

Safeguarding Australia's Flora
through a national network of native plant seed banks



2013-14
ANNUAL REPORT



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Cover: *Grevillea* sp. Gillingarra (R.J. Cranfield) (Photo: Andrew Crawford, DPaW)
This page: Habitat of *Leucopogon recurvisepalus* (Photo: Jason Halford, BBG)

LETTER FROM THE CHAIR

The Council of Heads of Australian Botanic Gardens Inc. continues to focus efforts on supporting the protection, conservation and enhancement of Australian plants and their ecosystems. National issues require a national response and with diminishing resources available to manage biodiversity in Australia, the cooperative and coordinated approach we take results in efficiencies, and ensures that we maintain a focus on national and international plant conservation priorities.

Changing climates and growing threats, such as myrtle rust and dieback, place stress on our natural environmental systems and our partners' research contributes to an understanding of the environment's response to accelerating global change. There is growing international recognition of the critical role seed banks play in understanding ecosystem function through understanding seed set, harvesting, storage and germination, and the contribution this knowledge makes to landscape management and restoration. The value of *ex situ* conservation and the Australian Seed Bank Partnership programme is increasingly important in supporting Australia's biodiversity conservation efforts by providing a risk management approach to our mission to safeguard Australia's flora. The Partnership's efforts in *ex situ* conservation through seed banking, increasing knowledge through seed science and sharing this knowledge all contribute to global plant conservation efforts under the Convention on Biological Diversity's *Global Strategy for Plant Conservation*.

I am particularly pleased about the opportunities that are opening up with our growing relationship with the Australian Grains Genebank. Australia contains a wealth of wild relatives that have the potential to contribute to the development of modern crop cultivars. By bringing together the work of the conservation seed banks and agricultural genebanks we can aim to meet strategic priorities in both biodiversity conservation and food security.

I would like to thank our donors, partners and volunteers for making our unique collaborative work possible. Our supporter base is expanding to underpin our work and we invite you to continue to support our mission and help safeguard Australia's flora for future generations.

Stephen Forbes

Chair CHABG Inc.





LETTER FROM THE NATIONAL COORDINATOR

The Australian Seed Bank Partnership has had a busy year and it is my pleasure to be presenting the National Coordinator's report for 2013–14.

This year we have put the work of the Partnership on an international platform in several ways. The Australian Government has included the Partnership's efforts in Australia's 5th National Report to the Convention on Biological Diversity. This inclusion highlights how the work of the Partnership and its members is significant to plant conservation in Australia and contributes to global biodiversity conservation agendas.

The 5th Global Botanic Gardens Congress in Dunedin, New Zealand in October provided us with the opportunity to showcase the extensive and diverse work being undertaken in seed conservation and science in Australia by our members. The need for greater efforts in seed banking to support plant conservation was advocated by several of the international plenary speakers and the strength of the coordinated and collaborative efforts in Australia did not go unnoticed.

There are ongoing hindrances to our work and building a national safety net for Australia's flora is continually challenged by drought, seasonal variation, remote localities of threatened species and the various predatory pressures on plant communities. Nevertheless, the Partnership has made important advances in safeguarding Australia's flora through our collaborative seed banking work. In particular, significant collections of threatened species and species susceptible to the invasive myrtle rust (*Puccinia psidii*) have been added to seed banks this year.

Building these conservation collections would not have been possible without the tremendous support received from our funding supporters; we are very grateful for the significant resources they have provided us to enable us to do our work.

I would also like to pay tribute to the Partnership's dedicated specialists who are passionate about our vision of a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all. This year's achievements are due to members of the Partnership, the National Steering Committee, members of the Management Committee of the Council of Heads of Australian Botanic Gardens Inc. and a diverse range of Associates who contribute tremendous value and expertise to our work. In addition, I also want to acknowledge a growing number of volunteers who offer their valuable time and enthusiasm to support the Partnership.

I hope you enjoy this overview of our 2013–14 achievements.

