

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



2012-13
ANNUAL REPORT



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Cover: *Bossiaea peninsularis*, a vulnerable plant species that is only known from two roadside populations. (Photo: Dan Duval, SASCC)
This page: *Banksia montana*. (Photo: Greg Freebury, Department of Parks and Wildlife)

LETTER FROM THE CHAIR

It has been three years since the Council of Heads of Australian Botanic Gardens, in collaboration with the Australian Government, began to develop the Australian Seed Bank Partnership. The Council is established for the purpose of supporting the protection, conservation and enhancement of Australian plants and their ecosystems. The work of our conservation seed banks is of national and international importance and is part of an ambitious strategy to safeguard Australia's flora in the face of various threats to our unique plant communities and landscapes. These seed banks are essential for managing the risk of species loss in the wild. They also provide an important resource for further study to help predict impacts of changing climates on our native plants, as well as the impact of other threats, such as myrtle rust, to our diverse landscapes. Knowledge of how to harvest, manage and efficiently utilise seeds is fundamental to the success of landscape management and restoration programs. The integration of *ex situ* seed collections and seed research underpins the restoration of ecosystems, the re-establishment of vital ecological services, the mitigation of the impacts of climate change, and helps safeguard wild plant diversity in Australia. Furthermore, seed programs provide opportunities for innovation and adaption offered by plant diversity to deal with such large environmental challenges as water, food and climate security.

The work of the Australian Seed Bank Partnership builds on the legacy from Australia's significant contribution to the first phase of the Millennium Seed Bank Partnership, a global initiative of the Royal Botanic Gardens Kew. Conservation seed banking efforts from members of the Australian Seed Bank Partnership have been significant in assisting the Australian Government to fulfil its major international obligations under the Convention on Biological Diversity and more specifically, the Convention's Global Strategy for Plant Conservation (GSPC). The work of the Partners is contributing to the GSPC's objectives of understanding, documenting and recognising plant diversity and ensuring plant diversity is urgently and effectively conserved.

Without a coordinated national approach to seed banking, Australia will risk further loss of plant species and communities resulting in the loss of faunal habitat and ecosystem services that benefit Australian society now and in the future. While we have already secured a third of Australia's flora in conservation seed banks, much more remains to be done, and there is a growing urgency about our work as few of our seed collections are currently in sufficient quantities for species recovery actions or for the conservation of the diversity within the species.

Please continue to support our work and help to safeguard Australia's rich plant diversity for future generations of Australians.

Stephen Forbes
Chair CHABG Inc.





LETTER FROM THE NATIONAL COORDINATOR

It is with great pleasure that I present the National Coordinator's report for the Australian Seed Bank Partnership's first annual report. The 2012–13 financial year was an eventful year for the Partnership and we have made great progress working towards our vision of a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all. Despite challenging financial conditions, we have managed to leverage significant resources to continue ongoing efforts to build and bank wild seed resources of Australia's flora for future use in species recovery, as well as in research to better understand our unique flora. In collaboration with the Atlas of Living Australia, we have made considerable advances to making information publically available on Australia's conservation seed bank collections.



Our efforts have been important in raising awareness of the value of *ex situ* conservation and science in managing our biodiversity. The House of Representatives inquiry into managing Australia's biodiversity in a changing climate recommended that the Australian Government continue funding the Australian Seed Bank Partnership. This funding is provided by the Director of National Parks through the Australian National Botanic Gardens for the Partnership's secretariat.

With myrtle rust creating a new biosecurity threat to Australia's native plants, our engagement with a range of new Associates, such as Plant Health Australia, has been vital in ensuring that *ex situ* conservation is considered as part of the transition to management of such threats to biosecurity. We have received significant support for our work through these new relationships.

At the international level, we have been accepted as a member of the Global Partnership for Plant Conservation. This international partnership plays an important role in the implementation of the Global Strategy for Plant Conservation under the Convention on Biological Diversity. Initiatives under the Australian Seed Bank Partnership are being recognised internationally for their contribution to worldwide plant conservation efforts.

The significant progress we have made this year is due to our dedicated members, our National Steering Committee, members of the Committee of the Council of Heads of Australian Botanic Gardens and a growing range of Associates. I sincerely thank you all for your wonderful contribution and ongoing dedication to the conservation of Australia's native plant diversity.

I hope you enjoy this overview of our achievements for 2012–13.

Dr Lucy A. Sutherland

National Coordinator

PROFILES OF OUR PEOPLE

Dr Amelia Martyn, Rainforest Conservation Scientist, PlantBank, Royal Botanic Gardens and Domain Trust

One of the most satisfying parts of my research is discussing results with passionate scientists, students and volunteers and working out how new technical information can be incorporated into everyday seed handling activities. I attended training at the Millennium Seed Bank (UK) in 2005, and was amazed that my colleagues and I have now helped trained more than 100 students, volunteers and scientists.

