



Australian
Seed Bank
Partnership

Safeguarding Australia's flora,
through a national network
of germplasm collections

Strategic Plan 2023–30



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Cover: *Boronia granitica* in fruit.
(Image: Lily Michail, RBGDT)

Opposite page: *Actinotus forsythii* seeds as seen under a microscope. Documenting and describing the physical traits of seeds can help scientists to identify a species while also providing clues to a seed's likely dispersal and dormancy characteristics.
(Image: The Australian PlantBank, RBGDT)

Reconciliation Statement

Australia is an ancient landscape with many thousands of years of custodianship and management by First Nations Peoples.

The Australian Seed Bank Partnership recognises First Nations Peoples throughout Australia, including their continuing connection to Country. We pay our respects to Elders past, present and future.

The Partnership recognises that these connections to Country include the people, plants, animals, land, water and sky. As we continue to work across Australia to support long-term conservation of Australia's rich and endemic flora, we will strive to build and maintain honest and trusting relationships with First Nations Peoples.

Our facilities occur on the lands of many different nations throughout Australia, with collecting, research, translocation and restoration activities occurring across many more. We will co-develop collecting and research projects, share any benefits realised through these collaborative efforts, and exchange the knowledge we create in the aim of complementing the knowledge already held by the traditional custodians of this land.

Diversity Statement

The Australian Seed Bank Partnership is committed to supporting diversity both through the seed and germplasm collections we seek to conserve, and the people and organisations that we collaborate with in delivering on our strategic objectives.

The Partnership recognises that structural bias and inequalities continue to persist in Australia today, and commits to recognising and removing structural and other barriers to enable the full and equal participation of women, people from minority and diverse sociocultural backgrounds, and those from the LGBTQI+ community.

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Foreword from the Chair

Australia's plant diversity is significant, with more than 23,000 flowering taxa known to exist across the continent, many of which are endemic, meaning they occur nowhere else on earth. With this unique diversity, Australia has a global responsibility to ensure we collectively do everything possible to conserve our biodiversity for the health of both people and planet.

As the global community recovers from the unprecedented impacts of the COVID-19 pandemic and moves to implement the Post-2020 Biodiversity Framework and the Global Strategy for Plant Conservation under the UN Convention on Biological Diversity, the Partnership will continue its work to secure better outcomes for our native plant diversity. The cumulative impacts of land clearing for development, agriculture or extractive industries, the introduction of pests or disease, and the substantial effects of climate change are numerous and growing.

When the Council established the Australian Seed Bank Partnership in 2010, we did so in recognition of the fundamental role that seed banks play in responding to these threats by providing *ex situ* conservation options for Australia's native plant diversity.

It is imperative that we continue to approach the conservation of Australia's diversity through a coordinated network of botanic gardens, seed banks, nurseries and seed production areas, working collaboratively to provide a strategic approach to safeguarding and utilising this diversity.

Botanic gardens and seed banks also provide avenues to document, understand and secure plant germplasm and build capacity in collaboration with the global scientific and conservation community. Education and engagement through botanic garden and seed bank displays, tours and conferences are the cornerstones of helping people understand and value native flora. As the custodians of Australia's major botanic gardens and conservation seed banks, we are committed to contributing to the Partnership's vision through the implementation of this Strategic Plan.

Throughout the coming decade we will support greater engagement with Australia's First Nations Peoples by seeking resourcing for Partner programs and targeted Partnership projects. We will seek to conserve richer, continent-wide diversity both across and within species, and we will work to increase investments in facilities and people to ensure the collections held in seed banks are maintained to the highest international standards. We will also strive to increase scientific and conservation collaborations throughout the Asia-Pacific region, in recognition of our interconnected floras and the shared impacts of climate change. These priorities will place the Australian Seed Bank Partnership at the forefront of *ex situ* seed conservation and utilisation, specifically throughout the Asia-Pacific region, and more broadly on the global stage.

On behalf of the Council of Heads of Australian Botanic Gardens I welcome you to join us over the coming decade as we continue to grow our program to deliver a diversity of long-term conservation outcomes for Australia's native flora.

Denise Ora

Chair, Council of Heads of Australian Botanic Gardens



Preface from the National Coordinator



Seed and plant germplasm hold the key to the future diversity of Australia's flora. As the custodians of these materials, Australia's First Nations People listened, learned and managed the Australian flora across many landscapes to benefit their wellbeing and that of the animals and plants they shared them with. Through close connection to Country, their knowledge evolved over time, creating a continent-wide living collection of native flora that delivered critical ecosystem services that supported the continued evolution of our highly diverse flora and fauna.

The Australian Seed Bank Partnership's *ex situ* seed conservation efforts have occurred over a significantly shorter period, with the past 20 years seeing Australia's seed conservationists and scientists collaborating in various ways. Originally this occurred through direct collaborations between Australian seed banks and the Millennium Seed Bank of the Royal Botanic Gardens, Kew, UK (2000–06), then with several seed banks and academic institutions through the Australian Conservation and Research Network (2006–09), before a national network was established through the Australian Seed Bank Partnership (2010–ongoing). These collaborations have ensured the latest knowledge and expertise developed across the country are transferrable to others working on similar plant groups or technical challenges.

This next decade will no doubt present its own array of challenges, opportunities and surprises. The 2019–20 bushfires and COVID-19 pandemic have demonstrated that the world is more connected and vulnerable than ever before. Our impacts on the environment are playing out across both landscapes and society, presenting larger challenges, obstacles and opportunities for us to confront as individuals, and collectively at local, regional and international levels.

The global community has taken the lessons learned over the recent decades of the Global Strategy for Plant Conservation and refined its focus to better align with the Post-2020 Global Biodiversity Framework under the Convention on Biological Diversity, ensuring greater abilities to focus effort and achieve conservation outcomes for our global flora. These international targets and the subsequent national goals and ambitions of Australian jurisdictions for conserving biodiversity can only be achieved with local and regional efforts.

The Partnership will continue to work closely with governments, academia, practitioners and the philanthropic community at all levels to understand, secure and utilise plant germplasm respectfully and responsibly. Our shared efforts will contribute to the conservation of Australia's plant diversity, providing greater access to plant material, information and expertise. These collaborations will provide options for the future of Australia's native flora that would otherwise be lost to climate change, land clearing, pests and disease.

Over the coming decade we will contribute to reversing the decline of biodiversity across the continent and help deliver meaningful progress towards the UN Decade on Ecosystem Restoration. We welcome you to join us as we continue our journey to improve our capacity and capabilities in the *ex situ* conservation of native flora both in Australia and more broadly throughout the Asia-Pacific region.

