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Contents

The Botany Foundation Botany Foundation Board Members 2023 Report from the Foundation Board Chairman	5 7
2023 Student Scholarships And Awards	8-9
Student Research	
Identifying shifts in plant-pollinator networks in East Arnhem Land, Northern Territory. George Lester (David Ashton Travel Award)	10
Investigating and optimising phytonutrient biosynthesis in soybean. Amy Liu (John S. Turner Postgraduate Award)	11
Exploring the potential of Symbiodiniaceae experimental evolution as a strategy to improve coral resilience. Corinne Allen (Megan Klemm Research Award)	12
Diversity and taxonomy of post-fire fungi in the genus Peziza and relatives (Ascomycota) in Australia. Luke Vaughan (Gretna Weste Plant Pathology and Mycology Scholarship)	13
Foundation Research Funds	
WISE Fellowship - Using networks to understand plant diversity in a variable world.	

Dr Malyon Bimler	14
Developing a PCR-based method for determining ryegrass pollen concentrations in air samples. Dr John Golz	15
Improving the efficiency of digitising herbarium specimens. Dr Jo Birch	16-17
Strawberries in Space. Professor Michelle Watt	18
Foundation News	
Donor Celebration Event	19
Vale Professor Carrick Chambers	20
Foundation Gifts Received In 2023	21
Foundation Financial Summary For 2023	22

Cover image: Acacia leprosa, Scarlet Blaze

Botany Foundation

The University of Melbourne Botany Foundation supports the discipline of Botany – the study of plants and plant processes.

The Foundation supports excellence in education and research in the School of BioSciences through: student awards and scholarships, early career postdoctoral awards and fellowships, a Professorial Chair, seed grants, and a partnership with the Royal Botanic Gardens Victoria. Plant science contributes to Australia's national science and research priorities and capacity building in the areas of biosecurity, agriculture and food production, the environment, biodiversity classification and conservation, and health.





- BOTANY FOUNDATION

The Botany Foundation and its endowed sub-trusts are managed by a Board, some of whom (*) have been members since the establishment of the Foundation. The first meeting of the Board was held in 1996 when a fund-raising appeal was launched.

Membership of the Board is specified in the University Trust Regulation governing the Foundation.

Board Members 2023

Dr Tony Gregson AM, External Chairman

Professor Pauline Ladiges* AO, Deputy Chairman

Ms Sally Browne* AM, External Member

Professor Adrienne Clarke* AC, External Member

Professor Moira O'Bryan, Dean Faculty of Science

Professor Alex Johnson, School of BioSciences

Associate Professor John King* AM, External Member

Professor Margie Mayfield, Head School of BioSciences

Ms Kia Matley, Postgraduate Student

Associate Professor Ed Newbigin, School of BioSciences

Supported by Ms Robyn Trethowan, Executive Officer Ms Penny Fairbank, Advancement, Faculty of Science





Report from the Botany Foundation's Board Chairman

For many postgraduate students, 2023 was a challenging year as they juggled study with the extra casual work needed to cover the rising costs of living. The Foundation awarded 17 scholarships and prizes this year, and several students reported that these awards helped ease financial stress and enabled them to dedicate more time to their research.

Supporting the next generation of plant scientists

Many of the students who received scholarships are working to understand the underlying causes and complexity of the significant environmental challenges we face and to find solutions to address them. Four of these student projects are featured in this report (pages 10-13).

In supporting young research scientists we are investing in the future well-being of our planet. When we established the Pauline Ladiges Plant Systematics Research Fellowship in partnership with the Royal Botanic Gardens Victoria, the aim was to give a young botanist the chance to advance his/her research skills under the guidance of experienced researchers, to collaborate with others, and to build networks that lead to career opportunities. I am delighted to report these aims have been well realised. Our inaugural fellow, Dr Tanja Schuster is now Deputy Head of the Department of Botany at the Natural History Museum Vienna. Our second fellow, Dr Todd McLay has recently been recruited to a research position with the CSIRO. We look forward to witnessing Todd's future accomplishments. In the meantime, we will advertise internationally for a new fellow, to commence in 2024.

