conservation areas (including the Bushland Precinct of the ANBG) (see also Section 2.1).

2.10.6 Collaborate on fire management issues with the ACT Emergency Services Authority and fire ecologists from the ACT Government agency responsible for the management of public reserves.

Wildlife monitoring and management

2.10.7 Monitor populations of vertebrate pests, including rats, foxes, rabbits and cats, and implement appropriate scientifically based and humane management strategies to reduce adverse impacts.

2.10.8 Prepare and implement a strategy for the monitoring and management of invasive and pest wildlife and implement appropriate scientifically based management strategies consistent with relevant legislation.

2.10.9 Manage and monitor the incidence of snakes in accordance with the ANBG's Snake Management Policy to conserve the natural abundance of snakes and to minimise risks to visitors.

2.10.10 Encourage external collaborators to undertake research on and monitoring of native animal species to further knowledge of their biology and ecology.

EDUCATION AND APPRECIATION

Goal 3: Engage and inspire communities in valuing and appreciating Australia's plant heritage

Direction setting

The ANBG offers recreational and learning experiences and promotes the appreciation of Australia's unique flora. It strives to connect people with Australia's rich natural and cultural heritage and encourages Australians to value our unique plants and ecosystems.

Education and public programs will provide high-quality experiences and learning opportunities to deepen understanding of the role that Australian plants play in our lives. The ANBG will broaden its ability to tell stories of Australia's natural and cultural heritage through partnerships with diverse institutions and organisations.

ANBG education programs will be recognised for their innovative approach to school curriculums and feature increased use of online learning resources to extend their national reach.

The ANBG will continue to provide opportunities for discussion and understanding of plants and biodiversity using rich internet content created by the ANBG and its partners. Appropriate social networking tools will provide opportunities for the wider national and international community to engage with the work of the ANBG and with Australian plants.

Interpretive tools will be used to engage visitors and tell Australian stories that connect people with plants and ecosystems.

The living collection will provide visitors with enjoyable, inspirational and educational experiences that enhance understanding and appreciation of the values of the ANBG and Australia's unique flora and landscapes. Achievement of this goal will result in recognition of the ANBG as a quality visitor experience among national capital attractions as well as an online destination.

Goal topics

3.1 Education and outreach

3.2 Interpretation

3.3 Public programs and events

3.4 Recreation, tourism and visitor management

3.5 Promoting the ANBG

3.6 Friends of the ANBG

Performance indicators

- Post-visit evaluation of activities demonstrates that the majority of participants were inspired to learn and understand the value of Australia's flora
- There is an increase in the range and quality of interpretive and education resources used to engage with people of all ages and backgrounds
- Overall user satisfaction with the ANBG, expressed through visitor surveys, is 90% or higher
- There is an increase in the number of visitors to the ANBG, including online users

Outcomes

- Learning and experiences that connect people with plants and inspire learning and understanding of the value of Australia's unique flora
- Share expertise to increase understanding of Australian plants and the role of the ANBG through enhanced use of diverse media
- Collaborations with tourism and education stakeholders raise awareness and increase engagement with the ANBG
- Information is readily accessible to the Australian community to foster understanding and appreciation of conservation and the sustainable use of biodiversity

3.1 Education and outreach

Background

The ANBG provides a valued educational role for students from primary to tertiary levels across the nation. The living collection of Australian native plants and the related conservation and research conducted at the ANBG are at the core of education at the Gardens.

Education in botanic gardens plays an essential role in the conservation of plants and their habitats. Connection and community are fundamental to the ethos of education at the ANBG, including consideration of different cultural and community values.

As Australia's national botanic garden located in Canberra, the ANBG is in a unique position to engage with the 150,000-plus students annually visiting Canberra on excursions from schools throughout Australia. In addition, the ANBG has and will continue to develop long-term relationships with teachers and students from Canberra and regional schools.

With an emphasis on the process of lifelong learning, ANBG education services will be linked with the learning standards outlined in the Australian national curriculum.

The internet and associated technologies are important tools for establishing learning communities across Australia. The ANBG online experience will be an extension for those who visit the Gardens, as well as engaging with people who are unable to physically visit us. As technology rapidly changes and new cultural patterns evolve, new learning techniques will emerge. These new learning techniques, supplemented with the standard tools, will enable the ANBG to engage with diverse new audiences.

Aims

- Make activities and resources available for educational institutions and their staff and students and for the public.
- Enable on-site and online visitors to learn about Australian and related plants in a way that promotes understanding of the connections between people, plants and the environment, and of the role that plants play in a sustainable future.
- Apply best practice education approaches to ensure a high-quality learning environment and outcomes.

Issues

- There is a need for age-appropriate, curriculum-linked resources that challenge students to develop deeper levels of understanding; emphasise questioning, exploration and engagement with significant ideas; and promote environmental education.
- Innovative online learning experiences will increase the ANBG's ability to support a wider national audience and incorporate new technology into learning experiences.
- There is a need for increased recognition of, and content on, Aboriginal and Torres Strait Islander plant knowledge in the learning experiences we offer.

What we are going to do

Policies

3.1.1 The ANBG Education Strategy will guide the implementation and delivery of education programs on site and online.

3.1.2 The ANBG's educational facilities, school and community learning programs and resources will be designed for people of all ages, abilities and backgrounds and will be publicised to encourage their use, particularly by teaching and learning institutions.

3.1.3 The ANBG will consult and work collaboratively with Aboriginal and Torres Strait Islander people in developing programs relating to the traditional use of Australian plants.

3.1.4 Charges will apply for some education activities, programs and sessions in accordance with the Schedule of Charges.

Actions

3.1.5 Create and provide a range of high-quality education resources that effectively communicate the significant expertise of the ANBG in research, horticulture and Australian flora and engage more people across Australia in the full breadth and depth of our work.

3.1.6 Define and implement our educational approach and review our education policies in line with contemporary theories on science-based education and pedagogy and in line with any changes in legislation that impact the work we do with young people.

3.1.7 Maintain effective partnerships with organisations that add value and help us achieve our goal to provide learning experiences about plant science, conservation and gardening to children, adults and families at the ANBG.

3.1.8 Consult and work collaboratively with Aboriginal and Torres Strait Islander people in developing programs and resources that have a relationship with the work of the ANBG.

3.2 Interpretation

Background

The ANBG is a primary custodian of the national story of the plants in Australia's cultural and natural heritage. Interpretation is an essential element of the ANBG. It connects visitors to the living collection, enriches visitor experiences, inspires people to be interested in and to value Australia's unique flora, and increases understanding of the valuable work we do in building knowledge about Australian plants.

The ANBG uses a range of methods to actively engage visitors in connecting with plants, including interpretive signage, self-guided trails, guided tours, mobile applications, exhibitions, plant labels, events, public art and online and print publications (see Section 3.3, Public programs and events).

Aims

- Inspire visitor interest in plants and make the ANBG living collection meaningful to visitors using a variety of interpretation approaches, while achieving the other goals of the ANBG.
- Engage people of all ages and backgrounds to learn about and value Australian plants.
- Provide well-designed interpretation that communicates the importance of conserving plants for future diversity and wellbeing.
- Raise community awareness about plant conservation and environmental sustainability to encourage visitors to support the ANBG's conservation role.

