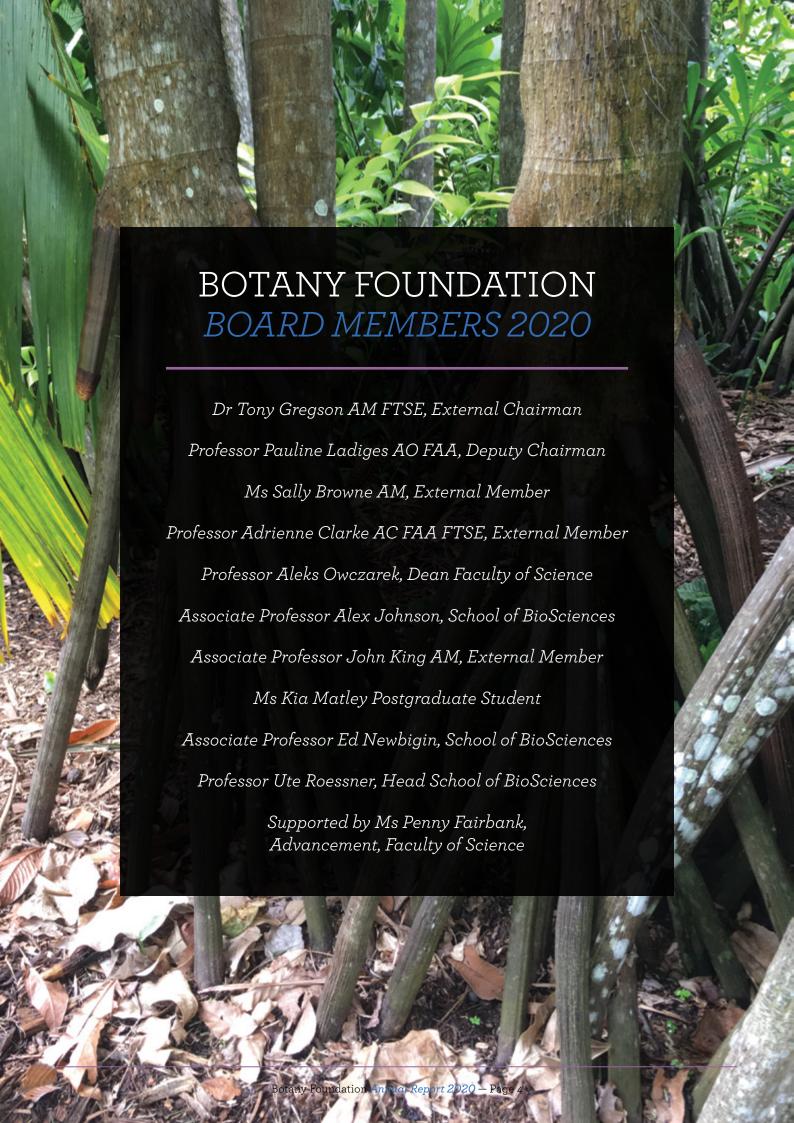


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Cover image: Section of a plant root showing cellular structure (M. Watt)



REPORT FROM THE BOTANY FOUNDATION'S

BOARD CHAIRMAN

Through the generous support of past donors the Botany Foundation has been able to provide significant financial support to students and researchers during the challenging year of 2020.



2020 has undoubtedly been a difficult year for us all. However, I am pleased to report that at year-end the Botany Foundation and Adrienne Clarke Chair Trust accounts held their value at a total of \$9.1 million.

With the COVID-19 lockdown, the University has had to continue to work remotely, including the Botany Foundation Board holding its meetings for the first-time online via 'Zoom'. And we have been able to provide practical support for our plant scientists and students during this especially challenging time because we have built up the Foundation's funds with the kind and generous support of our donors.