I have worked in seed research for nine years at the Australian PlantBank (formerly the NSW Seedbank) and have helped the Australian Network for Plant Conservation to develop a seed workshop based on best-practice techniques. The practical workshop is designed around the Network's reference guidelines, which have been prepared by members of the Australian Seed Bank Partnership and their colleagues (Offord and Meagher 2009). The Australian Seed Bank Partnership provides an excellent alliance of like-minded colleagues, who have generously shared their time and expertise in developing presentations that can be used for training around Australia and potentially, into the Asia-Pacific Region.



The workshops are designed to assist practitioners to plan, collect, store and use native plant germplasm in a restoration setting, with a focus on seeds. For the first workshop in Sydney in November 2012, we drew on expert presenters from the Adelaide Botanic Gardens, the Department of Parks and Wildlife in WA, CSIRO Plant Industry and Greening Australia. A second workshop was conducted at the University of the Sunshine Coast in April 2013, with thirteen participants alongside university students and staff, and Greening Australia Qld. Participants included Aboriginal corporation members conducting restoration programs, community nursery and landcare volunteers, local and state government staff and industry.

Jeff Jeanes, Identifications Botanist and Project Coordinator, Victorian Conservation Seedbank, Royal Botanic Gardens Melbourne

I became interested in native plants in the early 1970's when I was a science student at Swinburne University in Melbourne. On weekends a friend and I would collect seeds from remnant native vegetation in the Bayswater area (about 20 km east of Melbourne) with the intention of producing plants to help revegetate a local park. Inevitably, while seed collecting, I became acquainted with native orchids and these were eventually to become my main focus and passion. In later years I co-authored two books on Victorian native orchids, as well as producing several taxonomic journal papers on the orchid genus *Thelymitra*.

In 1993 I joined the staff at the Royal Botanic Gardens, Melbourne, working as a flora writer on the Flora of Victoria Project in the National Herbarium of Victoria building. It was during this time that I met my future wife Sandra, who worked there with the curation team. Later I contributed to the Horticultural Flora of South-eastern Australia, did my taxonomic work on *Thelymitra* and became involved with Australia's Virtual Herbarium Project. In 2005 I was appointed to the position of seed bank co-ordinator for the Victorian Conservation Seedbank in partnership with the Royal Botanic Gardens Kew's Millennium Seed Bank Partnership. Since then I have been involved in making high quality seed collections from over 1000 species of native Victorian plants, focusing on the rare, threatened and endemic species.



Offord, C.A. and Meagher, P.F. (2009) *Plant Germplasm Conservation in Australia: strategies and guidelines for developing, managing and utilising ex situ collections*. Canberra: Australian Network for Plant Conservation Inc.



David Wong, Volunteer, Australian Seed Bank Partnership

Growing up in the Blue Mountains, David became interested in nature at an early age. He studied environmental science at university and has just completed his PhD on conservation of the pink-tailed worm-lizard (*Aprasia parapulchella*). David spent a number of years in the ACT Government's Conservation Research and Planning Unit, where he conducted survey and monitoring of ACT flora and fauna. More recently, he has become interested in science communication. David is currently a freelance writer and photographer and has run a number of community programs that aim to inspire an interest in nature through photography.



Donald Kerr, Volunteer, Australian Seed Bank Partnership

Donald is a Queensland-based writer and editor with more than 25 years experience in newspapers, magazines and radio. He now mostly writes for websites about natural heritage and human-made heritage. His interests include archaeology, cultural heritage, sustainability, biodiversity, food security and seed banking. Donald sees joining the Australian Seed Bank Partnership as an exciting opportunity to raise public awareness about efforts to protect Australia's precious plant species, many of which are unique to the continent and surrounding islands. Donald wants to contribute to the successful development of seed banks by promoting the value of conserving our indigenous flora.



Drosera stricticaulis is only known from a few extant populations on southern Eyre Peninsula. During recent fieldwork for the ASBP project in 2012, the South Australian Seed Conservation Centre (SASCC) collected 5,500 seeds, which will be jointly stored by the SASCC and the Millennium Seed Bank. (Photo: Dan Duval, SASCC)

WHO WE ARE

The Australian Seed Bank Partnership is a national collaboration of nine conservation seed banks and five 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. 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.



It is estimated that Australia is home to about 570 000 species of organisms, including some 17 500 flowering plants of which about 91 per cent are found nowhere else in the world. (*Styliidium aceratum* Photo: Andrew Crawford, DPaW)

Australia is home to an estimated 17 500 flowering plants and around 500 fern flora, of which nearly 1300 are listed as threatened in Australian Government legislation under the *Environment Protection and Biodiversity Conservation Act* (1999); with even more listed under state and territory legislation.



Seeds are future plants and have an essential role in every ecosystem. (Photo: ANPC)

Our nationally cooperative initiatives focus on seed banking, research, sharing of knowledge and capacity building. We follow internationally recognised protocols for collecting and storing 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 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.