Damian Wrigley

National Coordinator, Australian Seed Bank Partnership

Vision and strategic focus



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

Our **strategic focus** is to deliver a national effort that contributes to the conservation of Australia's native plant diversity through collaborative and sustainable seed and germplasm collecting, banking and use, research, and knowledge sharing.



Seedbank Officer Ruby Paroissien looking in *Lasiopetalum joyceae* habitat for seeds to collect as part of the Partnership's Island, Alps and Forests project.
(Image: Laura Watts, RBGDT)



Delivering on our strategic focus

Over the first decade of the Partnership, we delivered on our goal of increasing the diversity of native plants conserved through seed banks as well as raising awareness of the importance of plant conservation more broadly. Over the next decade, the Partnership will focus on strengthening the core aspects of *ex situ* seed and germplasm conservation, such as germplasm collecting, banking and research, and the capacity building and collaborations that help deliver better outcomes for the Australian flora.

The Partnership is focusing on four outcome areas to ensure national efforts deliver a strategic approach to seed and germplasm conservation, research and use, investing in facilities and people, engaging and partnering with First Nations Peoples and sharing the knowledge we develop. These outcome areas and the approach the Partnership takes to achieving them will remain flexible. This approach will enable Partners to respond to environmental and climate

emergencies, changes to conservation priorities due to newly identified threats, and our evolving understanding of cultural and scientific approaches to seed and germplasm conservation.



Denzel Murfet and Brad Bianco searching and collecting seed pods for the endangered Orchid *Thelymitra mucida*. (Image: Dan Duval, BGS)

Our vision is a future where Australia's native plant diversity is valued, understood and conserved for the benefit of all

Outcome 1
Growing our collections, research and restoration contributions

Outcome 2
Growing our investments in our facilities and people

Outcome 3
Improving engagement and partnerships with Australia's First Nations Peoples

Outcome 4
Developing and sharing knowledge



Outcome 1 Growing our collections, research and restoration contributions

The Partnership will increase the representation of native species and their genetic diversity across our collections. We will focus on increasing the representation of the Australian flora, and the collection and storage of maternal lines to better understand the genetic diversity within species in *ex situ* collections, particularly those secured during Phase 1 of the 1000 Species Project. This information will inform the prioritisation of future collecting programs, translocations, restoration and research, particularly for threatened species.

The Partnership will continue to be at the international forefront of *ex situ* conservation science by supporting and undertaking research into germplasm storage, seed biology and ecology, and informing the management and use of collections to contribute substantially to the global discourse on plant conservation, propagation and use in translocations and ecosystem restoration.

The use of Australia's seed collections will continue to increase as further research and restoration opportunities are created through Partner projects and collaborations with governments, First Nations Peoples and land managers across the continent and throughout the region.



Outcome 2 Growing our investments in our facilities and people

Growing investments in seed bank facilities and people is crucial to ensuring Australia's seed banks grow their capacity and capabilities to address increasing threats to biodiversity and increasing demand for the use of collections. This will be done in line with international gene banking standards, scientific advances in germplasm conservation, and international standards for ecosystem restoration.

We will continue to invest in training opportunities through collaborations with universities, academic institutions and conservation organisations to equip the next generation of conservation scientists and practitioners with the necessary skills and expertise.

We will work with governments, business and the philanthropic community to secure these strategic investments.

We will ensure these investments continue to grow in line with conservation needs, providing greater future capacity and capability to respond to threats, restore native habitats and secure better biodiversity outcomes for Australia.



Outcome 3 Improving engagement and partnerships with Australia's First Nations Peoples

The Partnership is committed to Reconciliation with Australia's First Nations Peoples. We will build on our existing collaborations with Australia's First Nations Peoples to support best practice conservation in line with cultural expectations. We will seek to learn together and improve our understanding and approaches to working on Country for better biodiversity outcomes.

We will work with First Nations Peoples to secure funding that supports co-development and co-delivery of seed conservation projects on Country and continue to share our knowledge and expertise to complement the work of First Nations Peoples in conserving flora on Country, particularly in the face of growing climate and environmental uncertainty.



Outcome 4 Developing and sharing knowledge

We will continue to support the implementation of better conservation strategies, policies and programs at the local, national and international levels by working with governments, industry and the community. We will share our knowledge and data with environmental decision-makers and on-ground practitioners.

The Partnership will continue to provide open access to seed and germination data across our Partnership collections online through the Australian Virtual Seed Bank. We will advocate for best practice germplasm conservation by encouraging awareness and use of the *Plant Germplasm Conservation in Australia* guidelines (3rd edition) (Yenson et al. 2021, published by the Australian Network for Plant Conservation (ANPC), and we will build capacity across the sector by actively sharing our knowledge with the global seed banking and conservation community to enable transformation of the sector.



Bussell's Spider-orchid, otherwise known as *Caladenia busselliana*. These seedlings were grown from historical collections that have been held in cryostorage since 1999. Seedlings were moved from germination plates to containers with a mix of sand and agar to induce tuberisation and aid future transfer to a glasshouse as part of a propagation and translocation project. (Image: Belinda Davis, BGPA)

Collaboration and shared purpose drive the success of Australia's largest *ex situ* seed conservation program. The Partnership remains committed to building on these achievements to continue delivering better outcomes for Australia's native flora and the ecosystems that rely on their survival.

Australia's collective knowledge and expertise in relation to native seeds continues to develop as we secure more taxa, and more genetically diverse collections in *ex situ* conservation facilities across the country. An ongoing and sustainable seed conservation program requires a strong commitment from governments, business, philanthropists and communities to support these efforts for the long term. As individual institutions and as a Partnership we continue to build on previous investments to secure a comprehensive, genetically representative, and enduring germplasm conservation program for Australia's native flora.



Translocation of the *Brachyscome muelleri* (Corunna Daisy) at the Secret Rocks Nature Reserve in South Australia. Using the seed from *ex situ* collections in translocations is one way of ensuring Australia's native flora has a fighting chance of survival in the face of climate change and habitat loss. (Image: Jenny Guerin, BGS)

The conservation of Australia's flora is paramount to safeguarding our future. Plants provide food, fibre and shelter to many organisms. Without these essential ecosystem services, Australia's diverse landscapes would cease to function.

As the global community continues to recognise and respond to increasing threats from climate change, population growth and land use change and other environmental challenges, now more than ever we have an opportunity to improve environmental outcomes and provide future opportunities through our conservation collections.



