AUSTRALIAN SEEDBANK PARTNERSHIP

Safeguarding Australia's Flora

through a national network of native plant seed banks

2014–15 ANNUAL REPORT

safeguarding Australia's flora

CONTENTS

Abbreviations

Australian National Botanic Gardens (ANBG)
Brisbane Botanic Gardens (BBG)
Botanic Gardens of South Australia (BGSA)
Botanic Gardens and Parks Authority (BGPA)
George Brown Darwin Botanic Gardens (GBDBG)
Royal Botanic Gardens and Domain Trust (RBGDT)
Royal Botanic Gardens Victoria (RBG Vic)
Royal Tasmanian Botanical Gardens (RTBG)
The Council of Heads of Australian Botanic Gardens Incorporated (CHABG Inc.)
Threatened Flora Seed Centre (TFSC), Department of Parks and Wildlife (DPaW)

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Cover: *Eucalyptus youngiana* (Photo: Dan Duval, BGSA)
This page: Habitat of *Eucalyptus goniantha* subsp. *kynoura* (Photo: Anne Cochrane, DPaW)

LETTER FROM THE CHAIR

The protection, conservation and enhancement of Australian plants and their ecosystems is a key focus for the work of the Council of Heads of Australian Botanic Gardens Inc. (CHABG). Each year, through the Australian Seed Bank Partnership programme, we grow our relationships with a range of Associates to strengthen our work in biodiversity conservation.

Through our new alliance with the Society for Ecological Restoration Australasia, we are currently providing expertise in strategic discussions to guide the preparation of national standards for the practice of ecological restoration in Australia.

The Australian Grains Genebank is collaborating on our 2016 National Seed Science Forum. This Forum will bring together seed scientists, restoration practitioners, and people working in the native and agricultural seed industries, and will encourage collaborative and integrated research to solve critical problems with the seed biology of Australian flora, agricultural crops and their relatives. Importantly, this connection recognises and facilitates an integrated approach to managing production and conservation landscapes. Our work with the Australian Centre for Agriculture and Law at the University of New England and the Cooperative Research Centre for Remote Economic Participation exploring access to Indigenous knowledge will also contribute to the Forum.

Nationally, understanding is growing of the importance of our work in seed harvesting, storage, germination and utilisation for restoration in and through seed banks. The value of conservation seed banks to address key threatening processes for native species and ecological communities is now more widely understood. The recently released Australian Government *Threatened Species Strategy* highlights seed banking as part of integrated conservation management strategies to support efforts to restore threatened species and ecological communities. The efforts of the Australian Seed Bank Partnership are essential in helping Australia to achieve the ambitious targets in this conservation strategy.

On behalf of the Board, I extend our gratitude to our Partners, supporters and volunteers for their vital contributions to the Australian Seed Bank Partnership. Your support is essential to our work, and we invite you to continue to support our mission of a national effort to conserve Australia's native plant diversity through collaborative and sustainable seed banking, research, and knowledge sharing.

I will be stepping down from my position as Chair in late November 2015, after more than four and a half years. It has been a privilege to lead the Council during this time as we have evolved from a network to an incorporated association and environmental charity. We have seen the Australian Seed Bank Partnership grow as a national plant conservation programme, which has increased its reach by building a strong partnership and network of Associates and by creating a national voice around plant conservation efforts. I look forward to continuing my involvement with the Council in other capacities and contributing to this national seed banking and science programme that is part of vital global plant conservation efforts.

Stephen Forbes
Chair CHABG Inc.

LETTER FROM THE NATIONAL COORDINATOR

This has been another busy year for the Australian Seed Bank Partnership. It has been my pleasure to work with the diverse range of Partners and Associates to continue our biodiversity conservation efforts.

We have seen the recommencement of conservation seed banking in the Northern Territory with George Brown Darwin Botanic Gardens, supported by the Australian National Botanic Gardens, growing its conservation programme and collaborating on the 1000 Species Project. I am delighted that Ben Wirf will be joining the National Steering Committee in 2015–16 and that we can ensure our work continues to grow in the Northern Territory.

This year we have strengthened our relationships with the Society for Ecological Restoration Australasia and the Australian Grains Genebank. We have also welcomed the Australian Centre for Agriculture and Law at the University of New England as a new Associate through collaborative work on the management of traditional knowledge by seed bank institutions.

We continue to be part of national strategic discussions on biosecurity issues that threaten native flora, such as implementation of the *Phytophthora cinnamomi* threat abatement plan. This enables us to highlight the value of seed banking and seed science in managing ongoing threats to native flora.

We have continued to contribute to international plant conservation efforts through our seed banking collaborations with the Millennium Seed Bank Partnership of the Royal Botanic Garden, Kew. This work supports one of our key goals of long-term insurance against the loss of plant diversity through conservation seed banking. This work continues to face challenges from drought, seasonal variation, and the poor recovery of plants susceptible to myrtle rust (*Puccinia psidii*). Nevertheless, we have still managed to successfully work in 34 biogeographic regions around Australia by drawing on the extensive expertise within the Partnership and by ensuring we continue to pursue national plant conservation priorities.

I would like to thank our funding supporters whose significant resources enable us to safeguard Australia's flora. Our work would also not be possible without tremendous support from our Partners, the National Steering Committee, members of the Council of Heads of Australian Botanic Gardens Inc., and our Associates who help us integrate our work into a range of applications and ensure we maintain relevance to wide conservation efforts. Passionate community volunteers also make an important contribution, and we thank them for their valuable time and for being champions of our work.

I would also like to acknowledge the large contribution made by Stephen Forbes in his role as Chair over the past few years. Stephen has been a significant advocate for the Partnership and his ongoing passion for integrated approaches to plant conservation in Australia has been greatly valued.

I hope you enjoy this overview of our 2014–15 achievements.