Supporting students

This year we have been able to provide special grants to 12 graduate Botany students who were suffering financial stress due to the COVID-19 pandemic. When their usual sources of work came to a halt due to the pandemic, many postgraduate students faced increased expenses from working at home. But through our Unrestricted Fund, the Botany Foundation was able to provide individual grants of \$1000-\$1300 to these students, giving them much needed

relief. These grants were in addition to the ongoing named scholarships and prizes (10) we award each year, although funds for travel and field work were suspended, to be carried forward into 2021.

The student representative on the Botany Foundation Board reported that the students were overjoyed with this unexpected support, which also gave them a psychological boost in this very bleak period in their lives.

Supporting researchers

The Board was also concerned about the potential loss of skills in plant sciences as a consequence of University budget pressures during the pandemic. We have been able to secure the future of one very talented plant scientist, Dr Berit Ebert (p.6). She came to the School of BioSciences as an ARC Future Fellow. Normally the winner of these very prestigious fellowships would be on track for a staff position. However, given the University budget shortfall and attendant uncertainties, this pathway for retaining her skills was at risk. We are pleased to have been able to allocate funds from the Foundation to ensure her ongoing position until the beginning of 2023. Berit is our inaugural 'Botany Foundation Fellow'.

We were also able to continue to support the appointment of Adrienne Clarke Chair of Botany, Professor Michelle Watt, a distinguished expert in crop root physiology who is focused on understanding plant functions 'below ground' (p.7).

We sincerely thank all our donors for supporting us to be in a position to help our young graduate students and plant scientists. The school has been able to provide the highest quality teaching, research and community engagement, including through the invaluable Pollen Count.

Yours sincerely.

109 a cope

Dr Tony Gregson AM FTSE Chairman, Botany Foundation

MEET OUR INAUGURAL BOTANY FOUNDATION FELLOW,

DR BERIT EBERT

The University of Melbourne Botany Foundation is pleased to announce the appointment of an internationally outstanding plant scientist, Dr Berit Ebert, as the inaugural Botany Foundation Fellow. The fellowship's purpose is to retain research excellence in the School of BioSciences. Dr Ebert will be based in the School of BioSciences and work closely with the newly appointed holder of the Adrienne Clarke Chair, Professor Michelle Watt.

Dr Berit Ebert is from Germany and obtained her PhD from the University of Potsdam and the Max-Planck Institute for Molecular Plant Physiology. Since then she has worked at leading research institutions around the world, especially in California at the Joint BioEnergy Institute and Lawrence Berkeley Lab, and Denmark at the University of Copenhagen. In 2015, Dr Ebert joined the School of BioSciences funded by a prestigious ARC Future Fellowship.

Dr Ebert's research is in the field of plant cell biology and she has contributed to major breakthroughs in the identification and characterisation of new glycosyltransferases, enzymes for optimising protocols for plant biomass characterisation and engineering of the plant cell wall for improved biofuel production. Recently, she and her colleagues developed an approach to assay transport proteins; the application of this assay has led to the identification of new key transport proteins required for the assembly of the cell wall and for the decoration of proteins and lipids with sugar residues and transformed the understanding of substrate supply to biomass synthesis.

Dr Ebert's work has been recognised by a number of awards including, for example, an ASPB Women's Young Investigator Award, and the Award of the Mizutani Foundation for Glycoscience. Her group uses molecular genetics, biochemistry, and cell biology to understand the mechanisms underpinning glycosylation and polysaccharide biosynthesis within the secretory pathway.

While most of her work has focused on the plant model species *Arabidopsis thaliana*, Dr Ebert also has a keen interest in expanding into the area of applied research aimed at improving plant growth and biomass production in economically relevant crop species including rice and barley.



ENGINEERING THE CARBON IN THE ROOT SYSTEMS OF PLANTS

- By Professor Michelle Watt

The Adrienne Clarke Chair of Botany, Professor Michelle Watt and the new Botany Foundation Fellow, Dr Berit Ebert (see p.6), are putting their heads together to enhance the function of plant roots for the dual purposes of water uptake and soil carbon sequestration.