Brad Bianco scouring the cliffsides at Cape Forbin for seeds from *Pultenaea villifera* subsp. *glabrescens*. (Image: Dan Duval, BGS)

During Phase 1 of the 1000 Species Project, the Partnership secured more than 1,200 collections from over 1,100 species from across Australia, including its external territories. Phase 1 secured collections from species that were not previously secured in seed banks, with a focus on improving the representation of species that were considered endangered, or endemic to Australia, or that may have economic potential in the future.

Phase 1 was delivered thanks to the generous support of Partner and Associate organisations, various philanthropic and grant funders and many in-kind contributions from volunteers during 2012–22.

The Phase 1 achievements made a strong contribution to securing significant numbers of species not previously represented in *ex situ* conservation collections. This phase also illustrated the need to focus on improving the genetic representation within species when undertaking further work to conserve the Australian flora. Partnership projects over the coming decade will contribute to Phase 2 of the 1000 Species Project by increasing the representation of the genetic diversity of the Australian flora both across and within species.



With the release of Australia's *State of the Environment Report* (2021), it is clear that Australia's environment is at significant risk of deteriorating further. Slowing and reversing the ongoing deterioration of Australia's landscapes will rely on the application of seed science and *ex situ* conservation expertise to complement the many other conservation actions occurring across the country. Access to viable resilient plant germplasm and the biological and technical know-how underpinning its use is critical to the implementation of national ecosystem restoration efforts, and in building and conserving the biological diversity of Australia's protected area estate, including Indigenous Protected Areas.

The Partnership's work will continue to contribute to major national and global commitments by delivering local and regional plant conservation outcomes. Through this current decade we are focused on supporting the delivery of actions that contribute to the Global Strategy for Plant Conservation under the UN Convention on Biological Diversity and the Post-2020 Global Biodiversity Framework. The Partnership is also well placed to support the implementation of the UN Decade for Ecosystem Restoration as a member of the Restoration Decade Alliance, a consortium of like-minded Australian restoration organisations seeking to improve restoration outcomes for Australia.



Climate change is having a profound effect on the intensity and frequency of bushfires. As part of the Partnership's bushfire response, we conducted rapid flora assessments, documenting the impact of the fires and the recovery of native species. This image shows the various stages of seedling development for *Grevillea halmaturina* subsp. *halmaturina*, valuable information for future surveys looking to identify species presence post-fire.

The agreement of more than 200 nations under the UN Framework Convention on Climate Change in Glasgow, UK, in 2021 provides the world with a clear mandate to reduce carbon emissions and limit global warming to 1.5 degrees Celsius. The global commitments made by Australia and many nations around the world are fundamental to providing our native flora with the best chance of remaining available for future generations. As we collectively move towards securing and restoring more of our important landscapes, reducing our carbon footprint and creating a healthier planet for plants, animals and people is of paramount importance.

While efforts are made by individuals, industry and governments to achieve these ambitious emission reduction targets, the Partnership will continue to secure germplasm from native species as an insurance against the effects of climate change with the hope they can be used in future to restore habitats affected by the increase in climate-related environmental disasters.

The Partnership undertakes research to better understand the effect that climate change will have on the germination, growth and population persistence of the Australian flora, and we will continue to do so over the coming decade. The Partnership also provides seed from collections across the country for use in research in universities and academic institutions. Many of these projects seek to better understand how the Australian flora is responding to climate change and what can be done to prevent further population decline across the continent.