Dr Lucy A. Sutherland
National Coordinator

PROFILES OF OUR PEOPLE

Andrew Crawford, Research Scientist, Threatened Flora Seed Centre, Department of Parks and Wildlife

Growing up on a bush property in the Perth hills gave me a love of the outdoors from an early age. My interest in native plants was awakened after a visit to our property by the American scientist, Professor Warren Stoutamire. Professor Stoutamire had an interest in orchid pollination and convinced me to keep an eye on the donkey orchids growing on our property to see if I could find out what pollinated them. Although quite young, I spent many hours sitting near a patch of the orchids watching and waiting to see if I could spot and trap the unknown pollinator. In the end, I didn't have any success, but Professor Stoutamire thanked me for my efforts. This experience made me realise that the 'bush' is more than 'just bush', but a complex and diverse mixture of interesting and amazing species.

After finishing high school and then looking for a career that would combine my interest in native plants and work in the outdoors, I commenced a university degree in Horticultural Science. Nearing the end of my first year of study, I applied for a summer job collecting native seed in the south west of Western Australia. Loving the work, I came back in the following years to do more seed collecting as well as botanical survey work. This led me to undertake an honours project examining germination of *Lomandra* species of importance for mining restoration in the jarrah forests of Western Australia. After graduating, I continued the seed collecting and survey work before taking up a position at the University of Western Australia, first working on propagating and establishing *Geleznowia verrucosa* for the commercial cut-flower industry, and then working on a project studying seed dormancy in weed species.

In 2001, I joined the Threatened Flora Seed Centre as part of the Department of Parks and Wildlife's collaboration with the Millennium Seed Bank Partnership of the Royal Botanic Gardens, Kew. In 2004, in addition to continuing my role as a technical officer at the Centre, and in response to the suggestion that the storage conditions used by conservation seed banks may not be broadly applicable to Australian plants, I began a part-time PhD examining seed storage and longevity in Australian flora, which I completed in 2013. I have continued working at the Centre as a research scientist, where my primary roles are collecting and storing the seed of Western Australia's plant species of conservation significance, the day-to-day running of the centre, and providing seed-related advice and training to departmental staff.

I continue to enjoy this job, as it combines my love of being in the Australian bush with taking practical measures to conserve it. I derive great personal satisfaction seeing the seed I have collected being successfully used to improve the conservation status of some of Australia's most threatened plant species through the department's translocation programme.

Ben Wirf, Nursery Supervisor, George Brown Darwin Botanic Gardens

I have lived in the Northern Territory all my life and have been working in horticulture, land management and conservation since 1994. I have been Nursery Supervisor at George Brown Darwin Botanic Gardens since 2004, a position that has allowed me to pursue my interest in the botany and propagation of the Territory's native plants, particularly introducing new species into the living collection for trial in cultivation. To my good fortune, I have the opportunity to work closely with the Northern Territory Herbarium, having participated in flora surveys in areas such as Limmen and Nitmiluk National Parks, and Fish River Station.

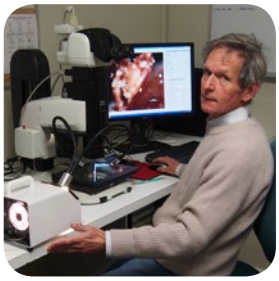
I have also been involved in translocating populations of threatened species to the botanic gardens, one example being the endangered *Helicteres macrothrix*. I get great satisfaction from propagating and growing wild species that have never been cultivated before, such as the newly described and rare *Brachychiton chrysocarpus* from Fish River.

Over the past year, my role has expanded to include conservation seed banking, since the George Brown Gardens has become a member of the Australian Seed Bank Partnership. This has prompted plans to upgrade our seed bank facilities, creating opportunities for interesting fieldwork. During the 2015 dry season, I undertook two 10-day trips to Kakadu National Park with Tom North from the National Seed Bank, making seed collections for the 1000 Species and Global Trees Projects, as well as targeting threatened species such as the several locally endemic *Lithomyrtus* spp. that are under extreme threat from myrtle rust. Cuttings of these precious plants are now looking healthy in the nursery at the Gardens, and seeds are secure at the National Seed Bank in Canberra. I am looking forward to this work continuing into the future.

Anna Moreing, Administration Volunteer, Australian Seed Bank Partnership

Although I don't have a scientific background, I have been visiting botanic gardens since I was in primary school and have always loved them. I love exploring the world around us and, in particular, Australia's unique environment. Having retired from the finance sector after 35 years, I decided to improve my understanding of environmental issues. One way of doing this has been to volunteer for the Australian Seed Bank Partnership and use my extensive experience in administrative matters in a conservation context. I have been with the Partnership for two years and I help the Secretariat in a diverse range of administration roles such as data collection and management and managing the image library, which is a resource for the Partnership's publications, website and social media. I'm currently helping to organise the National Seed Science Forum for 2016. My work at the Partnership has added another dimension to how I look at things, whether it is improving my photography and how I look at gardens, or looking deeper and not taking things at face value.

John Fitz Gerald, Seedy Volunteer, National Seed Bank, Australian National Botanic Gardens



Several members of the Australian Seed Bank Partnership receive strong support from community volunteers. I turned 'seedy' in 2011 when I joined the Australian National Botanic Gardens' seed bank team. Through my work as the coordinator of the Seedy Volunteers programme for the Friends of the Australian National Botanic Gardens, I help ensure the Gardens has a full team of volunteers in the field for each collecting day to support the staff. These volunteers are involved in various roles that include field work, preparing herbarium voucher specimens, seed cleaning and processing, and data management. Some of these collections contribute to the Partnership's targets for the 1000 Species Project.

Back at the National Seed Bank, I can often be found examining seed under the microscope, and working on the data base of seed images from the Gardens' seed collections. Like many community volunteers, I bring diverse experience and various skills and expertise to my volunteer role, drawing on my long career in science. I am a trained geologist, and I previously worked at the Australian National University's Research School of Earth Sciences, specialising in microscope work. I have a strong interest in and commitment to biodiversity conservation and native plants.

WHO WE ARE

The Australian Seed Bank Partnership is a national collaboration of nine conservation seed banks and three flora-focused organisations; the Partnership bridges the gap between policy-makers, researchers and the conservation and restoration sectors to help safeguard Australia's plant populations and communities.