Dr Lucy A. Sutherland

National Coordinator



PROFILES OF OUR PEOPLE

Dr Jenny Guerin **Seed Research Officer, South Australian** **Seed Conservation Centre** **Botanic Gardens of South Australia**

I started working at the South Australian Seed Conservation Centre in 2009. My research interests lie in experimenting with a range of methods to promote seed germination. During my time at the Seed Centre I have



studied the influence of several environmental factors on seed germination, both in the laboratory and field-based experiments. One of my first projects involved studying the effects of temperature on the germination of threatened species growing in niche habitats in the state. I found that seeds from some species have a very small temperature window where germination occurs; indicating that recruitment of those species may be vulnerable to climatic change. Other threatened species required a period of *in situ* burial and fire cues to promote germination, which may help to explain why those species are rarely recorded. Another area of interest is testing after-ripening and stratification methods that mimic the conditions seeds experience in their natural environment. I am also undertaking projects that involve assessing seed viability and predicting seed germination patterns of species to be utilised in revegetation programs post-mining.

The most enjoyable parts of my job are spent outside on field trips and in the laboratory setting up germination experiments. Learning about the different landscapes in the state and getting to know the species in various plant communities has also been a highlight. Our team has started to document germination protocols and images of plants and seeds on a website called Seeds of South Australia (<http://saseedbank.com.au/>). I hope that our work will contribute to an increase in the number of species that are used for revegetation and that our valuable collection of seeds, and the increasing understanding about their germination requirements, will be a useful resource now and in the future.

Luke Sweedman **Curator, Western Australian Seed** **Technology Centre** **Kings Park, Perth**

I started as the Seed Collector at Kings Park in 1990, a role that has been in place since 1963. The job involved travelling throughout Western Australia collecting seed and other plant material to support the functions of the Western Australian Botanic Garden. Seeds were primarily used for conservation storage and plant displays.

It took me many years to gain a workable understanding of the extensive biodiversity in Western Australia and I'm grateful for every opportunity I have had to conduct field trips throughout the state for a few months each year. Some highlights include being part of the first biological survey of the Little Sandy Desert, travel to some very remote areas by helicopter for seed collection and leading the Kings Park Expeditions. Ten major expeditions were conducted over a decade, with members of the public and Kings Park Volunteers assisting staff with seed and specimen collection. Destinations included the Canning Stock Route, the Kimberley and the Great Victoria Desert, as well as other places that few have experienced.



Becoming part of the Millennium Seed Bank Partnership through Kings Park in 2001 was life-changing for me, prompting much needed upgrades to the Seed Centre and funding an expanded field collection program over more than ten years. I completed the Conservation Techniques course at Kew and later became a trainer, delivering workshops about the Project in Kenya and Portugal, and collecting and training in Tanzania. Other personal highlights were co-editing the book *Australian Seeds: a guide to their collection, identification and biology* and, after discovering many new species as part of my job, the unexpected acknowledgement of a species named after me—*Eucalyptus sweedmaniana*. I have made a total of 8720 collections for Kings Park, including 1103 collections for the Millennium Seed Bank Partnership, and look forward to ongoing expansion of these in the future.



**Adam Huttner-Koros
Communications Volunteer,
Australian Seed Bank Partnership**

My interest in the environment and science started at an early age, through school and family trips to the mountains and to the coast. This continued into university where I've been studying science communication and have volunteered with local environmental organisations. I guess it was time for me to branch out to a new organisation!



My science communication skills allow me to help people learn about the great work happening around the country in seed banking, and all of the benefits that derive from it. At the Partnership I'm involved in producing content for social media and for the website, as well as other media and writing tasks. I'd like to reach communities that don't normally get information about scientific research and hopefully through this work everyday people can get more of an idea about what seed banks do and how they can support their important work.

**Philip Finley
Pro Bono Legal Adviser,
Australian Seed Bank Partnership**

I have been providing legal advice and support to the Partnership since April 2013. This has involved assisting the National Coordinator in relation to a range of legal issues arising from agreements and funding arrangements with partner organisations, as well as agreements with the Royal Botanic Gardens Kew and other donor organisations.

My legal background has involved an extensive administrative law career in senior legal positions in several Commonwealth departments and agencies and more recently serving as a legal member of the Social Security Appeals Tribunal. I currently provide legal assistance to the Welfare Rights and Legal Centre in Canberra.



I have a strong interest and commitment to conservation and I am delighted to be able to apply my legal skills and contribute to the goals of the Partnership.



Graeme Errington preparing his field notes while making seed collections for PlantBank (Photo: RBGDT)

WHO WE ARE

The Australian Seed Bank Partnership is a national collaboration of nine conservation seed banks and three flora-focused organisations bridging 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 and a sound understanding of seed harvest, storage and germination requirements is crucial to efforts to combat global decline of plant diversity. These seed collections and the understanding of seed technology together 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 is an insurance policy against further species loss.