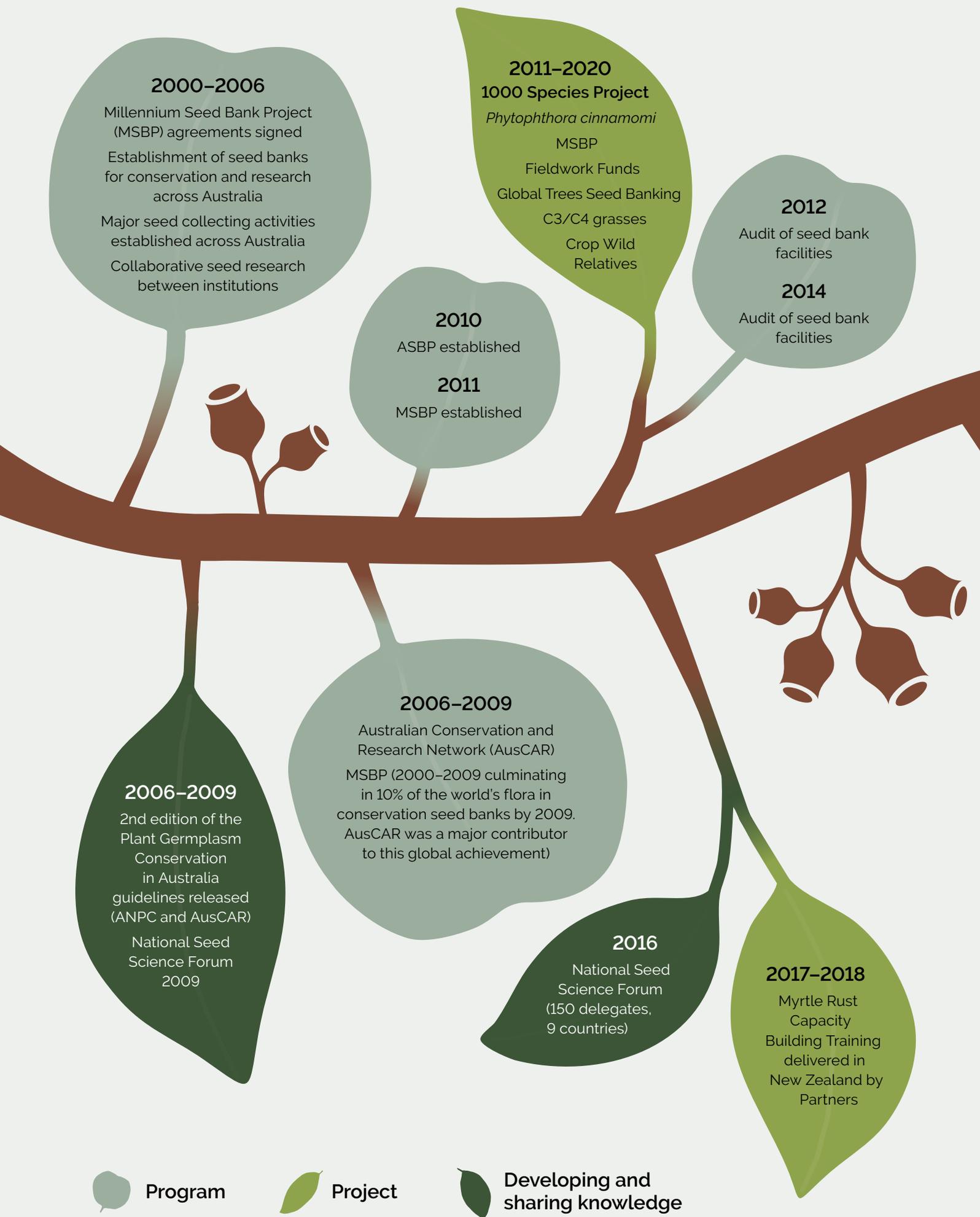


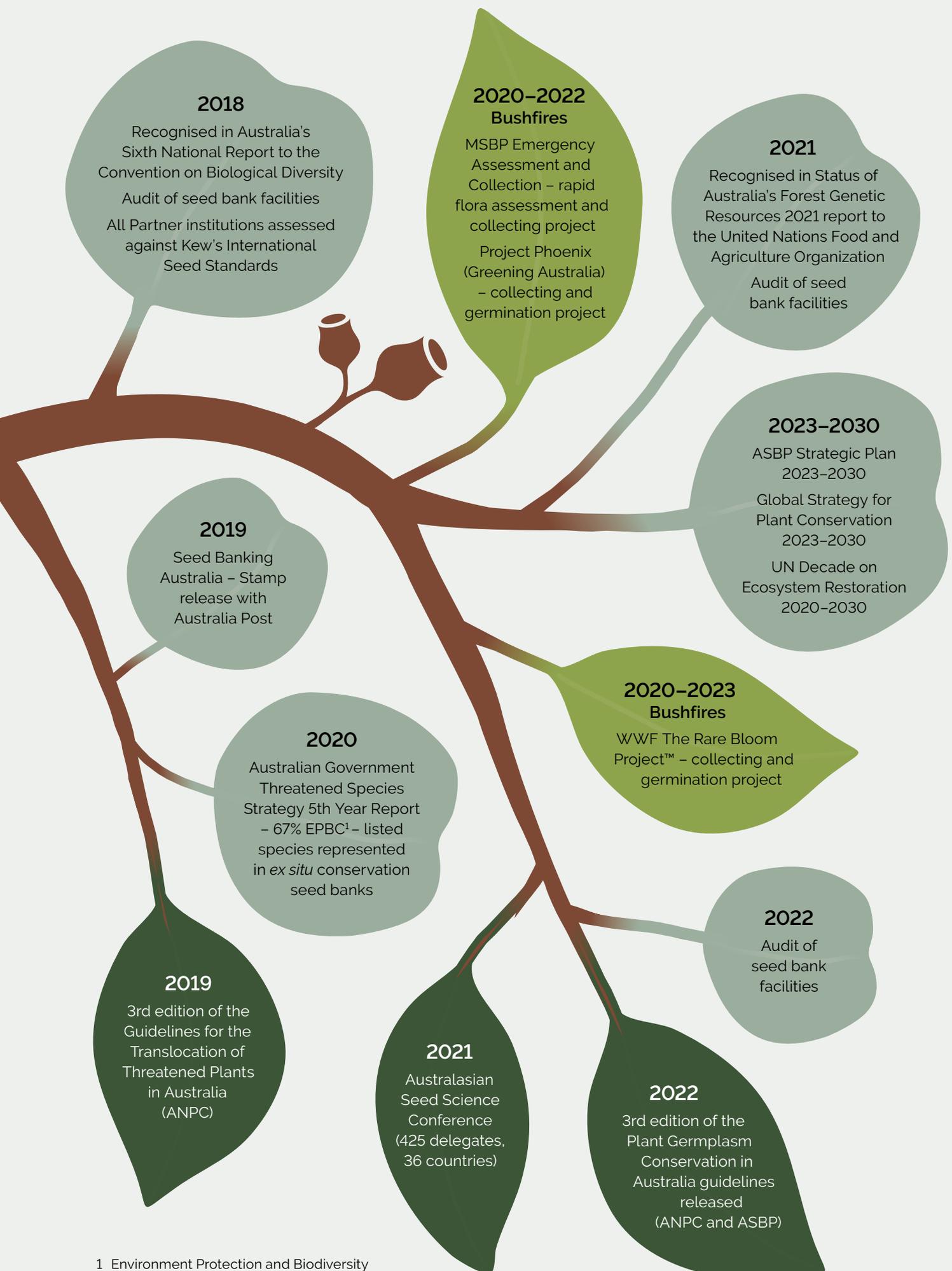
Our achievements as a Partnership

Collaborations between Australia's major *ex situ* conservation seed banks commenced many years before the Partnership was formally established in 2010, dating back well before the 2000s. As we move into this next decade of collaborative seed banking in Australia, it is worth reflecting on the progress made by the Partnership across *ex situ* conservation seed banks over the past 20 years. Since the year 2000, the Millennium Seed Bank of the Royal Botanic Gardens, Kew, UK, has worked closely with Australian seed banks. During this time Australia has seen a significant increase in the number of facilities and breadth of expertise, including greater collaboration between seed banks.

Despite these achievements, there is still some way to go before the large and diverse Australian native flora is adequately represented in *ex situ* conservation collections and available for use now and in the future. As a national network of dedicated botanical experts and researchers, the Partnership is committed to growing our contribution to the conservation of Australia's native flora through strategic and sustainable seed conservation, research and use.

Agastachys odorata flowering near Lake Burbury, Tasmania (Image: James Wood)





1 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Delivering the Partnership through national and international collaborations

Partners

The Partnership draws on the expertise of Australia's leading botanic gardens, herbaria, state environment agencies and academic institutions, as well as non-government organisations. The Partnership continues to operate under the governance of the Council of Heads of Australian Botanic Gardens Incorporated (CHABG). As such, the membership structure of the Partnership is supported through minimal membership fees from the eight CHABG member gardens and significant in-kind contributions from non-botanic gardens Partner organisations through seed and gene banking facilities and staff.

The Partnership recognises the leadership of the Director of National Parks through the Australian National Botanic Gardens (ANBG) as the host Partner of the National Coordinator and ASBP Secretariat since 2010. The Director of National Parks through the ANBG Management Plan (2022-2032) has committed to this arrangement for the duration of the new Management Plan.

A future review of the Partnership structure in 2026 and at the end of this strategy will enable the Partnership model to continually adapt to reflect the maturation of the conservation seed sector in Australia.