Plant roots are the foundation of terrestrial water uptake and also carbon storage in soils. About 50% of the carbon that is made into sugars in the leaves goes down into the plant roots, where it is built into cell walls, membranes and other mono and polysaccharide compounds that function for the plant, including binding soil and providing carbon to soil microorganisms. However relative to leaves, science knows little about plant roots and their exchange of water and carbon.

The University of Melbourne has a strong history in the cell biology of plant carbon synthesis. Michelle joined the University of Melbourne as a plant root biologist, with a long history in understanding how plant roots develop and function. Together with Berit she saw an opportunity to enhance plant roots, and fill the large gap in scientific knowledge below ground.

Michelle and Berit applied for and secured a University of Melbourne innovation program (E = mc^2) project to test if cell carbon discoveries can be used to engineer plant root carbon (including that in root cap cells) for more effective water and nutrient use, and for longer carbon sequestration in soil. They will test different plant genes associated with the synthesis of plant carbon compounds, and see it they alter the properties of the plant roots towards greater water uptake and greater stability against breakdown by microorganisms. They both use imaging with microscopy and phenotyping technologies in their research, and will use the latest technologies in these areas to provide proof of concept that root carbon genes can be used to optimise root systems of plants.

The innovation program is designed to enable basic research to reach practical application, which in collaboration with industry will potentially lead to enhancing the roots of plants developed for greater water use efficiency and carbon sequestration.



2020 FOUNDATION SCHOLARSHIPS AND GRANTS TO STUDENTS

The Botany Foundation provides scholarships and prizes annually to graduate students in various areas of plant sciences. This year 29 applications were received, with 12 students selected for our named awards, listed below.

Botany Prize

Aiden Webb: Top 3rd year student in 2019, MSc: "Phylogeny of Caesia and Corynotheca and taxonomic clarification of an Australian species complex, Caesia parviflora (pale grass lily)"

David H Ashton Scholarship*

Kathryn Knight, PhD: "Wild-life monitoring methods"

Sophie Ducker Scholarship

Patrick Fahey, PhD: "Investigating the phylogeography of box eucalypts with disjunct distributions in South-East Australia"

Megan Klemm Postgraduate Research Award (shared)

Alban Mariette, PhD: "Building a wall: Developing small molecule biosensors to visualise cell wall biosynthesis and untangle mechanisms underpinning nucleotide sugar transport"

Tannaz Zare, PhD: "Deciphering the mechanisms underpinning the mass production of omega-3 fatty acids in chia seed"

Bruce Knox Prize

Harvey Orel: top 4th year Honours student in 2019, PhD: "Systematics and Biogeography of Australasian Rutaceae, the rue family, which includes citrus plants"

Ethel Mclennan Award

Kavitha Uthanumallian, PhD: "Molecular evolution of algal genomes"

Kingsley Rowan Marine Botany Prize (shared)

Josephine Sukamto and Tania Zhang: Top 3rd year marine botany students 2019

G.A.M. Scott Research Award

Matt Whitney, PhD: "Dying or shrinking? Are over mature trees a threat to the restoration of Pine-Buloke Woodlands?"

John S. Turner Postgraduate Scholarship

MitchellRey Toleco, PhD: "The role of Dicarboxylate/ Tricarboxylate carrier in the Tricarboxylic Acid Cycle intermediate shuttling and energy metabolism in plants"

Gretna Weste Plant Pathology And Mycology Scholarship

Pipob Suwanchaikasem, PhD: "Mechanisms underlying fungal infection in industrial hemp (*Cannabis sativa*) and the effect of chitin priming on plant defence"

*The David Ashton Travel Award was not able to be awarded in 2020 due to restrictions on travel for plant ecology field work.