There is still much more to learn about the seeds of Australia's native flora through research undertaken by our partner institutions; seed scientists help turn seeds into plants which have an essential role in every ecosystem. (Photo: Andrew Tatnell)



Australia's conservation seed banks hold around 38,400 accessions (individual seed collections, normally stored in a single packet) of more than 8200 species. These conservation seed banks include collections of 1046 threatened species. Seeds of *Daviesia cunderdin*. (Photo: Andrew Crawford, DPaW)

Our nationally cooperative initiatives focus on seed banking, research, sharing of knowledge and building of capacity. We follow internationally recognised protocols for collecting and storing seed of Australian native plants. We record environmental data crucial to plant conservation. Our research is vital in establishing germination protocols and 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 located species thought to be extinct. We share our knowledge and skills to make the most effective use of resources, to manage risk and to develop and use regional expertise.

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 2013-14

- We made important steps towards achieving our seed banking targets through the 1000 Species Project. This year, our Partners made collections across 27 biogeographic regions with the support of fieldwork funds from the Royal Botanic Gardens Kew. There were a total of 207 collections covering 123 taxa; nearly two-thirds are threatened and listed under national or state/territory legislation. In addition, 21 collections from a further 19 taxa listed as 'taxa of concern' were made. More than two-thirds of the taxa collected this year are endemic.
- We are continuing our work related to plant biosecurity issues. With support from the Bjarne K. Dahl Trust, we are building wild seed resources of threatened Australian eucalypt species with a particular focus on those that are susceptible to myrtle rust (*Puccinia psidii*). This year we made 39 collections of 23 species, including 16 threatened species, seven of which are nationally listed. We also secured collections of two species each having only one known population.
- Our work was featured in Australia's 5th National Report to the Convention on Biological Diversity. Inclusion in this report highlights the significance of the Partnership's work in contributing to national and global biodiversity conservation efforts.



Seeds from a nationally vulnerable mintbush (*Prostanthera nudula*) were collected from a population in the Everard Ranges. (Photo: SASCC)



Stephen Forbes (right), Chair of CHABG and the Australian Seed Bank Partnership, signing the Memorandum of Collaboration with Dr Paul Smith, Head of the Millennium Seed Bank, Royal Botanic Gardens Kew.

- In October 2013, at the 5th Global Botanic Gardens Congress in New Zealand, we showcased the extensive and diverse work being undertaken by our Partners in seed conservation and science in Australia. This placed the spotlight on our coordinated and collaborative efforts and drew positive international attention.
- The Australian Seed Bank Partnership's Board, The Council of Heads of Australian Botanic Gardens Inc., signed a Memorandum of Collaboration with the Royal Botanic Gardens Kew to confirm an ongoing commitment to work together to collect, study and conserve Australian plants.



The Victorian Conservation Seedbank team, at the Royal Botanic Gardens Melbourne, made important collections of *Eucalyptus crenulata* for the project supported by the Bjarne K. Dahl Trust. (Photo: Murray Fagg, ANBG)

GOALS AND ACHIEVEMENTS

The Australian Seed Bank Partnership's national program 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 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.



Detailed information regarding the location and field conditions of the collection site is recorded during field work. This information assists with mapping species and vegetation communities and is helpful in monitoring threatened species (L to R: Jenny Guerin, Dan Duval, Denzel Murfet and Thai Te). (Photo: SASCC)



A botanical voucher specimen is prepared in the field. This is used to vouch for the identity of the collections and to enable future taxonomic developments to be aligned with collections. One herbarium specimen per collection is lodged with the relevant state or territory herbarium (Photo: C.Davies ©, CANBR).



Recording the phenology of the population being sampled, such as when seed is mature, provides important data that can assist over time to build an understanding of changes in flowering and seeding patterns due to climate change. *Allocasuarina rigida* subsp. *exsul*. (Photo: Jason Halford, BBG)

Utilising resources successfully secured during 2013–14, we have continued to focus our efforts on the 1000 Species Project and the Australian Seed Bank (online). Both contribute to building a national safety net for Australian plant species through *ex situ* conservation, undertaking priority research that increases understanding of the seed biology of native plants and assists with sharing of knowledge.