Thank you to our donors

It is the generosity of our donors that enables the Foundation to grow. To this end, I was very pleased to join donors at a special event (see page 19) to celebrate the achievements of the Foundation and the 85th birthday of Professor Adrienne Clarke, an inaugural member of the Foundation. It was particularly enjoyable to meet plant scientists who had received Foundation scholarships and grants many years ago, and who are now donors themselves.

At the Board's last meeting we farewelled Kia Matley, the School's postgraduate representative on the Board. Kia will shortly submit her PhD thesis and end her tenure as a student in the School. We thank Kia for providing important insights from a student's perspective, and wish her well.

With sincere thanks to all of our donors

Tay Gregon

Dr Tony Gregson AM FTSE Chairman, Botany Foundation

- SUPPORTING STUDENTS

2023 Student Scholarships and Awards

Since its establishment in 1996, the Foundation has supported more than 400 botany students through endowed awards and scholarships. This year the Foundation allocated a total of \$40,800 to 17 undergraduate, MSc and PhD students. Students may use the funds for personal support or towards their research. Four student research projects are highlighted in the following pages.

STUDENT AWARDS NAMED IN MEMORY OF DR DAVID ASHTON (1927-2005)

Dr David Ashton OAM, past member of the School of Botany, was one of Australia's most highly regarded plant ecologists. He demonstrated an exceptional breadth of knowledge, and published on plant community dynamics, long-term vegetation change, nutrient cycling, soil microbial ecology, and the influence of drought and disease on plants. His outstanding contribution was recognised by the Ecological Society of Australia, who awarded him their highest honour, the ESA Medal.

David was best known as the leading authority on the ecology of Australia's mountain ash forests. When he was a young postgraduate student no one knew how this forest regenerates and how its continuation depends on fire at certain intervals and intensity. The late Professor John Turner directed him to solve the problem and find out the secrets of Mountain Ash regeneration. Over a life-time David did just that. He documented how forests change over time in the absence of fire, how catastrophic fire can be, but how the mountain ash trees have amazing regrowth following events such as the devastating 1939 bushfires.

David Ashton was an outstanding teacher and made a major contribution to the training of later generations of ecologists and leaders. Many he trained have held positions within government or private agencies, national parks, CSIRO, forestry, universities and secondary schools. A bequest from David and donations from colleagues and friends led to the establishment of two student awards -- the David Ashton Travel Award and the David H Ashton Scholarship.



Dr David Ashton, Erinundra Plateau 1971

Botany Prize – Top 3rd Year Botany Student Shenali Fernando

Bruce Knox Prize – Top 4th Year (Honours) Botany Student Amelia Keynton

David Ashton Travel Award

George Lester Identifying shifts in plant-pollinator networks in East Arnhem Land, Northern Territory. MSc (BioSciences)

David H Ashton Scholarship (shared)

Patrick Hannah Investigating the role of ubiquitin in the regulation of primary cellulose synthase protein. PhD

Owen McGinley

Exploring the galactan biosynthetic pathways in red algae. PhD

Sophie Ducker Posgraduate Scholarship (shared)

Allison Mertin Investigating the fungal and bacterial seed microbiomes of native Australian plants and their potential to improve plant growth in restoration projects. PhD

Harvey Orel Systematics and evolution of the Australasian Rutaceae. PhD

Megan Klemm Postgraduate Research Award (shared)

Jessica Home Characterisation of a new mechanism of clindamycin resistance in *Plasmodium*. PhD

Corinne Allen Stability and climate resilience of bio-engineered coral-Symbiodiniaceae symbioses. PhD

Ethel McLennan Award (shared)

Riyad Hossen Evolution and environmental responses of Bryopsidales algae. PhD

Yun-Li Hsieh Bacteria and microalgae metabolic model in coral tissue. PhD

G.A.M. Scott Research Award (shared)