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 2012–13

- The Global Partnership for Plant Conservation accepted the Australian Seed Bank Partnership as a member organisation. This international partnership aims to “provide a framework to facilitate harmony between existing plant conservation initiatives, identify gaps where new initiatives are required, and promote mobilisation of the necessary resources”. Our membership of the global partnership recognises and acknowledges our contribution to the delivery of targets in the Global Strategy for Plant Conservation.
- We launched the joint Millennium Seed Bank Partnership–Australian Seed Bank Partnership three-year field work fund. The fund supports the fieldwork of partner organisations with active plant conservation programs and results in high quality seed collections for conservation seed banks that contribute to the goals of our 1000 Species Project. Eight partner organisations were awarded grants and fieldwork began in August 2012.



The fieldwork fund has supported seed collecting trips throughout Australia, including Norfolk Island. (Photo: Michael Nelson, Parks Australia)

- We secured 38 collections of 20 threatened species in Western Australia and Tasmania that are susceptible to dieback due to the plant pathogen *Phytophthora cinnamomi*. The project was undertaken for the Environmental Biosecurity Section of the Australian Government's Department of the Environment.



The fungal pathogen *Phytophthora cinnamomi* is a serious threat to native Australian plants and ecosystems and *ex situ* conservation provides an insurance policy for susceptible species. (Photo: Brett Summerell, RBGDT)

- The Council of Heads of Australian Botanic Gardens (CHABG) Inc., the Partnership's governing body, was accepted on the Register of Environmental Organisations, administered by the Department of Sustainability, Environment, Water, Populations and Communities, and endorsed as a deductible gift recipient under the *Income Tax Assessment Act 1997*.



The Royal Botanic Gardens Kew provides significant contributions to the Australian Seed Bank Partnership through both funding and sharing knowledge and expertise. (Photo: W. Stuppy, RBGKew)

- We initiated a national volunteer program in April 2013, with the aim of increasing our communications potential. Volunteers are involved with helping engage the wider community with our work. This year, the volunteers prepared new stories for our website.

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.

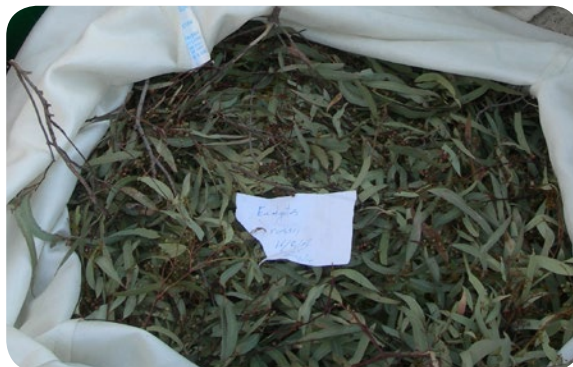


Dr Leanne Pound tests the ability of seeds to germinate at different temperatures in an effort to understand the potential impact of climate change on threatened native plants. (Photo: SASCC)

Utilising resources successfully secured during 2012–13, we have worked on two key initiatives, the 1000 Species Project and the Australian Seed Bank (online resource). Both contribute to building a national safety net for Australian plant species through *ex situ* conservation and undertaking priority research which increases understanding of the seed biology of native plants and shares knowledge.



All seeds must be dried prior to storage, a critical step which slows seed aging and deterioration. Drying takes place at a standardised 15 degrees Celsius and 15 per cent humidity. (Photo: DPaW)



When seeds are collected they often come with leaves, flowers and other debris attached and this material must be removed prior to storage. Empty or diseased seeds must also be removed, either by hand or using specialised equipment. (Photo: Greening Australia)



After being dried and cleaned, seeds are packed into airtight containers for storage. They are stored at between –18 and –22 degrees Celsius, temperatures at which seeds from many species can live for decades or centuries. (Photo: Simone Cottrell, RBGDT)



1000 Species Project

The 1000 Species Project is an ambitious, ten-year initiative enabling the Partnership to start work towards the first goal of the business plan. 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 endemic, endangered 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, to build knowledge and understanding about Australian flora, as well as provide 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 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.



During field work, detailed descriptions of the plants are recorded and 'voucher specimens' are collected to assist one of Australia's herbaria with the confirmation of the plant's identification. (Photo: Andrew Orme, RBGDT)

The \$278 000 investment in 2012–13, using Kew's fieldwork funds and in-kind contributions from Partner organisations, has enabled our Partners to undertake seed collecting field trips across a diverse range of regions, including South Australia's Eyre Peninsula, the wheatbelt region of Western Australia and remote Norfolk Island. They have travelled to 28 Australian biogeographic regions in total and collected in various habitats including alpine and sub-alpine, rainforest and heathland. During these field trips, our Partners have made 156 collections from 155 species. 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 2012–13 are described on pages 11-14.