1000 Species Project

The 1000 Species Project is an ambitious ten-year seed banking initiative. The project draws on the expertise of our Partners across the country to collect and research germination and storage requirements of native plant species valued for their conservation or economic significance. Phase one of this project is targeting 1000 species not currently secured in Australia's conservation seed banks. These new collections are of great value and act as an insurance policy for Australia's native flora, providing a resource to support research and build knowledge and understanding about Australian flora, as well as providing a reserve to propagate plants and re-establish populations if needed in the future.

This important project commenced in September 2012 thanks to financial assistance from the Royal Botanic Gardens Kew's Millennium Seed Bank Partnership and significant in-kind contributions from our Partner organisations. These funds have enabled us to establish a three-year fieldwork fund to supplement seed-collecting resources, crucial at a time when resources for core plant conservation and science programs throughout Australia have been eroded.

In 2013–14, \$323,500 was invested in field work using Kew's fieldwork funding and in-kind contributions from Partner organisations. This enabled our Partners to undertake seed collecting field trips across 27 biogeographic regions including Western Australia's Jarrah Forest, the Great Victoria Desert region of South Australia and remote subantarctic Islands. A total of 207 collections from 123 species were made in various habitats including the Australian Alps, rainforest and coastal heathland. This places us in an excellent position to deliver our target of 1000 new species into Australian conservation seed banks by the year 2018.

Further details of collections made under the 1000 Species Project during 2013–14 are described on pages 11–13.



A collection was made of *Teucrium glandulisculum* subsp. *glandulisculum*, a species listed as vulnerable in South Australian legislation. (Photo: SASCC)

Australian Seed Bank—a virtual seed bank

We collaborate with the Atlas of Living Australia to manage an accessible online resource on Australia's conservation seed bank collections. This online resource contributes to our goal to share knowledge and engage people with our work. In 2013–14 the majority of our partner organisations updated their conservation seed collection information in the *Australian Seed Bank*. As at 30 June 2014, this virtual seed bank contains records for more than 38,400 seed collections.

The *Australian Seed Bank* has already proven to be a useful resource to identify national collecting priorities and ensure the diversity of species, as well as genetic diversity within a species, is captured in these important *ex situ* collections.

Achievements across Australia towards our 1000 species target

South Australia

The South Australian Seed Conservation Centre made notable collections of threatened and endemic species this year during a field trip to the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands in South Australia's north-west region. Some collections were made in remote parts of the Central Ranges where there have been few previous botanical collections.

This field trip involved collaboration with the APY ecologist; this partnership will continue in the future to assist with further collections, as well as to provide advice on threatened species and other natural resource management issues. The South Australian Seed Conservation Centre will extend its collaborations by engaging local Indigenous custodians to assist with future collections through a trial project commencing in 2014–15, targeting rare species such as the endemic Musgrave Ranges Daisy (*Basedowia tenerrima*).



The APY lands field trip was undertaken jointly with Dr John Read, pictured here collecting seeds of the rare *Eucalyptus minniritchie* on Mt Woodroffe. This is a great example of scientists from different disciplines working together. Centre staff also assisted Dr Read with his work monitoring the black-footed rock-wallaby, which is at risk of extinction in South Australia. (Photo: SASCC)

Western Australia

Threatened Flora Seed Centre

In 2013 the Department of Parks and Wildlife's Threatened Flora Seed Centre collected seeds of *Grevillea* sp. Gillingarra (R.J. Cranfield) from its only known population of 21 mature plants. Reflective of the paucity of information about the species and its threats from road/rail maintenance activities and weed invasion, it is declared Rare Flora under state legislation and ranked Critically Endangered using IUCN Red List categories and criteria.

The collections were undertaken using a seed bagging technique where staff placed bags over fruit in October to catch mature seed when shed from the plants. These bags were then retrieved in December, resulting in the collection of 280 seeds.



Seed of *Grevillea* sp. Gillingarra (R.J. Cranfield)
(Photo: Andrew Crawford, DPaW)

Western Australia Seed Technology Centre

While collections made by the Botanic Garden and Parks Authority's Western Australia Seed Technology Centre are stored for long-term conservation purposes, many have also been cultivated for display and education at the Western Australian Botanic Garden which specialises in the state's native flora. Species currently being cultivated include this year's collections of *Waitzia acuminata* var. *albicans* and *Calandrinia liniflora*. Both are annuals, which provide early summer flowering in the gardens and fill a niche period following the more traditional spring montage.

Their flowering and form have delighted visitors and the contributions they make to the overall aesthetics of the gardens, and its educational role, are additional positive outcomes of the 1000 Species Project.