Wing Man Siu Go belowground – microbial community and nutrient composition in the rhizosphere as drivers of plant-plant interactions. PhD

Andhika Putra

Understanding the past, present, and future of the allergenic invasive *Ambrosia artemisiifolia* in Australia. PhD

John S. Turner Postgraduate Scholarship (shared)

Juntong Hu Functional interactions between the endolithic alga Ostreobium and its coral host. PhD

Amy Liu Investigating and optimising phytonutrient biosynthesis in soybean (*Glycine max*). PhD

Gretna Weste Plant Pathology and Mycology Scholarship

Luke Vaughan

Diversity and taxonomy of post-fire fungi in the genus *Peziza* and relatives (Ascomycota) in Australia. MSc (BioSciences)

Plant Systematics Research Fund Special 2023 Award

Declan Blackburn. MSc (BioSciences) An investigation of Asteliaceae (Asparagales) systematics based on whole chloroplast genome sequencing.

- STUDENT RESEARCH

Plant-pollinator networks in East-Arnhem Land: analysing effects of climate change through DNA metabarcoding of bee pollens

— By George Clancy Lester who received the David Ashton Travel Award

A number of Australia's first botanists are concerned that climate change is impacting the ecosystems of East Arnhem Land. The Yolngu First Nation recently observed declines in harvests of honey from native stingless bees and believe that key flowering resources such as stringybark trees (*Eucalyptus tetrodonta*) are exhibiting erratic and/or delayed flowering, possibly due to climate change. Yolngu people share an extensive, rich history with native plants and pollinators, with honey harvests featuring in their dreaming stories, ceremonies, and livelihoods for thousands of years. These potential changes in the flowering patterns would signify an unprecedented shift in the natural environment.

East Arnhem Land hosts incredibly diverse yet unique vegetation. The region boasts many of the 702 plant species endemic to the Northern Territory. I am currently creating a genetic library of the flowering plants favoured by the area's native bees, with each plant species having a unique 'barcode' based on the DNA present in the pollen carried by bees. Using these barcodes, I am able to track each bee species to the flowering plant species they have visited and quantify the frequency of foraging. This will paint a picture of the overall plant-pollinator network and highlight potentially vulnerable plants needing management to help mitigate the effects of climate change.

The David Ashton Travel Award has facilitated my research in such a remote region by covering part of the costs of multiple field trips. These trips are necessary to observe plant-pollinator interactions over multiple flowering periods and provide insights into how seasonality affects these plant-pollinator networks. George pipetting the samples of pollen collected from the bodies of native bee specimens.





George and a Djäkamirr (Yolngu ranger) putting plant specimens in a plant press to bring back from East Arnhem Land.

I am grateful to the Foundation for funding this important research as well as the wonderful opportunities I have been able to experience.

George is completing his Master of Science (BioSciences) and is supervised by Professor Margie Mayfield and Dr Rachele Wilson.

Genetic improvement of soybean as a source of dietary iron — By Amy Liu who shared the John S. Turner

By Amy Liu who shared the Postgraduate Award

Human iron deficiency is one of the most widespread nutritional deficiencies worldwide, and severe iron deficiency can lead to anaemia causing fatigue, impaired cognitive development, and increased child and maternal mortality rates. The primary strategies to address human iron deficiency are supplementation, fortification and biofortification. I believe new biotechnological tools have a critical role to play in the biofortification of crops to increase iron content to battle what is known as hidden hunger.

My PhD project aims to investigate natural variation in phytonutrient concentration in soybean, and generate soybean varieties with optimised phytonutrient profiles through traditional plant breeding and gene-editing techniques.

I have screened grain from 500 soybean cultivars for concentrations of nicotianamine (NA) and a range of health-promoting polyphenols. NA is an important metal chelating molecule present in all higher plants, and is essential for iron acquisition. A shortage of NA may affect the functions of metal-requiring proteins.