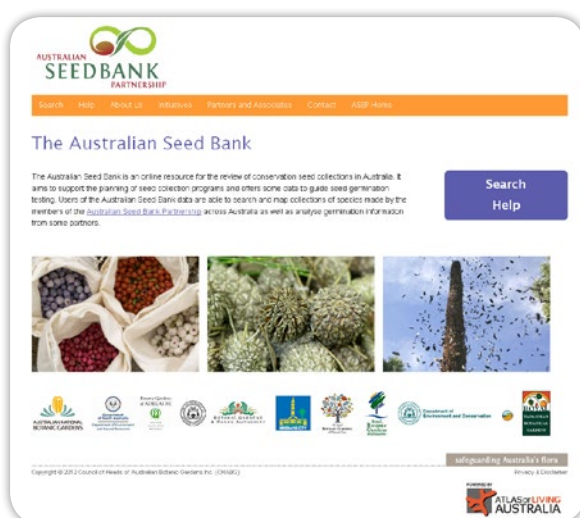
Collectors aim to collect approximately 10 per cent of the seeds available in a species' population without jeopardising its future survival. Following collection, seeds are tested to determine their quality for future use. (Photo: RTBG)

Australian Seed Bank Project – creating a virtual seed bank

As a result of their seed collecting and research activities, our partner organisations have recorded a large amount of information on the periodicity of leafing, flowering and fruiting of specific plants (phenology), as well as on their ecology, abundance, seed morphology and germination, dormancy and storage requirements. There is an urgent need to make these data available to help community groups, government and non-government organisations in work to restore Australia's diverse landscapes.

As part of the *Australian Seed Bank Project*, we are collaborating with the Atlas of Living Australia to build an accessible online resource on Australia's conservation seed bank collections. Phase one of the *Australian Seed Bank* is contributing to goal four of our business plan, sharing knowledge and engaging people with our work. The *Australian Seed Bank* was launched during 2012–13 and eight partner organisations contributed their seed collection details. The *Australian Seed Bank* now contains records for more than 37 000 seed collections.

As it progresses, this virtual seed bank will be a tremendous resource for researchers, students, restoration and conservation practitioners and community groups, as well as the horticultural and nursery industry. It will help guide and inform native seed research and ensure the efficient use of resources so that work on seed biology is not duplicated across institutions. 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.

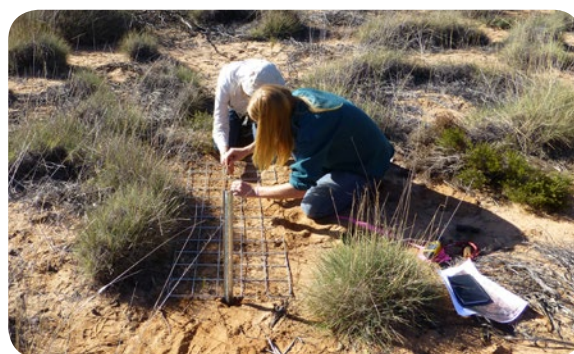


Using the *Australian Seed Bank* (online resource), powered by the Atlas of Living Australia, state and territory agencies can discover how many seed collections exist for a specific threatened species of Australian plant and where these collections are held. Under phase two of the *Australian Seed Bank*, information on germination protocols of native species will also be available.

Achievements across Australia towards our 1000 species target

South Australia

In 2012, the South Australian Seed Conservation Centre undertook four field trips to the Eyre Peninsula. Seeds from 14 threatened species were successfully collected and banked, including the critically endangered chalky wattle (*Acacia cretacea*) and the rare lax bluebush (*Maireana suaedifolia*), yellow swainson pea (*Swainsona pyrophila*) and streaked wattle (*Acacia lineata*). Chalky wattle seeds have already been used for a translocation project and associated research at the privately owned Secret Rocks Nature Reserve on the Eyre Peninsula with the help of its owners, arid zone ecologists Dr Katherine Moseby and Dr John Read.



Katherine Moseby and Jenny Guerin of the South Australian Seed Conservation Centre burying *Acacia cretacea* seeds at the Secret Rocks translocation site. A total of 2380 seeds were buried in a series of treatment replicates. (Photo: Dan Duval, SASCC)

Western Australia

Threatened Flora Seed Centre (TFSC)

Maxwell's grevillea (*Grevillea maxwellii*) is restricted to a few, highly fragmented populations in Western Australia and is threatened by drought, weeds and inappropriate fire regimes. In 2012, as part of the Partnership's work for the Australian Government, seeds were collected by the TFSC team from 90 individuals across three populations (1052 seeds in total) via bagging and later retrieval of mature fruits. A portion of these seeds will be used to help create two new populations in 2014, one at an Australian



Bush Heritage property near natural populations and the other on private property with higher rainfall than the area where natural populations occur. Translocating plants to new, non-threatened sites assists in species conservation in the wild and reduces the risk of further population loss.