Dedicated to a better Brisbane



Associates

The Partnership delivers across a diverse range of operational and theoretical areas in collaboration with like-minded individuals, organisations and institutions both within and external to Australia. These Associates support the Partnership to deliver on our objectives across seed collection and banking, applied research, restoration and translocation actions and the development of guidelines, standards and scientific advice to governments, business, individuals and land managers.

The Partnership will continue to seek collaborations and opportunities to work with other organisations to support improved seed conservation outcomes for Australia's native flora.

Partners working with Traditional Owners on Country
(Image: Tom North)

Reconciliation with First Nations Peoples

The Partnership is committed to meaningful collaboration with Australia's First Nations Peoples. Over the first five years of this Strategic Plan, the Partnership will work with our Partners and Associates and Australia's First Nations Peoples to develop a Partnership approach to respectful and meaningful reconciliation. This Partnership approach will seek to ensure that due respect and consideration is given to the collection, storage and use of plant material and that meaningful dialogue occurs with traditional owners to share knowledge and improve the access and benefit sharing that arises from the conservation work undertaken across the Partnership. The outcomes we seek to achieve through *ex situ* seed conservation are of benefit to all Australians and it is important that First Nations Australians are an integral part of the conservation conversation.



The world's biological diversity, or biodiversity, is in crisis. Human-induced climate change and the conversion of natural habitats for agriculture and urban development are pushing species of flora and fauna to the brink of extinction on every continent. As the global population continues to grow, so too does our impact on the biodiversity we rely on for food, fibre and ecosystem services that provide us with clean air and water.

We face a real and present threat to the biodiversity across the Australian continent. Recent analysis provided in the *State of the Environment Report* (2021) indicates poor and declining health across many landscapes, illustrating the growing threat to the health and resilience of Australia's biodiversity. Despite these significant challenges there are many experts working tirelessly to prevent further loss.

The UN Convention on Biological Diversity (CBD) brings global attention to the plight of the planet's biodiversity, encouraging commitments from governments to protect biodiversity within their jurisdictions. The global biodiversity targets established through the CBD provide a framework under which governments,

conservation organisations, business and communities can focus efforts, and for plants this is further prioritised through the Global Strategy for Plant Conservation (GSPC).



For the past 20 years the Partnership has focused our efforts on contributing to the GSPC: we have been one of the world's major contributors to the Strategy through the conservation of more than 10,000 native Australian plant species secured in *ex situ* facilities. Over the coming decade, we will work across our network to continue our contribution to the GSPC and the ongoing conservation of Australia's biodiversity.

We are committed to documenting and conserving native germplasm so that it is available for future generations. We will make our collections available for research and ecosystem restoration. And we will grow our partnerships with Australia's First Nations peoples while supporting efforts to build capacity across the sector for the next generation of experts that seek to conserve our irreplaceable biodiversity.



The Partnership sends many seeds for duplication at the Millennium Seed Bank in the UK, along with over 100 countries across the Millennium Seed Bank Partnership. Seeds remain available for repatriation to Australia should we ever need them for research, translocations and restorations or in the unlikely event that seed is lost due to damage to collections in Australia. (Image: Damian Wrigley)

Millennium Seed Bank Partnership

Australian seed banks have worked closely with experts from the Royal Botanic Gardens, Kew, UK, for more than 20 years. This close collaboration has delivered improved capacity and expertise throughout Australia's *ex situ* seed conservation sector. Since 2001 in particular, the Partnership has collaborated on research and seed collecting and conservation projects with the Millennium Seed Bank, delivering substantial long-term conservation benefits for the Australian flora. As a long-term member of the Millennium Seed Bank Partnership, the Australian Seed Bank Partnership will continue to collaborate closely with MSBP Partners,



Volunteers like Denzel Murfet in South Australia make all the difference to fieldwork and the processing of collections back in the seed bank. A keen eye is definitely needed when searching for species *Nymphoides geminata* in tricky spots like Larrikins Lagoon, seen here in December 2021. (Image: Dan Duval, BGS)

in particular the Millennium Seed Bank, to deliver improved practices and capabilities for seed conservation throughout Australia and the Asia-Pacific region.

Australian Network for Plant Conservation

The Partnership collaborates with the Australian Network for Plant Conservation (ANPC) on projects that support plant conservation outcomes throughout Australia and more broadly throughout the Asia-Pacific region. In recent years, ANPC and the Partnership have collaborated on the revision of the Germplasm Guidelines (see page 25) and capacity-building events and tools to assist Australian conservation practitioners and scientists to improve their skills and approaches to plant germplasm conservation.

Volunteers

Without the many volunteers in the field and in seed banks around the country, Australia would not have such a successful native seed conservation program. Our volunteers are central to the Partnership's ability to ensure native seed and other germplasm is conserved in seed banks to the highest international standards. Our volunteers support us to collect from the field, to continually monitor our collections in the seed bank, and to score germination trials in the lab. They also help us to make the information and images we produce freely available for all Australians. We are incredibly grateful for the support of our volunteers and will continue to provide opportunities for our greatest supporters to grow their skills and help us germinate new ideas for how we can collectively secure Australia's native flora.

Sponsors and donors

The Australian Seed Bank Partnership can provide a diversity of opportunities for business, philanthropic organisations and private donors to support our work across Australia and the broader region. Our national reach provides for targeted interventions at various scales, starting with local projects supporting individual threatened species and communities through to strategic multi-site programs across the continent. We deliver impact across conservation, biodiversity, food security and various other sectors.

Seed banks, botanic gardens and their conservation networks have the skills and expertise needed to conserve Australia's threatened plant species. Collaborations like the Partnership rely on the dedication and commitment of the plant conservation community—a community consistently striving to achieve better outcomes for Australia's threatened flora. These efforts and collaborations take time and substantial investments in people, facilities and field work.

The Partnership can provide ready-made project proposals for sponsors and donors that will support iconic Australian species, highly threatened flora or targeted research.



To support our efforts across the continent, the Partnership relies on investments from our Partner and Associate organisations, as well as grant and philanthropic funding and collaborations with industry. The Partnership also works closely with the Council of Heads of Australian Botanic Gardens to raise funds to support our work.

We welcome collaborations and partnerships with the business and philanthropic community and can tailor a program of work that can deliver at the local, regional, national or international level. We can help you enhance your achievements in line with your corporate and environmental responsibilities by delivering targeted conservation projects that have long-lasting benefits for the conservation of Australia's unique biodiversity and the people who manage and rely upon its health and resilience.

We regularly update our Partnership website with information about our projects and collaborations with government, industry and philanthropy: www.seedpartnership.org.au/initiatives/

If you are interested in partnering with us to support Australia's native flora, please reach out to the National Coordinator at coordinator@seedpartnership.org.au or call +61 2 6250 9473.