I will characterise the nicotianamine synthase (NAS) gene family in soybean and relate the activity of NAS genes/proteins with grain NA concentrations to inform subsequent breeding efforts aimed at increasing soy grain NA. I will then use the gene editing technology CRISPR/ Cas9 to develop constructs targeting various phytonutrient biosynthetic pathways. The aim is to develop soybean grain with optimised phytonutrient profiles. Receiving the John S. Turner Postgraduate Award has made it possible for me to reduce my hours of casual employment thereby enabling an increased focus on my research.

Amy's PhD is supervised by Professor Alex Johnson



Amy Liu is screening soybean cultivars for concentrations of phytonutrients.

- STUDENT RESEARCH

Exploring the potential of Symbiodiniaceae experimental evolution as a strategy to improve coral resilience

- By Corinne Allen who shared the Megan Klemm Research Award

This research award helped to defray costs associated with presenting at the Australian Marine Sciences Association Conference in July. Attending the conference gave me the opportunity to introduce my research ideas and engage with peers and other researchers in the field.

Corrinne photo credit:

Bede Johnston

Corinne is completing her PhD and is supervised by Professor Madeleine van Oppen, Dr. Matthew Nitschke, and Dr. Wing Yan Chan

Diversity of post-fire fungi in the family Pezizaceae (Ascomycota)

- By Luke Vaughan, who received the Gretna Weste Plant Pathology and Mycology Scholarship

Peziza is a genus of ascomycete fungi (family Pezizaceae) that forms cup-shaped sporing bodies. They are often found on sandy soils in woodlands and sclerophyll forests, and are early colonisers after fire. Of the more than 100 accepted species found globally, 24 are recorded in Australia.

The most recent taxonomic treatment of Peziza in Australia was by A. Rifai more than 50 years ago. Phylogenetic studies in the last two decades have shown that Peziza is polyphyletic, meaning that this name covers several, separate lines of evolution. However, DNA sequence data, used in fungal systematics to assess relationships, are lacking for Australian species. Given the global diversity of this group and recent advances in DNA sequencing technologies, taxonomic revision of Peziza in Australia is warranted.

My research project will facilitate the placement of Australian Peziza species into modern genera and describe novel species, where appropriate. My research draws on specimens collected by G.W. Beaton that are held at the University of Melbourne Herbarium (MELU). My field work involves collecting fresh specimens and documenting their morphology, habitat, and trophic status, and I am planning to revisit some of G.W. Beaton's Victorian Peziza collection sites.

With the climate warming at an unprecedented rate, coral reef ecosystems around the world have suffered mass declines. As a result, novel interventions aimed at enhancing coral resilience are now more urgent than ever. One strategy is to increase the thermal tolerance of the microalgae (Symbiodiniaceae) residing in corals through assisted evolution.

Assisted evolution involves laboratory selection of cultured Symbiodiniaceae that function at elevated temperatures followed by reintroduction into corals. Several studies have demonstrated the potential of this approach; however, the thermal tolerance and stability of the heat-evolved symbionts has only been assessed in controlled laboratory conditions. To fully assess potential benefits, risks, and limitations of this approach, the next critical phase of this research requires a shift from the lab to the field.

The aim of my PhD research is to make this transition to fieldbased applications. To do so, I will conduct small-scale field trials to assess the stability of novel pairings between coral and heatevolved symbionts, and their performance. Understanding how these symbionts and bio-engineered corals perform in their natural environment is key to assessing the efficacy of this approach for enhancing coral thermal tolerance.

I hope to examine fresh collections along with herbarium specimens using microscopy and DNA sequencing to enable taxonomic revision. Investigating the morphology, habitat preferences and trophic status of Australian Peziza species will help also to understand the relationship between Peziza and fire. I am using the funds from the scholarship to assist with travel expenses, acquiring field equipment, and to obtain DNA sequences from specimens.

Luke is completing a Master of Science (BioSciences) and is supervised by Dr Joanne Birch and Dr Camille Truong



Luke Vaughan collecting and recording fungi in the field.