Seed banking is the principal tool for the safe and efficient storage of wild plant genetic material; a sound understanding of seed harvest, storage and germination requirements is crucial to combating the global decline of plant diversity. Together these seed collections and the understanding of seed technology underpin efforts to protect and restore natural ecosystems. Our Partners provide resources and a knowledge base to support the management of plant species and communities, and our work offers an insurance policy against further loss.

Our nationally cooperative initiatives focus on seed banking, research, knowledge sharing and capacity building. We follow internationally recognised protocols for collecting and storing the seed of Australian native plants. We record environmental data crucial to our role in plant conservation. Our research is vital in establishing germination protocols and in building the knowledge base to help practitioners restore plant communities throughout Australia's diverse landscapes. Our Partners have already discovered new species, found previously unknown populations of species, and rediscovered species thought to be extinct. We share our knowledge and skills to make the most effective use of resources, manage risk, and develop and use regional expertise.

Australia's conservation seed banks hold more than 43,100 accessions (individual seed collections, normally stored in a single packet) of around 9100 species. These conservation seed banks include collections of 1178 threatened species. *Randia moorei* is endangered and has recently been collected by the team at the Royal Botanic Gardens and Domain Trust. (Photo: Graeme Errington, RBGDT)

Much of the Partnership's work is in remote locations around Australia. Ensuring that the timing of the trips coincides with when various species have mature fruit is a challenge and relies on the significant expertise in Partner institutions and associated herbaria. John Henson collecting in the Kennedy Ranges in Western Australia. (Photo: Luke Sweedman, BGPA)

Our Vision

A future where Australia's native plant diversity is valued, understood and conserved for the benefit of all.

Our Mission

A national effort to conserve Australia's native plant diversity through collaborative and sustainable seed collecting, banking, research and knowledge sharing.

AUSTRALIAN SEED BANK PARTNERSHIP HIGHLIGHTS FOR 2014–2015

- We took important steps towards achieving our seed banking targets for the 1000 Species Project.
    - This year our Partners made collections in 26 biogeographic regions with the support of fieldwork funds from the Royal Botanic Gardens, Kew. A total of 290 collections covered 137 taxa (101 species); 58 per cent are threatened and listed under national or state/territory legislation. In addition, collections were made from a further 17 taxa listed as 'taxa of concern'. Of the taxa collected this year, 96 per cent are endemic.
    - We have a four-year collaboration with the Royal Botanic Gardens, Kew to establish *ex-situ* collections of threatened trees as part of the Global Trees Programme. In 2014–15, Partners made 142 collections of 116 taxa; 30 taxa are legislatively-listed as threatened and two more are 'taxa of concern'.
- Conservation seed banking recommenced in the Northern Territory through the work of George Brown Darwin Botanic Gardens. These collections from the Territory have contributed to the Partnership's efforts to safeguard species susceptible to myrtle rust (*Puccinia psidii*). The Territory team added six species from the Myrtaceae family to the bank of wild seed resources for future use.

The Brisbane Botanic Gardens team made collections of *Eucalyptus paedoglauca* as part of the Global Trees Project, supported by the Royal Botanic Gardens, Kew and the Garfield Weston Foundation. This species is nationally listed as 'vulnerable'. (Photo: Jason Halford, BBG)

Sharing knowledge on seed harvesting, methods for storage, and recording field data helps to ensure that any wild harvesting of native seed is guided by sustainable practices. Tom North, from the Australian National Botanic Gardens, has been training and assisting the team at George Brown Darwin Botanic Gardens as they develop their conservation seed banking programme. Left to right, Tom North and Ben Wirf. (Photo: ANBG)

- Our relationship with the Australian Grains Genebank has been strengthened as we collaborate on the upcoming National Seed Science Forum scheduled for March 2016. Working together on the Forum has enabled us to develop networks in the agricultural and conservation sectors, as well as within the restoration industry.
- Our new alliance with the Society for Ecological Restoration Australasia has seen us participating, and providing seed banking expertise, in strategic discussions to guide the development of national standards for the practice of ecological restoration in Australia.
- Fieldwork being undertaken by Partnership members in South Australia and Northern Territory has involved collaborations with Traditional Owners. In 2014–15, we began working with the University of New England's School of Law to examine ways of managing Aboriginal and Torres Strait Islander knowledge associated with conservation seed banking collections, so as to respect the cultural integrity of the data.

GOALS AND ACHIEVEMENTS

The Australian Seed Bank Partnership's national programme to conserve Australia's native plant diversity focuses on five key goals. Each has identified strategies, actions, priorities and key outcomes under the Partnership's business plan, which guides our work. These outcomes allow us to maintain focus and to ensure our work is relevant to our vision of "a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all".

Our five goals are:

1. Collecting and storing seed in secure seed banks as long-term insurance against loss of plant diversity.
2. Conducting research to improve both conservation and restoration outcomes from seed banking.
3. Developing national standards and improving capacity to enable conservation and restoration of biodiverse and resilient ecosystems.
4. Sharing knowledge and engaging the public, private and charity sectors, as well as community members, in the work of the Australian Seed Bank Partnership.
5. Securing and strategically managing our resources to strengthen and support the work of the Australian Seed Bank Partnership to achieve its vision.

Utilising resources secured during 2014–15, we continued to focus our efforts on the first phase of the 1000 Species Project and to engage with our Associates on conservation and utilisation matters. Our efforts contribute to building a national safety net for Australian plant species through *ex situ* conservation. Research being undertaken by our Partners increases understanding of the seed biology of native plants and sharing research findings helps engage a range of sectors in our work to increase awareness and understanding of the role of seed banking and associated research in biodiversity conservation.