As part of the Rare Bloom Project, ASBP collaborated with Woolworths to establish 50 critically endangered *Caladenia busselliana* plants in the Conservation Gardens at Kings Park (Image: Belinda Davis)

Investing as little as \$100,000 a year over five years will enable seed banks to increase the genetic diversity of threatened species from remote locations, preventing endangered species from going extinct.



Contributing \$1 million to the Partnership will support targeted collecting and germination trials for more than 100 native species, allowing world-class maintenance of the collections and use of more species in restoration.



\$10 million would provide the Partnership with opportunities to engage with First Nations Peoples across Australia to improve conservation outcomes for some of Australia's most threatened species, enabling two-way conservation.



Enabling the Partnership

Governance

The Australian Seed Bank Partnership is governed by the Council of Heads of Australian Botanic Gardens Incorporated (CHABG), a not-for-profit organisation registered with the Australian Charities and Not-for-Profit Commission and the Register of Environmental Organisations. The work of the Partnership is facilitated by a National Coordinator and Partnership Secretariat, supported by the Director of National Parks and hosted at the Australian National Botanic Gardens.

The Partnership's work is overseen by the National Steering Committee, which includes representatives from Partner and Associate organisations, including relevant expertise in seed conservation, biological and ecological research, restoration ecology, conservation policy and senior management. The Chair of the National Steering Committee rotates regularly between the members of CHABG.

The Committee provides strategic oversight for the implementation of this Strategic Plan and the projects delivered through the Partnership. Partners and Associates provide representatives for the various working groups that assist the Partnership to develop and implement Partnership projects.

In September 2022, members of the CHABG committee and the ASBP National Steering Committee met in Melbourne. (Image: Damian Wrigley)



Independent review

The Partnership will conduct an independent review in 2026 to consider progress in implementation of the Strategic Plan and will use the review findings to improve implementation through to 2032. A second independent review will be conducted in the final year of implementation to inform the strategic direction of the Partnership for the following decade.

Planning for the future

In 2019 the Partnership met at the George Brown Darwin Botanic Gardens to review progress against our first Business Plan (2011–20) and identify our strategic focus for the next five to ten years. With the catastrophic Australian bushfires of 2019–20 and the ongoing effects of the COVID-19 pandemic, the development of our Strategic Plan was delayed as we responded to the substantial impacts of these concurrent events. Furthermore, some priorities identified for the decade through the Partnership's strategic planning have already been realised through post-bushfire opportunities. These include the development of guidelines such as the Florabank Guidelines and Germplasm Guidelines, led by the Australian Network for Plant Conservation; the National Native Seed Strategy developed through Greening Australia's Project Phoenix; and the update to our open access seed and germplasm collections data.

In 2023 the Partnership will complete an update to our open access seed collection and germination database and the review of conservation collections held across Partnership facilities. These guidelines and finalisation of critical data projects will assist the Partnership to deliver on our strategic focus throughout this decade.

Science and research

Science and research are the cornerstones of the Partnership's work. Science provides seed banks with critical knowledge for understanding species biology, ensuring seed-collecting efforts are targeted in response to the flowering and fruiting of native species. This approach applies also to responding to the impacts of climate change as species continue to adapt their flowering and fruiting to the prevailing conditions.

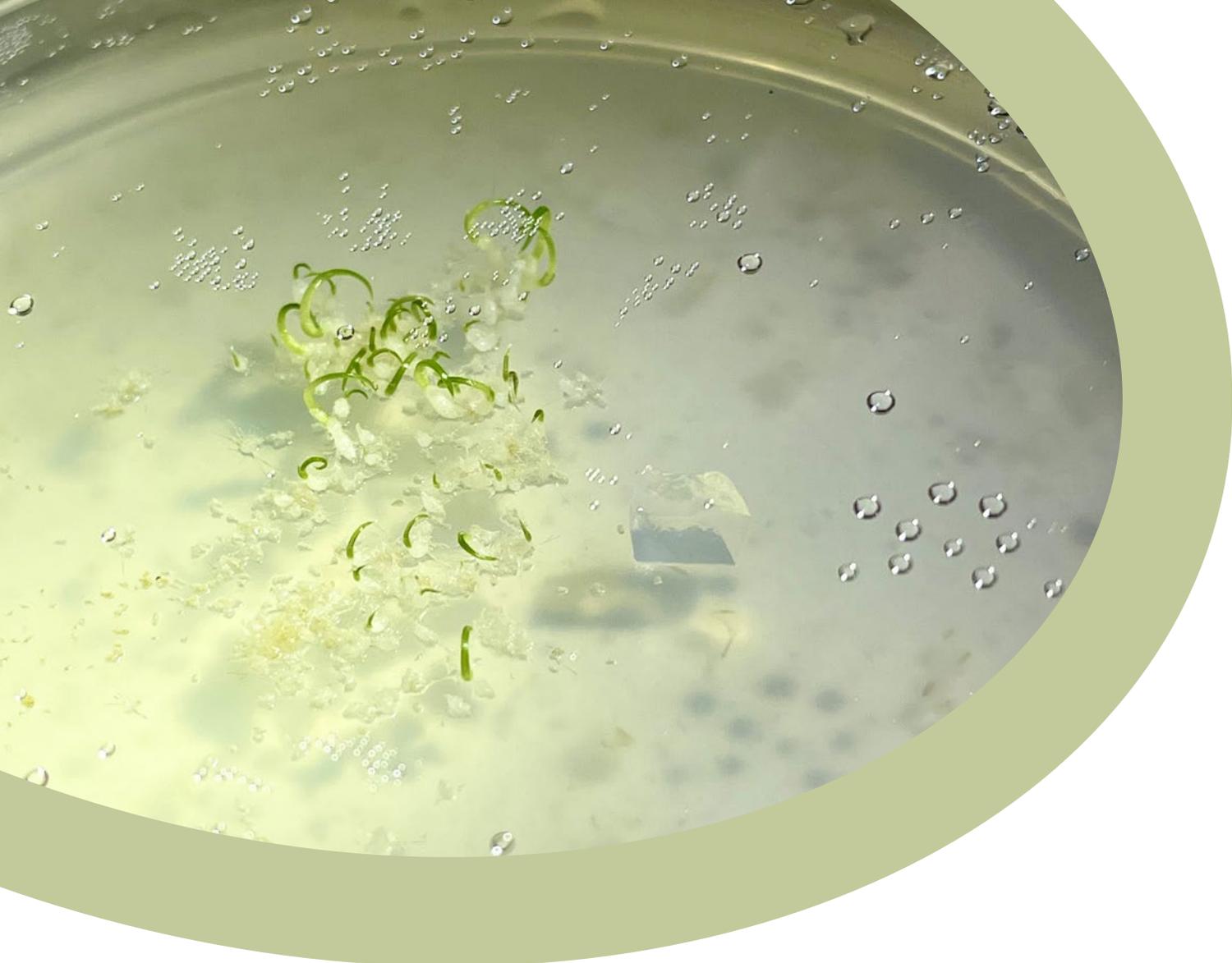
Scientific advances in the understanding of seed biology and ecology will also help to guide the germination, storage and utilisation of seeds in seed banks across Australia, and it is imperative that the Partnership continues to support activities that advance our understanding and capabilities in these areas.

