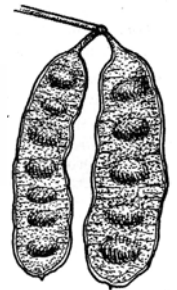
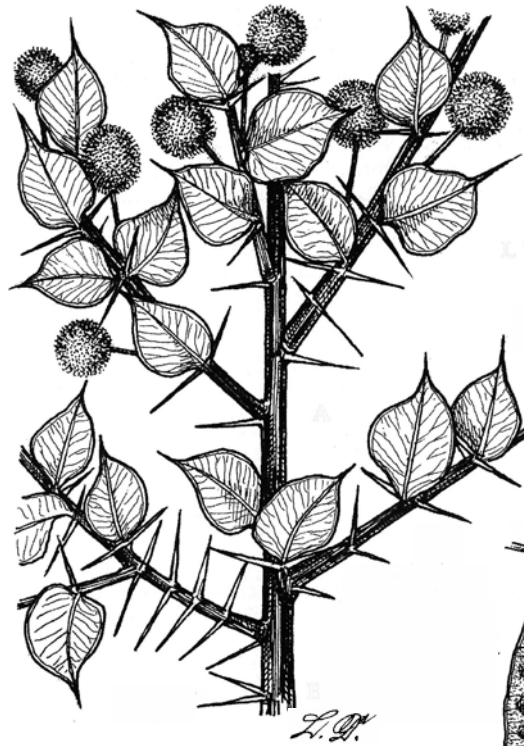


ASBS

*Australasian
Systematic
Botany
Society*



Newsletter

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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Hansjörg Eichler Research Committee

David Glenny
Sarah Mathews
Joanne Birch
Katharina Nargar
Murray Henwood
Chair: Heidi Meudt, Vice President, *ex officio*

Grant application closing dates

Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Marlies Eichler Postdoctoral Fellowship:
on July 31st each year.

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Other constitutional bodies

Affiliate Society

Papua New Guinea Botanical Society

Advisory Standing Committees

Financial

Patrick Brownsey
David Cantrill
Bob Hill
Ad hoc adviser to Committee: Bruce Evans
Chair: John Clarkson Treasurer, *ex officio*

Grants Policy

Gillian Brown
Alexander Schmidt-Lebuhn
Jen Tate (Council)
Peter Weston
Peter Wilson
Chair: Heidi Meudt, Vice President, *ex officio*

Web presence

ASBS Facebook Group

Viewable currently to any member of Facebook;
permission to join by application to administrators.

Administrators

Todd McLay, email: tmclay@unimelb.edu.au
Mike Bayly, email: mbayly@unimelb.edu.au

Cover image: *Acacia strongylophylla* F.Muell. Branch

surrounded by (clockwise from top) phyllode, legumes,
and seed with funicle. Artist: Ludwik Dutkiewicz.

From: D.J.E. Whibley & D.E. Symon, *Acacias of South
Australia*, 2nd edn (1992), with permission of Board of the
Botanic Gardens and State Herbarium (South Australia).

Publication dates of previous issue

Australas. Syst. Bot. Soc. Newslett. 177 (December 2018)
ASBS Web site: 29 Jan 2019. Printed version: 31 Jan 2019.

From the President

Brisbane conference

The Brisbane ‘Mind the Gap’ conference is now several months gone, but it still burns brightly in my memory. The BRI-Queensland Museum team put on a smoothly run show with a fantastic range of excellent talks and posters. I would like to extend my congratulations and thanks to the conference organizing committee, expertly and efficiently led by Gill Brown and Andrew Rozefelds, and everybody else involved in making the conference a success. They are too many to mention. Special thanks are extended to the organisers and presenters of the pre-conference workshops. These were remarkably well attended, and from all reports, highly informative.

Conference Awards

The Society has a range of awards associated with its conferences, all of which target students. These are the Pauline Ladiges Prize for best student talk, the Australian Systematic Botany Journal prize for best poster, and the Bob Anderson Award (Fig. 1).

This year the prizes were judged by Nathalie Nagalingum, Brendan Lepschi and Teresa Lebel. The judges reported that their task was exceedingly difficult, and there was extensive debate about the winners, so congratulations to all students on the high quality of presentations.

The Pauline Ladiges Prize is awarded to the best oral presentation by a student at an ASBS conference. The prize is sponsored by CSIRO Publishing and constitutes a \$250 book voucher and a journal subscription to either *Australian Journal of Botany* or *Australian Systematic Botany*. The award is named in honour of Professor Pauline Yvonne Ladiges AO, FAA, in acknowledgement of her dedication to teaching, students and plant systematics.

This year the winner of the Pauline Ladiges award was Jessica Bruce from Edith Cowan University for her

talk entitled, “*Reedia spathacea* phylogeography and population structure”.

The ASBS also awards a prize for best poster by a student at an ASBS conference, also sponsored by CSIRO Publishing. This year’s winner was Helen Kennedy from The University of New England for her poster entitled, “Integrative taxonomic revision of *Melichrus* (Ericaceae)”.

Bob Anderson award

In 2013, Rosemary Baxter, the sister of long-time ASBS member Dr Bob Anderson, provided a bequest of \$2,000 to the Society in Bob’s name. After discussion with the family, Council resolved to make an annual award to support registration fees of a student who shows special promise and who attends the annual ASBS conference and presents a spoken or poster presentation. In consideration of Bob’s institutional relationships, priority is given to a student from a developing country.

The winner in Brisbane was Chapa Manawaduge, from Queensland University of Technology, who spoke on the “Conservation genetics of threatened native olives (genus *Notolaea*) in southern Queensland”.

Congratulations to the winners, thanks again to the judges and to CSIRO Publishing for sponsorship.

A full conference report is provided on page 21.

Wellington

Planning for the upcoming Wellington conference



Fig. 1. Student prize-winners at the 2018 ASBS conference. Left to right, Jessica Bruce, Helen Kennedy, Chapa Manawaduge. Ph. J. Clarkson

(24-28 Nov) is well underway, led by Heidi Meudt and Rewi Elliot. Members are reminded we will meet jointly with the New Zealand Plant Conservation Society, which will undoubtedly engender some really useful and enjoyable interactions. Keep up to date with developments via the website (Web ref. 1).

Genomics for Australian Plants - GAP

Readers will, I hope, have already heard about this new initiative which I introduced in the September 2018 Newsletter and which was formally launched at the Brisbane conference. The project is now up and running, and will deliver data and resources to the community in three broad thematic areas:

- Reference genomes
- Phylogenomics
- Conservation Genomics

High level governance of the initiative is provided by the Steering Committee. Several working groups have been established to assist the Steering Committee in decision making. These working groups are as follows. Membership of these groups is detailed on the GAP website (Web ref. 2):

- Wet Lab Working Group
- Computational Working Group
- Phylogenomics Working Group

Those who attended the Brisbane conference will recall that the formal launch of the project included the announcement of the first three

Australian plant genomes to be sequenced under the 'Reference Genomes' theme: *Telopea speciosissima* (waratah), *Acacia pycnantha* (golden wattle), and *Areocleome oxalidea*. These taxa were chosen through a competitive selection process from a round of 30+ proposals submitted by research teams following an open call. This group of three constitutes a pilot project designed to scope the existing capability within the community required to sequence and assemble genomes. Further calls for additional proposals will be made in the future.

Activities under the phylogenomics theme are just getting underway. The working group has only recently been constituted and is currently considering a range of approaches for providing plant phylogenomic resources to the community.

The GAP initiative will deliver against several strategic actions of the 'Decadal Plan' (Web ref. 3).

To keep up to date with developments check out the GAP website (Web ref. 2).

Stop Press! Conclusion of the 2018 AGM

With timely receipt of the financial audit report, the 2018 AGM was completed with its resumption in Sydney with the required quorum on 27 Mar 2019 (see p. 7), at the date and time provided to members by email from our Secretary. Our new Council is in place (Fig. 2).

Web references

1. <https://systematics.ourplants.org/>



Fig. 2. New and old ASBS Councils at the Brisbane conference. Left to right: Dan Murphy, new President, former Vice-President; John Clarkson, new Treasurer; Ryonen Butcher, continuing Councillor; Matt Renner, retiring Treasurer; Jen Tate, continuing Secretary, Hervé Sauquet, new Councillor; Heidi Meudt, new Vice-President, former Councillor; Darren Crayn, former President.

Ph. G. Brown
per J. Clarkson

2. www.bioplatforms.com/australian-plants/
3. [www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-](http://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy)

plan-taxonomy

Darren Crayn and Dan Murphy

Taxonomy Australia report

The Taxonomy Australia website and Twitter feed are now live! We launched on March 19th (International Taxonomists Appreciation Day). If you haven't seen it yet, pay it a visit (Web ref. 1) Our twitter handle is *@australntaxonomy*. If you follow us on Twitter you'll get all the updates; or, subscribe by joining Taxonomy Australia (Web ref. 2). As a subscriber you'll get alerts whenever a new story is posted and receive a handy Monday morning email digest of the week that was.

I encourage all members of ASBS to join Taxonomy Australia (it's free) and follow us. It's a good way to keep abreast of taxonomy in Australia, both within and outside your own sphere of interest.

The Taxonomy Australia website

The Taxonomy Australia website provides an opportunity for our sector to be outward-facing and to increase our visibility in the community and with government. Its ultimate goal is to reposition taxonomy and systematics as cool and impactful sciences, and, through this, to help with advocacy for more funding and resourcing for the sector. I believe this is something we haven't done well enough in the past.

It's also a channel for us to tell our stories. Stories are a great way to inform the community about our impacts in a way that resonates readily. Every week we aim to bring several (hopefully daily) new stories, of taxonomic discovery and taxonomists, on the impacts of taxonomy, and stories about our wonderful biodiversity.

Over time, these stories will also provide a firm basis for other work: the Taxonomy Australia website will become a repository of examples of impactful taxonomy, stories to entertain an audience, or stories that can be turned into education resources. I believe we can build on the website over the next few years to make it a key resource for us all.

Taxonomy Australia advocacy

As well as launching the website, we've been working on a long-term campaign to bring about a sustained five-fold increase in funding for ABRS. ABRS has had a demonstrable impact

on the rate of species discovery in Australia, but this impact has tailed off in recent years as the value of the ABRS grants program has declined in real dollar terms. A reinvestment in ABRS will allow the rebuilding of capacity in taxonomy and systematics that we need if we are to deliver on the strategic actions of the decadal plan.

Our community has not traditionally engaged much in direct political advocacy. We're all more comfortable doing great work than spending time advocating for the capacity to do even more great work. Booking meetings with your local Member of Parliament to discuss the need for more taxonomy in Australia, writing letters to Ministers and their shadows to advocate for more resources, and generally being more out-there doesn't tend to come naturally for any of us.

But direct advocacy is critically important. Taxonomy Australia alone is unlikely to be able to bring about substantial change in resourcing for taxonomy in Australia. But a combination of Taxonomy Australia and an actively advocating community can make all the difference.

Over the coming weeks there may be opportunities for direct advocacy and calls for help to Taxonomy Australia subscribers. This is another good reason to join the Taxonomy Australia website – we'll let you know when and how you can help bring about the change our sector desperately needs.

Taxonomy Australia workshops

Taxonomy Australia, working with partners, plans to host a series of irregular meetings on topics of importance for the sector, either directly related to the strategic actions of the decadal plan or on other important issues.