Research Award supports international student research

Alban Mariette (Megan Klemm awardee) is enrolled in a joint molecular plant physiology PhD between the University of Melbourne and the Max-Planck Institute of Molecular Plant Physiology in Germany. Alban said that "financial support in the form of a scholarship will greatly support the extra living expenses that he has with international relocation as part of his joint PhD".

Alban is studying how cell walls that surround all plant cells are assembled. The cell wall building blocks are nucleotide sugars, which are transported within the cell into the Golgi apparatus – a stack of membranous 'sacs' that function in processing and packaging molecules. Alban is monitoring the delivery of nucleotide sugars into the Golgi, the role of particular transporters, and the delivery pathway.



in Australia, there are about 350 species (~20% of world total) and 41 genera (~27% of world total), mostly in the subfamily Rutoideae. Harvey Orel's PhD project aims to investigate the evolutionary history of Australasian

and study the evolutionary history of species groups that are extremely diverse in their morphology, habitat and ecology.

Photo: Native Correa (Rutaceae)

MECHANISMS UNDERLYING FUNGAL INFECTION IN INDUSTRIAL HEMP (CANNABIS SATIVA) AND THE EFFECT OF CHITIN PRIMING ON PLANT DEFENCE

— By Pipob Suwanchaikasem, who was awarded the Gretna Weste Plant Pathology and Mycology Scholarship

My project aims to unravel the pathophysiology of fungal infections in industrial hemp – non-psychoactive cannabis (Cannabis sativa). Due to worldwide market demand, industrial hemp has been classified by AgriFutures as "an emerging potential crop" for Australian growers. Selling industrial hemp seeds as food products was legalised federally in 2017. Research into hemp diseases is one area needed to support Australian industrial hemp farmers.

Pathogenic fungi affect flower buds, stems, and roots. Globally, infections have been reported in outdoor cultures and greenhouse production, suppressing plant growth, yield, and product quality. Root infections caused by *Fusarium* and *Pythium* species bring about root browning, discolouration of the crown and pith tissues, stunting and yellowing aboveground elements and even death in some cases.

In this study, I aim to investigate the biological processes underlying cannabis-root diseases caused by fungal strains isolated from cannabis plants. To facilitate plant root inspection, I will employ customised EcoFAB (EcoFabrication) devices to propagate plants (see image). The model is basically a mini hydroponic device with a transparent root-growing pocket, enabling us to observe root morphology normally unseen underground.

Molecular and biochemical analyses will be used to decipher disease processes, including real-time PCR, metabolomics, proteomics and mass spectrometry imaging. Additionally, we also aim to confirm the effect of chitin priming, which has been claimed to enhance plant resistance against fungal infection. The background of such an enhancement is still unclear and we expect to get insight into functional pathways.

In summary, this project intends to understand the pathology of fungal diseases in cannabis roots to help agriculture.

Pipob is supervised by Associate Professor Berin Boughton (Murdoch University), Dr Robert Walker and Associate Professor Alex Idnurm



TO GILD AUSTRALIA'S LILIES

— By Aiden Webb. Aiden Webb was awarded the third year E.F. Millar Exhibition as the top botany student in 2018. In 2019 he was awarded the Foundation's Botany Prize as the top graduating student. Aiden is now doing plant systematics research for his MSc.

I am investigating the phylogenetic relationships of understudied Australian lilies in the genera Caesia and Corynotheca (family Asphodelaceae). These lilies can be distinguished by their tiny white, blue or purple flowers and grass-like leaves. They occupy arid and mesic habitats across Australia and form an understorey component of grassland, woodland and sand dune communities. These genera include approximately 32 species, many of which require further study to assess their conservation status.

I will generate genetic data using both amplicon and restriction-site associated DNA sequencing approaches to reconstruct the *Caesia* and *Corynotheca* phylogeny for the first time. This will allow placement of multiple informally and newly recognised species. Additionally, through field work I will document the morphological and habitat variation of the pale grass lily, *Caesia parviflora*, and will collect representatives of each of its three recognised varieties. I will assess the taxonomic boundaries of these varieties informed by both morphological and genetic data. Establishing accurate taxonomic boundaries will enable provision of reliable geographic distributions of *Caesia parviflora* varieties.