Tom North collecting *Hildegardia australiensis* near Pul Pul, Kakadu National Park. This species is listed as 'near threatened'. (Photo: Ben Wirf, GBDBG)

A range of data is recorded for each collection, and a GPS reading of the site location is noted. This information helps to map species and vegetation and to ensure that collecting areas are not overharvested. Graeme Errington records field data for rainforest collections in NSW. (Photo: RBGDT)

Australian Seed Bank – a virtual seed bank

Through the Atlas of Living Australia, we manage an accessible online resource about Australia's conservation seed bank collections. The online resource helps us to share knowledge and engage people with our work. In 2014–15, the majority of Partners updated their conservation seed collection information within the *Australian Seed Bank* (online) - http://asbp.ala.org.au/. This online resource is used for national conservation planning and management, including a tool to help determine national seed banking priorities.

Restoration standards

We have been working in alliance with the Society for Ecological Restoration Australasia and various conservation non-government organisations, and providing expertise in developing the first National Standards for the Practice of Ecological Restoration in Australia. These standards are due to be launched in 2016.

Seeds from the Round-leaved Banana Fig (*Ficus crassipes*) have been collected from the western approach to Mount Bartle Frere for the Global Trees Project. (Photo: Jason Halford, BBG)

1000 Species Project

The 1000 Species Project is the Australian Seed Bank Partnership's overarching initiative to collect and store seed as long term insurance against biodiversity loss. The 1000 Species Project draws on the expertise of our Partners around the country to collect and conserve native seeds and research their germination and storage requirements. During phase one of this project, we are giving priority to collecting species not yet held in seed bank collections, and we are focusing on plants that are endangered, endemic, economically significant, or most likely to be impacted by climate change or other threats.

This important project began in September 2012, after six years of fieldwork funding from Royal Botanic Gardens, Kew and significant in-kind contributions from our Partner organisations. More recently, we have joined Kew, supported through the Garfield Weston Foundation, in its efforts globally to conserve tree species through the Global Trees Programme.

In 2014–15, around $447,000 was invested in fieldwork around Australia. This enabled our Partners to undertake seed collecting trips in 34 biogeographic regions, including in such remote places as North Queensland, Kakadu National Park, the Great Victoria Desert, the Kimberley and the Pilbara.

Using the Millennium Seed Bank Fieldwork Funds, our Partners worked in 26 biogeographic regions and made a total of 290 collections of 137 taxa (101 species). More than half of these taxa are legislatively-listed as threatened. Details of these collections are described on page 11.

As a partner in the Global Trees Programme, the Australian Seed Bank Partnership is working over four years to build *ex situ* collections of tree species. In 2014–15, the Partners made 142 collections of 116 taxa; 75 of these taxa were new acquisitions to the Millennium Seed Bank in the United Kingdom.

Achievements around Australia towards our 1000 Species Project

Northern Territory

George Brown Darwin Botanic Gardens joined the 1000 Species Project team for the first time this year, supported through the Millennium Seed Bank Fieldwork Funds. Large distances in the Territory and inaccessibility of populations make reconnaissance work costly and ambitious. To meet this challenge, staff from the Australian National Botanic Gardens and the George Brown Darwin Botanic Gardens pooled their resources on two major collecting trips into Kakadu National Park. During the trips, collectors drove 3200 kilometres, spent twelve hours in helicopters and walked tens of kilometres through rugged and remote terrain. They collected 17 new species for the Project.

Ben Wirf collecting near Twin Falls with Craig Djandjomerr and Johnny Reid. (Photo: Tom North, ANBG)

Acacia amanda is a new species to conservation seed bank collections. (Photo: Ben Wirf GBDBG)

Myrtle rust (*Puccinia psidii*) was recently discovered on Melville Island north of Darwin. There is a strong likelihood that the rust will spread to Kakadu in the near future, so the Partnership is giving priority to collections of Myrtaceous trees and shrubs in the Northern Territory.

Australia's earlier collections of *Hibiscus symonii* were made in the 1980s. During the last two decades we have refined our collecting and storage methods to meet international standards. A recent collection of *Hibiscus symonii* was banked using these improved standards by the team at George Brown Darwin Botanic Gardens. (Photo: Ben Wirf GBDBG)

Queensland

The Brisbane Botanic Gardens team travelled to Far North Queensland for the 2014–15 collecting season. The Gardens team made 18 new collections of taxa supported by the Royal Botanic Gardens, Kew's fieldwork funds, and 26 collections from 23 species for the Global Trees Project. The majority of tree seed collections were from rainforest species, with some important collections of vulnerable eucalypts. Species collected included three State-listed endangered species, two of which are nominated for listing under the Environment Protection and Biodiversity Conservation Act (1999).

For the Global Trees Project, collections were made of six *Ficus* species in Queensland. Most of those species are endemic to Australia. *Ficus pleurocarpa* and *Ficus crassipes,* or banana figs, are found only in the north east Queensland wet tropics, while for *Ficus septica*, north Queensland represents the southern edge of its range, which extends to north east India. Many fig species are known to be of ecological significance, especially as important food sources for a range of fauna.

Jason Halford collecting from a steep granite pavement at Walsh's Pyramid near Gordonvale in Far North Queensland. *Borya septentrionalis* is an endemic 'resurrection plant'. (Photo: Simon Bush, BBG)

New South Wales

Seed collections made during 2014–15 were primarily from rainforest habitats of north eastern New South Wales. Collecting locations included World Heritage Gondwana rainforest regions, such as the Tweed Valley and the Border Ranges. The threatened species collected by the Royal Botanic Gardens and Domain Trust, as part of the 1000 Species Project, contributed to achieving a total of 50 per cent of NSW threatened species now being held in the Australian PlantBank collections.

Rainforest species are currently a major research focus for the Trust team. A key objective of this new research is the screening of rainforest species for desiccation sensitivity, which requires a lengthy seed assay process for each new collection. As a result, seed collecting for rainforest trees is not as predictable as other orthodox Australian flora groups, such as eucalypts and acacias. Significantly, the Global Trees Project is directly contributing to knowledge of how NSW rainforest tree seeds behave in storage.