- FOUNDATION RESEARCH FUNDS

WISE Fellowship - Using networks to understand plant diversity in a variable world

- By Dr Malyon D. Bimler, Research Fellow awarded the 2023 Women in Science for the Environment (WISE) Fellowship

Plant communities can be incredibly diverse. This diversity depends on both the environment and how plants interact with one another. Interaction networks, as used in food webs or plant-pollinator systems, provide a flexible and holistic approach to understanding ecological communities but remain understudied in plants due to the many challenges of measuring interactions in such diverse systems. In a network, many plant species are linked together by competitive or facilitative interactions, which tell us how stable and resilient the overall community is to environmental perturbations (e.g. drought).

I developed a novel methodological framework that makes it easier to measure plant interaction networks from field data, and I applied it to a diverse community of annual wildflowers from Western Australia. I measured these networks under different levels of shade and found interactions were highly variable, such that a species might compete with another under high shade but facilitate it under low shade. Interactions between plants thus vary across the environment, shaping differences in local composition and abundance. Moreover, all networks displayed high degrees of facilitation and other features that challenge dominant ecological theory of how diversity is maintained in plant systems. These findings are important because models of biodiversity and species distributions typically assume that plant-plant interactions are constant across the environment and almost always competitive.

Dr Malyon Bimler doing field work in a woodland in Western Australia.



The next step of my project is to apply this method to other plant systems, a challenging task because the type of data required is rarely available on public databases. The WISE Fellowship covered costs for me to attend the Ecological Society of America Conference where I shared this research. I spoke to plant ecologists who are interested in sharing their data and applying my framework so that we can infer more general patterns of how plant networks vary across environments in diverse locations around the globe.

Quantifying allergenic grass pollen in Melbourne's air

— By Dr John Golz, Senior Lecturer, School of BioSciences

Donations to support the Pollen Count have enabled me to develop a molecular approach to sampling grass pollen DNA in Melbourne's air.

Although the grass family is very large, comprising some 10,000 species, pollen derived from different grass species all look the same when viewed under the microscope. Being able to distinguish between grass pollen has important health implications as some types of grass pollen are allergenic and can trigger conditions such as hay fever, asthma, and even thunderstorm asthma in individuals with sensitized immune systems. Conversely, certain grass pollen types do not provoke such allergic responses. Due to the visual similarity of all grass pollen, pollen counting services treat all grass pollen as if it were of the highly allergenic variety, with the consequence that some high grass pollen days might not have health consequences if the pollen is predominantly of the non-allergenic type. Thus, being able to distinguish between the different types of pollen is important as it will greatly improve grass pollen monitoring, leading to better predictions of bad hay fever days.

Quantification of

ryegrass (Lolium) pollen DNA extracted from weekly filters from the 2022 grass pollen season compared to the average weekly grass pollen count over the same period.

Scanning Electron

of grass pollen, colour enhanced.

from high-flow filters (23/09) Microscopy image

Automated grass poller

- aPCR quantification of DNA

count 7-day average

One way to improve grass pollen monitoring is to use a molecular approach to identify allergenic pollen. When it comes to hay fever and asthma, perennial ryegrass (Lolium perenne) and its relatives stand out as the major culprits in Melbourne. Using funds from the Botany Foundation, Josh Boyte was employed to develop a method for extracting pollen DNA from filters on which particulate material in Melbourne's air was trapped. Having successfully developed this method, Josh then established a highly sensitive PCR-based assay that provides a quantitative measure of how much ryegrass DNA is present on the filters. This assay, when applied to the 2022 grass pollen season (see figure below), revealed three successive peaks of ryegrass pollen over the season. Based on this work, we can predict that these peaks are likely to correspond to weeks in which hay fever symptoms are severe.

Josh is now extending his analysis to identify all the pollen types present on the filters.