Taxonomic recognition of new species and their relationships, and accurate documentation of their geographic distributions, underpin conservation science. My research will contribute to the documentation of Australia's biodiversity and provide a foundation for further biogeographic studies of these plants. Field collected specimens are lodged in the University of Melbourne Herbarium and are reference collections for DNA sequences used in the project, as well as for future researchers.

Aiden is supervised by Dr Jo Birch (The University of Melbourne Herbarium) and Dr Russell Barrett (National Herbarium of New South Wales).



DECIPHERING THE MECHANISMS UNDERPINNING

MASS PRODUCTION OF OMEGA-3 FATTY ACIDS IN CHIA SEED

- By PhD Student Tannaz Zare, who shared the Megan Klemm Postgraduate Research Award.

Chia seeds are the edible seeds of Salvia hispanica, a flowering plant belonging to the mint family (Lamiaceae) and native to central and southern Mexico. Chia seeds have been cultivated from as early as 3500 BC and are the richest botanical source of omega-3 fatty acids. As part of a plant-based healthy diet they may lower triglycerides and improve blood sugar levels in type 2 diabetes. Chia seeds are also a popular component of gluten-free food.

The aim of my PhD project is to develop key molecular genetics tools to study the function of fatty acid desaturase genes for an increased production of omega-3 fatty acids in chia seeds.

The lack of robust and comprehensive genome information for chia currently represents a major bottleneck for the functional characterisation of its genes. Therefore, as part of my PhD I am sequencing the genome of chia and using gene expression analysis to accelerate the genome annotation. Furthermore, to study the functional properties

of the fatty acid desaturase genes from chia, I express them heterologously in wild type and mutant forms of the model plant *Arabidopsis thaliana*.

The outcomes of this research will fundamentally increase our knowledge of the biochemical pathways of oil biosynthesis in chia, thereby providing avenues for the development of new varieties with enhanced nutritional qualities.

Tannaz is supervised by Prof. Ute Roessner, Dr. Berit Ebert and Assoc. Prof. Alex Johnson.



Salvia hispanica (chia) flowers



↑ Tannaz on a chia farm

MOLECULAR EVOLUTION OF ALGAL GENOMES

— By Kavitha Uthanumallian, who was awarded the Ethel McLennan Award (see p. 14)

I am a mature-age student who has been a high school teacher in Indonesia for several years before returning to science and postgraduate study.

Algae are the photosynthetic eukaryotes that are responsible for nearly half of the net primary production on the planet. I am interested in the fundamental evolutionary processes (selection and drift) that act on the genomes of algae, trying to understand how they have shaped these organisms that are so crucial to the functioning of our planet.

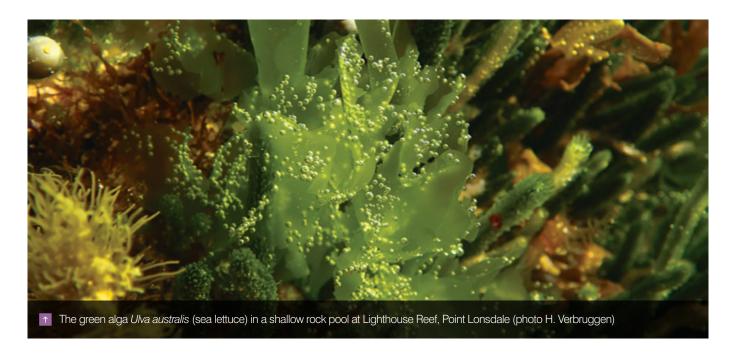
In one of my projects I study the genomes of chloroplasts – the organelles that carry out photosynthesis. Chloroplasts have evolved via endosymbiosis of a cyanobacterium with a eukaryote, giving rise to what we call the 'Archaeplastida' lineage that includes the green plants and red algae. Chloroplasts then have spread laterally to several other eukaryotic lineages in secondary endosymbiosis events, giving rise to a range of other algal lineages. The chloroplasts retain a circular genome reminiscent of the cyanobacterial genome, albeit highly reduced. My project aims to characterise the molecular evolutionary processes that take place during secondary endosymbiosis events