The National Seed Science Forum (2016) brought 150 delegates from nine countries to Sydney to discuss the latest advances in seed science. This meeting culminated in a special edition of the *Australian Journal of Botany* focused on the key papers from the Forum. See *Australian Journal of Botany* 65(8), 601–690: <https://www.publish.csiro.au/BT/issue/8568/>.

The fully virtual Australasian Seed Science Conference (2021) followed on from the Forum, welcoming 425 delegates from 34 countries, and furthering the seed science conversation across the globe. A special edition of the *Australian Journal of Botany* focusing on the key themes of the Conference will be released in early 2023: <https://www.publish.csiro.au/bt>.

The next Australasian Seed Science Conference will be held in 2025 at the Australian Grains Genebank in Horsham, Victoria.





Researchers across the Partnership undertake germination trials on a sample of the seeds they collect. It is critical that we unlock the secrets of seed dormancy to help practitioners and horticulturalists understand how to grow native species from seed, enabling them to propagate plants for use in translocations, restoration and in living collections in botanic gardens.

The Partnership's commitment to reviewing our collection across all Partners, Australia's 'meta-collection', will provide the Partnership with an opportunity to reflect on the achievements in seed banking across Australia's major conservation seed banks since 2000. This review will provide opportunities for the Partnership to evaluate the representiveness, value and use of the meta-collection, and identify priorities for future collecting and research. The findings of the review will inform the Partnership's Science Strategy, due for development in 2023.

The Partnership's Science Strategy 2023 is intended to provide a national perspective on the scientific priorities at a national level for seed science. The Science Strategy 2023 is not intended to replace or override the science priorities and focus of individual Partner institutions, but instead complement these efforts and provide avenues for strategic national and international collaboration.

Strategies, guidelines, standards and data

As a national Partnership working across various state and territory borders, we strive to align our practices and protocols to deliver consistency and comparability, both across our facilities and collections. We do this by contributing to national and international strategies and guidelines, including the ones listed below, and by adhering to standards for best practice seed conservation.

Given the significant specialist expertise across the Partnership, Partners and Associates have played a key role in shaping the following strategies, guidelines and standards over many years. The Partnership also draws on these sources as we strive to align our practices and protocols to deliver consistency and comparability, across both our facilities and our collections.

Global Strategy for Plant Conservation

The Global Strategy for Plant Conservation provides an international focus for conservation efforts for the world's flora. The Partnership has contributed substantially to the targets of the GSPC between 2000–2010 and 2011–2020. In this third decade of global efforts, the Partnership will continue to support improved conservation practices and collaborations to conserve Australia's native flora and global efforts to reverse the impacts on plant species.

Australian Virtual Seed Bank

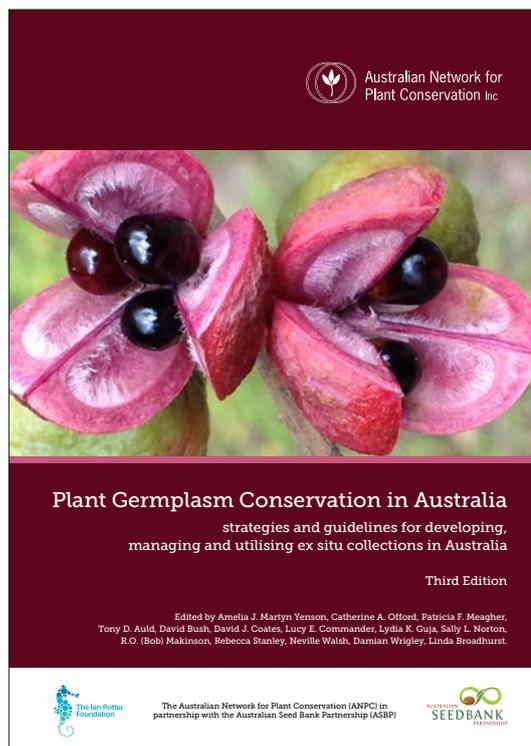
The Australian Virtual Seed Bank is an open-access seed collection and germination database, providing data on the collections held across the Partnership. The Australian Virtual Seed Bank is hosted by the Atlas of Living Australia, providing integrated access to species information, collection information and germination protocols developed for Australia's native seed held in *ex situ* conservation seed banks. The Australian Virtual Seed Bank is available at <https://asbp.ala.org.au/>.