Caldcluvia paniculosa was originally collected as part of the Global Trees Project. Investigations undertaken by the Trust team found it to have storage problems, and so it was not able to be included in the tree seed collections that were shipped to the Millennium Seed Bank as part of this project. (Photo: RBGDT)

Victoria

The Victorian seed collecting team banked eight taxa new to seed banks as part of their efforts for the 1000 Species Project. Making collections for the first time of the threatened *Pultenaea dargilensis* and the rare *Pultenaea reflexifolia* was a particular highlight during this year's fieldwork. Collections were also made of *Senecio macrocarpus*, *Rutidosis leptorhynchhoides* and *Leucochrysum albicans* subsp. *tricolor*, which has enhanced existing collections of these nationally threatened taxa.

Several of the Victorian collections are being used to support the recovery of species and grassland plant communities. The Victorian team has established seed production areas, which are enabling the enhancement of wild-sourced seed collections for future use. Restoration of the Western Grasslands Reserves will utilise four species from the seed orchards – *Brachyscome dentata*, *Plantago gaudichaudiana*, *Rutidosis leptorhynchoides* and *Senecio macrocarpus*.

Pultenaea reflexifolia. (Photo: R. De Kok, ANBG)

South Australia

This year, the South Australian Seed Conservation Centre revisited the remote Great Victoria Desert and the Eyre Peninsula. The South Australian team continued their fieldwork with assistance from Natural Resources Alinytjara Wilurara staff. A workshop on the results of their fieldwork with traditional owners on the Mamungari Board was held at the Botanic Gardens of South Australia.

Several rare and threatened species were recorded in the Great Victoria Desert, and the work included seed collections of three species that are new records for South Australia – *Sclerolaena eurotioides*, *Ptilotus chamaecladus* and *Eremophila undulata*. Such collections give us a better understanding of endangered species ranges, and enhance the provenance of *ex situ* collections for future use.

Ptilotus chamaecladus was one of three new species records for South Australia found in the Great Victoria Desert. *Ptilotus* seed can be hard to collect, as seed can be scarce and hundreds of individual plants may need to be examined to make a quality collection. (Photo: Dan Duval, BGSA)

Eremophila undulata. (Photo: Dan Duval, BGSA)

Western Australia

Threatened Flora Seed Centre

The Department of Parks and Wildlife's Threatened Flora Seed Centre undertook extensive reconnaissance work this year for Partnership projects, visiting over 60 populations of 40 species. This preliminary work resulted in over 40 collections being made from 30 species, 28 of which are of conservation significance. Of particular note were collections of a number of threatened eucalypt species, including *Eucalyptus impensa*, *Eucalyptus* x *balanites* and *Eucalyptus pruiniramis*. Threatened eucalypts are still under-represented in conservation seed banks. The ongoing flux in accepted eucalypt taxonomy and the increasing threat of myrtle rust make it essential to continue seed banking species from this group.

Eucalyptus x *balanites* is critically endangered under IUCN criteria, and collections were made as part of the 2014–15 Global Trees Project. (Photo: Andrew Crawford, DPaW)

Androcalva bivillosa, which has only recently been listed as Critically Endangered, was recently collected by the team at the Threatened Flora Seed Centre. (Photo: Andrew Crawford, DPaW)

Western Australia Seed Technology Centre

The collecting team from the Botanic Gardens and Parks Authority spent 50 days in remote locations this year. Dry conditions in the Pilbara made the fieldwork challenging. In addition, lack of detail in botanical records for some of the lesser known species meant field botanists needed to make many visits in the Mallee region to determine the correct target species. Despite the challenges, 15 collections were made for the 1000 Species Project, including collections of *Calothamnus borealis* from the Kennedy Ranges and *Ipomoea yardiensis* from the Exmouth area.

Calothamnus borealis subsp. *borealis*.
(Photo: Luke Sweedman, BGPA)

Commonwealth

National Seed Bank, Australian National Botanic Gardens

The team from the National Seed Bank has been working on Christmas Island and in the Southern Highlands. A key success for the team has been the collection of *Bossiaea grayi* and the collection made from a newly discovered population of *Lepidium ginninderrense*, previously known from only two other sites. Both species are endemic to the Australian Capital Territory and are at risk of extinction. The biggest threat to *Bossaiea grayi* is competition from weeds, which are increasing in the riparian zones where the species is found. The new *Lepidium* population was discovered by Greening Australia in the industrial suburb of Mitchell. The collection was made with the assistance of Emma Cook, Senior Ecologist with the ACT Government, with whom the National Seed Bank team works closely on plant conservation projects.

Lepidium ginninderrense. (Photo: Bruce Clarke, ANBG)

Bossiaea grayi. (Photo: Murray Fagg, ANBG)

FUTURE DIRECTIONS

We are working towards a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all. As part of our ambitious programme of work, we will focus on the following projects in 2015–16:

1000 Species Project

Threatened and endemic species

We will build on our success in seed banking species of national importance through collections of threatened and endemic species and those of economic potential. Collections will be made in diverse locations and ecosystems including Kakadu, Western Tasmania heathlands, Victorian Alps and Gippsland, Kangaroo Island, Blue Mountains, and the Gascoyne region of Western Australia.

We will continue seeking support to implement the second phase of this project, which aims to capture the genetic diversity of 1000 species by banking three provenance collections of the rarest and unique species.

Australia's large land mass means field experts often work in remote locations. The team at the Botanic Gardens and Parks Authority (BGPA) are well set up for long field trips. (Photo: Luke Sweedman, BGPA)

Global Trees Programme

We will continue our work as part of the Global Trees Programme through the Millennium Seed Bank Partnership, building *ex situ* seed collections of threatened tree species. In our second year working on the Australian Global Trees Project, we will collect 126 tree species that have not yet been conserved in conservation seed banks.

Our recent collecting efforts have focused on safeguarding trees from the Australian rainforest. Seeds of rainforest flora, such as *Sloanea australis* known as Maiden's Blush, have been securely banked for a safer future. (Photo: Karen Sommerville, RBGDT)

Crop Wild Relatives

The Partnership will continue its work with the Australian Grains Genebank to build a programme of collecting around Australia's priority crop wild relatives. We will be seeking support and resources to enable the banking of seeds of 40 priority species. The project will aim to make these available for pre-breeding trials that could contribute to the development of modern crop cultivars with beneficial traits such as drought tolerance and disease resistance.