The first Taxonomy Australia meeting, co-sponsored with ABRS and the Atlas of Living Australia, will be a meeting on the management of taxa and their names in Australia. While we have good systems in many respects for this, particularly in the plant world with the Australian Plant Census and Australian Plant Name Index (parts of the National Species Lists), we can do much better. There is still duplication of effort, and multiple parties maintain their own taxonomic

backbones, including multiple Commonwealth government departments and agencies.

The aim of the workshop is to bring together key players and stakeholders who manage names and taxa in Australia or who need well-managed names and taxa, to develop an agreed vision and roadmap for the next steps to improve on our current systems. The meeting will result in the development of an implementation plan for one of the strategic actions of the decadal plan, which envisages a comprehensive, efficient, well-curated, agreed taxonomic backbone for Australia. This will also be a good opportunity to ensure we are well-placed to influence the international management of plant taxa and names, an evolving space. The meeting will take place on 14-15 May 2019 in Canberra. Please contact me if you'd like to be involved and are not already on the invitation list for this important meeting.

The Taxonomy Australia Steering Committee

Taxonomy Australia is governed by a broadly representative Steering Committee comprising the Presidents of ASBS, SASB, the Australian Mycological Society and Australasian Palaeontologists, the chairs of CHAH and CHAFC, delegates from ALA and ABRs, and

delegates representing the university sector and early- and mid-career researchers. The Steering Committee plans to meet four times a year to guide Taxonomy Australia's business and activities. If you are keen to find out more about Taxonomy Australia or to raise specific issues, you can do that either by contacting me directly or through an appropriate Steering Committee representative.

In summary, Taxonomy Australia is now visible, has a growing presence, and is starting its core work to reposition taxonomy and systematics as cool and impactful sciences, to advocate for more resources for our sector, and to help bring disparate stakeholders together to further both these aims. I believe that, with sufficient support and engagement from the community, we can bring about real change. I encourage you all to get with the project, join Taxonomy Australia, and help in any way you can.

Web references

1. <https://www.taxonomyaustralia.org.au/>
2. <https://www.taxonomyaustralia.org.au/join>

Kevin Thiele
Director, Taxonomy Australia

Taxonomy Education Working Group: initial survey

We are seeking help to figure out which new education resources we need to improve biodiversity awareness in Australasia (and beyond) by filling in this short on-line survey (Web ref. 1).

Note that taxonomy is used here in its broadest sense and that this survey concerns not only workers and students of taxonomy, but also its broad user base. Please share this message widely with your own institutions, networks, and colleagues. Our aim is to collect as many opinions as possible so that we can make informed decisions moving forward.

Background

At the latest Australasian Systematic Botany Society (ASBS) conference in Brisbane (Dec. 2018), informal discussions were held regarding the future of training in taxonomy in the broad sense in Australasia. The need for new education resources to deliver high-quality training in taxonomy was a common theme raised in these discussions. Specifically, we were brainstorming in Brisbane about resources to complement current

tertiary curricula through a collaboration among multiple universities and collections institutions to create a course (or perhaps an entire degree) delivered online but paired with offline activities and research internships.

Taxonomy Education Working Group (TEWG)

With taxonomy education one of the priorities in the Decadal Plan (Key initiative 5: Educating for the future; Web ref. 2), these discussions led to the formation of a working group under the umbrella of Taxonomy Australia (Web ref. 3). However, the goals of the Decadal Plan are broader than tertiary education and some members of the working group may be more interested in working on primary or secondary education resources. The mission of the TEWG is to develop an implementation plan and to reflect on an actual course or package of resources. The TEWG is currently composed of 21 members primarily from the botanical community but is open to anyone else who would like to contribute and be involved.

Purpose and format of the survey

This online survey is intended as a first step towards circumscribing what is mostly needed, what can realistically be done, and who is willing to contribute to what. Hence, this initial survey is intentionally broad. We encourage and welcome feedback from anyone with an opinion about taxonomy education in Australasia, whether or not they wish to contribute to the actual development of resources.

This non-anonymous survey is organized in four sections (Identity, General education needs, Course format, Your involvement) and should take less than ten minutes to complete.

Survey closing date:

31st May 2019.

Web references

1. <https://goo.gl/forms/EwU2YYb8gX13pc7p1>
2. <https://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy>
3. <https://www.taxonomyaustralia.org.au/>

Thank you so much in advance!

Hervé Sauquet
on behalf of
the Taxonomy Education Working Group
herve.sauquet@rbgsyd.nsw.gov.au /
herve.sauquet@gmail.com
Tel: +61 292 318 316 (office) /
+61 410 798 181 (mobile)

ASBS Annual General Meeting

Australasian Systematic Botany Society Inc.

40th Annual General Meeting

Brisbane meeting.

Minutes



Auditorium, Brisbane
Botanic Gardens,
Mt Coot-tha,
Brisbane
5 pm, Tuesday
4 December 2018

Agenda

- Welcome and apologies
- Confirmation of agenda
- Minutes of previous AGM and business arising
- Correspondence and business arising
- Reports
- General business
- Election of Council officers
- Announcement of next AGM

Council present

Darren Crayn (DC) – President, Dan Murphy (DM) – Vice President, Matt Renner (MR) – Treasurer, Jennifer Tate (JT) – Secretary, Heidi Meudt (HM) – Councillor, Ryonen Butcher (RB) – Councillor

Welcome and apologies.

DC called meeting to order 5:02 pm

Apologies from Jeremy Bruhl, Pauline Ladiges, Laurie Haegi,

Confirmation of Agenda.

DC indicated that meeting would not be a full AGM because the financial report was not yet fully audited. Other reports would be tabled, but DC proposed to adjourn meeting after these reports were tabled until the final items could be dealt with.

Minutes of Previous AGM and business arising.

The previous AGM was held on Tuesday 28th November 2017, Horace Lamb Room, University of Adelaide, Australia. The minutes were published in the ASBS Newsletter #173 (Dec 2017).

No corrections to the minutes. That minutes be accepted as a true record; moved by Peter Jobson, seconded Bill Barker, accepted by meeting.

Correspondence and business arising.

No correspondence of note to mention.

Reports.

President

DC provided final report after noting a very rewarding term as President. Finances remain in good state. Financial incoming exceeded expenses by \$15000 as per investment strategy. General ledger slightly down as individual memberships need to be renewed. DC thanked Matt Renner for Treasury role. ASBS membership currently at 330 members – not declining, but slowly growing. The newsletter continues and is now up to 176 issues – Bill and Robyn Barker are doing a wonderful job putting together great newsletter, which is a lot of work. DC thanked Bill and Robyn for their hard efforts. Facebook report – DC thanked Mike Bayly and Todd McLay for being stewards of the Facebook site – great medium for communication with people.

Marlies Eichler postdoctoral fellowship – in second year of running. This year \$35,000 was distributed for both Eichler grants (Marlies and Hansjörg). Marlies Eichler intended to fill a gap in funding for early career researchers and after two years of being active, current Council will consider how well it is working, etc. Dan Murphy will detail the research projects more and DC thanked Dan Murphy for running Research Committee.

Decadal Plan now in action - DC thanked Kevin Thiele for his efforts with Taxonomy Australia now taking shape.

DC thanked current Council (Jen, Matt, Heidi, Ryonen, Dan) – has very much enjoyed working with them over the last year. Aims of current council and incoming council – to achieve diversity in gender representation. New Council will develop code of conduct for ASBS functions as well as consider diversity in different forms and its representation in the society. New Council will consider forming a student sub-committee to facilitate linkages, training, etc. for the next generation.

Treasurer

Matt Renner presented the unaudited Treasurer's report. Membership at 342 (including unfinancial members) – 195 members unfinancial. ASBS gained 15 new members – most of them students. Two members resigned the society. We ran an overall surplus of \$26,243 at end of year. Out of the research fund, three Hansjörg Eichler rounds were awarded and one \$10,000 Marlies Eichler

award. One unscheduled payment for Hansjörg Eichler award where the host institution failed to cash the student cheque. Total expenditure at \$25,984. Significant return on the investment fund. Overall financial future very stable given savvy investment strategy by previous council and treasurer.

Legal advice for ASBS Council liability cost \$2,428 and travel from ASBS Council were recorded as expenditures. The research fund at \$1.1 million dollars = the majority is the Marlies Eichler fund held in a Colonial Wholesale Investment. General fund has \$145,849 held in two term deposits. Total assets at \$1,293,216. MR summarized expenditures and assets. MR thanked membership for patience as he navigated his way through the Treasurer position.

Newsletter Report

Robyn Barker presented newsletter report – apologized for lateness of publishing newsletters. Editors grateful for content – Darren for President's reports, Dan Murphy – student reports, conference reports. Zoe Knapp and Anthony Whalen sending ABRS reports, Kevin keeping us up to date with progress on the Decadal Plan. Book reviews have fallen away a bit. Would like to see more news from New Zealand. Some new articles unexpected but welcomed. Thanks to Russell Barrett who scanned all the older issues and these are now available as PDFs on the web, with searchable content. Thanks to Anna Monro and Murray Fagg for uploading newsletter to the website.

Website

Anna Monro presented website report. Website still in same place, updates to awards, etc., issues uploaded as they were received, AM thanked Russell Barrett for scanning old issues of the newsletter. Problem with providing stats on current website as CSIRO has internal analytics. Anna will endeavour to add Google analytics

DC thanked Anna for the report and continuing efforts to keep the website up to date.

Facebook

Todd McLay presented an overview of Facebook presence, now in its 6th year. Now at 951 members, with membership and content vetting by Mike Bayly and Todd McLay. Lots of news – jobs, awards, etc. Todd would like to improve photos on banner.

Research Committee

DM presented Research Committee report, outlining members of the research committee. DM will step off committee – new VP will be chair of committee. DM outlined awards – only four applications in 2018. Francis Nge (University of Adelaide) was the recipient in March 2018; Bohao Dong (University of Waikato) was a recipient in the September 2018 round. The Marlies Eichler postdoctoral fellowship is undersubscribed, but the quality of applications were outstanding. Grants Policy committee will consider the scheme after two years of running and assess if it needs tweaking. Lars Nauheimer winner of the 2018 award. Bee Gunn was the 2017 recipient and will receive the second year funding.

One minor change to both application forms (for Marlies Eichler and Hansjörg Eichler awards): applicants must now indicate how their proposed research addresses the Decadal Plan.

DM thanked DC for outstanding leadership as president the last three years.

General Business.

DC named student travel bursary award winners: Grace Boxshall, Tim Collins, Tim Hammer, Elizabeth Joyce, and Ruth Palsson.

Election of Council Officers.

JT announced incoming council members: Dan Murphy (President), Heidi Meudt (Vice President), John Clarkson (Treasurer), Jennifer Tate (Secretary), Ryonen Butcher (Councillor), and Hervé Sauquet (Councillor).

Announcement concerning next conference and AGM.

The next AGM will be in association with the ASBS conference in Wellington to be held at the end of November 2019.

DC proposed to adjourn the meeting to finalize the treasurer's report at a later date, probably in mid-January but that will depend on when the final audit is ready. DC proposed that the AGM reconvene in Sydney to fulfil the required quorum of Council members present. An announcement will be sent to the membership inviting them to attend.

The majority of attendees were in favour to adjourn.