Grevillea maxwellii. (Photo: Anne Cochrane, DPaW)

Western Australia Seed Technology Centre

The Seed Technology Centre team at Kings Park in Perth collected obscure and unusual species, such as *Solanum lachnophyllum*, during their trip to the remote Gascoyne region. This species appears after disturbance and is localised in distribution, with only scattered populations found in the area. The team collected herbarium specimens in flower before returning three months later to collect seed from two populations northeast of Meekatharra. These seeds are now stored in the Seed Technology Centre and will be used for long-term conservation and educational display, with plants grown in the nursery already thriving in the gardens.



Solanum lachnophyllum in the Gascoyne. (Photo: BGPA)

Tasmania

The miena cider gum (*Eucalyptus gunnii* ssp. *divaricata*) is found exclusively around the southern end of Great Lake on Tasmania's Central Plateau. Growing on the edge of frost hollows, it is one of the most frost resistant of Tasmania's eucalypts. Under threat from drought, grazing, inappropriate fire regimes, habitat loss and fragmentation (processes all exacerbated by climate change) populations have experienced substantial decline. In January 2013 a team from the Royal Tasmanian Botanical Gardens visited the Great Lake Conservation Area to collect seed. Arborists collected seed from 51 trees, resulting in a collection of over 15 000 seeds intended for conservation seed banking.



Alister Hodgman and William Russell climbing *Eucalyptus gunnii* ssp. *divaricata* to collect seeds. (Photo: James Wood, RTBG)

Queensland

The Queensland team's collecting focus is species at risk from climate change and development pressures, with a particular emphasis on the south-eastern corner of the state. Under this project, seeds of two endangered species were collected by the Brisbane Botanic Gardens team. Nightcap plectranthus (*Plectranthus nitidus*) occurs in the coastal ranges of southern Queensland and northern New South Wales, inhabiting damp, shady places at high altitude within rainforests, a habitat at risk from climate change. Conversely, ruffled plectranthus (*P. habrophyllus*) is at risk from development, occurring only to Brisbane's immediate west and south, often surrounded by residential development. These new long-term conservation collections will assist in protecting these two endangered species.



Plectranthus habrophyllus. (Photo: Jason Halford, BBG)

New South Wales

The Australian PlantBank's seed collecting teams have focussed their efforts on threatened species in the Greater Sydney and North Coast regions. These areas have a high level of habitat diversity and species richness and face threats from urban expansion and land clearing. Seed collections were made in 2012 for 16 threatened species, including *Eucalyptus* sp. Cattai, *Hibbertia superans* and *Darwinia biflora*, three species restricted to the north-western suburbs of Sydney and thus highly threatened by urban expansion. Collections such as these are important as a risk management strategy for threatened species and insurance against the loss of wild populations.



Eucalyptus sp. Cattai. (Photo: PlantBank, RBGDT)

Commonwealth

The Territory of Norfolk Island in the South Pacific is an environment at high risk and thus a high priority for conservation work. Around one quarter of the original flora is endemic to the island group with many species listed as threatened under Australian Government legislation. In December 2012 and April 2013, the National Seed Bank team from the Australian National Botanic Gardens successfully gathered seed from 19 threatened species, more than 40 per cent of those listed. These seeds will help initiate a restoration seed bank on Norfolk Island, aiding implementation of the Norfolk Island Region Threatened Species Recovery Plan.



Abutilon julianae. (Photo: Tom North, ANBG)



Victoria

The Victorian Conservation Seedbank's contribution to the 1000 Species Project in 2012 covered plants facing a range of threats to their existence, including the endangered alpine *Abrotanella nivigena* and the endangered *Grevillea floripendula*. Myrtle rust is a relatively new threat in the state, affecting members of the large and important Myrtle family including the dominant genus, *Eucalyptus*. Three eucalypts, *E. polyanthemos* subsp. *longior*, *E. alligatrix* subsp. *limaensis* and *E. baueriana* subsp. *deddickensis*, each identified as being of the highest susceptibility to the disease due to their ecology, low numbers and localised occurrence, were targeted for this year's collecting program. Seed was harvested from across the known range of each of these isolated, recently discovered subspecies, and while myrtle rust continues its march through south-east Australia, we have insurance against extinction for these threatened Victorian trees.



Abrotanella nivigena. (Photo: C.Totterdale, ANBG)

Australian Network for Plant Conservation

Members of the Network and the Partnership have been working together to deliver workshops in plant conservation techniques. Workshops on seed collection, storage and use for native vegetation restoration and translocation of threatened plants have been delivered in Sydney in November 2012 and on the Sunshine Coast in April 2013. These workshops deliver technical guidelines on translocation of threatened plants and plant germplasm conservation to practitioners in a user-friendly format. Feedback from the workshops on seed use for native vegetation restoration has been very positive and funding to roll this workshop out across Australia is being sought.