National Seed Science Forum

The Australian Seed Bank Partnership's National Seed Science Forum will be held in March 2016 at the Australian PlantBank, hosted by The Australian Botanic Garden Mount Annan, in collaboration with the Australian Grains Genebank and the Australian Network for Plant Conservation. Keynote speakers are United States researcher Dr Christina Walters, and Australian Professors Kingsley Dixon and Angela Moles, who will lead the exciting line up in a rich programme of presentations bringing together scientists and practitioners. The forum will provide an opportunity to share the latest research and ideas, to discuss issues being faced by industry that could be addressed through science, and to form collaborations to advance future conservation, agricultural and restoration efforts.

Restoring Diversity Project

This project aims to bridge gaps in our knowledge of practical ways to germinate understorey plant species, which are necessary components of a fully functional ecosystem. This work will contribute to the second of our five goals – conducting collaborative research to improve both conservation and restoration outcomes from seed banking. We are seeking support and resources to enable us to undertake this important collaborative research.

Australian Seed Bank – Phase 2

The Partnership and Atlas of Living Australia have developed an accessible online seed information resource, built on national data standards, so the seed collections data can be shared, retrieved and utilised. The second phase of this project will help Australia's nine conservation seed banks to develop protocols to extract seed germination data and present it in a usable form. In addition, this project will involve a series of workshops and training to increase use of the resource by engaging relevant natural resource management and Landcare groups, community groups, and local government staff. We are seeking support to enable us to enhance our ability to share our scientific knowledge with conservation and restoration practitioners and land managers.

Professor Kingsley Dixon will be one of the keynote speakers at the National Seed Science Forum. He will be examining seed science in the age of restoration.

HOW YOU CAN HELP

The Australian landscape is like no other! Our continent has a treasure of unique plants … more than three quarters of our 18,500 flowering plant species are found nowhere else in the world.

The Australian Seed Bank Partnership is taking decisive action to safeguard Australia's plants. Seed banking is a principal tool for the safe and efficient storage of wild plant genetic diversity, and provides a resource and knowledge base to support the management of plant species and communities.

With your help, we can continue our national effort to conserve Australia's native plant diversity through collaborative and sustainable seed collecting, banking, research, and sharing our knowledge about Australian plants. With your help, we can make a difference.

Eucalypts are an iconic group of plants in the Australian landscape. There are 141 eucalypts that are currently threatened. *Corymbia rhodops*, restricted to occurring in Far North Queensland, is vulnerable because of the destruction of its habitat through mining activities. The further banking of seeds is needed to support the recovery of this species. (Photo: Ian Brooker, ANBG)

Stylidium wilroyense is a threatened species. (Photo: Andrew Crawford, DPaW). In the south west of Western Australia, there are more than 250 triggerplants with over a third identified as needing conservation assistance to secure their future. With your help we can make a difference to the conservation of this important group of plants.

Do you want to be a species advocate?

Do you want to help save a species?

Are you the person who can give or raise $9400 to help save one native Australian species?

One of the best ways you can support the conservation of Australia's unique flora is to be a plant conservation advocate. Consider:

- making a donation to the Australian Seed Bank Partnership to help us conserve 1000 species for our future
- advocating for the Australian Seed Bank Partnership – each $9400 you give or can raise among your friends will help save a species.

If you would like to become a Species Advocate, contact Dr Lucy A. Sutherland on +61 (0) 2 6250 9473 or email: coordinator@seedpartnership.org.au

Donations more than $2 are tax-deductible.

ANNUAL FINANCIAL REPORT for the year ending 30 June 2015

The Australian Seed Bank Partnership is a trading name of the Council of Heads of Australian Botanic Gardens Incorporated (CHABG), as well as its primary conservation programme. CHABG is an Association incorporated under the Australian Capital Territory Association Incorporation Act 1991, an Act administered by the Office of Regulatory Services in the ACT. CHABG, a charitable institution endorsed by the Australian Taxation Office, is also endorsed as a deductable gift recipient under Subdivision 30-BA of the Income Tax Assessment Act 1997 for the operation of 'Council of Heads of Australian Botanic Gardens Public Fund'.

The financial report contained within this annual report also includes financial statements for CHABG's other program activities.

Statement by the Management Committee

for the year ended 30th June 2015

In the opinion of the Management Committee of CHABG Inc

the attached financial statements and notes thereto comply with Accounting Standards

the attached Income Statement is prepared so as to give a true and fair view of the Financial Performance of the association for the year ended 30th June 2015

the accompanying Balance Sheet is prepared so as to give a true and fair view of the Financial Position of the association as at 30th June 2015

there are reasonable grounds to believe that the CHABG Inc. will be able to pay its debts as and when they fall due and payable

that no officer of this association, or any firm of which an officer is a member, or any body corporate in which an officer has a substantial financial interest has received or is entitled to receive any benefit from a contract with this association, nor has any officer received any direct or indirect pecuniary benefit from this association.

SIGNED In accordance with a resolution of the Management Committee

This 24th day of November 2015
On behalf of the Management Committee

.....
(Name: Tim Entwisle)
(Position: Committee member)

.....
(Name: MARK MERRY)
(Position: COMMITTEE MEMBER)

CHABG Inc

Annual Financial Statements

2014-2015

Independent Auditor's Report

for the year ended 30th June 2015

To the Members CHABG Inc

Scope
The financial report and management committee's responsibility

The Management Committee are responsible for the financial report, being a special purpose financial report, that gives a true and fair view of the financial position and performance of CHABG Inc, for the year ended 30th June 2015 and that it complies with Accounting Standards in Australia. This includes responsibility for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial report.

The Management Committee have determined that the accounting policies used are consistent with the financial reporting requirements of the *CHABG Inc*, and are appropriate to meet the needs of the members.