Issues

- The ANBG needs to achieve the right balance between the level of signage and aesthetic values.
- We need to increase the ANBG's visibility as a science institution in communicating complex scientific information on topics such as threatened species and plant conservation.

What we are going to do

Policy

3.2.1 Interpretation of the ANBG's collections will focus on key themes that complement the vision, mission and goals of the ANBG.

Actions

3.2.2 Review the ANBG Interpretation Style Guide every 5 years.

3.2.3 Review existing interpretation content every 5 years to ensure it reflects the ANBG as a scientific institution and the ANBG's role in plant conservation.

3.3 Public programs and events

Background

To encourage a wide variety of people to visit the ANBG and engage with plants, we host and deliver a range of public programs to raise community awareness of plant conservation issues.

We will broaden the ANBG's audience and reach by encouraging commercial event operators to host events at the Gardens, provided these events closely align with the ANBG's mission and vision.

Aim

- Earn recognition for the ANBG as a premier cultural and nature-based attraction for learning about and valuing Australian plants by offering outstanding experiences to visitors.

Issue

- Promotion and delivery of public programs and events is resource intensive.

What we are going to do

Actions

3.3.1 Develop, implement, monitor and evaluate an annual schedule of public programs and events to ensure their effectiveness and relevance.

3.3.2 Seek expressions of interest for commercial operators to host events and public programs at the ANBG.

3.4 Recreation, tourism and visitor management

Background

The ANBG is a nature-based ecotourism destination for visitors seeking passive recreation, learning opportunities and peaceful reflection. Enjoyment of nature and culture can foster positive community attitudes towards botanic gardens and Australian plants and can motivate visitors to learn about the value of the ANBG and its collection.

Improving visitor services to attract and cater for community interests and diverse audiences is part of our planning for suitable recreational visitor experiences that grow the reach of the ANBG as a national institution.

The ANBG uses visitor studies and ongoing evaluation tools to monitor the visitor service quality (aesthetics, facilities, services and engagement) and visitor benefits (goals and positive outcomes relating to, for example, learning, socialising, productivity and nature) of our offerings. These methods provide comprehensive visitor satisfaction data that enables us to determine trends, measure performance and identify target markets for which to plan new enjoyable visitor experiences. We also use road and pedestrian counters to monitor visitor levels and patterns.

ANBG visitor offerings are supported by commercial operations (see Section 4.1, Commercial operations). Several on-site businesses provide services for visitors and revenue for the ANBG. The ANBG encourages commercial activities that do not compromise the botanic garden values or interfere with the enjoyment of other visitors.

Protecting and conserving the natural and cultural values of the ANBG includes protecting the living collection and ensuring visitor safety.

The EPBC Act (ss 354 and 354A) prohibits commercial actions in the ANBG except in accordance with a management plan. Recreational activities prohibited by the EPBC Regulations may be carried out under a permit issued by the Director of National Parks or in accordance with a management plan (r.12.06).

Under s 356A of the EPBC Act the Director of National Parks may determine and impose charges for entering or using the ANBG or part of the ANBG, using services or facilities provided by the Director of National Parks in or in connection with the ANBG, and parking or stopping vehicles in the ANBG.

Aim

- Enable visitors to enjoy and appreciate the experience of visiting the ANBG and ensure that their activities are consistent with the values of the ANBG.

Issue

- We need to balance providing rewarding recreational opportunities to a diverse range of visitors against maintaining the ANBG's scientific and educational role.

What we are going to do

Policies

3.4.1 Many activities that occur at the ANBG are regulated by the EPBC Regulations or determined by the Director of National Parks in accordance with reg 12.03. For example:

- Regulation 12.19 prohibits taking an animal into the ANBG, including pets and horses. Guide dogs and other assistance animals used by people with a disability are allowed into the ANBG under the EPBC Regulations.
- Regulation 12.23 enables the Director to prohibit or restrict access to all or part of the ANBG.
- Regulation 12.23A enables the Director to prohibit or restrict an activity or a class of activities.
- Regulation 12.30A prohibits lighting fires except in a portable barbecue or stove, a fireplace provided by the Director of National Parks, or a place approved by the Director of National Parks.
- Regulation 12.31 prohibits public gatherings of more than 15 people without a permit.
- Regulation 12.32 prohibits the burial of human remains in the ANBG.
- Regulation 12.33 prohibits the erection of commemorative markers unless the activity is allowed in accordance with a management plan or a permit issued by the Director of National Parks.
- Regulation 12.41 prohibits the use of motor vehicles other than on a vehicle access road or a vehicle access track, or in a parking area.
- Regulation 12.55 prohibits walking or riding (e.g. bicycles) other than on a vehicle access road or a vehicle access track, or on a track for walking or riding provided by the Director of National Parks (as designated by a sign or in a management plan).

3.4.2 Motorised and non-motorised wheelchairs and mobility assistance vehicles may be operated on walking tracks.

3.4.3 To ensure the enjoyment of visitors is not disturbed and to reduce risks to visitor and staff safety and ANBG values, the following activities may be prohibited by the Director of National Parks under reg 12.23A:

- ball games, frisbee throwing and kite flying
- use of bicycles, skateboards, scooters and rollerblades
- lighting fires and using portable barbeques and stoves
- any other activity that the Director of National Parks considers poses a risk to visitors, staff or ANBG values, or causes unreasonable disturbance to the enjoyment of visitors.

3.4.4 The Director of National Parks may issue a permit or licence for exclusive or limited rights to carry on a particular activity, or for use of an area in the ANBG for appropriate private functions and commercial activities and events that align with the goals and policies of this plan and do not unreasonably impede enjoyment of the ANBG by other patrons.

3.4.5 The ANBG will continue to charge parking fees under s 356A of the EPBC Act. These will be reviewed, and may be revised, periodically (see also Section 4.2, Financial sustainability).

3.4.6 The Director of National Parks may erect or install commemorative markers or dedicate a seat, infrastructure or place in the ANBG to a person, people or a group as a commemorative marker, and may charge an appropriate fee for the service (see also Section 4.2, Financial sustainability).

3.4.7 The ANBG Public Art Master Plan will guide the planning, commissioning, acquisition and installation of permanent artworks in the ANBG.

Actions

3.4.8 Monitor the quality of visitor services and visitor satisfaction through evidence-based research including surveys, reviews and statistics set against performance indicators.

3.4.9 Monitor and report annually on the use of the ANBG by different stakeholder groups to demonstrate its value for learning.

3.4.10 Encourage and facilitate the use of the ANBG for health-promoting benefits, increasing awareness of the beneficial effects of being in nature.

3.5 Promoting the ANBG

Background

The ANBG is Australia's only national institution to focus solely on Australian plants and related flora. Its work in horticulture and conservation provides a platform to educate, inform and inspire the Australian and scientific community.

The ANBG is not only a world-renowned scientific institution but also an iconic national attraction and premier tourism destination, currently attracting more than 500,000 visitors annually.

The ANBG's target markets are diverse and reflect its multidisciplinary nature and the relevance of its work to society. Key target markets include all levels of government, the general public both locally and nationally, the international scientific community, education providers, the tourism industry, corporate and industry markets and non-government organisations.

The ANBG will communicate its science and conservation role within the scientific community and work closely with tourism partners to promote the Gardens as a premier tourism destination.

Aims

- Enhance the ANBG's profile as a premier nature-based tourism destination and world-renowned scientific institution.
- Broaden audiences through targeted marketing and community outreach to raise awareness of and increase engagement with the ANBG.