**Meeting adjourned 5:45 pm
50 members in attendance**

Australasian Systematic Botany Society Inc. 40th Annual General Meeting Adjourned meeting.

Minutes



**Caley Room,
Brown Building,
National Herbarium of NSW,
Mrs Macquaries
Rd, Sydney NSW
2000.
27 March 2019**

Agenda

Reports. Tabling of Treasurer's report

Present:

Council

Darren Crayn (DC/meeting Chair) – President, Dan Murphy (DM/minutes) – Vice President, Matt Renner (MR) – Treasurer, Hervé Sauquet (HS) – Councillor-elect.

Members

12 members of ASBS (signed attendance sheet).

Minutes

Meeting start: 5:01pm

Reports. Tabling of Treasurer's report.

One item tabling of audited accounts for financial year ending June 2018. MR spoke to these. Good current financial status of society and meeting all commitments. Small operating surplus. Brisbane conference account picked up in audit. There is a discrepancy noted that may have been a double counting of 2017/2018 donations. This to be clarified in 2018/2019.

Tabled Financial Report:

Moved by Charles Foster. Seconded: Shelley James.

Vote to accept audited report was passed unanimously by all present.

Meeting end: 5:07pm

President's report

Presented to the ASBS Council meeting 2 Dec 2018 at the Queensland Herbarium, Mt Coot-tha, Brisbane by Darren Crayn (with some minor additions by President-elect, Dan Murphy).

After the excitement of the Brisbane ASBS conference, I am pleased to provide this last report of my Presidency. It's been a great deal of fun, a fair bit of work, and very rewarding. I will miss being so deeply involved in the business of the Society, but will probably enjoy a reduced workload at future ASBS conferences.

Adjournment of AGM

Due to a delay in obtaining an audit of the society's accounts it was decided to hold the AGM as planned at the Brisbane ASBS conference, complete all business except the tabling of the auditor's report, then adjourn the meeting to a later date to deal with the audit report. A result of this is that the change-over to the new ASBS council will be also be delayed, as the society's constitution states council members "hold office until the conclusion of the annual general meeting following the date of the member's election". It is hoped to reconvene the AGM in late January 2019 once the audit is complete. Members will be notified once a date is fixed.

In any case, financially the Society continues to be sound. While some of the figures remain to be confirmed through audit, in the financial year ending June 30 2018 income to the Research Fund exceeded outgoings by over \$15,000. This is a substantially larger surplus than 2016/17 and a consequence of a new investment strategy designed to support new grant initiatives: increased Hansjörg Eichler maximum award amounts, and the new (in 2017) Marlies Eichler Fellowship. The investment performance is more than adequate to fund these grants without drawing on the capital. The General Fund ran at a small loss, due to many outstanding members' dues, which our Treasurer is actively chasing, but we encourage all members to check that they are paid up. These are solid numbers particularly in the light of several new initiatives undertaken in 2018, and continues the society's excellent financial position. On behalf of the members I thank Matt Renner for his stewardship of the treasury.

Communications

The Newsletter continues its enviable history, now stretching to 176 issues. One major achievement this year, for which I thank Russell Barrett, was completion of the digitization and upload of all back issues. So, for the first time the entire back catalogue of the Newsletter is available on the ASBS website.

Published quarterly, four issues have appeared since the last conference. The editors, Bill and Robyn Barker, just keep on chugging away at producing great newsletters, and their contributions are gratefully acknowledged, particularly in view of personal difficulties encountered in recent years. More good copy is always welcome and members are encouraged to share any relevant news through the Newsletter.

The ASBS Facebook group has grown to over 950 members (150 joining in the last year) including many non-members. Social media is widely recognised as a critical element of the communications strategy of any public organisation, and there can be no doubt that it is an important communications tool for ASBS, both among the membership, and between the Society and the wider community. As social media platforms continue to rapidly speciate, the Society must keep abreast of the radiation and adopt technologies – such as Twitter, Instagram etc. - as they become mainstream if it is to remain engaged with its stakeholders. Mike Bayly and Todd McLay are thanked for invigilating posts and membership requests.

Taxonomy Australia, and the Decadal Plan for Taxonomy and Systematics

Members will be well aware of the Decadal Plan for Taxonomy and Systematics, launched in April last year at Parliament House. Development of the Plan was a complex, multi-year undertaking, but the outcome was well worth the trouble. Focus has now shifted to implementation, and the first brick in this road is the formation of 'Taxonomy Australia' (TA), the body charged with implementing the Plan. The Society has a formal role through an ex officio position of the President on the TA Steering Committee. While I will no longer represent the Society on the Steering Committee, they won't be rid of me as I'll be taking on Chair of CHAH in the new year and its ex officio Steering Committee role.

It's really heartening to see the Plan being increasingly referenced in conversations both formal and informal within our community, evidence that it is infusing into our professional consciousness. For it to be successful, this is a necessary condition. Further, significant initiatives that actualise the Strategic Actions in the Plan are already being developed. An example is the Genomics for Australian Plants Framework Data Initiative.

Genomics for Australian Plants – GAP

This seriously exciting new initiative was officially launched at the Brisbane ASBS conference, just as my term comes to a close. It seeks to build genomics capability to support the botanical collections and plant systematics community to manage and intelligently grow collections to develop novel identification and classification tools, up-skill botanical researchers in the latest genomics technologies and their application, and inform conservation and utilization of Australia's unique flora. Funding has been secured from BioPlatforms Australia (an Australian Government facility) and the Ian Potter Foundation, and a call put out for species proposals for the initial pilot stage of the reference genomes subproject. The successful proposals were announced in Brisbane and now the work starts in earnest. Much more detail about the initiative can be found on the website (Web ref.). Two working groups have been convened to advise the Steering Committee on approaches – a Bioinformatics Working Group, and a Wet Lab Working Group. These groups have done great work already.

Genomes are of course not a research focus for many of us in the plant systematics community, but fear not, other initiatives are proposed that might align more closely with most herbarium researchers, such as developing a genus-level phylogeny of all Australian flora based on new, robust data from many genetic loci.

Nancy Burbidge Medalist

The Society's highest honour – the Nancy Burbidge Medal – was awarded in 2018 to Ilse Breitwieser. Ilse has built an exceptional career, most recently as leader of a number of significant initiatives in New Zealand plant taxonomy including the electronic Flora of New Zealand, and the New Zealand Organisms Register. Of course, Ilse has served this Society well as

Councillor (2012-2015) and was one of the key early drivers of the movement that has led to the Decadal Plan. She is unarguably a person held in the highest esteem by the Australasian systematic botany community and a most worthy recipient of the Nancy Burbidge Medal.

Grant Schemes

This year we entered the second year of a major new initiative, enabled by a substantial bequest from Marlies Eichler, in support of its early career members and the future of our discipline: the Marlies Eichler Postdoctoral Fellowship. This fellowship provides up to \$10,000 per annum.

Taken together, the portfolio of ASBS grants distributes up to \$40,000 annually, aimed primarily at the Society's early career members. Two Marlies Eichler Fellowships have now been awarded. The successful applicants were Dr Bee Gunn (University of Melbourne and RBG, Melbourne) and Dr Lars Nauheimer (Australian Tropical Herbarium, Cairns). Given the prestige and value of the Fellowship, interest has been surprisingly low (but the quality of applications has been high). It is not clear to Council why this is. The Fellowship was specifically designed to fill a funding gap identified through consultation with the community, which was undertaken by the Grants Policy Committee. Perhaps, the pool of potential applicants is small. The incoming Council plans to undertake an assessment of whether the Fellowship is meeting its objectives, in order that the Fellowship can best achieve its intent – to support excellent research by early career scientists in plant taxonomy and systematics in Australia and New Zealand (see further details in the Vice-President's Research Committee's activities report).

The Hansjörg Eichler Awards continue to be keenly contested and in 2018 three awards were made totaling \$14,980. Congratulations to the successful applicants.

I'm deeply grateful for the expertise and enthusiasm shown over the last three years by members of the ASBS Research Committee, which assesses the Marlies Eichler and Hansjörg Eichler grant schemes, and especially for Dan Murphy's management of the process as Chair.

ASBS Council

Significant changes to Council will ensue at the close of the (reconvened) AGM. I must step down, having completed three years as President,

the maximum allowable under the Rules. Dan Murphy, currently Vice-President, nominated and was elected unopposed. Dan has contributed significantly to the Society over the last few years as VP, guiding the grants program with a strong and stable hand. He ascends to the position with experience on Council and full knowledge of the challenges and opportunities it offers. I have no doubt he will do an excellent job leading the Society over the next few years and will lend him any support he may need to settle in to the role.

Matt Renner, who took on the role a year ago following Society stalwart and life member John Clarkson, is stepping down due to institutional work commitments. I thank Matt for his hard work and good humour in what is undoubtedly Council's most challenging role. In a "Back to the Future" scenario, we very warmly welcome back John Clarkson into the Treasurer role. In my President's report last year I wrote that I hoped John, who has held every position on Council and in many ways is the Society's help desk, would not entirely disarticulate himself from us. I also predicted that this would be unlikely, and time has shown me to have been right on the money! Welcome back, John.

I also warmly welcome Hervé Sauquet from the National Herbarium of NSW. Hervé was the unsuccessful candidate in the 3-way contest for the two Councillor positions last year. I'm really glad he had a second crack at it and met with success this time. I think he'll bring a great

energy and international perspective to Council, and wish him the very best.

Heidi Meudt (Te Papa) will move to VP from Councillor. The VP is ex officio Chair of the Research Committee, and in that role I have little doubt she will excel. She has experience as a member of that committee which will serve her well as Chair.

Jen Tate stays on as Secretary and will no doubt continue to run Council with the competence and efficiency she has displayed so far.

Councillor Ryonen Butcher continues in her role, rounding out a quality incoming 47th Council. I regret that I won't have the pleasure of serving with them.

Finally

In closing it has been a joy and an honour to work with the outgoing Council. I thank them, and the broader membership for the opportunity to serve as President. I think we have achieved a lot over the last three years. We didn't achieve everything I imagined we might when I came on to Council three years ago; that is my failure, nobody else's. But I hope we made a difference in some key areas, and leave a solid base for the incoming (gender-balanced!) Council to spring off. I very much look forward to enjoying, as an ordinary member, the fruits of their labours.

Web reference

<http://www.bioplatforms.com/australian-plants/>

Financial report

Financial Report for the year end 30 June 2018

Australasian Systematic Botany Society Incorporated

ABN 22092454279

Prepared by Martin & Luscombe Pty Limited

Council's Report

Your Council members submit the financial statement of the Australasian Systematic Botany Society Incorporated for the year ended 30 June 2018.

Council Members

The names of the Council members who held office throughout the reporting period and at the date of this report are:

President	Darren Crayn	November 2015
Vice President	Daniel Murphy	November 2015
Secretary	Jennifer Tate	September 2016
Treasurer	Matt Renner	Elected December 2017
Councillor	Heidi Meudt	Elected September 2017
Councillor	Ryonen Butcher	Elected September 2016

Principal Activities

The principal activities of the society during the reporting period were to promote systematic botany in Australasia.

Significant Changes

No significant change in the nature of these activities occurred during the reporting period.