Waitzia acuminata var. *albicans* naturally occurring on the roadsides around Geraldton. (Photo: Luke Sweedman, BGPA)

Tasmania

The Tasmanian Seed Conservation Centre made 45 collections of 42 species towards the 1000 Species Project this year. This included collecting two additional provenances of the vulnerable endemic Tasmanian smokebush (*Conospermum hookeri*). Approximately 6,400 high quality seed were collected in December from the species' typically small populations, one in Freycinet National Park and one in the Doctors Peak Forest Reserve.

With the species threatened by land clearance, increasing fire frequency and the spread of *Phytophthora cinnamomi*, the Centre's work will now focus on resolving the germination requirements. Species of *Conospermum* are recognised as having seed dormancy and successful techniques to overcome this dormancy are currently unknown.



Bagging plants of *Conospermum hookeri* in Freycinet National Park. This technique was used again in 2013–14 after success was found with this method last year as part of an Australian Government funded project to collect vulnerable threatened species susceptible to *Phytophthora cinnamomi*. (Photo: James Wood, RTBG)

Queensland

The Queensland team at the Brisbane Botanic Gardens have focused collecting efforts around endemic species to the South East Queensland bioregion. Collecting targeted species was greatly hampered by record drought conditions across the state, which often resulted in reduced seed set, reduced availability of populations in areas where they had been previously known, and a rise in the incidence of bushfire consequently burning some populations. Despite unfavourable conditions, successful opportunistic collections on related field surveys and affiliated projects were made. The highlights included securing seed of *Eucalyptus broviniensis* from its only known population, as well as collections of the nationally listed *Eucalyptus virens*.



Eucalyptus virens is endemic to south-east Queensland and is listed as vulnerable in national legislation. The distribution of *Eucalyptus virens* overlaps with five threatened ecological communities. Seed collections have recently been banked at the Brisbane Botanic Gardens. (Photo: Jason Halford, BBG)

Victoria

The value of seed banking not only to plant conservation, but also to plant taxonomy and the understanding of plant diversity was highlighted this year through efforts by the Victorian Conservation Seedbank. Herbarium specimens of *Olearia tenuifolia* from inland New South Wales were not a good match for the species being targeted for collection from the single Victorian population overlooking the Mitchell River in eastern Victoria. Investigations led to a range of taxonomic changes within this plant genus. *Olearia adenophora* (F.Muell.) Benth. has been reduced to a synonym under *Olearia tenuifolia* (DC.) Benth. and a new name, *Olearia curticola* N.G.Walsh, is provided for the population formerly treated as *Olearia tenuifolia* on the Mitchell River.

Summer bushfires in 2013–2014 came close to eliminating the only population of *Olearia curticola*, making it all too clear that conservation seed banking is a critically important activity for safeguarding species that have small populations. A healthy collection of *Olearia curticola* now resides in the Victorian Conservation Seedbank and a duplicate batch is being shipped to Kew's Millennium Seed Bank.



Olearia curticola in flower. (Photo: Neville Walsh, RBG Mel)

New South Wales

PlantBank

The PlantBank team at the Royal Botanic Gardens and Domain Trust has focussed its efforts on collections of species susceptible to myrtle rust (*Puccinia psidii*).

These collections have been supported by the Bjarne K. Dahl Trust and the Foundation for National Parks and Wildlife. Key achievements have been the collections made of nationally threatened eucalypts including *Angophora inopinata*, *Eucalyptus langleyi*, *Eucalyptus pulverulenta*, and *Eucalyptus rubida* subsp. *barbigerorum*.

National Seed Bank, Australian National Botanic Gardens

The Australian National Botanic Gardens targeted eight nationally listed *Zieria* species for collection over the summer of 2013–2014.

In the wild, *Zieria* species are palatable to goats and have a high rate of insect infestation in the seed. These factors, combined with few and small populations, place the target species under threat. Recovery action for the genus problematic due to variable seed set, low viability, poorly understood and complex germination cues, and difficult propagation from seed.

Early reconnaissance trips were used to net and bag plants. Netting helped to minimise the number of field trips, while securing collections even when the timing of seed release was unpredictable. A total of 69 collections were made using methods developed to capture maximum genetic diversity and the collections will form the basis for further work into the seed biology of *Zieria*.