Issues

- The ANBG needs to build upon its status as a national institution and consistently attract visitors throughout the year.
- The ANBG needs to improve its recognition as a scientific institution. This includes improving understanding of the science partnership between the ANBG and CSIRO in jointly managing CANBR.
- There are opportunities to promote the ANBG through innovative online communications, social media and multimedia technologies including mobile applications and podcasts.

What we are going to do

Policy

3.5.1 The ANBG will use cooperative marketing with the tourism industry and industry partners, including other national institutions and the ACT Government, to facilitate promotion of the ANBG to local and national audiences.

Actions

3.5.2 Review and update the ANBG brand identity and Interpretation Style Guide every 5 years.

3.5.3 Review and update the ANBG marketing plan every 5 years.

3.5.4 Maximise the use of social media, online and multimedia communication tools, assess and use emerging technologies and respond to social communication trends.

3.5.5 Develop a program to promote scientific activities of the ANBG.

3.5.6 Collaborate with the tourism industry to examine potential tourism opportunities and develop strategies and tour packages.

3.5.7 Support the Friends of the ANBG in promoting its role and activities.

3.6 Friends of the ANBG

Background

The ANBG recognises the importance of strong community involvement and engagement. For many years we have received a great deal of support from the community, particularly through the Friends of the Australian National Botanic Gardens Incorporated, and this continues to be very important.

The Friends of the ANBG is a non-profit community-based organisation incorporated under the *Associations Incorporation Act 1991* (ACT) and registered as a charity with the Australian Charities and Not-for-profits Commission. Its objectives are to:

- support the ANBG
- increase community awareness of the ANBG's scientific, educational, conservation and recreation functions
- promote the ANBG's continued development
- serve as a link to encourage the use and enjoyment of the ANBG by the community.

Members of the Friends take part in a wide range of activities in and in support of the ANBG, including as volunteers, in Friends special interest groups and on Friends subcommittees. The Friends also contribute funding to agreed ANBG projects and activities.

Support from the Friends is of significant value and benefit to the ANBG. Access to the Gardens and appropriate facilities to conduct Friends activities is essential to the Friends' ability to support the ANBG.

Aims

- Maintain and strengthen productive relationships with the Friends to engage the community and to cultivate public understanding of and support for the ANBG's work.
- Provide opportunities for Friends and other members of the community to volunteer and contribute to the ANBG's work.

Issues

- Developing and maintaining relationships and partnerships with the Friends can increase support for ANBG values, help to manage issues of common interest and optimise the use of resources.

What we are going to do

Policy

3.6.1 The Friends of the ANBG may carry on its activities in, and in relation to, the ANBG in accordance with an agreement between the Director of National Parks and the Friends of the ANBG.

Actions

3.6.2 Develop and regularly review a memorandum of understanding between the Director of National Parks and the Friends of the ANBG to authorise and detail the working arrangements for Friends activities in the ANBG.

3.6.3 Provide facilities and assistance, including an office and lounge space, to support the work of the Friends of the ANBG.

3.6.4 Develop and implement strategies, in collaboration with the Friends of the ANBG, to increase the use and effectiveness of Friends-supported projects.

BUSINESS MANAGEMENT

Goal 4: Demonstrate best practice, innovation and sustainable management

Direction setting

The ANBG will seek innovative and sustainable approaches that ensure an efficient and effective use of resources, making significant contributions to biodiversity conservation and influencing Australia's policy and practice through outstanding work in science, horticulture, education and botanic garden management.

The ANBG Master Plan (2015–2035) was developed to provide a plan for the future to replace ageing infrastructure and enhance the visitor experience. Implementation of the master plan will ensure that the ANBG is regarded as a world-class botanic garden and supports tourism, horticulture and research capabilities.

Managing the ANBG requires an ongoing commitment to ensuring a successful, safe and healthy workplace and visitor attraction. The maintenance and protection of ANBG values will continue to require security measures and an effective education and enforcement program.

The ANBG will make effective contributions to the conservation of Australia's natural and cultural heritage through best practice business management. Productive partnerships with the public and private sectors, as well as volunteers and local communities, will support the management of the ANBG. Providing opportunities for appropriate commercial operations and events will continue to enhance the visitor experience.

Goal topics

4.1 Commercial operations

4.2 Financial sustainability

4.3 Work health and safety, risk and emergency management

4.4 Environmental management

4.5 Security and compliance

4.6 Staffing and volunteers

4.7 Adjacent lands

4.8 Master plan, capital works and asset management

4.9 Assessment of proposals

4.10 New activities not otherwise specified in this plan

4.11 Management plan implementation and reporting

Performance indicators

- Increase in resources from commercial operations, partnerships, fees and charges
- No increase in the number and severity of health and safety incidents
- No increase in the number of identified risks rated as moderate or above in the Risk Watch List
- Extent to which water and energy use meets objectives and targets

Outcomes

- Best practice business operations and appropriate financial and staff resources supporting the management of the ANBG and the implementation of this plan
- Risk is managed to ensure the health and safety of visitors and staff and the protection of the ANBG's valuable assets
- Excellence and innovation are displayed in the design and delivery of future developments

4.1 Commercial operations

Background

Commercial activities can increase the range and quality of visitor services and experiences, attract visitors who may not otherwise come to the ANBG, and raise revenue to support management of the ANBG.

Under ss 354 and 354A of the EPBC Act, commercial activities can only be carried on in accordance with a management plan. Section 358(2) of the EPBC Act allows the Director of National Parks to grant a lease or licence relating to land in a Commonwealth reserve provided it is in accordance with a management plan.

At the time of preparing this plan a range of commercial activities are carried out on site. The café, bookshop and day spa operate under lease agreements with the Director of National Parks. Opportunities may arise to increase the number and range of appropriate commercial activities.

During the life of this plan it may be appropriate to consider granting leases and licences of land for other purposes, such as to new and emerging business enterprises or to utility providers (for areas of land containing cables and pipes for electricity, gas, water or communication services). It may also be appropriate to issue leases for short-term, exclusive use of an area (e.g. for commercial events).

Aim

- Encourage appropriate commercial operations that enhance visitor experiences and promote ANBG values.

Issues

- We need to ensure that commercial activities operate in ways that protect and enhance ANBG values through considering such factors as appropriate standards, improved infrastructure, service vehicle access, waste management and after-hours security.
- Attracting more visitors and increasing use of the ANBG throughout the year, including during the winter months, could help increase the viability of commercial operations.

What we are going to do

Policies

4.1.1 Subject to the other policies in this section, commercial activities may be carried on in accordance with a lease, licence or permit issued by the Director of National Parks.

4.1.2 Commercial leases or licences for land in the ANBG for commercial activities may be granted in accordance with Section 4.1, Commercial operations.

4.1.3 The ANBG will work with commercial operators to ensure high levels of customer service and facilitate opportunities for joint activities and cross-promotion.

4.1.4 Proposals for commercial activities will be encouraged where they directly contribute to the ANBG's goals. Proposals for new commercial activities will be considered and assessed having regard to:

- the activity's consistency with the maintenance of ANBG values and protection of ANBG assets
- benefits to the ANBG and its visitors
- any impact on the aesthetic values of the ANBG
- risk to visitors and other safety issues
- impacts on other users
- the potential cost to the Director of National Parks of managing and monitoring the activity (see also Section 4.9, Assessment of proposals).