Operating Results

The operating results are as set out here under:

	Year ending June 2018	Year ending June 2017
General Fund	\$1,982	\$5,133
Research Fund	\$29,696	\$2,000
Total	\$31,678	\$7,133

Signed in accordance with a resolution of the Members of the Council on:

Darren Crayn (President)

Matt Renner (Treasurer)

25th March 2019

25th March 2019

Income and Expenditure Statement
Australasian Systematic Botany Society Incorporated
For the year ended 30 June 2018

	2018	2017
	\$	\$
General Fund Income		
Advertising in Newsletter	-	250
Australian Conservation Taxonomy Award	-	13,000
Conference	8,596	31,885
Copyright Agency	349	
Donations to Eichler Fund	-	3,440
Investment Income	1,342	2,133
Subscriptions to ASBS Inc.	3,935	11,270
Sundry income	10	1,209
Registrations	900	-
Dinner	285	-
Workshop	60	-
Field trip	230	-
Total General Fund Income	15,707	63,187
General Fund Expenses		
ASBS Council Travel (AGM, Special GM, Decadal plan)	5,591	2,553
Auditor's remuneration	2,145	1,980
Australian Conservation Taxonomy Award	-	14,000
Bank fees, Credit card charge facility	206	977
Conference 2017	-	27,953
Conference 2017 Student travel awards	1,496	-
Decadal Plan	-	5,022
Legal advice (Council liability)	2,428	-
Miscellaneous expenses	60	300
Newsletter expenses (printing, postage)	1,799	1,788
Registrar General returns	-	41
Transfer donations to Research Fund	-	3,440
Total General Fund Expenses	13,725	58,054
General Fund Surplus	1,982	5,133
Research Fund Income		
Donations to Research Fund	4,995	3,440
Investment income –Research Fund	50,684	25,502
Total Research Fund Income	55,679	28,942
Research Fund Expenses		
Bank Charges	-	7,050
Research Grants	25,983	19,892
Total Research Fund Expenses	25,983	26,942
Research Fund Surplus	29,696	2,000
Current Year Surplus/ (Deficit)	31,678	7,133

Balance Sheet
Australasian Systematic Botany Society Incorporated
As at 30 June 2018

	2018	2017
	\$	\$
Assets		
General Fund		
Cash and Cash Equivalents		
General Fund: Cheque Account	30,503	29,342
General Fund: Savings Account	19,721	118,999
Conference: Cheque Account	4,475	-
Total Cash and Cash Equivalents	54,699	148,341
Investments		
RaboDirect Term Deposit 1	50,620	-
RaboDirect Term Deposit 2	50,000	-
Total Investments	100,620	-
Total General Fund	155,319	148,341
Research Fund		
Research Fund: Cheque Account	418	12,388
Total Cash and Cash Equivalents	418	12,388
Investments		
Colonial Wholesale Investment	1,093,551	1046,283
Commonwealth Term Deposit	49,403	60,000
Total Investments	1,142,954	1,106,283
Total Research Fund	1,143,372	1,118,671
Total Assets	1,298,691	1,267,012
Net Assets	1,298,691	1,267,012
Members' Funds		
Accumulated surplus	1,267,013	1,259,880
Current Year Earnings	31,678	7,133
Total Members' Funds	1,298,691	1,267,013

Notes to the Financial Statements

Australasian Systematic Botany Society Incorporated

For the year ended 30 June 2018

Summary of Significant Accounting Policies

The financial report is a special purpose financial report prepared in order to satisfy the financial reporting requirements of the members. The Council has determined that the Society is not a reporting entity.

The financial report has been prepared in accordance with the requirements of Australian Accounting Standard AASB 1031: Materiality. No other applicable Accounting Standards, Australian Accounting Interpretations or other authoritative pronouncements of the Australian Accounting Standards Board have been applied.

The financial report has been prepared on a cash basis.

The following specific accounting policies, which are consistent with the previous period unless otherwise stated, have been adopted in the preparation of this financial report.

(a) Membership

Membership fees are recorded on a cash basis.

(b) Income Tax

Under present legislation the Society is exempt from income tax and accordingly no provision has been made in the accounts.

(c) Comparative Figures

Where required by Accounting Standards comparative figures have been adjusted to conform with the

changes in presentation for the current year.

Members Funds

In accordance with the rules of the Society, accumulated funds are not available for distribution to its members.

Research Committee

The Australasian Systematic Botany Society is an approved research institute.

The approved membership of the Research Committee comprises:

Daniel Murphy (Chair)	Ex officio
David Glenny	Appointed March 2013
Sarah Matthews	Appointed March 2015
Heidi Meudt	Appointed March 2016
Joanne Birch	Appointed March 2016
Katharina Schulte	Appointed March 2016
Murray Henwood	Appointed March 2016

**Statement by the Members of the Council
Australasian Systematic Botany Society Incorporated
For the year ended 30 June 2018**

The Council has determined that the Society is not a reporting entity and that this special purpose financial report should be prepared in accordance with the accounting policies outlined in Note 1 to the financial statements.

In the opinion of the Council:

The financial report as set out on pages 1 to 9 presents a true and fair view of the Society's financial position as at 30 June 2018 and its performance for the year ended on that date.

At the date of this statement, there are reasonable grounds to believe that the Society will be able to pay its debts as and when they fall due.

This statement is made in accordance with the resolution of the Council and is signed for and on behalf of the Council by:

President
Darren Crayn – President

Treasurer
Matt Renner – Treasurer

Dated this 25th day of March 2019

Australasian Systematic Botany Society Inc.

2019 Membership Fees

These are due on January 1st each year.

Subscription rates:

Ordinary/Institutional members \$45 (AUS)

Full-time students / retired / unemployed \$25 (AUS)

This is also an opportunity to donate to the Research Fund.

**Prospective Members need to download a membership form
from the membership section of the ASBS web site.**

Please direct enquiries to the Treasurer (treasurer.asbs@gmail.com).

Auditor's Report

Australasian Systematic Botany Society Incorporated For the year ended 30 June 2018

Independent Auditors Report to the members of the Association

We have audited the accompanying financial report, being a special purpose financial report, of Australasian Systematic Botany Society Incorporated (the association), which comprises the committee's report, the Balance Sheet as at 30 June 2018, the income and expenditure statement for the year then ended and the notes comprising a summary of significant accounting policies and other explanatory information.

Committee's Responsibility for the Financial Report

The committee of the Australasian Systematic Botany Society Inc. is responsible for the preparation and fair presentation of the financial report and have determined that the basis of preparation described in Note 1 is appropriate to meet the requirements of the Associations Incorporation Act 1981 and is appropriate to meet the needs of the members. The committee's responsibilities also include establishing and maintaining internal control relevant to the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. No opinion is expressed as to whether the accounting policies used are appropriate to meet the needs of the members. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit involves evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the committee, as well as evaluating the overall presentation of the financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence

In conducting our audit, we have complied with the independence requirements of the Australian professional ethical pronouncements.

Qualification

As is common for organisations of this type, it is not practicable for the Association to maintain an effective system of internal control over subscriptions, donations and other fundraising activities until their initial entry in the accounting records. Accordingly, the audit in relation to those activities was limited to amounts recorded.

Qualified Audit Opinion

In our opinion, subject to the adjustments, if any, that may have been determined to be necessary had the limitations referred to in the qualification paragraph not existed, the financial report of Australasian Systematic Botany Society Inc. presents fairly, in all material respects the financial position of Australasian Systematic Botany Society Inc. as of 30 June 2018 and of its financial performance for the year then ended.

Dated: 26 March 2019

MARTIN & LUSCOMBE PTY LIMITED ACN: 002 838 262



DONALD LUSCOMBE AFSM FCA

Chartered Accountants

7B Raymond Mall, 7-9 Raymond Road

Springwood, NSW 2777

Newsletter report

Since the last AGM in Adelaide in November 2017, where the ASBS meeting was held in conjunction with the SASB, there have been four issues of the *ASBS Newsletter* produced on-line and in print. All of them have been published online in the month after that recorded on the cover.

- 173 – Dec. 2017, published 12th Jan 2018 (Online) 17th Jan (print) – 32 pp.
- 174 March 2018 – published 4th Apr 2018 (Online) 17th Apr (print) – 44 pp.
- 175 June 2018 – published 5th Jul 2018 (Online) 13th Jul (print) – 44 pp
- 176 September 2018 – published 22nd Oct 2018 (Online) 2nd Nov (print) – 36 pp.

We are grateful to those writing copy for the newsletter. For our reliable Council regulars in Darren Crayn for his presidential for each issue,

and Dan Murphy for keeping the Eichler Reports coming (Sophie Carter and Melodina Fabillo (173) Charles Foster (174) and Todd McLay (175) and Jen Tate for her timely reminders for each issue.

The Burbidge medal was presented in 2017 to Patrick Brownsey and we did discuss with him how we might account for his lecture on the social history of ferns in New Zealand in the newsletter. We clearly lost sight of this and it was not produced in Newsletter 174 as we foreshadowed. Patrick presented a similar lecture for the 2017 University of Otago John Tennant Lecture which can be viewed online (Web ref.), but it still might be worth considering a written account.

For their regular ABRS reports, thanks to Zoe Knapp and Anthony Whalen. Kevin Thiele has kept us informed on progress of the apparently

slow moving Decadal Plan which this year culminated in a launch and the morphing into Taxonomy Australia. Thanks also to those who contributed to the reports arising out of the Adelaide conference. Such reports are of interest whether people were able to attend or not and they are also a good record for historical purposes.

Access to public Facebook sites, not just that of the society, but also those maintained by herbaria, has been extremely useful at times in the compilation of news items as well as pointing to papers and books of interest and matters of controversy within the systematics world. Even so, we would like to see a little more New Zealand news so that we meet an Australasian expectation rather than just an Australian one.

There have been several longer articles this year with Charles Nelson's comprehensive, warts and all, item on a significant early collector of Australian plants, William Baxter, Lucas & Home's account of the problems in interpretation of labels from the Elder Exploring Expedition, David Mabberley's on Australian plant names in Persoon's *Synopsis Plantarum 1805–07* which are in need of resolution, and Tony Orchard's grapple with the number of spicate species of *Acaena*.

Sadly obituaries have occupied more pages than we would prefer, but the author's accounts of the lives of three of our older female members,

Doris Sinkora (MEL), Joan Taylor (CANB) and Joy Thompson (NSW) revealed insights into lives which were productively led at a time when this was more difficult for women.

A project which has been in the wind for a number of years has been achieved by one of our members. Russell Barrett has scanned all numbers of the ASBS Newsletter and these have been placed on the web. It certainly saves a lot of time in looking up or checking information.

As usual, many, many thanks to Anna Monro and Murray Fagg for their time in loading each issue on the web. The copy does not always get to them at a convenient time, nor always at the time predicted, and their efforts in getting it up and available as quickly as possible are often above and beyond the call of duty.

Next issue

We call on any further articles, news (remember there's plenty happening in your neck of the woods that is of interest to members elsewhere), book reviews or notices of new books, Eichler reports, meeting and exhibition reports, etc.

Web ref. <https://www.youtube.com/watch?v=fgo8xvcyR1o>

Robyn and Bill Barker

Website report

Reporting the period

1 July 2017–30 June 2018

The Society's website continues to be maintained by Anna Monro and Murray Fagg, with content supplied by members of the ASBS Council and by the editors of the Newsletter. Since April 2016 the site has been physically hosted on CSIRO infrastructure and this has caused ongoing problems with providing meaningful statistics on visitation and downloads. Without these it's not possible to extrapolate and comment on whether the site is being visited more or less or at the same rate as in the past. Following recent discussions with our IT team we will investigate the possibility of adding Google Analytics to the ASBS site in order to regain access to this information.