in the plastids of euglenophytes, chlorarachniophytes and the dinoflagellate *Lepidodinium* using a phylogenetic comparative approach.

Another one of my projects focuses on the nuclear genomes of green algae. Green algae feature an impressive diversity in terms of cellular architecture, morphology and life cycles, and biological innovations that have led to major evolutionary transitions in their evolution. I study the molecular evolution of green algal genomes as functions of cellular architecture and life-cycle traits in a phylogenetic framework. This can provide better understanding of evolutionary forces shaping the algal genomes.

Kavitha said that 'support through a scholarship will really make a difference to her and her family's financial situation, especially during the current crisis' (the 2020 COVID pandemic).

PhD student Kavitha is supervised by Associate Professor Heroen Verbruggen



FOUNDATION FUNDS

ETHEL MCLENNAN AWARD HONOURS A REMARKABLE BOTANIST

In 2001, the Botany Foundation established the Ethel McLennan Award in memory and honour of female botanist, the late Dr Ethel Irene McLennan. Donations have been received on a regular basis since then from the Foundation's annual giving program. Each year a postgraduate student in a research area in the discipline of botany has benefited from the Award.

Ethel McLennan (1891-1983) was one of five students in Professor Alfred J. Ewart's first Botany Part III class in 1914¹. Ethel won the part III exhibition, graduated BSc with first class honours, and joined the staff as demonstrator and lecturer in the School of Botany in 1915. She taught systematic botany and plant geography, developed a new subject – palaeobotany, and began her mycological research. She travelled to England in 1925 for mycological research on a Senior Travelling Fellowship awarded by the International Federation of University Women. She returned to Australia to continue her work on soil fungi and plant diseases, including research projects for CSIR (now CSIRO), trained science and agricultural students in plant pathology, and built a collection of fungal specimens in the University Herbarium.

McLennan's research on an endophytic fungus of *Lolium*, pasture rye grass, earned her the University's 47th DSc degree in 1927. That same year she was awarded the David Syme Research Prize. She became Associate Professor in 1931.

Following the sudden death of Professor Ewart in 1937, the University council appointed Ethel McLennan Acting Professor; she had taught all levels of Botany, had a rich knowledge of the Australian flora and recognised research expertise in mycology and plant pathology. The University established two committees to seek a new professor. The Melbourne selection committee chose McLennan as the best candidate to replace Ewart, and there was wide support for her to be the first woman professor. However, the selection committee established in London recommended the young Cambridge graduate John Stewart Turner², who was eventually appointed Professor, arriving in 1938.

Ethel McLennan ('Dr Mac' as she became known) continued her exceptional career as researcher (especially of soil micro-fungi and native timber wood-rotting fungi), teacher, and botanical artist. She retired in 1956 but continued in charge of the University Herbarium. She resigned as Herbarium Keeper in 1972, ending 60 years of dedication to the School of Botany. She died in 1983.



- ¹ Article here based on Gillbank, Linden (2010). 'From System Garden to Scientific Research: The University of Melbourne's School of Botany under its first two professors (1906-1973)'.
- ² Professor Turner OBE FAA led successfully the School of Botany from 1938, through the war years to 1973. The Botany Foundation's John S Turner Postgraduate Scholarship was established in his honour in 1997.