4.1.5 Commercial photographers engaged by wedding parties will not require a permit to capture images of wedding ceremonies.

4.1.6 Members of the media and media organisations will not require a permit for commercial image capture in connection with reporting news/events of the day.

4.1.7 The Director of National Parks may grant leases and licences relating to ANBG land.

4.1.8 Decisions about leases and licences will be made taking into account the impact assessment of the proposal under Section 4.9, Assessment of proposals.

4.1.9 The Director of National Parks may determine the rent/occupation fee for each lessee or licensee based on market rates and the length of the lease or licence.

4.1.10 Leases and licences will:

- clearly define the area covered by the lease or licence
- include provisions for minimising adverse impacts on ANBG values
- contain environmental protection measures including, where necessary, waste management.

Actions

4.1.11 Manage contractual arrangements for commercial operators, including leases and licences.

4.1.12 Monitor the occupation and use of land in the ANBG and take appropriate action to ensure that it has minimal adverse impact on ANBG values.

4.2 Financial sustainability

Background

At the time of preparing this plan the Director of National Parks (including the ANBG) is a corporation under the EPBC Act. Staff of Parks Australia, a division of the Department of Agriculture, Water and the Environment, assist the Director of National Parks in performing its functions. Revenue from licensing and permit charges, 'user pays' programs, charges for professional services, hire of facilities, and entrepreneurial and philanthropic activities contribute to the ANBG's annual budget.

The Friends of the ANBG has provided important financial support and added value to the ANBG by funding projects focused on visitor services and facilities, scientific and conservation research, and public education. The ANBG collections can be further enhanced by donations. These may be offset under the Commonwealth's Cultural Gifts Program, which provides tax incentives to donors. The ANBG has Deductible Gift Recipient status for its collections.

Under s 514C of the EPBC Act, the Director of National Parks has power to do all things necessary or convenient to carry out their functions (including management of the ANBG). These powers include entering into contracts; holding real and personal property; accepting gifts, devises and bequests made to the Director of National Parks on trust or otherwise; and acting as trustee of monies or other property vested in the Director of National Parks upon trust**.**

Under s 356A of the EPBC Act the Director of National Parks may, with the Minister's approval, determine and impose charges for entering or using the ANBG or part of the ANBG, using services or facilities provided by the Director of National Parks in or in connection with the ANBG, and parking or stopping vehicles in the ANBG. At the time of preparing this plan a range of charges are in place (the Schedule of Charges).

Aims

- Diversify the ANBG's financial resources to enhance our operations and activities.
- Apply best practice financial management to guide the efficient and appropriate management and use of resources.

Issue

- The ANBG's ability to deliver core business, implement the actions of this management plan and add value to the programs and developments proposed in this plan depends on receiving sufficient funding.

What we are going to do

Policies

4.2.1 The ANBG will maintain an appropriate Schedule of Charges under s 356A of the EPBC Act.

4.2.2 Appropriate agreements will be entered into for receipt of funds to support the ANBG.

4.2.3 Where donations are accepted for a specific purpose, they will be used for that purpose or another purpose approved by the donor.

4.2.4 Inappropriate bequests may be refused or disposed of.

4.2.5 Appropriate philanthropic financial support, donations, contributions, sponsorship and bequests for purposes appropriate to the needs of the ANBG will be actively sought.

4.2.6 Revenue raised will be used to enhance the work of ANBG programs and services to stakeholders, subject to legislation and policies applicable to the Director of National Parks.

Actions

4.2.7 Annually review the Schedule of Charges to ensure they are comparable to market rates.

4.2.8 Encourage and support the Friends of the ANBG and philanthropic supporters to raise money to support the ANBG.

4.3 Work health and safety, risk and emergency management

Background

The Director of National Parks promotes high levels of health and safety awareness in accordance with their duty of care and health and safety obligations. ANBG staff working on the CSIRO site as part of CANBR are also subject to the requirements of CSIRO's health and safety workplace conditions.

A workplace Occupational Health and Safety Committee oversees hazard reduction strategies for the ANBG. The committee conducts regular inspections of workplaces and work practices to ensure appropriate standards are met. Similar procedures are in place for those working on the CSIRO site.

The ANBG provides induction and training in safe work practices for all staff, volunteers and visiting scientists, interns and associates. In addition, all staff are responsible for analysing, assessing and treating significant risks in relation to the functions, processes and activities that they undertake or in which they participate. All safety incidents are reported, recorded and reviewed regularly. Using this information, the Director of National Parks compiles a risk assessment for the ANBG that identifies and rates a range of risks, including to staff, volunteer and visitor safety. Where appropriate, additional strategies are identified and implemented to mitigate risks.

Visitor safety is an important priority and potential hazards to visitor safety are under constant review. The key physical risks at the ANBG are bushfires, high winds, falling branches, and icy roads and paths during winter. Emergency evacuation and closure procedures have been developed and are regularly tested.

Bushfire incursion from adjacent lands presents a significant risk to ANBG infrastructure, buildings and collections, as well as to staff and visitors. The ANBG has developed and implemented an integrated fire protection and control strategy and works collaboratively with neighbours, key agencies and ACT emergency services to maintain and implement bushfire prevention and control plans. Fire management at the ANBG is subject to the *Emergencies Act 2004* (ACT) to the extent of any inconsistency with the EPBC Act. The ANBG has limited firefighting capability and is dependent on the ACT Emergency Services Agency for fire suppression and other emergency support.

The EPBC Act (ss 354 and 354A) prohibits certain actions being taken in Commonwealth reserves except in accordance with a management plan. This includes actions that impact upon members of a native species, actions that damage heritage, and carrying out works or an excavation.

Aims

- Provide a safe and healthy environment for staff, volunteers and visitors.
- Respond to health and safety incidents promptly, effectively and safely.

Issue

- Wildfires that start outside the boundaries of the reserve could have a serious impact on the living collection and ANBG infrastructure.

What we are going to do

Policies

4.3.1 The ANBG will strive to ensure a safe and healthy site for staff, volunteers and visitors through compliance with relevant legislation, appropriate training, identification of health and safety issues, hazard minimisation strategies and reporting, and reviewing and improving safety procedures.

4.3.2 The ANBG will work collaboratively with CSIRO to ensure a safe environment for staff working at CANBR.

4.3.3 In cases of threat to human life or property, the ACT Emergency Services Agency may operate in the ANBG, under the guidance of ANBG staff where appropriate. Where practicable, emergency response activities will take into account minimising disturbance to listed plant and animal species and areas of conservation or cultural significance.

Actions

4.3.4 Conduct regular risk assessments, workplace hazard inspections and training of staff to maintain a high level of site safety for staff and visitors.

4.3.5 Maintain an ANBG Emergency Management Plan that meets the required standards.

4.3.6 Undertake capital enhancement works to mitigate risks to the site, staff, volunteers and visitors.

4.4 Environmental management

Background

The ANBG aspires to minimise its ecological footprint by pursuing environmental best practice. Monitoring, evaluating and reporting on environmental performance and using the results from these processes to adapt management programs will assist in achieving this goal. During the years of the previous management plan the focus of environmental management has been on responsible water use. This focus will continue in the next 10 years to address the challenges from climate change.