In the last financial year the activities of the webmasters were largely "business as usual". Four issues of the ASBS Newsletter were

uploaded (171, 172, 173, 174) as soon as possible after receipt and various routine updates were made to listings of job and training opportunities and award recipients.

One exciting website development in the 2017/18 financial year was the upload of an entire set of PDFs for back issues of the ASBS Newsletter (as reported in "From the President", *ASBS Newsletter* 176: 1(2018) (Web ref. 1). Previously only issues dating back to 2001 were available as PDFs, as the remainder had not been scanned. Russell Barrett quietly took on the job of digitising the issues from #1 (March 1974) to #105 (December 2000) and subjected them to Optical Character Recognition (OCR) to ensure that the contents are searchable. The last batch of these PDFs was supplied by Russell and uploaded by Murray in June 2018, bringing a pleasing conclusion to the reporting period. Many thanks to Russell for his work on this. We encourage all members to

take a trip into the history of our Society via the Newsletter archive (Web ref. 2).

2. <http://asbs.org.au/asbs/newsletter.html>

Anna Monro

Web references

1. <http://asbs.org.au/asbs/newsletter/pdf/18-sep-176.pdf#page=3>

Facebook group report

In its sixth year of life the ASBS Facebook group has grown from 801 members in November 2017 to 951 members in December 2018. The ASBS group is currently “public”, which means anyone can see the group, members and posts, but only people in the group can post to the page. Requests to join are vetted by Mike Bayly or Todd McLay. We aim to exclude obvious spammers, but otherwise don’t enforce any strict criteria on group membership. Because of the way the group is configured in Facebook (as a “group” rather than a “page”), there are limited statistics we can view on the number of posts, “comments”, “shares”, “likes” etc. without manually trawling through them.

Posts typically cover a variety of topics including news article relating to plants/environment/science in general, paper or book announcements, jobs and funding opportunities, herbarium news, death notices or obituaries, photos of plants, memes, and ASBS business, including announcements relating to conferences, newsletters, elections,

membership payments, workshops etc.

Posts with high numbers of interactions (likes, shares, comments) for this year include the release of the *Discovering Biodiversity* decadal plan, news stories from Australian herbaria (e.g. new funding for RBG Melbourne, new species releases or rediscoveries, new or updated eFlora announcements), posts about ASBS business (Brisbane conference, Eichler funding opportunities and awardees), individual success of ASBS members (Queen’s Birthday Honour for Barbara Briggs, Ben Anderson winning a BioOne Ambassador Award), and general stories about taxonomy in the national or international media.

This Facebook group is a great way for the dispersed members of our society to keep in touch and discuss our common interests. If you are on Facebook and haven’t yet joined our group, you should!

Todd McLay and Mike Bayly

Research activities and grants program report

This report addresses ASBS Research Activities and the status of the ASBS grants program.

Hansjörg Eichler Scientific Research Fund

March 2018 round

One grant was awarded to:

Francis Nge, The University of Adelaide.
Project: “Species delimitation in *Banksia* (Proteaceae): revisiting the unified species concept”. Primary supervisor: Prof. Michelle Waycott, The University of Adelaide.
Amount requested: \$4980

September 2018 round (due date extended until end September)

In November 2018, the September grant round assessment was finalised and the awardees and unsuccessful applicants notified.

The successful applicants were:

Lisa Craft, Edith Cowan University. Project: “Morphological phylogenetic analysis of

Lambertia Sm. (Proteaceae): A model genus for understanding inflorescence homology in Proteaceae”. Primary supervisor:

Dr Kristina Lemson, Centre for Ecosystem Management, School of Science, Edith Cowan University.

Amount requested: \$5000.

Dong Bohao, University of Waikato. Project: “Systematics and taxonomic review of New Zealand *Pittosporum* Banks ex Sol. ex Gaertn. (Pittosporaceae). Primary supervisor: Dr. Chrissen Gemmill, University of Waikato.
Amount requested: \$5000

Marlies Eichler Postdoctoral Fellowship

This year’s Fellowship was awarded to

Dr Lars Nauheimer, Australian Tropical Herbarium. Project: “Phylogenomics and Taxonomy of the Donkey Orchids (*Diuris*, Orchidaceae)”.
Amount awarded: \$19,424

The Decadal Plan

This year both the Marlies Eichler Postdoctoral Fellowship and the Hansjörg Eichler Research Fund application forms were updated to include a question on how the application addresses goals in the “Decadal plan for biosystematics and taxonomy in Australasia”.

Grants and reporting

I have populated a spreadsheet of reporting for handover to the next Vice-President for the Hansjörg Eichler Scientific Research Fund. There are still a number of outstanding reports, and members are asked to please follow up on these (and those of their past students). There is a list of past awardees and links to their reports on the ASBS website, thanks to the dedicated work of Anna Monro, so it is a simple matter of checking who has not as yet fulfilled their reporting commitments!

ASBS Research Committee

In 2018, the ASBS Research Committee remained unchanged from the previous year and comprised:

- Dan Murphy (Chair, ex officio as VP ASBS), Royal Botanic Gardens Victoria
- Joanne Birch, University of Melbourne, Australia
- David Glenny, Landcare Research Manaaki Whenua, Lincoln, New Zealand
- Murray Henwood, University of Sydney, Australia
- Sarah Mathews, Centre for Australian National Biodiversity Research, Canberra, Australia
- Heidi Meudt, Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand

I will step down from the Committee following completion of the AGM (expected to be in January 2019), and Heidi Meudt will take on the Vice-President’s role as ex officio Chair of the ASBS Research Committee. Recruitment of a new member onto the Research Committee, while not essential, has been initiated as it is desirable to maintain adequate numbers for members to stand-out for particular rounds of assessment, due to other commitments or conflicts-of-interest.

ASBS Grants Program status report

This report is preliminary and intended to stimulate discussion about the status and possible future trajectory of the ASBS grants currently on offer. Further in-depth assessment will be sought from the ASBS “Financial Grants Standing

Committee”. Herein are some recent statistics for the grants, namely the Hansjörg Eichler Research Fund and the Marlies Eichler Postdoctoral Fellowship. The purpose of this is to answer and discuss the following questions:

1. Are the funds reaching our target demographic?
2. Are the grants useful, as currently circumscribed, and in demand?
3. Are there things we should investigate changing?

Hansjörg Eichler Research Fund grants

The Hansjörg Eichler Research Fund is targeted at students and non-salaried researchers. There are two rounds annually (March and September) and up to two grants (of AU\$5000 per grant) are offered per round (total four grants per year). However, we have been flexible and sometimes have offered more than two grants per round or only one, and can offer none if no grants are considered fundable.

Recent statistics for applications (past 3 years)

2016 total applications: 10

March round: 5

September round: 5

2017 total applications: 11

March round: 6

September round: 5

2018 total applications: 4

March round: 1

September round: 3 applications (deadline extended as initially one application).

Recommendation

Although in 2018 there were fewer applications than for each of the previous two years, it is too early to be definitive about any trend. There may have been a lull in recent student enrolments, or we need to better market the grants.

Marlies Eichler Postdoctoral Fellowship

The Marlies Eichler Postdoctoral Fellowship is aimed at postdoctoral-level researchers and may be used to fund salary and project costs. An over-arching aim of the scheme was to “top up” existing postdoctoral funding schemes, mainly ABRS funding or schemes that cannot fully fund a full-time postdoctoral researcher. It is an ongoing ASBS grant scheme and one fellowship is awarded per year (but at any one time there will be two fellowships running concurrently). The fellowship itself is valued at a total of up to AU\$20,000, paid over two years, at a maximum

of AU\$10,000 per year.

2017: 3 applications

2018: 1 application

(3 other requests for information):

Recommendation

I think the Marlies Eichler Postdoctoral Fellowship needs some analysis and potential changes. I gathered some information from applicants who contacted me but ended up not submitting applications. These comments, I think, are particularly enlightening as they both raise similar themes about the quantum of the Fellowship.

Quotes from eligible applicants who did not submit an application:

Potential Applicant 1:

“After writing most of the grant, I ended up pulling out for a few reasons:

- 1) I was writing a grant to extend my employment by five weeks (~10K). I’m going to have the usual end of contract hard decisions and job hunt in May 2019, and as I was writing the grant I started to feel like (fairly or not) in the big picture an extra 5 weeks was not likely to make much difference to how and what I find next.
- 2) I was writing the grant to support a side project within my wider research program. I felt that given this was tenuously related to systematics, I was unlikely to be competitive against better aligned projects.
- 3) I’m pretty overloaded right now, and in the field. If I’d been in the office with a bit more time, I might have just submitted anyway. But given the extra friction in just fitting it in, I let the above factors determine my decision to withdraw.”

Potential Applicant 2:

“As you know I was thinking about it, but I decided it probably wasn’t worth it for me at this late stage of the project. As a top up earlier in the project (as the grant was originally envisaged) would be more useful for most people....For me now it would only extend my employment for about a month and a half at my current 0.9 FTE (when salary on-costs are included). At present, there’s no chance of co-funding this. That wouldn’t make that much difference to me, or to how much gets finished from the project. If I got any other work of any kind during that time I would have to take it and

give the money back to ASBS and I don’t want to muck the society around. Also, as my contract has already been extended for an additional 6 months I didn’t really feel like dragging the project out any longer than that. There will always be things that don’t get done due to time constraints but I should have plenty of outputs for ABRs.

None of that gives you much feedback about the grant. The main thing I can think of is that because it is mostly designed as a top up, and the numbers of grants given that fund post docs are so low, there aren’t many suitable candidates in the first place. Perhaps if you make it clearer that it is broader than that, or possibly consider extending it to mid-career researchers still on temporary contracts?”

Attachment: Recommended changes to ASBS grant structure – M. Bayly report

Past ASBS Vice-President, Mike Bayly, produced two very thorough reports on behalf of the Grants Policy Standing Committee, published in the *Australasian Systematic Botany Society Newsletters*: 165 (December 2015), pp.21-24; and 168-9 (September–December 2016), pp. 17-19. These reports are not re-published in full here; however, the projected grants budget and rationale and considerations included in Mike’s first report are included below, as they form a useful summary.

Projected costs for these two grant schemes are tabulated (Table 1).

Rationale for recommendations (and some considerations)

The proposed changes assume a grant expenditure of up to \$40K per annum is economically sustainable using interest from the ASBS research funds (including the large Eichler bequest), and allows for continued growth, ahead of the inflation rate, of investment capital. If this is not the case, then terms of the proposed post-doctoral scheme could be a target for downward revision (e.g. adjusting grant value, number or duration).

The grants aim to support three key parts of the plant systematics community: 1) students who represent our key training opportunity; 2) post-docs for whom support is critical if they are to bridge the gap between PhD study and permanent uni-

Table 1: Projected costs for the two research grant schemes

	2016	2017	2018	2019	2020	2021
Hj. Eichler Grants	20,000	20,000	20,000	20,000	20,000	20,000
Post Doc Stipend 1	10,000	10,000				
Post Doc Stipend 2		10,000	10,000			
Post Doc Stipend 3			10,000	10,000		
Post Doc Stipend 4				10,000	10,000	
Post Doc Stipend 5					10,000	10,000
Post Doc Stipend 6						10,000
Post Doc Stipend 7						
Funds Required	30,000	40,000	40,000	40,000	40,000	40,000

versity or herbarium positions; 3) retirees who have extensive experience and research capacity, but who might have limited opportunities for financial support.