Participants at a workshop on seed collection, storage and use for native vegetation restoration learning how to test seed viability, Sunshine Coast April 2013. (Photo: Tricia Hogbin, ANPC)



Greening Australia

Experts within Greening Australia have identified key priority areas where the work of the Partners can support restoration activities throughout Australia. There are key understorey species that require seed focussed scientific research to assist with restoring plant diversity. Species from the plant family Rutaceae have been identified as particularly challenging.

Zieria obcordata from the family Rutaceae. (Photo: Cathy Hook)

FUTURE DIRECTIONS

The Partnership's business plan sets out a 10-year program to guide the building of a national safety net of conservation seed banks to safeguard Australia's flora and facilitate knowledge development and sharing through seed science and other complementary research.

In just a few years we have made great progress towards building a comprehensive *ex situ* conservation collection of Australian plants and sharing this knowledge. However, there is still a long way to go towards achieving our vision. The strategy for the next few years, in line with the business plan, is an ambitious program of work that will help us meet our long-term goals.

In the upcoming year, we will focus on the following projects:

1. 1000 Species Project – continuation of phase 1, banking new species as a conservation resource.

In 2013–14 we will continue to build comprehensive collections of native flora with an emphasis on threatened and endemic species, and those of economic potential. We will also put our efforts into collecting species from the plant family Myrtaceae that are susceptible to myrtle rust.

2. Australian Seed Bank – commencement of phase 2, sharing germination information around collections.

Germination testing is a crucial step in seed banking. While some plants can be germinated easily, others are much more difficult and require extensive experimentation and knowledge. It is critical that this knowledge is shared among seed banking institutions in order to promote further vital research and prevent duplication of efforts. The second phase of this project, in collaboration with the Atlas of Living Australia, will provide a place for our Partners to share their germination information. The project will make this information accessible to a large range of users, including research scientists, the conservation sector and the restoration industry.

3. Restoring Diversity Project – new project.

This project aims to bridge gaps in our knowledge of practical ways to germinate understorey and ground cover plants, which are a necessary component of a fully functional environment. This work will contribute to our



Without an understanding of germination requirements, a seed collection is worthless. The *Australian Seed Bank* will provide a comprehensive database of information regarding germination protocols for a range of Australian native plants. (Photo: RTBG)



Understorey species are key components of plant communities, and build resilience – the ability to recover after disturbance – into our ecosystems. (Photo: Andrew Orme, RBGDT)

second goal of conducting research to improve both conservation and restoration outcomes from seed banking. Some critical knowledge gaps include germination techniques, investigating the complex ecological relationships among species and understanding how these relationships vary in time and space. This project will fill these gaps via collaborative research conducted by our Partners and Associates. A number of these organisations have agreed to work collaboratively on Rutaceae, a key understorey family. This knowledge will directly help rehabilitation practitioners, land managers and community groups in their efforts to restore and reconnect habitats throughout Australia's diverse landscapes.



HOW YOU CAN HELP

The Australian Seed Bank Partnership is taking decisive action to safeguard Australia's plants. Our partner organisations have already secured a representative third of Australia's flora, 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.

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 \$5 are tax deductible.

What your money can do:

Just under \$600 will deliver...

It costs \$585, or one day's work, to crack a basic germination code for one Australian native plant species.

\$2000 will deliver...

It costs around \$2000 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.

Just under \$5000 will deliver...

It costs \$4500, 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.

\$60 000 will deliver...

It costs around \$60 000 to conserve one species by ensuring its genetic diversity is captured. This is done by collecting seeds from up to 30 different wild populations.

How to volunteer

In 2013 we commenced a nation-wide volunteer program where we work with individuals to engage the community with our work and encourage public support. This is achieved via e-newsletters, blogs, the Partnership website and a 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 at 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.



Kevin Mills collecting seeds from *Coprosma baueri* on Norfolk Island. (Photo: Tom North, ANBG)

ANNUAL FINANCIAL REPORT for the year ending 30 June 2012

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.

Summary of Australian Seed Bank Partnership Fund Movements for 2012–13 (an extract from CHABG's financial report)

	Opening Balance 1 July 2012	Funding received 2012–13	Funds expended 2012–13	Closing Balance 30 June 2013
Operating Fund	19,282	13,179	(10,789)	21,672
ASBP Australian Seed Bank Development - Atlas of Living Australia Funds	5,726		(821)	4,905
1000 Species Project (Phase 1) - Royal Botanic Gardens Kew Fieldwork Funds	77,893	77,419	(63,273)	92,039
1000 Species Project (Phase 2) <i>Phytophthora cinnamoni</i> susceptible species - Australian Government Funds (Dept of the Environment, formerly DSEWPac)		30,000	(30,000)	
	102,901	120,598	(104,883)	118,616