LOCKING DOWN THE CITY, BUT NOT THE VOLUNTEERS: THE HERBARIUM STUDENT VOLUNTEER PROGRAM IN 2020

In a year like no other, the University of Melbourne Herbarium (MELU) didn't let a pandemic get in the way of training the next generation of natural history collection curators and researchers. When the University of Melbourne transitioned to remote learning across all campuses early in 2020, Dr Jo Birch, Curator, and PhD student Harvey Orel, Curation Officer, got to work imaging specimens and optimising protocols to enable the volunteer program to run entirely online for the remainder of the year.

While Melbourne remained in lockdown for semester two, a cohort of 12 dedicated student volunteers took on the task of curating approximately 1500 herbarium specimens from the comfort of their homes.

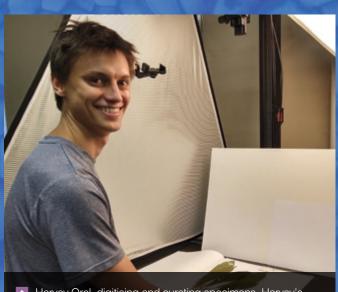
Volunteers received training in the protocols of taxonomic nomenclature checks, transcription of the collection data on specimen labels, and specimen geo-referencing. Access to the Herbarium collection management database was made possible via a dedicated virtual machine, set up exclusively for the Herbarium by Faculty of Science IT. During the semester, the volunteer team collectively logged 321 curation hours, completed approximately 3500 curation tasks, and accessioned an additional 1200 specimens into the collection.

Herbarium associated staff and students enjoyed presentations over Zoom during the semester by Patrick Fahey and Kia Matley, PhD students in the Plant Systematics Research Group, School of BioSciences. Patrick and Kia talked about their respective pathways into plant science research and study and each provided fantastic examples of the benefits of seeking out diverse volunteer and research experiences as part of University study.

In other Herbarium initiatives, Margaret Brookes, a dedicated MELU volunteer, spent a good part of her lockdown transcribing data from Dr Sophie Ducker's slide collection and identifying their corresponding voucher specimens in the collection; Caitlyn Kirwan completed a Science and Technology Internship creating an online exhibition focusing on Dr Ethel McLennan's many

contributions to knowledge of Australian fungal diversity; and Museums and Collections Projects Programme intern, Mel Simpson, researched the work of H.B. Williamson, former Keeper of the Herbarium, in documenting Victorian plant biodiversity.

It is truly remarkable what can be achieved with a willing team of engaged and motivated student volunteers. Many thanks to all who participated in our COVID-induced version of 2020!



↑ Harvey Orel, digitising and curating specimens, Harvey's role was supported financially by the Botany Foundation's Herbarium Fund



GIFTS RECEIVED IN 2020

Adrienne Clarke Chair of Botany

Clarke AC, Adrienne Kimpel, Janice

Botany Foundation Unrestricted/Research (includes Pollen Count)