Aims

- Protect and enhance the ANBG's natural and cultural heritage.
- Make efficient use of resources such as energy and water.

Issues

- The ANBG needs to retrofit or replace ageing irrigation infrastructure to improve water conservation.
- The ANBG needs to consider the use of renewable energy in all new developments.

What we are going to do

Policies

4.4.1 Environmental responsibility and the principles of sustainability will guide ANBG operations and practices.

4.4.2 The ANBG will monitor resource use and the impact of activities on the environment, with particular attention given to energy and water use and waste production.

Actions

4.4.3 Regularly monitor and report on the ANBG's environmental performance.

4.4.4 Specify sustainability principles in the design of all new developments.

4.5 Security and compliance

Background

Encouraging compliance with relevant legislation is important in protecting the ANBG and its assets, values, visitors, staff and contractors. The Director of National Parks is required to comply with the provisions of the EPBC Act, this management plan, and other relevant legislation and government policies.

Staff appointed by the Minister under the EPBC Act (s 392) as rangers or wardens exercise the powers and functions conferred on them by the EPBC Act and EPBC Regulations. In addition, all members and special members of the Australian Federal Police are ex officio wardens. Officers or employees of other Australian, state or territory government agencies may be appointed by the Minister as rangers or wardens.

Staff appointed as rangers or wardens conduct monitoring, visitor awareness raising and, if required, compliance and enforcement operations while on routine patrols and during specific, targeted programs at the ANBG. ANBG staff not appointed as rangers or wardens cannot exercise these powers but can encourage compliance with legislation through education and non-confrontational interaction with visitors to raise their awareness of the value of the ANBG and appropriate visitor conduct.

Aims

- Improve awareness of, and compliance with, relevant legislation through effective education and compliance programs.
- Provide adequate protection of fixed assets.
- Provide adequate protection of intangible assets, especially the living collection, herbarium specimens, the image collection and data stored electronically.

Issue

- The ANBG needs enough operational staff trained in appropriate compliance procedures and with powers to enforce the EPBC Act and Regulations to maintain a continuous presence on site during business hours.

What we are going to do

Policies

4.5.1 The ANBG will maintain levels of security consistent with ensuring the adequate protection of its tangible and non-tangible assets.

4.5.2 There will be an appropriately trained warden or ranger on site to ensure compliance during business hours.

Actions

4.5.3 Provide required compliance training for staff appointed, or likely to be appointed, as wardens and rangers.

4.5.4 Review levels of security on an annual basis or if significant changes to the risk profile occur.

4.6 Staffing and volunteers

Background

The work of the ANBG draws on a diverse range of disciplines and expertise. The ANBG has several work areas and its staff are spread across these work areas on both ANBG and CSIRO land.

Our volunteer program has facilitated significant community involvement in the operation of the ANBG and CANBR. We encourage people of all ages to engage with volunteer projects and research that supports the work of the ANBG and CANBR. The breadth and range of Volunteer programs enable volunteers to make a substantial contribution to the ANBG benefiting both volunteers and the ANBG. A range of new volunteer programs were introduced over the life of the previous plan, and further expansion of volunteer programs is proposed for the next 10 years.

The ANBG, including CANBR, encourages use of the collections and facilities by staff from other organisations and by individuals who are studying Australian plants. The value of the collections is enhanced through study and annotation by active qualified researchers. We maintain a Scientific Associates program, a Volunteer Botanical Training Program and provide support to amateur and professional botanists who are researching Australian and related plants.

Aims

- Maintain an adequate staffing structure and expertise to manage the ANBG as a national institution and deliver the goals of this management plan.
- Actively engage and support a diverse cohort of volunteers who provide high-quality services to the ANBG and CANBR through new and existing projects and programs.

Issues

- Some staff roles are resource intensive, especially those in horticulture.
- Ongoing supervision, recruitment and personal development are needed to maintain active service and improve the skills of the large volunteer cohort that supports the work of the ANBG and CANBR.

What we are going to do

Policy

4.6.1 Volunteers will conduct activities in accordance with the Director of National Parks Volunteer Policy.

Actions

4.6.2 Build on the existing volunteer programs and expand community involvement to consider new volunteer programs and opportunities to undertake team activities at the Gardens.

4.7 Adjacent lands

Background

The ANBG shares boundaries with the Black Mountain Nature Reserve, a reserve in Canberra Nature Park, with CSIRO and with land owned by the ACT Government (vacant road easement at the time this plan was prepared). The ANBG is situated immediately west of the Australian National University and shares an access road to the north of the site with the university's palaeomagnetic laboratory.

The ANBG's boundaries are set out in its proclamation, by reference to blocks identified on maps that existed at the time of proclamation (September 1991).

Parts of the ANBG's scientific operations are based at CANBR and the Australian National Herbarium at the CSIRO Black Mountain site.

Aim

- Develop and maintain cooperative relationships and partnerships with neighbours and stakeholders in a manner that focuses on achieving common precinct management aims effectively and efficiently.

Issue

- Developing and maintaining relationships and partnerships with neighbours and stakeholders can increase support for the management of the ANBG, help to manage issues of common interest and make the best use of available resources.

What we are going to do

Policy

4.7.1 The ANBG will cooperate with neighbours managing adjacent lands in matters relating to emergency management and the maintenance of boundary areas, fences and shared resources such as roads.

Action

4.7.2 Actively participate in meetings and discussions with relevant neighbours and stakeholders to take an integrated approach to the management of the site and adjacent lands. There will be a particular focus on operations related to fire management, feral animals and weed control.

4.8 Master plan, capital works and asset management

Background

The ANBG has complex infrastructure to support its diverse functions including research, horticultural activities and education. This infrastructure includes office buildings, classrooms and meeting rooms, science laboratories, glasshouses, buildings that require controlled temperature and humidity, irrigation and other specialist plant and equipment, and a range of visitor facilities. The site has been developed over 50 years, and many of the buildings on site were constructed in the early 1970s.

The ANBG Master Plan 2015–2035 sets out the guiding principles for future infrastructure development, to be applied together with the policies in this management plan. New developments will support enhanced visitor experiences, horticulture and research capabilities. This long-term vision will ensure that the ANBG remains at the forefront of contemporary gardens worldwide.

Sections 354 of the EPBC Act prohibit the Director and other persons carrying on an excavation, erecting a building or other structure, or carrying out works in the reserve except in accordance with a management plan.

Aim

- Develop new infrastructure and other attractions to support the expansion of visitor experiences and educational and recreational opportunities without impacting on the precious living collection.

Issues

- Implementing the master plan will need investment from government and from philanthropic and corporate funding sources.
- Funding requirements for major repairs and maintenance are increasing as assets age.

What we are going to do

Policies

4.8.1 The Director of National Parks may carry on an excavation, erect a building or other structure, or carry out a program of works (including capital works and infrastructure) at the ANBG that promotes or enhances the values of the ANBG and does not significantly impact or detract from these values.

4.8.2 Third parties may carry on an excavation, erect a building or other structure, or carry out works at the ANBG to develop and maintain capital works and infrastructure in accordance with:

- Section 4.9 (Assessment of proposals)
- a lease or licence granted by the Director of National Parks (see Section 4.1, Commercial Operations) or
- a permit or approval issued by the Director of National Parks.

4.8.3 Third parties who undertake capital works and infrastructure development and other works must meet the costs of any rehabilitation and environmental impact assessments required as a result of the works.