The collections were supported by staff from Booderee Botanic Gardens, Wollongong Botanic Gardens, NSW Office of Environment and Heritage, NSW National Parks and Wildlife Service and South East Local Land Services.



Jo Vincent (NSW Parks and Wildlife Service) and John Fitzgerald (ANBG Seedy Volunteer) collecting seed from *Zieria citriodora* (Photo: F. Karouta, ANBG).



FUTURE DIRECTIONS

Since forming in 2010, the Partnership has made great progress towards building a comprehensive *ex situ* conservation collection of Australian plants and sharing knowledge about the collection. We are continuing to work towards achieving our vision of a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all.

As part of our ambitious program of work, we will focus on the following projects in the upcoming year:

1000 Species Project

Threatened and endemic species

In 2014–15 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 Christmas Island, the Arnhem Plateau, the Pilbara and the Great Victorian Desert.



The Threatened Flora Seed Centre team in Western Australia are hoping to collect seed from *Stylidium* sp. Banovich Road (F. & J. Hort 1884). It is a high priority species, known from only a few collections and potentially on threatened lands. (Photo: Juliet Wege, DPaW)



Collections of Australian rainforest trees will make an important contribution to the Global Trees Campaign. (Photo: RBGDT)

Global Trees Campaign

Through a four-year project, the Global Trees Campaign and the Millennium Seed Bank Partnership will work with existing and new Partners around the world to build *ex situ* seed collections of threatened tree species.

The Australian Seed Bank Partnership will contribute around 25 per cent of the project's global collection target via seed collections of 380 taxa over four years. The Partnership is placing priority on collections of eucalypt and rainforest trees. The project will involve nine conservation seed banks; a portion of these collections will be used for research to improve knowledge and understanding of the current status of this significant flora (including the health of populations) thereby informing approaches to conservation, management and policy.

Crop Wild Relatives

The Partnership will work with the Australian Grains Genebank and overseas partners to build a program of collecting around Australia's priority wild crop 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 have the potential to contribute to the development of modern crop cultivars with beneficial traits such as drought tolerance and disease resistance.

National Seed Science Forum

Seed science is critical to the conservation of flora and global food security and in recognising this we are collaborating with the Australian Network for Plant Conservation to hold a two-day National Seed Science Forum in 2016. The purpose of this forum will be to discuss research needed to solve critical issues relating to seed biology of Australian flora and agricultural crops and their relatives. We will bring together seed scientists, restoration practitioners and people working in the native and agricultural seed industries. The forum will encourage participants to share the latest research and ideas, discuss issues being faced by industry that could be addressed through science and form collaborations to advance future conservation, agricultural and restoration efforts.

We plan to have selected forum papers published in a special issue of an appropriate journal featuring advances and future challenges in Australian seed science.



Zieria citriodora is one of many species in the Rutaceae family that needs further research to assist in its reestablishment. (Photo: Tom North, ANBG)

Australian Seed Bank—Phase 2

We have a challenging project to further develop the *Australian Seed Bank* and make germination data accessible to the public. It is critical that knowledge is shared among a large range of users, including research scientists, the conservation sector and the restoration industry. There is also a need to share germination information among seed banking institutions in order to promote further vital research and prevent duplication of efforts. We will be seeking support and resources to enable us to engage specialist programming expertise for this database project.



Sharing knowledge created in seed banks and botanic gardens is critical to furthering efforts in the restoration of native flora. Seed Conservation Biologist Lydia Guja at the Australian National Botanic Gardens. (Photo: Andrew Tatnell, ANBG)

Restoring Diversity Project

Our partner organisations have agreed to work collaboratively on researching Rutaceae, a key understorey plant family that is difficult to re-establish in the environment. This project aims to bridge gaps in our knowledge of practical ways to germinate understorey plants from this family, which are necessary components of a fully functional environment. This work will contribute to the second of our five goals, conducting research to improve both conservation and restoration outcomes from seed banking. We are seeking support and resources to enable us to employ a postdoctoral fellow to facilitate this collaboration.



HOW YOU CAN HELP

The Australian landscape is like no other! Our nation 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.

Our partner organisations have already secured a third of Australia's flora in seed banks, including one quarter of our threatened species.

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. Your donation will help provide the essential funding we need to continue this vital work in safeguarding Australia's rich flora.

If you would like to discuss donations or other support that you can provide, please call and speak to our National Coordinator on +61 (0) 2 6250 9473. Donations over \$2 are tax deductible.