7-day average grass pollen grain count vs Lolium DNA

- FOUNDATION RESEARCH FUNDS

Improving the efficiency of digitising herbarium specimens

— By, Dr Jo Birch, Lecturer and Curator, University of Melbourne Herbarium

The Botany Foundation's Herbarium Fund is supporting the digitisation of the specimen collection of the University of Melbourne Herbarium (MELU). Plant specimens have research and cultural value, which is enhanced when made freely and remotely accessible to global users. A researcher, student or member of another herbarium can view on-line, high resolution images. Specimen images provide access to magnified morphological details of the plant as well as associated information such as geographic location, flowering time, species habitat and collector history. Digitisation of collection specimens mobilises high-value biodiversity data for data reuse.

There is significant demand for these digital biodiversity data; specimen data from the University of Melbourne Herbarium have been downloaded 3.4 million times in the last year (Atlas of Living Australia usage stats, 2023). However, the time available for specimen digitisation, which includes extraction of data from specimen labels and the generation of specimen images, is limited for most collections that house up to hundreds of thousands of specimens. Manual labour is a significant bottleneck.

As herbarium curator, I have collaborated with colleagues on a project that uses MELU as an 'Australian university-based herbarium test case' -- to clarify the opportunities and challenges to improve the efficiency of specimen digitisation and data capture.

My colleagues and I have published a digitisation workflow scheme (map), which can improve curation efficiency and ensure consistent curation standards are applied across diverse projects. The map comprises a set of modular steps – identifying those that require human input and those that can be automated, those that have to be on-site and those that can be carried out remotely, to identify where opportunities exist to increase digitisation efficiency. Advance computer vision techniques also hold the potential to facilitate rapid extraction of text and traitbased data from specimen images. The team developed a computer model that was successfully 'trained' to extract information adequately from digitised herbarium sheets. These results will be of interest to other herbaria world-wide that are implementing specimen digitisation projects.

Article based on publications:

Karen M. Thompson and Joanne L. Birch. (2023) Mapping the digitisation workflow in a university herbarium. Research Ideas and Outcomes DOI: 10.3897/ rio.9.e106883

Karen M. Thompson, Robert Turnbull, Emily Fitzgerald and Joanne L. Birch. (2023) Identification of herbarium specimen sheet components from high-resolution images using deep learning. Ecology and Evolution. DOI:10.1002/ ece3.10395



Image: Banksia canei specimen MELUD121102a Website: MELU: herbarium.unimelb.edu.au



- FOUNDATION RESEARCH FUNDS

Australian strawberries join new mission to inhabit space while turbo charging sustainability innovations

-- Australian strawberries join new mission to inhabit space while turbo charging sustainability innovations

The Australian Research Council Centre of Excellence in Plants for Space is a partnership between five Australian universities and international space and agriculture agencies, including the Australian Space Agency and NASA. The University of Melbourne node of the Centre is led by Professor Michelle Watt, the Adrienne Clarke Chair of Botany, supported by the Foundation.

The Centre's aim is to create plants and food to sustain humans in Space while spinning off technologies and innovations for sustainable food productivity on Earth.

Strawberry has been selected as an ideal plant. It meets the nutrition and psychological needs of humans (full of vitamin C!), astronauts rank it highly in food tests (tastes good!), it has a high potential edible index as leaves and berries can be eaten, it has a short breeding cycle and regenerates easily by seed, runner or tissue propagation, and there is wide, untapped genetic variation.

Strawberry for space will be bred for soil-less systems, without soil fumigation, and with ultra-efficient use of recycled water and nutrients by salt-tolerant, minimal root systems. There is existing high on-Earth demand for these innovations to improve Earth sustainability and productivity.

After scoping the traits required, the researchers have targeted three for improvement:

Root System Improvement

Root systems of strawberry for soil-less systems need to be small but efficient in water and recycled nutrient uptake, tolerant of the salts in hydroponics, and tolerant to wetting and drying cycles. Initial observations of root system architecture suggest wide variation from garden to alpine varieties. The researchers have imported alpine strawberry *Fragaria vesca* cv. Hawaii 4 from the USA. This genotype grows well in tissue culture enabling insertion of genes for root and other plant improvement. **Greater, more flavoursome fruit yield** Greater, more flavoursome fruit yield can come from greater allocation of biomass and sugars to fruit. It could also come from fruiting earlier and later, providing growers on-Earth with varieties that are neutral to daylength. Space conditions reduce human's taste, and an ultraintense flavour is desired, which may come from alpine strawberry ancestors.