**Statement by the Management Committee
for the year ended 30th June 2013**

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 2013

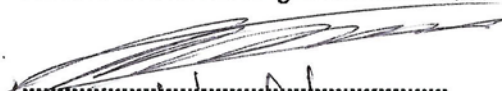
the accompanying Balance Sheet is prepared so as to give a true and fair view of the Financial Position of the association as at 30th June 2013

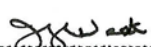
there are reasonable grounds to believe that the CHABG Inc. will be able to pay its debts as and when they fall due and payable

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 10th day of October 2013
On behalf of the Management Committee


.....
(Name: Stephen Forbes)
(Position: Chair, CHABG)


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

CHABG Inc

Annual Financial Statements

2012-2013

Independent Auditor's Report

for the year ended 30th June 2013

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 2013 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 2013
 - ii. Complying with Accounting Standards in Australia and the *Associations Incorporations Act 1991*
- b) Other mandatory financial reporting requirements in Australia.

Signed this the 28th day of August 2013

Tony Trimboli
CPA Australia

**Auditor's Declaration of Independence
for the year ended 30th June 2013**

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 August 2013



Tony Trimboli
CPA Australia



CHABG Inc. Statement of Expenditure and Income

	2012-13	2011-12
Income		
Membership Contribution	13,000	26,000
Grant Funding - Royal Botanic Gardens Kew	77,419	77,893
Grant Funding - Atlas of Living Australia		10,000
Grant Funding - Dept of the Environment (formerly DSEWPac)	30,000	
Interest	179	57
Total Income	120,598	113,950
Expenditure		
General Expenditure	9,062	780
Insurance	1,727	1,620
CHABG Workshop Hobart		4,375
ASBP/ALA Conference Expenditure	821	4,274
Seed Bank Partnership Grants (RBG Kew fieldwork funds)	63,273	
Grants for <i>Phytophthora cinnamomi</i> (Dept of the Environment, formerly DSEWPac)	30,000	
Total Expenditure	104,883	11,049
Surplus/Deficit	15,715	102,901

CHABG Inc. Balance Sheet

	2012-13	2011-12
Current Assets		
Cash at Bank		
Deposit account 224159	25,954	22,321
Deposit account 224167	92,846	77,917
Sundry Debtor	1,100	2,200
ATO - GST refundable		463
Total Assets	119,900	102,901
Liabilities		
ATO - GST Payable	(1284.00)	
Net Assets	118,616	102,901
Equity	(102901)	
Surplus/Deficit for year	(15715)	(102901)
Retained earnings	(118616)	(102901)

CHABG Inc. Summary for July 2012 to June 2013

	Operating Account	ALA	Phytophthora cinnamomi	Kew Gardens	Total
Income					
Funding from Atlas of Living Australia		10,000.00			10,000.00
Statement of Expenditure and Income	13,000.00				13,000.00
Invoices to be forwarded Feb 2012 to members for agreed contributions	13,000.00				13,000.00
Interest	57.23				57.23
Funding from Royal Botanic Gardens Kew				77,893.00	77,893.00
Total Income	26,057.23	10,000.00		77,893.00	113,950.23
Expenditure					
Incorporation costs	520.95				520.95
Insurance	1,620.44				1,620.44
ASBP/ALA Conference Expenses		4,273.40			4,273.40
CHABG Workshop Hobart	4,375.00				4,375.00
Website/Domain	258.70				258.70
Total Expenditure	6,775.09	4,273.40		0.00	11,048.49
Funds available as at 30 June 2012	19,282.14	5,726.60		77,893.00	102,901.74
2012-13					
Income					
Dept of the Environment (formerly DSEWPac)			30,000.00		30,000.00
Interest	178.74				178.74
Refund GST					0.00
Botanic Gardens and Domain Trust	2,000.00				2,000.00
Botanic Gardens of Adelaide	2,000.00				2,000.00
Alice Springs Desert Park	1,000.00				1,000.00
Royal Tasmanian Botanical Gardens	1,000.00				1,000.00
Brisbane Botanic Gardens	1,000.00				1,000.00
Royal Botanic Gardens Melbourne	2,000.00				2,000.00
Australian National Botanic Gardens	2,000.00				2,000.00
Botanic Gardens & Parks Authority	2,000.00				2,000.00
Royal Botanic Gardens Kew				77,419.00	77,419.00
Total Income to 30 June 2013	13,178.74	0.00	30,000.00	77,419.00	120,597.74
Expenditure					
Brisbane City Council				8,000.00	8,000.00
Australian Government (ANBG)				8,000.00	8,000.00
Dept of Parks and Wildlife (formerly CALM Western Australia)				8,000.00	8,000.00
Royal Botanic Gardens and Domain				7,272.73	7,272.73
DEWNR				8,000.00	8,000.00
Royal Tasmanian Botanical Gardens				8,000.00	8,000.00
Botanic Gardens Parks Authority				8,000.00	8,000.00
Royal Botanic Gardens Melbourne				8,000.00	8,000.00
Susanna Venn	4,250.00				4,250.00
Tara Hopley	4,250.00				4,250.00
Dept of Parks and Wildlife (formerly Dept Env & Conservation WA)			15,000.00		15,000.00
Royal Tasmanian Botanical Gardens			15,000.00		15,000.00
Office of Regulatory Services	36.00				36.00
Director National Parks Canberra	36.00				36.00
Dr Lucy Sutherland		95.67			95.67
Tony Trimboli	300.00				300.00
Royal Tasmanian Botanical Gardens		725.74			725.74
Austcover	1,342.93				1,342.93
Domain Registration Services Seedbank	95.00				95.00
Austcover	384.39				384.39
Domain Registration Services CHABG Inc	95.00				95.00
Total Expenditure to 30 June 2013	10,789.32	821.41	30,000.00	63,272.73	104,883.46
Balance of Funds	21,671.56	4,905.19	0.00	92,039.27	118,616.02
Westpac 224159					25,953.70
Westpac 224167					92,846.26
Total of bank accounts					118,799.96
Amount not yet received					1,100.00
GST to be paid					-1,283.94
Total of transactions for year					118,616.02