Alawathugoda, Kusal Anderson, John Ang, Chai Annan, Patricia

Anonymous

Atkinson, Cassandra Balcombe-Quick, Lucinda

Baranowski, Julia

Bloy, Trevor Bocian, Sheila

Botting, Karen

Brown, Rodney

Buckley, Nina Chan, Tze-Hern

Connell, Mark

Craig, Sarah

Crane, Dianne

Cybula, Thomas

Dart, Philip

Daniels, Lorna

Davis, Helen

De Silva, Chandana

Deuchler, Richard

Hallam, Neil

Florrimell, Melanie

Green, Elyse

Gudde, Tod

Guevara, Luis

Jayaratne, Vidura

Jiang, Edward

Karunasekara, Hasani

Love, Matthew Lynn, Hannah

McNeil, Elspeth

Myers AC QC, Allan

Newbigin, Ed

Nichols PSM, Anthony

Playford, Mary

Qun, Mx Li

Santa Maria, Clifford

Sharp, Simon

Shen, Yiwu

Shetty, Kanvitha

Soon, Ju Sook

Springate, Simon

Watt. Michelle

Williams, Katherine

Zonnios, Georgios

Zuo, Joe

David Ashton Travel

Hooley, Doug

David H Ashton Scholarship

Anonymous

Hooley, Doug

Nicholls PSM, Anthony Tarrant, Valerie Margaret

Sophie Ducker Postgraduate Scholarship

Flesch, Juliet Kershaw, Helen Rusden, Ann

Tarrant. Valerie et

Megan Klemm Research Award

Hallam, Neil

Pauline Ladiges Plant Systematics Research Fellowship

Calder, Winifred
Costermans, Leon
Moors AO, Philip
Nelson, Gareth
Steinicke, Jennifer

Ethel McLennan Award

Gaff, Donald Tarrant, Valerie

Tarrant, Valerie

Plant Systematics Research Fund

Chambers AM, Carrick Chambers, Margaret Ladiges AO, Pauline Protist Systematics Research Fund

Cowan, Roberta Kershaw, Helen

John S Turner Postgraduate Scholarship

Anonymous Gaff, Donald Groves, Richard Tarrant, Valerie Turner, Peter

Gretna Weste Plant Pathology and Mycology Scholarship

Tarrant, Valerie Idnurm, Alexander

Fern Research Fund Anonymous

The University of Melbourne Herbarium Fund

Anonymous Gregson AM FTSE, Tony King AM, John Owen Ladiges AO, Pauline Moors AO, Philip Morgan, Susan Beaufort

FOUNDATION FINANCIAL

SUMMARY 2020

	Balance at 01.01.2020 (\$)	Income ¹ (\$)	Awards & Expenses ² (\$)	Revaluation ³ (\$)	Balance at 31.12.2020 (\$)
Adrienne Clarke Chair of Botany Trust ⁴	4,151,684	174,452	(121,954)	48,677	4,252,859
Botany Foundation Trust					
Unrestricted Funds ⁵	1,305,884	69,491	(26,212)	13,951	1,363,114
David Ashton Travel Award ⁶	48,571	2,834	(46)	483	51,841
David H Ashton Scholarship	136,254	6,592	(5,233)	1,414	139,027
Sophie Ducker Postgraduate Scholarship	81,401	4,418	(3,079)	911	83,651
Megan Klemm Research Award	115,170	5,217	(4,413)	1,209	117,184
Bruce Knox Prize	44,769	1,738	(1,643)	459	45,322
Pauline Ladiges Plant Systematics Research Fellowship	1,368,008	63,288	(57,371)	14,756	1,388,681
Ethel McLennan Award	63,102	2,644	(2,361)	649	64,034
Plant Systematics Research Fund	300,602	13,096	(15,297)	3,217	301,619
Protist Systematic Research Fund ⁶	66,282	10,596	(61)	640	77,457
Kingsley Rowan Marine Botany Prize	26,204	994	(925)	262	26,536
G.A.M. Scott Research Fund	141,973	5,621	(5,441)	1,489	143,642
John S. Turner Postgraduate Scholarship	91,113	5,280	(3,388)	940	93,945
Gretna Weste Plant Pathology & Mycology Scholarship	40,879	1,767	(1,540)	432	41,537
The Fern Research Fund	37,076	1,858	(2,034)	357	37,258
V Sarafis Research Fund	72,668	2,864	(3,561)	773	72,745
The University of Melbourne Herbarium Fund	661,303	35,176	(10,673)	7,611	693,417
Women in Science of the Environment (WISE) Fellowship	126,420	4,710	(9,274)	1,240	123,096
Botany Foundation Trust - Total	4,727,678	238,186	(152,552)	50,794	4,864,106
Total of the Two Trusts	8,879,362	412,638	(274,506)	99,471	9,116,965

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 2020 of respective Trusts
- 4. Adrienne Clarke Chair appointed in 2020
- 5. Unrestricted Funds support research initiatives, the pollen count, travel awards and events
- 6. Not awarded in 2020; income carried forward