The increase in Eichler grant funding is intended to make the grants more useful and more attractive, and thus to encourage high quality applicants and support valuable research in plant systematics. The existing \$2K grants, although useful, do not go far in terms of supporting projects that involve substantial field work or molecular work. This is especially true for projects using next-generation DNA sequencing, which provides low cost per base of DNA sequence but for which the minimum costs of sequencing runs are much higher than conventional methods.

The size and number of Eichler grants (up to four per year) is probably reasonably matched to the existing demand among students. The rounds since March 2013 have had 5, 4, 8, 5, 5 and 5 applicants, in chronological order. A large number of initially unsuccessful applicants reapply in later rounds, taking heed of previous feedback, and are often subsequently successful. This gives students, over the course of a PhD, a reasonable chance of some funding success through this scheme, and an opportunity for refining their grant-writing skills.

Explicit extension of Eichler grants to non-salaried researchers (e.g. through clear mention in grant conditions and advertising, and through increased prioritisation in application assessment) seems worthwhile, but it is not clear what the demand will

be and how this will affect overall success rate in the scheme. If demand is low, this change could achieve the desired effect of supporting retirees in plant systematics without unduly affecting support for students. If demand among the retirees is very high it could detract more substantially from the pool of funding available to students. Based on the level of demand through other schemes available to non-salaried researchers, such as that through ABRS, the number of applications each year is not high. It thus seems reasonable, for now, to proceed with the scheme as proposed, and to re-assess after several rounds to see if outcomes are in line with our intentions.

The nature of postdoc support is intended to meet a need among recent graduates in the field of plant systematics. Many existing postdoctoral schemes are not fully funded and there is commonly a gap between funds provided and those required. Sometimes this is a gap between salary funding and actual salary costs (this can be true for both ARC and ABRS schemes), or salary funding can be adequate, but there is inadequate support for research costs (common both through ABRS and internal university schemes). Providing strategic support to already successful Early Career Research systematists could allow them to better capitalise on postdoctoral opportunities and improve their competitiveness for more permanent positions.

Although more substantial postdoc support would be desirable, it is not feasible with

our current budget, e.g. experience at the University of Melbourne and RBG Victoria suggests a capital of \$2.2 million would be needed to fully support a postdoctoral salary on interest earnings.

Various alternative models for post-doc funding were considered by the committee. These included: 1) a pre-application for funds through ASBS before applying for other funding through postdoc grant schemes; 2) ASBS directly providing funding to help support a postdoctoral fellowship through some other scheme, such as those of ABRIS. None of these, including the recommended scheme, are necessarily ideal. Option 1 has the problem that ASBS would be trying to pick winners ahead of other application assessments. Option 2 has the problems that it might be administratively cumbersome (creating agreements with external partners), might abdicate

some responsibility over decision-making, and would lock us into one particular scheme. It could potentially help us to leverage funding from external partners, but it could also run the risk of those partners coming to rely on that ASBS funding to support their schemes, resulting in no net benefit for plant systematics.

Our recommendations are nominally for the next six years, to help John Clarkson and the financial investment standing committee plan an investment strategy to match the desired income stream. Review of both investment and grant strategies could be done as the end of that time approaches, unless there was a compelling need for more immediate review.

Dan Murphy
Vice-President ASBS,
ex officio Chair of Research
Committee

ASBS Brisbane conference

ASBS conference 2018: *Mind the Gap*

Ashley Field

Queensland Herbarium & Australian Tropical Herbarium, Smithfield. ashley.field@jcu.edu.au

My first (then) Australian Systematic Botany Society conference was at the Mt Cooth-the Botanic Gardens back in 2005 when I was a commencing PhD student. With much nostalgia (and whitened whiskers) I found myself in the same auditorium 14 years later for ASBS 2019 to rendezvous with our family of botanists from across Australia and New Zealand. The theme of this year's conference was 'Mind the Gap' and I found it intriguing to see how different researchers invoked these words in relation to their research. 'Mind the Gap' became gaps in knowledge, gaps in geographic distributions, data gaps, and even a gap between the petal and sepal whorls of a flower!

On Monday evening we were welcomed in the foyer of the Queensland Herbarium by *Fritzenberger* and *Systems*. *Fritzenberger* is a Brisbane based boutique brewery and caterer and I think BRI staff rather delighted in seeing the public ID room converted into a bar. *Systems* was a biological systems themed exhibition curated by Melissa Fletcher with artwork by Alinta Krauth, Clare Poppi, Nicola Hooper, Paula Peeters, Rachael Lee, Renata Buziak, Sandra

Pearce, Svetlana Trefilova, Tanya Scharaschkin and Donna Davis. With a combination of beers, artwork and our botanical family in one place I believe everyone felt very welcomed! As dusk fell we sojourned through the Australian subtropical rainforest section of the botanic gardens for a surprise light show exhibiting artwork projected onto trees. I think I speak for all on thanking the staff of BRI for preparing nibbles and their venue and for waiting on us.

The conference was opened by Queensland Department of Environment and Science director general Dr Mark Jacobs who showcased the Queensland Herbarium's significant contribution to vegetation conservation in Queensland in 2017–2018 and the pioneering development of acts relating to biodiscovery and the Nagoya Protocol. Jacobs donated a copy of the biography of Dr Joe Baker (Web ref. 1, 2) to be awarded for the best poster presentation; it was later presented to student Helen Kennedy.

Core business kicked off on Tuesday morning with a session entitled *Sharing botanical wealth: engagement, benefit sharing and the Nagoya*

protocol. We were fortunate to engage speakers from varied arenas including Julia Playford from Queensland Department of Environment and Science, Gerry Turpin the director of the Tropical Indigenous Ethnobotany Centre, Nick Roskrige from Massey University, Shelley James from the National Herbarium of New South Wales, and Teresa Lebel from Royal Botanic Gardens, Victoria. After a series of excellent talks, the discussion panel focused predominantly on the Nagoya Protocol (Fig. 1). From my observation of the questions asked, I believe apprehension remains common in the herbarium community about whether our systems, our knowledge, and in particular our personnel capacity is ready to enact the protocol. Another pervasive theme of concern regarded how to better engage traditional landowner's more adequately than has been done in the past. There still seems to be some confusion about whose shoulders the onus of obtaining commercialisation agreements rests upon when collections are being made for non-commercial purposes.

After lunch, the session *Insights from long ago: palaeobotany informing systematics* included presentations by Tracey Crossingham, Andrew Rozefelds and Hervé Sauquet. The presentation by Crossingham was one of the most intriguing presentations I have seen in recent times with many questions prompting answers on a whiteboard! The inclusion of a geological themed session was very useful and I now better understand the advances and past pitfalls of Australia's geochronology. From my perspective, these joint discipline symposia (botany/zoology or botany/geology) are essential for generating fresh ideas and for correcting cross-discipline misunderstandings.



biosystematic and taxonomic research. As such it needs a super-hot web presence. My take home from Thiele's presentation was the power of presenting images of people, of researchers engaged in

Fig. 1. The panel for the discussion on sharing botanical knowledge. From left, Gerry Turpin, Teresa Lebel, Stephen Potts, Shelley James.

Ph. Ashley Field

The following session *Macpherson-Macleay, other gaps and overlaps: biogeography of Australasia* included presentations by Francis Nge, Elizabeth Joyce, Catherine Clowes, Patrick Fahey and Darren Crayn. We all learned that (according to Joyce!) the newly discovered for Australia, *Geosirus*, is sexier than Idris Elba. I was impressed that this session was dominated by PhD students, a representation that was sustained throughout the conference both in the number of presentations and posters and in the quantum of original research being carried out.

Our final session for the first day was a series of short five-minute talks on varied themes given associated with research posters. I consider this format to be a very effective way of getting work across rapidly and the presentations by Timothy Hammer, Bill Barker, Ruth Palsson, Helen Kennedy, Lara Shepherd, Robert Lamont, Ian Telford and Yumiko Baba were well received. I particularly enjoyed seeing a revival of interest in the genus *Melichrus* by PhD student Helen Kennedy as it follows in the footsteps of the PhD of my own botany professor, Betsy Jackes, and Kennedy won ASBS best student poster prize.

Wednesday morning commenced with the presentation of the Nancy T. Burbige Medal for 2018 to Dr. Ilse Breitwieser to whom we all gave our congratulations. The medal and the career of Dr Breitwieser is covered in the December issues of the Australasian Systematic Botanic Society Newsletter. This was followed by Kevin Thiele's discussion of the new venture Taxonomy Australia and a sneak peek at the new web page. Taxonomy Australia is based upon a recommendation of the taxonomy and biosystematics Decadal Plan and is an organisation whose purpose is to enable

their passion rather than just of the organisms themselves. That night I went home and switched all images for my own talk from plants to people engaging in plants.

Next on the program, *Phylogenetic and taxonomic progress* included the most presentations for the conference, spanning three sessions and two days. Talks were given by Timothy Hammer, Amelia-Grace Boxshall, Tim Collins, Russel Barrett (twice!), Kerry Gibbons, Susan Rutherford, Tanya Scharaschkin (who got the pink pig!), Kelly Shepherd, Lara Shepherd, Marco Duretto, Heidi Meudt, Ryonen Butcher, Joanne Birch, Ashley Field and Katharina Nargar. Hands-down, Kelly Shepherd's talk had the best introduction of the conference, drawing from the infamous entrance of StarWars with GLOVAP instead of the Empire! Discussion of GLOVAP came up in many presentations, including a dedicated presentation by Barrett. I was well aware of its impact on fern taxonomy, and soon learned that impact was more universal for plants.

Following afternoon tea on Wednesday the session *Botanical diversity and utilisation* included presentations by Peter Jobson, Melodina Fabillo, Brit Asmussen, Austin Brown and Anna Monro. Brown's presentation detailed an intriguing process of botany that we often don't report on – the intensive detective work that is needed to positively identify original materials and select type materials for historic species. Nowadays it is easy to forget that the 'holotype' concept is quite recent and that a large quantum of work is needed retrospectively to apply a modern type concept to historical taxonomy.

When talks completed for the day, the group diverged, some visiting the Queensland Herbarium collection floor, some gathering for discussions of a new educational initiative and more still taking the evening opportunity to walk through the extensive Mt Coot-tha Botanic Gardens before the conference dinner at the Function Centre.

Thursday morning commenced with a session entitled *Informed decision making: conservation genetics of threatened flora* and speakers were Alison Shapcott, Jessica Bruce, Chapa Manawaduge, Laura Simmons and Alicia Toon. I particularly enjoyed the thought provoking presentation by Toon about *Macrozamia* and their pollinator thrips, especially considering the very different life-span scales and biology of the plant and insect. Corroboration between

the *Macrozamia* genetic structure and pollinator genetic structure but discord with *Macrozamia* taxonomy came across as good evidence that the taxonomy and in turn conservation statuses of *Macrozamia* may need to be revisited. Jessica Bruce from Edith Cowan University won the Pauline Ladiges award for the best student oral presentation for her research on *Reedia spathacea* and Chapa Manawaduge won the Bob Anderson Award which supports student attendance of the conference.