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 2012-13 were:

- **Mr Stephen Forbes** – Director, Botanic Gardens of Adelaide (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
- **Ms Susan Wills** – Director, George Brown Darwin Botanic Gardens.
- **Prof Tim Entwisle** – Director and Chief Executive, Royal Botanic Gardens Melbourne
- **Prof David Mabberley** – Executive Director, Royal Botanic Gardens and Domain Trust
- **Mr Mark Fountain** – Director, Royal Tasmanian Botanical Gardens

We would like to recognise the contribution of former members: Dr Philip Moors (former Director and Chief Executive, Royal Botanic Gardens Melbourne), Ms Leslie Kirby (former Director, Royal Tasmanian Botanical Gardens) and Mr Gary Fry (former Director, Alice Springs Desert Park).



Stephen Forbes



Judy West



Mark Webb



Ross McKinnon



Susan Wills



Tim Entwisle



David Mabberley



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 the partner organisations listed in Appendix 1. Other organisations (our Associates) assist with individual projects which contribute to the overall program. 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/sites/default/files/files/ASBP_BusinessPlan2011-2020.pdf

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.

National Steering Committee members:

- **Mr Trevor Christensen** – Deputy Director, Policy and Programs, Botanic Gardens of Adelaide
- **Mr Philip Cameron** – Senior Botanic Officer and Seed Bank Manager, Brisbane Botanic Gardens, Mt Coot-tha
- **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

We would like to recognise the significant contribution of former committee members who served from 2010 to 2012: Dr Sarah Ashmore (Griffith University), Mr Mark Fountain (Royal Tasmanian Botanical Gardens), Mr Bob Makinson (Australian Network for Plant Conservation), Dr David Freudenberger (Greening Australia), Dr Penny Atkinson (Greening Australia) and Dr Phil Ainsley (South Australian Seed Conservation Centre).



SUPPORTERS AND ASSOCIATES

The Australian Seed Bank Partnership would like to thank all our supporters and Associates. Their resources and inkind 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.

- Atlas of Living Australia
- Australian National University
- Australian Tree Seed Centre, CSIRO
- Botanic Gardens of Australia and New Zealand Inc.
- Centre for Australian National Biodiversity Research
- CSIRO
- Director of National Parks
- Environmental Biosecurity Section of the Department of the Environment (formerly Department of Sustainability, Environment, Water, Population and Communities)
- Myrtle Rust Transition to Management Group
- Plant Health Australia
- Royal Botanic Gardens Kew
- Society for Ecological Restoration Australasia



Australian Government
Director of National Parks



Australian Government
Department of the Environment



Appendix 1: Partner organisations of the Australian Seed Bank Partnership

The National Seed Bank

Australian National Botanic Gardens

PlantBank

The Royal Botanic Gardens and Domain Trust

Northern Territory Seed Bank

Parks and Wildlife Commission

Queensland Seeds for Life

Brisbane Botanic Gardens Conservation Seed Bank

Brisbane City Council

Environmental Futures Centre

Griffith University

The Integrated Seed Research Unit

The University of Queensland

South Australian Seed Conservation Centre

Botanic Gardens of Adelaide

Tasmanian Seed Conservation Centre

Royal Tasmanian Botanical Gardens

The Victorian Conservation Seedbank

Royal Botanic Gardens Melbourne

The Western Australia Seed Technology Centre

Botanic Gardens and Parks Authority

Threatened Flora Seed Centre

Department of Parks and Wildlife, Western Australia

Millennium Seed Bank

Royal Botanic Gardens Kew

The Australian Network for Plant Conservation Inc.

Greening Australia





Australian Seed Bank Partnership
c/o Australian National Botanic Gardens
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Australia

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