Complete-use

Zero-waste means using all plant parts and maximising conversion of water, nutrients and energy resources to food. One goal is to find ways to eat leaves or leaf-products by targeting enhanced leaf flavour and nutrition and conversion of leaves into an additional product.



Photo: Jacob Calabria.

Acknowledgement:

Professor Michelle Watt (Adrienne Clarke Chair of Botany), University of Melbourne. Professor Harvey Millar, University of Western Australia.

Kate Nakashima, Master of Urban Horticulture, University of Melbourne.

- FOUNDATION NEWS

Celebrating the Foundation's achievements

On 3 March 2023 the Foundation hosted a dinner at the State Library Victoria to celebrate its achievements and express gratitude to the generous donors whose support has been instrumental in driving the Foundation's success. The event also served to commemorate the 85th birthday of Professor Adrienne Clarke, a founding Board member whose dedication and leadership has been invaluable in guiding the Foundation's vision and goals.

There was much to celebrate. Since its formation in 1995, the Botany Foundation has provided scholarships for aspiring research

Below: Adrienne Clarke and fellow board member, Sally Browne (event Emcee).

Opposite: Guests at group tables.





students, students in need, and salaries and research support for researchers at all career levels. Furthermore, the Foundation has rewarded exceptional students through prizes that recognize excellence and serve as motivation for further study and development of their careers.

The dinner was a joyous occasion that highlighted the important contribution philanthropy has played in nurturing the next generation of botanists.



VALE Thomas Carrick Chambers AM

Celebrating a life dedicated to botany

5 September 1930 – 31 July 2023

Professor Carrick Chambers was a past member of the School of Botany, University of Melbourne (1961-1986), and chaired the School from 1980-84, at a time when it was one of the largest botany departments in the Commonwealth. He and his wife Margaret have supported the Botany Foundation over many years.

After completing a PhD at the University of Sydney in 1960, Carrick took up a CSIRO postdoctoral scholarship in the Cavendish lab at Cambridge. On returning to Australia he joined the School of Botany and within six years had become one of the youngest professors at the University.

He continued his research on electron microscopy and fine structures - plant viruses, palaeobotany and ferns, but also had a strong interest in how plants contributed to the environment aesthetically. He was involved in the land transfer from Boral Ltd, which became the Royal Botanic Gardens, Cranbourne and played an important role in the establishment of the Potter Farmland Plan to restore over-cleared and degraded farmland. The plan promoted using native plants to reduce erosion and went on to become the international program Landcare.

In 1986, Carrick was appointed director of the Royal Botanic Garden Sydney. During his ten-year tenure he oversaw the opening of the Blue Mountains Botanic Garden Mount Tomah and the Australian Botanic Garden Mount Annan. Most notably, he initiated career pathways for horticulturalists which later became a model for other gardens.

Carrick retired in 1996 but continued his fern research as an honorary research associate at the National Herbarium of New South Wales.

The Botany Foundation recognises a life dedicated to the service of botany and expresses condolences to Carrick's wife Margaret and family.

Image: Acacia mearnsii

Foundation Gifts **Received In 2023**

Anonymous x2

Hallam, Neil

The Jeremv

Anonymous x2

Filer, Ceridwen

Fellowship

Anonymous x2

Bayly, Michael

Nelson, Gareth

Playford, Mary

Gaff. Donald

Nelson, Gareth

Anonymous

Adrienne Clarke Chair of Botany

Anonymous x3 Clarke AC, Adrienne Johnson, Alex

Botany Foundation

- Unrestricted/Research

Anderson, John Anonymous x2 Austin, Carol Joy Brass OAM, Vivien Gleeson, Paul Grossbard, Julie Harrison, John Idnurm, Alexander King AM, John Myers AC KC, Allan Shears, Deirdra Shears, Doug Weickhardt, Philip