Spanning lunch time were two sessions entitled *Information gaps in the age of genomics* including presentations by Margaret Byrne and Darren Crayn as well as Robert Henry, Todd McLay, Alexander Schmidt-Lebuhn, Nathalie Nagalingum, Lars Nauheimer and Margaret Byrne. We were delighted to hear the announcement and launch of the Genomics for Australian Plants (GAP – mind the Gap!) by Byrne and Crayn (Fig. 2) and especially the announcement of the first three plants for which the consortium will sequence the whole genomes: *Teloepa speciosissima*, *Acacia pycnantha*, *Cleome oxalidea*. Just a few years ago this type of work seemed economically impossible and now it is fast becoming a reality. These three pilot projects will be extended to additional species in the future!

In between the sessions I took the opportunity to have discussions with all generations of the ASBS family, from the elder to the student. From the ASBS elders I took home that a common theme of concern for a perceived dwindling taxonomic botanical workforce, in particular for basic taxonomic and herbarium grunt work. Conversely, these same elders were immensely proud of the upcoming students and emphasised the shortfall was not in their skills or enthusiasm but positions and prospects for stable retention of personnel. From the mid-career researcher, I took home that the much-anticipated transition from phylogenetic to phylogenomic systematics was not happening as rapidly as the prevailing laboratory technology and data-price could enable. What was the perceived bottleneck? The sheer quantum of bioinformatics. From the students I took home one thing: Enthusiasm! They have enthusiasm to conquer the shortfall, upskill to the cutting edge, and take on the biodiversity discovery crisis in all its forms from nomenclature to phylogenomics.

During and following the conference I also reflected on how frequently both taxonomist



Fig. 2. Launching GAP, Genomics for Australian Plants. From left Darren Crayn, Margaret Byrne, Anna Fitzgerald and Mabel Lum.
Ph. Ashley Field

and phylogeneticist invoked conservation as the prime justifier for their research. After all, knowing what a plant is becomes the first step towards conserving it, right? In the face of a biodiversity crisis I am concerned that this justification, without underlying actions for the species themselves, could easily be viewed as rearranging the deck-chairs on the Titanic. To address this, I was pleased to learn that this year's ASBS conference in Wellington will be held in conjunction with the New Zealand Plant Conservation Network and is entitled 'Taxonomy for Plant Conservation'. I look forward to seeing how we, as biodiversity-discovering scientists, co-opt our skills into being biodiversity-crisis-averting scientists.

I wholeheartedly thank the conference committee Gill Brown, Ailsa Holland and John Clarkson,

Gordon Guymer, Merrilyn Hosking, Li Pei Lee, Lorna Ngugi, Paul Robins, Sam Robins, Sara Simes, Laura Simmons, Aileen Wood, Natasha Yates, Mary Loudon and Lisa Grimato for their many and varied contributions to running this conference. You did a marvellous job! Especially I would like to thank Gill Brown, the convener, who put in a phenomenal effort over the year of 2018 to make Australasian Systematic Botany 'Mind the Gap' 2018 an enjoyable experience for all.

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Mind the Gap ASBS conference 2018 field trip

Ian Telford, University of New England

An early start (7:15 a.m.), a speedy trip southwards along the M1 towards the Gold Coast, and then the bus was climbing the winding road to Springbrook. Our destination is a deeply eroded remnant of the northern flanks of the Tweed Volcano, where the underlying geology largely determines the vegetation of rain forest, open forest or heath.

Our first stop was Apple Tree Park (Fig. 1a).

Here, as we sipped our morning tea, our botanical guides Bill McDonald and Glen Leiper, and mycological guide Nigel Fechner, explained the intricacies of the *Eucalyptus campanulata* and *E. saligna* wet forest with an understorey largely of rainforest species. The pink-flowered *Tripladenia cunninghamii* (Colchicaceae), a McPherson-Macleay overlap endemic, was common here. Just up the road, we admired

Fig. 1 (opposite) Field trip. Clockwise from top: a, The day's orders at Apple Tree Park, from left Phil Kodela, Glen Leiper, Ian Telford (back), Bill McDonald, Melinda Laidlaw, Nigel Fechner, Austin Brown (rear), Aileen Wood, Grace Boxshall, John Hosking, Ryonen Butcher, Todd McLay, Matt Baker, Ilse Breitwieser, Katharina Nargar (side), Rainer Vogt; b, a diversity of hirsuteness – Aaron McArdle, Todd McLay, Matt Baker, Ashley Field, Ian Telford; c, Bill McDonald, Miles Pritchett ("The Friendly Ranger"); d, examining *Alloxylon pinnatum*, in foreground Jen Tate, Rainer Vogt; e, Ryonen Butcher, Aaron McArdle.

Ph. Ashley Field (b, c, f); Lars Nauheimer,





Fig 2. Lunch on the field trip at at Goomoolahra Picnic Area. Clockwise from left, Melinda Laidlaw, Glen Leiper, the bus driver, Matt Baker, ranger Miles Pritchett, Todd McLay, Jan Hosking, Ian Telford, Austin Brown, Phil Kodela, Matilda Brown, Ashley Field, Grace Boxshall, Katharina Nargar, Bill McDonald (rear), Raees Kahn.

Ph. Lars Nauheimer

another Overlap endemic, the Dorrigo Waratah, *Alloxylon pinnatum* (Proteaceae: Fig. 1d) in full spectacular bloom.

As we had approached the mountains, the grey clouds had grown more ominous, and at our next stop we were in a white-out. A short walk through the dripping cloud forest took us to Best of All Lookout on the basalt cliff top right on the Queensland-New South Wales border. The panorama of the huge erosion caldera of the Tweed Volcano, with the eruptive vent remaining as Mount Warning, was not for us that day. Along the track, botanical highlights were a grove of *Nothofagus moorei* (Nothofagaceae), here at its northern limit, and the Tweed Volcano endemics *Helmholtzia glaberrima* (Philydraceae) with large salmon-pink inflorescences, and *Ardisia bakeri* (Primulaceae). Below the clouds, we lunched in a shelter shed at Goomoolahra Picnic Area (Fig. 2), where *Doryanthes palmeri* (Doryanthaceae) grows on the cliffs and the McPherson-Macleay Overlap endemic *Drymophila moorei* (Alstromeriaceae) inhabits the rainforest margin. National Park staff introduced us to the management of the sclerophyll/rain forest ecotone.

After lunch and a quick look at the Springbrook endemic *Eucryphia jinksii* (Cunoniaceae), it was off to Canyon Lookout for the main event

of the day, the four km Twin Falls circuit walk into Springbrook Canyon. Here the Springbrook Rhyolite forms immense cliffs over which several waterfalls plunge from the basalt plateau into the rainforest-filled depths. Along the rhyolite cliff tops, the track passed through montane heath with *Banksia neoanglica* (Proteaceae), the lemon-scented *Leptospermum petersonii* (Myrtaceae), *Xanthorrhoea latifolia* subsp. *maxima* (Asphodelaceae) and Tweed Volcano endemics *Melaleuca montana* (Myrtaceae) and *Prostanthera* sp. Minyon Falls (J.B. Williams NE61356). In the rainforest on basalt below the cliffs, amid giant *Lophostemon confertus* (Myrtaceae) trees, grew the McPherson-Macleay Overlap endemics *Streptothamnus moorei* (Berberidopsidaceae), monotypic sister to the Chilean-Australian *Berberidopsis*, and *Petermannia cirrosa* (Petermanniaceae) with peduncles modified to tendrils. The spectacular track continued below the cliffs, beneath waterfalls, climbing back to Canyon Lookout.

The final stop was at the Springbrook Fudge Shop, before our trip back to Brisbane. Many thanks to all who arranged this wonderful excursion to conclude the Mind the Gap 2018 Conference, the guides, National Park staff, the bus driver, and particularly Melinda Laidlaw and Natasha Yates for boiling the billy and feeding us.

Hansjörg Eichler Research Grant

Field study of the *Celmisia* Group (Asteraceae) in New Zealand.

Patricio Saldivia

Botany Department, Otago University, New Zealand.

Four months after my arrival in New Zealand from Chile, and after several years of studying the Chilean vascular flora, I decided to take an opportunity to learn taxonomy in-depth from the beginning, that is, with a totally unknown flora.

So, I knocked on the door of the Botany Department, Otago University, where I was welcomed by my supervisors Dr. Janice Lord and Dr. David Orlovich, and we started thinking about what group of plants would be best for me to work with. Finally, Janice suggested “What about *Celmisia*, the mountain daisies?” and she showed me Alan Mark’s classic book *New Zealand alpine plants* (Mark & Adams 1973) and without knowing much about its complexity I naively said, “That’s the one!”. Then I went through most of the related literature and I realized how diverse, complex, interesting, and challenging the genus is, and I also realized that *Celmisia* could not be handled in isolation so I would have to study the whole complex of genera related to *Celmisia*. The Ph.D. and scholarship applications’ paperwork took me a bit more than a year before I started a Ph.D. on the “Taxonomy of the *Celmisia* Group” with an emphasis in *Celmisia* subgenus *Lignosae*. So, what is the *Celmisia* Group?

The *Celmisia* Group is an informal infra-tribal group of genera proposed by Nesom (1994) belonging to the Astereae tribe of the daisy family Asteraceae or Compositae. The group has mainly an Australasiatic distribution comprising the following genera:

- *Celmisia*: ca. 70 species. Mainly New Zealand and eight endemics of Southeast mainland Australia and Tasmania.
- *Olearia* (pro parte): some 80 species from New Zealand, mainland Australia, Tasmania, New Guinea.
- *Pachystegia*: three endemic species from the north-east corner of the South Island of New Zealand, the Marlborough region.
- *Pleurophyllum*: three species endemic to the subantarctic Campbell, Auckland, Macquarie, and Antipodes Islands.

- *Damnamenta*: monotypic genus endemic to the subantarctic Campbell and Auckland islands.
- *Pacifigeron*: monotypic genus endemic to the Rapa Iti Island in French Polynesia.

Although some representatives of all of these genera, apart from *Pacifigeron*, have been studied with molecular data (Cross et al. 2002, Brouilliet et al. 2009, Wagstaff et al. 2011), the boundaries and generic delimitation of the *Celmisia* Group are still poorly understood. In the same way, its taxonomy at the specific level has not been studied for decades. The taxonomic uncertainties are particularly relevant in big genera such as *Celmisia* and *Olearia pro parte*, being especially complex in the latter one, since the type species of *Olearia*, *O. tomentosa* from south-east mainland Australia, is not directly related to the *Olearia* species belonging to the *Celmisia* Group (Cross et al. 2002, Brouilliet et al. 2009). Thus, none of the *Olearia* species of the *Celmisia* Group can be retained within *Olearia*.

Since most of the group is centered in New Zealand, and one of my emphases is *Celmisia* subgenus *Lignosae* (shrubby celmisias), which is (almost) endemic to the South Island, I decided to focus my fieldwork there. In May 2017, I was awarded a Hansjörg Eichler Research Grant which allowed me and a Master’s student at Otago University, Duncan Nicol, to do 28 days of fieldwork in the mountains of the South Island of New Zealand. We were able to study populations, including several type localities, of 50 taxa belonging to the genera *Celmisia*, *Olearia pro parte*, and *Pachystegia* (Fig. 1), visiting around 25 localities overall (Fig. 2).