4.8.4 Infrastructure development will be based on the ANBG Master Plan and will be guided by:

- sustainability principles including water and energy efficiency
- excellence in design
- protecting the environmental and aesthetic amenity of the living collection
- minimising adverse impacts on wildlife
- consideration of potential workflow efficiencies through co-location of office and laboratory accommodation
- consideration of potential benefits for visitors through improved access and facilities
- suitability of staff and visitor amenities
- occupational health and safety considerations
- ongoing maintenance and funding requirements
- minimising impacts on staff, visitors and businesses operating in the ANBG.

4.8.5 Decisions about capital works and infrastructure and other works will be made in accordance with Section 4.9 (Assessment of proposals).

Actions

4.8.6 Prepare business cases and funding proposals for the next stage of major capital developments outlined in the ANBG Master Plan 2015–2035. This may include projects such as:

- development of the Core Precinct (west), comprising the demolition of the former Bottom Depot and Seed Bank to incorporate a new lawn event amphitheatre
- development of an alpine house
- development of a children's nature play area.

4.8.7 Maintain and develop infrastructure and assets to meet required standards and enhance visitor experiences.

4.9 Assessment of proposals

Background

Proposed activities at the ANBG must be assessed for their potential impacts before a decision can be made on whether the activity should go ahead. This includes considering impacts on the ANBG's values. Proposed actions of a routine nature that are authorised by or under policies and actions in this management plan generally do not require impact assessment.

Some proposed activities may be 'controlled actions' within the meaning of the EPBC Act and may also require assessment and approval by the Minister under the EPBC Act because they are likely to have a significant impact on a matter of national environmental significance (such as nationally listed threatened species) or the environment generally in the ANBG.

The EPBC Act defines the 'environment' as including:

a. ecosystems and their constituent parts, including people and communities;
b. natural and physical resources;
c. the qualities and characteristics of locations, places and areas;
d. heritage values of places; and
e. the social, economic and cultural aspects of a thing mentioned in paragraph a, b or c.

Proposed actions that do not trigger the EPBC Act's assessment and approval provisions may still have impacts that require assessment before a decision can be made on whether the action is permitted to proceed.

Decisions on whether proposals should be approved are guided by an environmental impact assessment process.

Aim

- Properly consider the likely impacts of proposed actions on ANBG values before making decisions, and maintain values through effective assessment procedures and subsequent management.

Issues

- If proposed actions are not properly assessed and managed, they may impact on ANBG environmental and cultural values.
- The ANBG needs up-to-date, clear and consistent guidelines and procedures for assessing proposals.
- Assessment of proposals by staff may require reallocation of priorities or additional resources.

What we are going to do

Policies

4.9.1 The ANBG will consider, and where necessary assess, the potential impacts of all proposed actions in accordance with Table 1 and Table 2 and the following prescriptions.

4.9.2 Proposed actions that are considered likely to have more than a negligible impact, but are not controlled actions under the EPBC Act, will be assessed in accordance with ANBG impact assessment procedures.

4.9.3 Assessment of proposed activities that are not controlled actions may be carried out by ANBG staff, proponents of the proposed activity, or independent experts.

4.9.4 Subject to the EPBC Act, the Director of National Parks may recover from proponents the costs associated with administering, assessing and managing proposals.

Table 1: Decision-making process and impact assessment procedures

Category	Example	Decision-making process and impact assessment requirements
Category 1		
Actions considered likely to have no impact, or no more than a negligible impact, on the ANBG's environment and natural and cultural values	Minor capital works, e.g. maintenance, replacement, repairing or improving existing infrastructure in its present form Regular/routine ongoing operations to implement prescriptions in this plan, e.g. patrols, weed control, maintaining the living collection Issuing permits for regular activities in accordance with this plan, e.g. image use permits, research	No assessment required Use minimal impact work practices when implementing actions
Category 2		
Actions considered likely to have more than a negligible impact, but not a significant impact, on the ANBG's environment and natural and cultural values	Moderate capital works, e.g. new infrastructure or moderate expansion/upgrade of existing infrastructure Rehabilitation of heavily eroded sites Developments for approved existing tourism activities that do not require major works Minor new operations or developments to implement prescriptions in this plan	Assessment by ANBG staff, proponent, or independent expert Assessment in accordance with procedures approved by Director of National Parks
Category 3		
Actions considered likely to have a significant impact on the ANBG's environment and natural and cultural values	Major capital works, e.g. new major infrastructure or major expansion/upgrade of existing infrastructure Major new operations or developments to implement prescriptions in this plan Major/long-term changes to existing visitor access arrangements New types of commercial activities	Director of National Parks will consider whether action should be referred for consideration as a 'controlled action' under the EPBC Act If action is referred and Minister decides it is a controlled action, no assessment required by ANBG staff If action is not referred, or is referred and Minister decides it is not a controlled action, assessment as for Category 2

Table 2: Environmental impact assessment matters and considerations

Matters for assessment	Considerations include, but are not limited to
1. Environmental context	
a. What are the components or features of the environment in the area where the action will take place?	Species, ecological communities in the ANBG and regional context Matters of national environmental significance Cultural features Heritage features Socio-economic values Tourism and recreational values Aesthetic/landscape values Scientific reference areas
b. Which components or features of the environment are likely to be impacted?	Short-term and long-term impacts on and off site
c. Is the environment which is likely to be impacted, or are elements of it, sensitive or vulnerable to impacts?	Species, ecological communities Matters of national environmental significance Cultural values (including sacred sites) Heritage values Tourism and visitor experience Cumulative impacts from a range of activities across the ANBG on the environment or its elements Uniqueness of elements within the ANBG and regional context
d. What is the history, current use and condition of the environment which is likely to be impacted?	Comparison with condition of similar sites elsewhere in the ANBG
2. Potential impacts	
a. What are the components of the action?	Associated infrastructure and stages
b. What are the predicted adverse impacts associated with the action including indirect consequences?	Indirect and off-site impacts
c. How severe are the potential impacts?	Scale, intensity, timing, duration and frequency
d. What is the extent of uncertainty about potential impacts?	
3. Impact avoidance and mitigation	
a. Will any measures to avoid or mitigate impacts ensure, with a high degree of certainty, that impacts are not significant?	State whether there are any alternative sites for proposal
4. Significance of impacts	
Considering all the matters above, is the action likely to have a significant impact on the environment?	If yes, the Director of National Parks will consider whether action should be referred for ministerial consideration under the EPBC Act

4.10 New activities not otherwise specified in this plan

Background

This plan sets out how the ANBG will be managed for the next 10 years. During that time, circumstances or proposals that are not anticipated at the time this plan is being prepared may require the Director of National Parks to take actions that are not covered by specific prescriptions in this plan. Under ss 354 and 354A of the EPBC Act, certain types of actions can only be taken if they are authorised by a management plan (including acts in relation to native species, works, and actions for commercial purposes). The EPBC Act (s 362) requires the Director of National Parks to exercise their powers and perform their functions so as to give effect to the management plan.

Aim

- Enable the Director of National Parks to respond to new issues and proposals consistent with this plan and the EPBC Act and Regulations.

Issue

- This plan needs to enable the Director of National Parks to authorise appropriate actions that are not specified in this plan because they are not foreseen at the time of writing the plan.