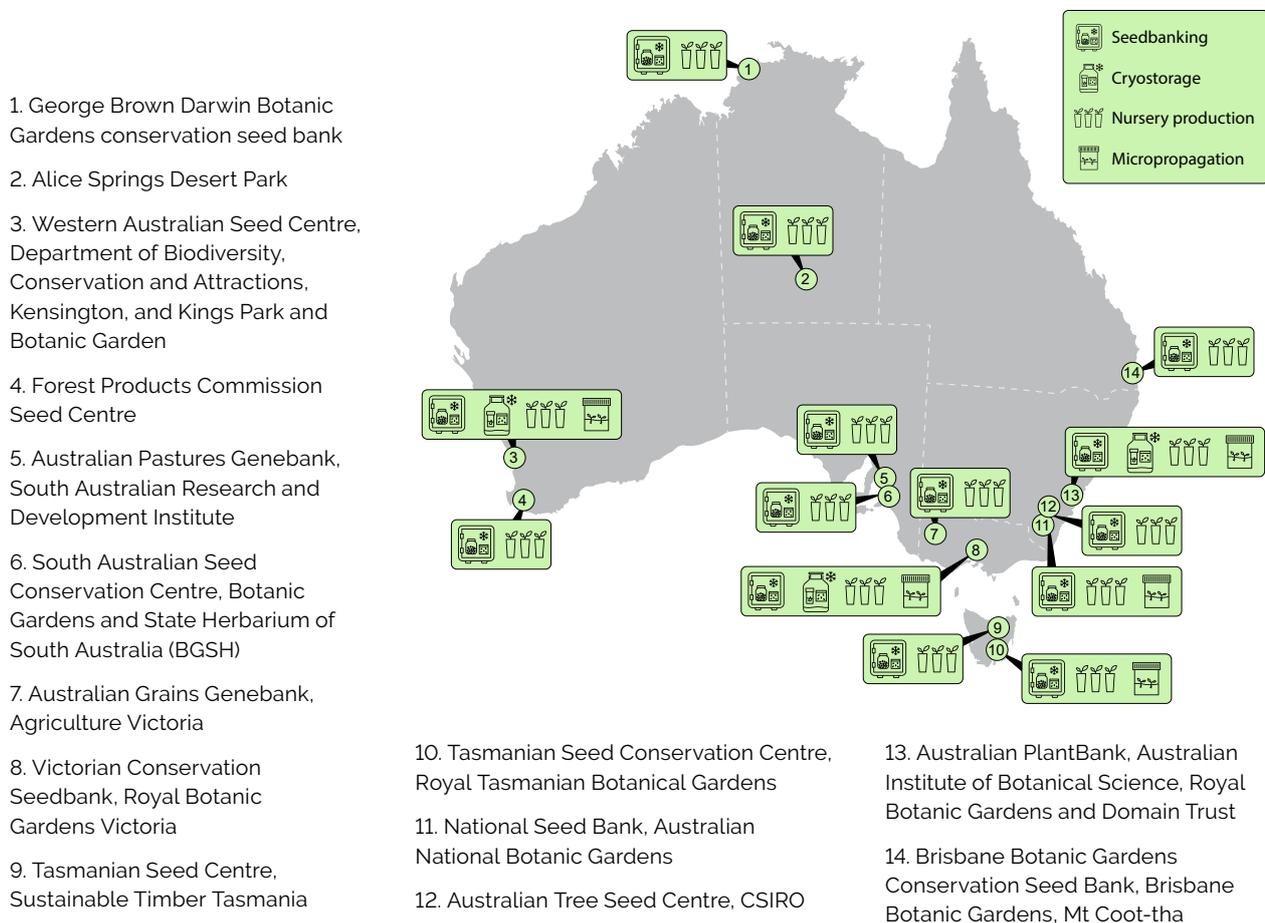
Myrsine ralstoniae fruit (Image: Tom North © ANBG)

Australian Plant Germplasm Conservation in Australia (3rd edition)

The Germplasm Guidelines are a joint publication of the Australian Network for Plant Conservation and the Australian Seed Bank Partnership, funded by the Ian Potter Foundation. The Germplasm Guidelines are Australia's leading reference on advanced germplasm conservation techniques, updated as a collaborative effort with 78 contributors from seed banks, botanic gardens and other organisations, including CSIRO and universities throughout Australia. Additional contributions were made by experts in New Zealand, the US and the UK.



The below map has been modified from the original published in the Germplasm Guidelines in 2021. The icon for the Victorian Conservation Seedbank (No. 8) has been updated to illustrate that cryostorage capability was incorporated in 2022 through the addition of ultra-low temperature freezers.



The third edition of the Germplasm Guidelines includes over 500 pages of comprehensive techniques, practical advice and case studies to support the conservation of plant germplasm.

Martyn Yenson AJ, Offord CA, Meagher PF, Auld T, Bush D, Coates DJ, Commander LE, Guja LK, Norton SL, Makinson RO, Stanley R, Walsh N, Wrigley D, Broadhurst L (2021). *Plant Germplasm Conservation in Australia: Strategies and Guidelines for Developing, Managing and Utilising Ex Situ Collections*. Third edition. Australian Network for Plant Conservation, Canberra. Available from www.anpc.asn.au/plant-germplasm/.

Guidelines for the Translocation of Threatened Plants in Australia (3rd edition)

The Translocation Guidelines were developed by the Australian Network for Plant Conservation with contributions from over 30 experts throughout Australia, including the Australian Seed Bank Partnership. The Translocation Guidelines provide best-practice guidelines for conservation translocations, based on accumulated Australian and international experience.

Translocation is the deliberate transfer of plants or regenerative plant material from an *ex situ* collection or natural population to a new location, usually in the wild. It includes reintroduction, introduction, reinforcement, assisted migration and assisted colonisation.

Commander, LE, Coates, D, Broadhurst, L, Offord, CA, Makinson, RO and Matthes, M (2018). *Guidelines for the Translocation of Threatened Plants in Australia*. Third Edition. Australian Network for Plant Conservation, Canberra. Available from www.anpc.asn.au.

National Standards for the Practice of Ecological Restoration in Australia

The *National Standards for the Practice of Ecological Restoration in Australia* identify the need and purpose of ecological restoration and explain its relationship with other forms of environmental repair. The Standards identify the principles underpinning restoration philosophies and methods, and outlines the steps required to plan, implement, monitor and evaluate a restoration project to increase the likelihood of its success. The Standards are equally relevant to minimally resourced community projects as to large-scale, well-funded industry or government projects. The Partnership contributed to The Standards and held their launch at the National Seed Science Forum in 2016.

Standards Reference Group SERA (2021). *National Standards for the Practice of Ecological Restoration in Australia*. Edition 2.2. Society for Ecological Restoration Australasia. Available from www.seraustralasia.com.

Florabank Guidelines

The *Florabank Guidelines* were published by the Florabank Consortium as part of the Healthy Seeds project funded by the NSW Environment Trust. The *Florabank Guidelines* provide practitioners with practical guidance on the identification, collection, processing, storage and utilisation of seeds and are a complementary set of guidelines to the Germplasm Guidelines.

Commander LE (Ed.) (2021). *Florabank Guidelines: Best Practice Guidelines for Native Seed Collection and Use*. Second edition. Florabank Consortium, Australia. Available from www.florabank.org.au.



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Supporting the Partnership to save Australia's native flora

The Australian Seed Bank Partnership is a priority program of The Council of Heads of Australian Botanic Gardens Inc. operating throughout Australia as a comprehensive network of *ex situ* conservation seed banks and other dedicated plant conservation organisations. We rely on funding from governments at all levels, as well as grants and philanthropic support from business and private donors. We have Deductible Gift Recipient Status and are a charity registered with the Australian Charities and Not-for-profit Commission. Donations can be made to the Australian Seed Bank Partnership through our website at www.seedpartnership.org.au.

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The crimson bottlebrush (*Callistemon citrinus*) flowering en masse after fire near Imlay Creek, NSW. (Image: Peter Cuneo)