The financial report comprises the balance sheet, income statement, accompanying notes to the financial statements, and the management committee's statement, for CHABG Inc.

Audit Approach

I conducted an independent audit of the financial report in order to express an opinion on it to the members of the association. The audit was conducted in accordance with Australian Auditing Standards in order to provide reasonable assurance as to whether the financial report is free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgment, selective testing, the inherent limitations of internal control, and the availability of persuasive rather than conclusive evidence.

Therefore, an audit cannot guarantee that all material misstatements have been detected.

I performed procedures to assess whether in all material respects the financial report presents fairly, in accordance with the *Associations Incorporation Act 1991*, including compliance with Accounting Standards in Australia, and other mandatory financial reporting requirements in Australia, a view which is consistent with our understanding of the association's financial position, and of its performance as represented by the results of its operations, changes in equity and cash flows.

I formed my audit opinion on the basis of these procedures, which included:
> Examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial report

> Assessing the appropriateness of the accounting policies and disclosures used and the reasonableness of significant accounting estimates made by the committee.

While I considered the effectiveness of management's internal controls over financial reporting when determining the nature and extent of my procedures, my audit was not designed to provide assurance on internal controls. I performed procedures to assess whether the substance of business transactions was accurately reflected in the financial report.

These and my other procedures did not include consideration or judgment of the appropriateness or reasonableness of the business plans or strategies adopted by the management committee of the association.

Independence

I am independent of the association, and have met the independence requirements of Australian professional ethical pronouncements and the *Associations Incorporation Act 1985*. I have given to the management committee of the association a written auditor's independence declaration, a copy of which is included in the financial report. In addition to my audit of the financial report, I was engaged to undertake the services disclosed in the notes to the financial statements. The provision of these services has not impaired my independence.

Qualification

As is common for organisations of this type, it is not practicable for the management committee to maintain an effective system of internal control over its cash income prior to initial entry into the accounting records. Accordingly, my audit in relation to these items was limited to the amounts recorded in the books and records for the financial year and I therefore am unable to express an opinion whether proceeds of cash income obtained are complete.

Audit Opinion

In my opinion, except for the effects on the financial report of such adjustments, if any, as might have been required had the limitation on my audit procedures referred to in the qualification paragraph not existed, the financial report of CHABG Inc, is in accordance with:

a) The Associations Incorporation *Act 1991*, including:

i. Giving a true and fair view of the financial position of CHABG Inc and of its performance for the year ended on 30 June 2015

ii. Complying with Accounting Standards in Australia and the Associations Incorporations *Act 1991*

b) Other mandatory financial reporting requirements in Australia.

Signed this the 23 day of September 2015

Tony Trimboli
CPA Australia

Auditor's Declaration of Independence
for the year ended 30th June 2015

To the Management Committee of CHABG Inc.

I declare that, to the best of my knowledge and belief, there have been no contraventions of:

(i) The auditor independence requirements of the *Associations Incorporation Act 1991* in relation to the audit

(ii) Any applicable code of professional conduct in relation to the audit.

Signed this the 28 day of September 2015

Tony Trimboli
CPA Australia

CHABG Inc. Statement of Expenditure and Income

	2014–15	2013–14
Income		
Membership Contribution	13,000	13,000
Donation	100	-
Grant Funding - Royal Botanic Gardens Kew - Fieldwork Funds	97,170	90,362
Grant Funding - Royal Botanic Gardens Kew - C4 Grasses	-	67,085
Grant Funding - Royal Botanic Gardens Kew - Global Trees	425,839	-
Grant Funding - Foundation of National Parks & Wildlife	-	14,970
Grant Funding - Bjarne K. Dahl Trust	-	48,286
Interest	576	337
Total Income	**536,685**	**234,040**
Expenditure		
General Expenditure	7,254	327
Insurance	-	1,768
1000 Species Project Collections - Royal Botanic Gardens Kew - Fieldwork Funds	85,862	71,368
C4 Grass Collectionns - Royal Botanic Gardens Kew Funds	10,000	12,727
Grant Funding - Royal Botanic Gardens Kew - Global Trees	145,016	-
Threatened Species Collections - Foundation for National Parks & Wildlife Funds		14,970
Eucalypt Collections - Bjarne K. Dahl Trust Funds		48,286
Meeting on Australian Seed Bank Online - Atlas of Living Australia Funds		1,782
Total Expenditure	**248,132**	**151,228**
Surplus/Deficit	**288,553**	**82,812**

CHABG Inc. Balance Sheet

	2014–15	2013–14
Current Assets		
Deposit account 224159	444,123	177,438
Deposit account 224167	43,820	21,731
Sundry Debtor	1,100	3,300
ATO - GST refundable	938	-
Total Assets	**489,981**	**202,469**
Liabilities		
ATO - GST Payable	-	(1,041)
Net Assets	**489,981**	**201,428**

Equity	(201,428)	(118,616)
Surplus/Deficit for year	(288,553)	(82,812)
Retained earnings	**(489,981)**	**(201,428)**

GOVERNANCE OF THE AUSTRALIAN SEED BANK PARTNERSHIP

The Management Committee of the Council of Heads of Australian Botanic Gardens Incorporated (CHABG Inc.) draws on the expertise of senior executives from Australia's capital city botanic gardens, who guide the strategic direction of the Partnership's work to ensure it addresses national plant conservation priorities and contributes to international conservation targets.

Members of the Committee of the Council in 2014–15 were:

- **Mr Stephen Forbes** – Director, Botanic Gardens of South Australia (CHABG Chair)
- **Mr Dale Arvidsson** – Curator, Brisbane Botanic Gardens
- **Prof Tim Entwisle** – Director and Chief Executive, Royal Botanic Gardens Victoria
- **Mr Mark Fountain** – Deputy Director, Royal Tasmanian Botanical Gardens
- **Mr Bryan Harty** – Director, George Brown Darwin Botanic Gardens
- **Dr Brett Summerell** – Executive Director, Royal Botanic Gardens and Domain Trust
- **Mr Mark Webb** – Chief Executive Officer, Botanic Gardens and Parks Authority (Kings Park)
- **Dr Judy West** – Executive Director, Australian National Botanic Gardens

We would like to recognise the contribution of former Committee member Mr Ross McKinnon (former Curator, Brisbane Botanic Gardens).