What we are going to do

Policies

4.10.1 The Director of National Parks may take actions that are not covered by specific prescriptions in this plan, including actions covered by ss 354 and 354A of the EPBC Act or by the EPBC Regulations. Proposed actions will be considered and assessed in accordance with IUCN Australian reserve management principles, in light of their potential impacts and with regard to legislation, treaties, agreements and partnerships.

4.10.2 The Director of National Parks may take or authorise (by permit, contract, lease or licence) actions that are not covered by specific prescriptions in this plan, including actions covered by ss 354 and 354A of the EPBC Act or by the EPBC Regulations.

4.10.3 Except in cases of emergency, the decision-making and impact assessment processes prescribed in Section 4.9 (Assessment of proposals) of this plan apply to actions under this section.

4.11 Management plan implementation and reporting

Background

The implementation of this plan will require sustained effort and commitment to strengthen the ANBG's position as a national institution and to further enhance its role in science, conservation, horticulture and education.

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 aims 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 management unit of the ANBG. Where management strategies are obsolete, a report will be provided to the Director of National Parks.

Aim

- Effectively implement this plan.

Issues

- The ANBG needs to develop a management system to support the implementation schedule for this plan.
- Work policies, procedures and programs must be consistent with the plan and relevant government legislation and policies.
- Adequate resources are needed to enable implementation of the plan.

What we are going to do

Policies

4.11.1 Priorities for implementing the actions in this plan will be determined by the need to:

- protect and promote the values of the ANBG and its National Heritage and Commonwealth Heritage values
- ensure visitor safety
- ensure cost-effectiveness.

4.11.2 The ANBG will request sufficient resources from government to effectively implement this plan.

Actions

4.11.3 Develop an implementation schedule for this plan and use it to determine and report on annual priorities and the development of program operational plans and individual work plans.

4.11.4 Report regularly to the Director of National Parks on the implementation of this plan and manage expenditure consistently with government requirements and in accordance with the Chief Executive Instructions of the Director of National Parks.

4.11.5 Undertake regular reviews of charges determined and imposed by the Director of National Parks under ss 356 and 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 of National Parks. New charges will be determined and implemented where appropriate, subject to approval by the Minister.

4.11.6 Before preparing the fifth management plan, prepare and present to the Director of National Parks a technical audit of this plan. The audit's terms of reference will include:

- consideration of each prescribed management policy and action and determination of whether it was successfully implemented
- evaluation of the performance of each prescribed policy and action in relation to the aim(s) that it was intended to achieve
- in the case of any prescribed policy or action that was not implemented or failed to achieve the desired aim(s), determination of the cause
- recommendations to the Director of National Parks regarding any changes to the aims, policies and actions that should be considered during preparation of the fifth plan.

Appendix A: Key planning documents for the Australian National Botanic Gardens

ANBG Plan of Management 1993–1998: Australian Nature Conservation Agency 1993

In 1991 the ANBG was proclaimed a reserve under the *National Parks and Wildlife Conservation Act 1975*. The 1993 management plan incorporates many of the recommendations in the *Development planning guide* (Hassell Group 1992). It addresses the philosophy of the ANBG including its national and international roles. It includes a relatively detailed thematic plan for the living collection and focuses on detailed context, background and policy. It sets out only a few actions, although the actions have some detail. The plan highlights historical staffing issues and outlines priorities for implementation under 'Aims'. It includes maps of new developments. The ANBG Advisory Committee's role was to review annual progress in implementing the plan.

Relevance to this management plan

The 1993 plan highlights ongoing key challenges such as multiple work areas and inadequate resources for managing a national institution.

Amendment of the National Capital Plan. Amendment No. 16 master plan for the ANBG and background report: National Capital Authority 1996

Approved and gazetted on 11 December 1996, the amendment changed the general land use policy from 'hills, ridges and buffer spaces' to 'urban areas'; removed the 'future arterial road' symbol between the eastern boundary of the ANBG, CSIRO and Clunies Ross Street; included the ANBG in the Central National Area and removed it from the Inner Hills Designated Area; allowed for the possible long-term expansion of the ANBG; identified the ANBG as 'national capital use', the reservoir site on Black Mountain Drive as 'public utility', Black Mountain Drive as 'road', and the remaining land as 'uncommitted land'; introduced master plan principles to guide the planning and development of the site in accordance with its national significance; inserted a definition for 'botanic gardens'; included the ANBG in the definition of 'national capital use'; and amended the relevant figures in the National Capital Plan.

Relevance to this management plan

The ANBG is on national land and any developments require approval from the National Capital Authority. The 1996 amendment outlines the ANBG's importance as part of Canberra's portfolio of national institutions and highlights various values. It also discusses the ANBG's importance in terms of visual, physical and symbolic linkages, and outlines landscape, environment, activity location and building principles and policies.

ANBG Management Plan 2002–2008: ANBG 2001

The 2001 management plan contains policy and procedural statements including ongoing responsibilities and developments. In contrast to the first management plan, it sets out numerous actions to be implemented. This plan is ambitious and incorporates many of the recommendations in the *Development planning guide* (Hassell Group 1992), although it does not make reference to the guide.

Relevance to this management plan

The second management plan is a detailed policy document that outlines key ongoing operations and highlights the core work of the ANBG as an institution and strategies for managing the reserve. A technical audit of the plan highlighted key successes and issues at the ANBG from 2002 to 2008.

Of the 285 actions outlined in the plan, nearly two-thirds were implemented; 54% of these were 'ongoing' actions. More than one-fifth of the actions were partially implemented and a few of these were 'ongoing'. Around 16.1% of actions were not implemented. Several actions were either not implemented or partially implemented due to a lack of available resources including funding, staff and capacity.

ANBG Management Plan 2012–2022: ANBG 2012

The 2012 plan states policy and actions including ongoing responsibilities and proposed developments. It sets out a new vision and mission statement and 9 goals and outcomes to be delivered over the 10-year period of the plan.

Relevance to this management plan

The third management plan was the most comprehensive, with 172 management policies and 247 management actions. A major outcome from the plan was the development of the ANBG Master Plan published in 2015.

An independent technical audit of the plan found that overall the enacted activities were positively contributing to the realisation of the specified ANBG values. Of the 172 policies, the audit identified 93.0% (160) as implemented but ongoing, 0.6% (1) as implemented with modification, 2.9% (5) as partially implemented, and 3.5% (6) as not having been commenced. Of the 247 actions, it evaluated 5.7% (14) as completed with no further action, 82.6% (204) as implemented but ongoing, 1.6% (4) as implemented with modification, 4.9% (12) as partially implemented, and 5.3% (13) as not having been commenced.

ANBG Master Plan 2015–2035: ANBG 2015

The 2015 master plan sets out the guiding principles for the site over a 20-year period. It prioritises a sequence of works to improve the visitor experience, increase revenue and facilitate the conservation and expansion of the Gardens collections.

Relevance to this management plan

The master plan provided the framework for future infrastructure development and enabled new investment from government and philanthropic donors. The first stage of the master plan has commenced.

Appendix B: Commonwealth Heritage values of the Australian National Botanic Gardens

Summary statement of significance

The ANBG is important for containing rare and endangered native plant species in cultivation (Criterion B). The ANBG is important for its value as a research and teaching site based on the extensive herbarium collections which are linked to the living plant collections; this is rare on such a scale in Australia (Criterion C).