- Pollen Count

Cosgrove, Bradley Newbigin, Ed Sharp, Simon

David H Ashton Scholarship

Costermans OAM, Leon Hooley, Doug

Sophie Ducker

Postgraduate Scholarship Flesch, Juliet

Megan Klemm Postgraduate **Kingsley Rowan Marine Research Award Botany Prize** John S Turner **Pickett-Heaps Award** Gaff, Donald Mrs Jean Groves McFadden, Geoffrey Turner, Peter **Pauline Ladiges Plant Systematics Research Scholarship** Moors AO, Philip Regan, Margaret **Herbarium Fund** Ethel McLennan Award Anonymous **Plant Systematics** Margaret **Research Fund** Chambers AM, Carrick Costermans, Leon Brookes, Margaret **Protist Systematics Research Fund** Margaret Cowan, Roberta

Estate of Helen Rowan

Postgraduate Scholarship

Chambers AM. Carrick Groves, Richard and the late

Gretna Weste Plant Pathology and Mycology

Ladiges AO, Pauline

Fern Research Fund

The University of Melbourne

Harrison, John & Harrison, Gregson AM, Tony Ladiges AO, Pauline

The Women in Science of the Environment (WISE) Fellowship

Harrison, John & Harrison, Morgan OAM, Susan

- FINANCIALS

Foundation Financial Summary in 2023

	Balance at 01.01.2023 (\$)	Transfers (\$)	Income ¹ (\$)	Awards & Expenses ² (\$)	Revaluation ³ (\$)	Balance at 31.12.2023 (\$)
Adrienne Clarke Chair of Botany Trust	4,579,444		230,000	(142,337)	234,222	4,901,329
Botany Foundation Trust						
Unrestricted Funds	1,480,627	(2,032)	98,632	(70,530)	73,664	1,582,393
David Ashton Travel Award	52,778		2,546	(2,764)	2,668	55,229
David H Ashton Scholarship	149,732		8,444	(6,982)	7,632	158,826
Sophie Ducker Postgraduate Scholarship	88,968		4,360	(4,108)	4,522	93,742
Megan Klemm Research Award	129,309		12,008	(5,960)	6,583	141,939
Bruce Knox Prize	47,901		2,322	(2,158)	2,440	50,505
Pauline Ladiges Plant Systematics Research Fellowship	1,481,999		104,705	(24,235)	76,144	1,638,612
Ethel McLennan Award	67,974		3,549	(3,082)	3,455	71,896
Plant Systematics Research Fund	324,374		17,027	(8,105)	16,560	349,856
Protist Systematic Research Fund	100,891		8,059	(126)	5,075	113,900
Kingsley Rowan Marine Botany Prize4	28,175		21,725	(43)	1,753	51,609
G.A.M. Scott Research Fund	151,842		7,354	(6,984)	7,722	159,934
John S. Turner Postgraduate Scholarship	103,149		6,588	(4,726)	5,261	110,271
Gretna Weste Plant Pathology and Mycology Scholarship	46,132		2,444	(1,956)	2,355	48,975
The Fern Research Fund	38,915		2,437	(48)	1,977	43,280
V Sarafis Research Fund	75,839		3,701	(3,179)	3,854	80,215
The University of Melbourne Herbarium Fund	788,091		52,350	(21,673)	40,482	859,250
Women in Science of the Environment (WISE) Fellowship	130,416		11,050	(3,690)	6,701	144,477
Jeremy Pickett-Heaps Award⁴	55,338		33,991	(90)	2,953	92,193
Botany Foundation Trust – Total	5,342,450	(2,032)	403,292	(170,440)	271,800	5,847,103
Total of the Two Trusts	9,921,894	(2,032)	633,293	(312,776)	506,022	10,748,432

Notes

1. Income includes donations and earnings on investments

2. Expenses include administration charges

3. Revaluation amounts represent the change in unit price of the capital units during 2023 of respective Trusts

4. Not awarded in 2023

How to donate, visit the Botany Foundation website at:



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