All donations are appreciated, either small or large, and support a range of our activities:

\$600 will deliver...

It costs \$600, or one day's work, to crack a basic germination code for one Australian native plant species.

\$2200 will deliver...

It costs around \$2200 to collect seeds from one population of one plant species, clean the seeds and undertake germination tests to build our knowledge of how to grow the plant and then bank the seed collection for one year.

\$5000 will deliver...

It costs \$5000, or 15 days work, to crack a challenging germination code for one Australian native plant species.

\$10,000 will deliver...

It costs \$10,000 to purchase and install a watering system to support a revegetation or translocation project.

\$66,000 will deliver...

It costs around \$66,000 to conserve one species by ensuring its genetic diversity is captured via collecting seeds from up to 30 different wild populations.

How to volunteer

In 2013 we commenced a nation-wide volunteer program where we engage community members with our work and encourage public support. Our volunteers help with editing, office duties, cataloguing images, working on the Partnership website and assisting with maintaining our presence on social media. If you are interested in becoming a volunteer, or would like to find out more about the program, please visit our website or contact us via email: coordinator@seedpartnership.org.au.

How to collaborate with us

The Australian Seed Bank Partnership offers your organisation the opportunity to support us and benefit from our knowledge and technical guidance on using native seed. If you would like to find out more about the program, please contact us via email: coordinator@seedpartnership.org.au or call us +61(0) 2 6250 9473.



Ranunculus undosus. (Photo: Murray Fagg, ANBG)

ANNUAL FINANCIAL REPORT for the year ending 30 June 2014

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 program. 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 deductible 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 2014

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 2014

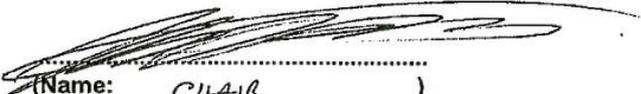
the accompanying Balance Sheet is prepared so as to give a true and fair view of the Financial Position of the association as at 30th June 2014

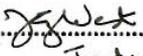
there are reasonable grounds to believe that the CHABG Inc. will be able to pay its debts as and when they fall due and payable

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 15TH day of OCTOBER 2014
On behalf of the Management Committee


.....
(Name: CHAIR)
(Position:)


.....
(Name: Judy West)
(Position: Committee member)



CHABG Inc

Annual Financial Statements

2013-2014

Independent Auditor's Report

for the year ended 30th June 2014

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 2014 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 2014

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

b) Other mandatory financial reporting requirements in Australia.

Signed this the 14-day of October 2014



Tony Trimboli
CPA Australia



**Auditor's Declaration of Independence
for the year ended 30th June 2014**

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 14 day of October 2014

Tony Trimboli
CPA Australia

CHABG Inc. Statement of Expenditure and Income

	2013-14	2012-13
Income		
Membership Contribution	13,000	13,000
Grant Funding - Royal Botanic Gardens Kew - Fieldwork Funds	90,362	77,419
Grant Funding - Royal Botanic Gardens Kew - C4 Grasses	67,085	
Grant Funding - Foundation for National Parks & Wildlife	14,970	
Grant Funding - Bjarne K. Dahl Trust	48,286	
Grant Funding - Dept of the Environment (formerly DSEWPaC)		30,000
Interest	337	179
Total Income	234,040	120,598
Expenditure		
General Expenditure	327	9,062
Insurance	1,768	1,727
1000 Species Project Collections - Royal Botanic Gardens Kew - Fieldwork Funds	71,368	63,273
C4 Grass Collections - Royal Botanic Gardens Kew Funds	12,727	
Threatened Species Collections - Foundation for National Parks & Wildlife Funds	14,970	
Eucalypt Collections - Bjarne K. Dahl Trust Funds	48,286	
Collections of species susceptible to <i>Phytophthora cinnamomi</i> - Dept. of the Environment (formerly DSEWPaC) funds		30,000
Meeting on Australian Seed Bank Online - Atlas of Living Australia Funds	1,782	821
Total Expenditure	151,228	104,883
Surplus/Deficit	82,812	15,715

CHABG Inc. Balance Sheet

	2013-14	2012-13
Current Assets		
Cash at Bank		
Deposit account 224159	177,438	25,954
Deposit account 224167	21,731	92,846
Sundry Debtor	3,300	1,100
ATO - GST refundable		
Total Assets	202,469	119,900
Liabilities		
ATO - GST Payable	(1,041)	(1,284)
Net Assets	201,428	118,616
Equity	(118,616)	(102,901)
Surplus/Deficit for year	(82,812)	(15,715)
Retained earnings	(201,428)	(118,616)