The ANBG is important for aesthetic characteristics valued by the community as it exhibits an attractive park landscape with a well balanced integration of spaces and form; interest from the vegetation details of the variety of native species; contrasts of small and large plants, waterform, rockform and colour; vistas of major Canberra features including Parliament House and many enframed attractive views across the lake (Criterion E).

The ANBG is important for demonstrating a high degree of technical achievement by establishing a living collection linked to the herbarium collections. It also demonstrates design excellence in construction of certain garden features, in particular the Rainforest Gully, which represents a geographic transect up the east coast of Australia, and the rockery area with its carefully contrived combination of rocks, pools and running water.

The ANBG is innovative in being the first public garden composed essentially of Australian native plants with some related species. Public gardens of this type are rare (Criteria F and B).

Commonwealth Heritage official values

Criterion B: Rarity

The place has significant heritage value because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.

The ANBG is important for containing rare and endangered native plant species in cultivation. It is the first public garden composed essentially of Australian native plants, with some related species. Public gardens of this type are rare.

Attributes

The whole native garden, plus rare and endangered native plant species in cultivation.

Criterion C: Research

The place has significant heritage value because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.

The ANBG is important for its value as a research and teaching site based on the extensive herbarium collection linked to the living plant collection; this is rare on such a scale in Australia.

Attributes

The combination of herbarium and living plant collections.

Criterion E: Aesthetic characteristics

The place has significant heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

The ANBG is important for aesthetic characteristics valued by the community as it exhibits an attractive park landscape with a well-balanced integration of spaces and form; interest from the vegetation details of the variety of native species; contrasts of small and large plants, waterform, rockform and colour; vistas of major Canberra features including Parliament House and many enframed attractive views across the lake.

Attributes

All the features noted above.

Criterion F: Technical achievement

The place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.

The ANBG is important for demonstrating a high degree of technical achievement by establishing a living collection linked to the herbarium collection. It also demonstrates design excellence in construction of certain garden features, in particular the Rainforest Gully, which represents a geographic transect up the east coast of Australia, and the rockery area with its carefully contrived combination of rocks, pools and running water. The ANBG is innovative in being the first public garden composed essentially of Australian native plants with some related species.

Attributes

The living collection linked to the herbarium collection, the Rainforest Gully, the rockery area, plus the fact that the ANBG was the first major public garden composed essentially of Australian native plants.

History

The creation of a Botanic Gardens in Canberra was first recommended in 1933 by the Advisory Council for the then Federal Capital Territory. Also in 1933 Dr Bertram Dickson, Chief of the Commonwealth Scientific and Industrial Organisation (CSIRO) Division of Plant Industry was asked to examine the feasibility of the proposal. In his report in 1935, Dickson supported the proposal and recommended a site on the lower slopes of Black Mountain. The project was deferred firstly because of the Depression and later because of World War II. However, shortly after the war Lindsay Pryor, Superintendent of Parks and Gardens in the Australian Capital Territory (ACT), began development of the Botanic Gardens.

The site of the Gardens was previously leased for grazing. Pryor took the opportunity of an International Forestry Conference in 1949 to arrange for the Prime Minister, Ben Chifley, and the Director of the Royal Botanic Gardens at Kew, Sir Edward Salisbury, to plant trees to formally start the Gardens. Planning and planting continued throughout the 1950s. Dickson's report had stressed the importance of including Australian flora in the Gardens and a policy was adopted giving priority to native plants. This priority reflected increasing community appreciation of Australian flora in the late 1950s and 1960s. The Jervis Bay annexe was also developed in this period. It was intended as a frost-free environment to complement the site in Canberra. Another annexe for cold-tolerant plants was established in the 1950s at Mount Gingera to the west of Canberra. Active maintenance of this latter annexe ceased in the late 1960s and the area is no longer part of the ANBG.

The Gardens were, from the beginning, a scientific institution, and a herbarium and library were established in the first building on the site in 1966. The herbarium was started by Pryor and continued by botanists Erwin Gauba and ME (Betty) Phillips. A laboratory for horticultural research was built in 1970. A key part of the work of scientific staff was and continues to be field collecting expeditions. The basic structure of the Gardens, with sections devoted to different taxonomic plant groups, was established in its early years. This has been followed by sections devoted to ecological themes, such as the Rainforest Gully, which was started in 1968. Different environments were created by modifying the microclimate and landform to provide different plant habitats.

The Gardens were first opened to the public in 1967 and were formally opened by Prime Minister Gorton in 1970. At this time they were called the Canberra Botanic Gardens.

Public information and education programs were started in the late 1960s and the Gardens now has an Environmental Education Centre. A photographic collection was also established at this time and this has grown into a large and important reference collection. Research focusing on orchids began in the mid 1970s and the living collection of Australian orchids is now the most extensive in cultivation. Also at this time the Gardens began to establish a significant collection of cryptogams particularly mosses and lichens.

A new building was constructed for the herbarium and library in 1974 and the Gardens were renamed the National Botanic Gardens in 1978. Other developments included the Rock Garden (1980), Kiosk (1981), Banksia Centre (1982) and Visitor Information Centre (1985).

In 1984 the name was again changed to the Australian National Botanic Gardens. During the 1980s the ANBG computerised the records of the living collection and began the process of computerising herbarium records. The ANBG manages the index of plant names for all of Australia and plays a leading role in the coordination of botanical data standards in Australia.

In 1994–95 the ANBG's herbarium was combined with CSIRO Division of Plant Industry's Australian National Herbarium in a joint venture as part of the Centre for Plant Biodiversity Research. The 2 herbaria have been reorganised across 2 sites, one at the ANBG and the other at CSIRO's Black Mountain complex.

In 2021–22, 3 significant new developments will be under construction: the Ian Potter National Conservatory, the new National Seed Bank and the Horticulture Centre.

Physical description

The area is located on the north-eastern side of Black Mountain and consists of steep to gently sloping hillsides cut by several gullies. The setting is within dry sclerophyll woodland dominated by *Eucalyptus rossii*, *E. mannifera* ssp. *maculosa* and *E. macrorhyncha*. Soils in the area are predominantly red/yellow earths and red earth / red podsolic soils with associated lithosols and siliceous sands.

The ANBG comprises sections devoted to different taxonomic plant groups and ecological themes focused on Australian native plants. The site is crossed by a network of paths that wind among the various garden beds. Areas of native bushland are still present on the site. One area on the upper slopes has been developed as a nature trail. Special features include the Eucalypt Lawn, rockery, Rainforest Gully, mallee shrubland, Hawkesbury sandstone area and Aboriginal trail. The rainforest area has been developed in what was previously a dry gully and has been planted to represent the eastern coast of Australia: Tasmanian species occupy the lower end of the gully and Victorian, New South Wales and Queensland species in sequence move up the gully.

The ANBG is used as an education centre from primary to tertiary levels including horticultural and taxonomic training. It is also important for scientific research into the taxonomy, horticulture and biology of native plant species. The living collection, including the seed bank, is particularly important for this function. A large number of rare and endangered plant species are included in the living collection, thus ensuring the preservation of their genotypes and allowing some protection through cultivation.

Due to the mature vegetation and a wide range of habitats present in the area, over 100 native and exotic bird species have been recorded at the ANBG.

Condition and integrity

Ongoing plantings and other development work continue to improve the area as a national collection of Australian native plants.

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