Stephen Forbes

Dale Arvidsson

Tim Entwisle

Mark Fountain

Bryan Harty

Brett Summerell

Mark Webb

Judy West

The Australian Seed Bank Partnership grew out of the Royal Botanic Gardens, Kew's Millennium Seed Bank Project that supported Australian institutions to help achieve the Project's goal of banking 10 per cent of the world's plant species by 2010. We continue to support Kew's endeavour to bank 25 per cent of the world's flora by 2020. The Australian Seed Bank Partnership programme is carried out in collaboration with our partner organisations (see page 29). Other organisations (our Associates) assist with individual projects that contribute to the overall programme (see page 28). The programme is managed by a National Steering Committee and led by the National Coordinator provided by the Director of National Parks (through the Australian National Botanic Gardens).

The Australian Seed Bank Partnership is supported by financial and in-kind contributions (e.g. scientific expertise, project management, fieldwork, information management, promotion and marketing) from partner organisations and through philanthropic and public donations. Our business plan outlines our national programme that includes specific strategies, actions and timelines: http://seedpartnership.org.au/about/reports

National Coordinator Australian Seed Bank Partnership – Dr Lucy A. Sutherland

The key role of the National Coordinator is to provide strategic leadership and programme management to oversee the implementation of the Partnership's business plan, policy and operations. The Coordinator also works with the members of the Partnership and the Management Committee of CHABG Inc. to secure the necessary funds for operations and programmes that will realise the business plan for the Partnership.

National Steering Committee

The National Steering Committee brings together a team of leading experts from the members of the Partnership, who help deliver real plant conservation outcomes. These experts range from seed scientists, botanists, taxonomists and ecologists to horticulturalists and plant conservation ambassadors.

Members of the National Steering Committee during 2014–15 were:

- **Mr Philip Cameron** – Senior Botanic Officer and Seed Bank Manager, Brisbane Botanic Gardens, Mt Coot-tha
- **Mr Trevor Christensen** – Deputy Director, Botanic Gardens of South Australia
- **Dr Anne Cochrane** – Committee Member, Australian Network for Plant Conservation
- **Dr Peter Cuneo** – Manager, Natural Heritage, Royal Botanic Gardens and Domain Trust
- **Mr Graham Fifield** – Senior Project Manager, Greening Australia
- **Dr David Merritt** – Senior Research Scientist, Botanic Gardens and Parks Authority
- **Mr Tom North** – Seed Bank Manager, Australian National Botanic Gardens
- **Mr Neville Walsh** – Senior Conservation Botanist, Royal Botanic Gardens Victoria
- **Mr James Wood** – Seed Bank Manager, Royal Tasmanian Botanical Gardens.

THANK YOU—SUPPORTERS AND ASSOCIATES

The Australian Seed Bank Partnership would like to thank all our supporters and Associates. Your resources and in-kind support have made significant contributions to our mission to conserve Australia's native plant diversity.

We look forward to working with our supporters and Associates in the coming years to achieve our vision of a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all.

Supporters

- Bjarne K. Dahl Trust
- Director of National Parks (Australian Government)
- Joshua Rob
- Foundation for National Parks and Wildlife
- Royal Botanic Gardens, Kew

Associates

- Alcoa of Australia Limited
- Atlas of Living Australia
- Australian Government Department of the Environment
- Australian Grains Genebank
- Botanic Gardens of Australia and New Zealand Inc.
- Centre for Australian National Biodiversity Research
- CSIRO
- Global Crop Diversity Trust
- Grains Research and Development Corporation
- Queensland Government Department of Agriculture, Fisheries and Forestry
- Society for Ecological Restoration Australasia
- University of New England
- University of Queensland

PARTNER ORGANISATIONS OF THE AUSTRALIAN SEED BANK PARTNERSHIP

Australian PlantBank
The Royal Botanic Gardens and Domain Trust (RBGDT)

Australian Network for Plant Conservation Inc. (ANPC)

Brisbane Botanic Gardens Conservation Seed Bank
Brisbane City Council (BBG)

George Brown Darwin Botanic Gardens
Parks and Wildlife Commission of the Northern Territory (GBDBG)

Greening Australia (GA)

Millennium Seed Bank Partnership
Royal Botanic Gardens, Kew (RBG Kew)

National Seed Bank
Australian National Botanic Gardens (ANBG)

South Australian Seed Conservation Centre Botanic Gardens of South Australia (BGSA)

Tasmanian Seed Conservation Centre
Royal Tasmanian Botanical Gardens (RTBG)

The Victorian Conservation Seedbank
Royal Botanic Gardens Victoria (RBG Vic)

The Western Australia Seed Technology Centre
Botanic Gardens and Parks Authority (BGPA)

Threatened Flora Seed Centre
Department of Parks and Wildlife, Western Australia (DPaW)

Australian Seed Bank Partnership
c/o Australian National Botanic Gardens
GPO Box 1777
Canberra ACT 2601
Australia

ABN: 58153442365

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f: +61 (0) 2 6250 9599
e: coordinator@seedpartnership.org.au

www.seedpartnership.org.au/

CHABG Inc. (trading as the Australian Seed Bank Partnership) is dedicated to supporting the protection, conservation and enhancement of Australian plants and their ecosystems. CHABG Inc. relies on support for the Australian Seed Bank Partnership Programme and its other programmes to achieve its vision of a future where native plant diversity is valued, understood and conserved for the benefit of all. Please help us to conserve Australia's unique flora and plant communities today and for the future. CHABG Inc. is a charitable institution, with deductable gift recipient status (item 1), and operates the Council of Heads of Australian Botanic Gardens Public Fund.