GOVERNANCE OF THE AUSTRALIAN SEED BANK PARTNERSHIP

The Council of Heads of Australian Botanic Gardens Incorporated (CHABG) management committee 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 of Heads of Australian Botanic Gardens Incorporated in 2013–14 were:

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



Stephen Forbes



Judy West



Mark Webb



Ross McKinnon



Bryan Harty



Tim Entwisle



Brett Summerell



Mark Fountain

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 their 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 program is carried out in collaboration with our partner organisations (see page 25). Other organisations (our Associates) assist with individual projects which contribute to the overall program (see page 24). The program is managed by a National Steering Committee and coordinated 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 skills and advice in fundraising, information management, promotion and marketing) from partner organisations and through philanthropic and public donations. Our business plan outlines our national program that includes specific strategies, actions and timelines:

www.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 program management to oversee the implementation of the Partnership's business plan, policy and operational proceedings. The coordinator also works with the members of the Partnership to secure the necessary funds for operations and programs 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 2013–14 were:

- **Mr Philip Cameron** – Senior Botanic Officer and Seed Bank Manager, Brisbane Botanic Gardens, Mt Coot-tha
- **Mr Trevor Christensen** – Deputy Director, Policy and Programs, Botanic Gardens of South Australia
- **Ms Anne Cochrane** – Committee Member, Australian Network for Plant Conservation
- **Dr Peter Cuneo** – Manager, Natural Heritage, Royal Botanic Gardens and Domain Trust
- **Dr David Merritt** – Research Scientist, Botanic Gardens and Parks Authority
- **Mr Tom North** – Seed Bank Manager, Australian National Botanic Gardens
- **Dr Paul P. Smith** – Head of Seed Conservation, Department and Millennium Seed Bank, Royal Botanic Gardens Kew
- **Mr Neville Walsh** – Senior Conservation Botanist, Royal Botanic Gardens Melbourne
- **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. Their resources and in-kind support have made significant contributions to our mission to conserve Australia’s native plant diversity. Our new Associates during 2013–14 highlight the need for conservation seed banks and agricultural genebanks to come together to work on crop wild relatives and address strategic priorities for biodiversity conservation and food security.

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
- Foundation for National Parks and Wildlife
- Director of National Parks
- Royal Botanic Gardens Kew

Associates

- Atlas of Living Australia
- Australian Government Department of the Environment
- Australian Grains Genebank
- Australian National University
- Australian Tree Seed Centre, CSIRO
- Botanic Gardens of Australia and New Zealand Inc.
- Centre for Australian National Biodiversity Research
- CSIRO
- Global Crop Diversity Trust
- Grains Research and Development Corporation
- Myrtle Rust Transition to Management Group
- Plant Health Australia
- Society for Ecological Restoration Australasia



PARTNER ORGANISATIONS OF THE AUSTRALIAN SEED BANK PARTNERSHIP

National Seed Bank

Australian National Botanic Gardens (ANBG)

PlantBank

The Royal Botanic Gardens and Domain Trust (RBGDT)

George Brown Darwin Botanic Gardens

Parks and Wildlife Commission of the Northern Territory

Queensland Seeds for Life

Brisbane Botanic Gardens Conservation Seed Bank

Brisbane City Council (BBG)

Environmental Futures Centre Griffith University

The Integrated Seed Research Unit

The University of Queensland

South Australian Seed Conservation Centre (SASCC)

Botanic Gardens of South Australia (BGSA)

Tasmanian Seed Conservation Centre

Royal Tasmanian Botanical Gardens (RTBG)

The Victorian Conservation Seedbank

Royal Botanic Gardens Melbourne (RBG Mel)

The Western Australia Seed Technology Centre

Botanic Gardens and Parks Authority (BGPA)

Threatened Flora Seed Centre

Department of Parks and Wildlife, Western Australia (DPaW)

Millennium Seed Bank

Royal Botanic Gardens Kew (RBG Kew)

Australian Network for Plant Conservation Inc.

Greening Australia





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

ABN: 58153442365

Contact officer: Dr Lucy A. Sutherland

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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 Program and its other programs 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 deductible gift recipient status (item 1), and operates the Council of Heads of Australian Botanic Gardens Public Fund.