We started in February 2018 from Southland heading north aiming to explore several mountains in the north of the South Island (Nelson, Tasman, and Marlborough). Everything was going all right until Cyclone Gita lashed that area with wrath and we had to retreat to the south leaving some important localities unexplored. So, we had to wait almost a year to go up to the Nelson area again to explore those localities in January 2019.

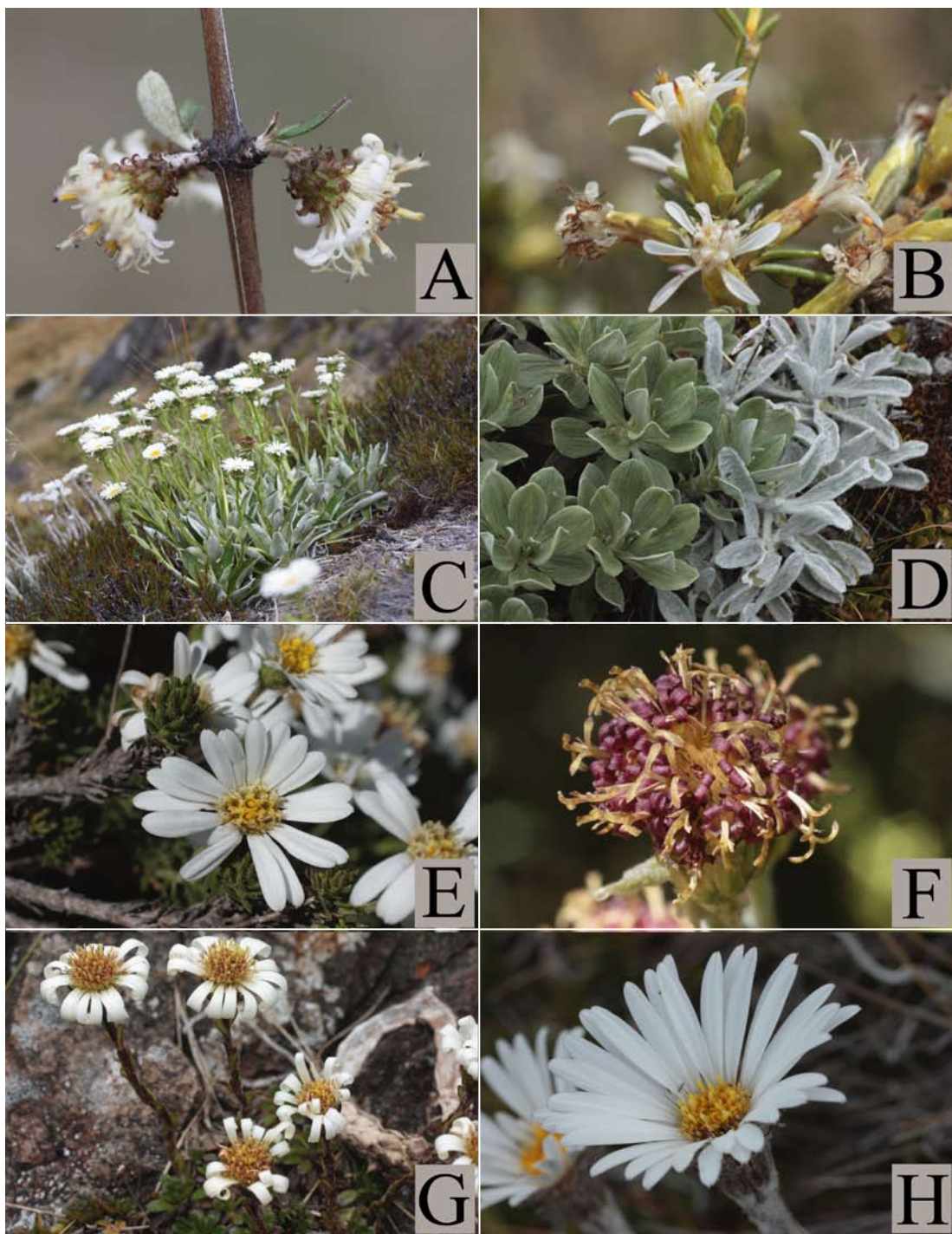


Fig. 1. Some examples of species studied in the field.

A) *Olearia odorata* Petrie, north Otago. B) *Olearia solandri* Hook.f., north Marlborough. C) *Celmisia dallii* Buchanan, south of Lake Peel. D) *Celmisia discolor* Hook.f. (left) and *Celmisia allanii* W.Martin (right), Mount Technical, Lewis Pass. E) *Celmisia lateralis* Buchanan, south of Lake Peel. F) *Olearia colensoi* Hook.f., Mount Stevens. G) *Celmisia bellidioides* Hook.f., Lake Peel. H) *Celmisia spectabilis* Hook.f., south of Lake Peel.



Fig. 2. Localities visited in the field (black dots) in the South Island of New Zealand.

The Hansjörg Eichler Research Grant has been essential to allow my understanding of the *Celmisia* Group in New Zealand, especially the *Celmisia* subgenus *Lignosae*, beyond what I can learn from molecular and morphological studies made in the lab and herbarium respectively. Once the populations are observed in the field, several other aspects of the plants become instantly part of the information included in the reasoning towards a classification hypothesis, which I believe are key elements of the taxonomic work.

Taxonomy is a comparative field based on observations and analysis of data that can come from different sources (which are probably never complete). The aim is to provide a classification system that ideally should offer both insights into the evolutionary history of a given group (hypotheses of relationships in constant refinement) and practical information that allow the end-users (botanists, ecologists, morphologist, students, etc.) a confident identification or recognition of taxa or manageable groups at some taxonomic level based on morphological characters.

I am currently working on several aspects of the taxonomy of the group, but undoubtedly my work towards the review of *Celmisia* subgenus

Lignosae has been greatly improved thanks to The Hansjörg Eichler Research Grant. Although I still have lots of work to do, it is clear that the *Celmisia* Group needs some major taxonomic rearrangements.

Acknowledgments

I would like to thank the ASBS for the Hansjörg Eichler Research Fund Grant. Thanks to Janice Lord, David Orlovich, Steve Wagstaff, Ilse Breitwieser, and Rob Smissen for their constant support. Mike Thorsen and Shannel Courtney have kindly provided me information about localities. Several people from different offices of the Department of Conservation (DOC) have provided me with information about routes and localities. Thanks to Duncan Nicol for the great company in the field, and to Michael Heads for his assistance in preparing Figure 2.

I would also like to thank the Chilean government who, under The Advanced Human Capital Program of the National Commission for Scientific and Technological Research (CONICYT), granted me the Ph.D. scholarship that is allowing me to study this magnificent group of Australasian flora.

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Articles

Echidna overboard: Georg Ritter von Frauenfeld, scientist on the 1857–59 world expedition of the *Novara*

Heather Cunningham
c/- State Herbarium of South Australia

Georg Ritter von Frauenfeld's portrait was located amongst a collection of portraits of noted, mostly European, botanists donated to the Adelaide Botanic Gardens by Joseph Hooker of Kew Gardens in 1882.

Who was Frauenfeld? And what was his connection to Australia?

Frauenfeld (1807–1873) was one of seven scientists on board the Austrian frigate the *Novara* which circumnavigated the world in 1857–1859. He had responsibility for zoology and, along with Ferdinand von Hochstetter¹, the general collection of natural history specimens. On return he reported his findings to the Vienna Academy of Sciences and the Zoological-Botanical Society publishing material within the journals of the two institutions as well as contributing to the official accounts of the *Novara* expedition which appeared between 1861 and 1877.

Based on original diary notes, the account of his explorations to the north and south of the Sydney environs during the *Novara's* visit there on 5 Nov – 7 Dec 1858, was delivered to the Mathematical-Scientific Section of the Imperial Academy of Sciences on 13 Oct 1859 and published the following year. His observations and descriptions not only record the fauna and flora he encountered during excursions in this new colony, but provide

¹ The father of New Zealand geology; see *Transactions & Proceedings of the Royal Society of New Zealand* 88: 57–58 (1960–61). For another account of Hochstetter and the *Novara* see also Web ref. 1.



Fig. Georg Ritter von Frauenfeld.
From the Botanic Gardens of Adelaide collection

us with a glimpse into an emerging scientific community and society whose contributions have formed the basis of our collections and knowledge.

The summary notes below are based on the English translation of this account published in the *Sitzungsberichte der Mathematisch-*

Naturwissenschaftlichen Classe der Kaiserlichen Akademie der Wissenschaften (Wien, 1860, pp. 717–732). This translation, by Professor G.L. McMullen (retired) of the Australian Catholic University, Ballarat, was undertaken during 1997–1998. Additional and extensive information found in the endnotes add valuable context and were supplied by Michael Organ (Wollongong University) (Web ref. 1).

The *Novara* scientists amassed 26,000 botanical/zoological specimens which in addition to ethnological material enriched

Austrian Museums. The scientific results of the journey were published in a 21-volume work of the Vienna Academy of Sciences, *Reise de Oesterreichischer Fregatte Novara um die Erde, in den Jahren 1857, 1858, 1859*, published between 1861 and 1876. The first three volumes, a description of the journey, were edited by Karl von Scherzer (1861–1862).

Leaving Trieste on 30 Apr 1857 the *Novara* sailed via Gibraltar, Madeira, Rio de Janeiro and the Cape of Good Hope into the Indian Ocean, visiting the remote islands of St. Paul and Amsterdam, before continuing via Ceylon and

Madras to Singapore. After making stops in Java, Manila, Hong Kong, Shanghai and the Solomon Islands, the *Novara* arrived on 5 Nov 1858 in Sydney (Web ref. 2).

On the return journey the *Novara* travelled to New Zealand, Tahiti, Valparaíso, around Cape Horn, and the Azores arriving back in Trieste on 26 Aug 1859, having circumnavigated the 51,686 nautical miles in 551 sailing days. It was on this return journey that Karl von Scherzer bought a bale of coca leaves and in 1859 gave the coca leaves to the chemist Friedrich Wöhler (1800–1882) in Göttingen. Wöhler's assistant, Albert Friedrich Emil Niemann (1834–1861), was the first to isolate and name cocaine in crystalline form in 1860.

In Sydney

In his notes Frauenfeld describes the arrival of the *Novara* in Port Jackson and its surrounding environs and used the first few hours on this, the last continent to be visited by the *Novara*, to visit the Sydney Museum where he met Dr. George Bennett and Mr George French Angas. He described the Museum as being “rich in skulls and fossil remains“ and regretted noticing that local objects “are sacrificed for foreign mania”. Perhaps from his experience of visits to other museums, Frauenfeld was to state categorically

I do not think that I can call attention urgently enough to each museum dedicating a special department to its native fauna. Not only that the scientific traveller may draw greatest understanding therefrom, but also the inhabitants of a land may be helped to the clearest knowledge of the same.

Whilst the *Novara* underwent repairs, Frauenfeld's first excursion was to the North Shore during which he recorded his impressions of the characteristics of the vegetation, their names and descriptions plus those of the birdlife, including warblers, *Smicronis*, and he actually caught a blue wren, *Malurus cyaneus*, in a butterfly net as it “came impudently and fearlessly so close”.

Taking advantage of the directive that he had to be back on board the *Novara* after fourteen days, his second excursion was north to Ash Island in the Hunter River, to the home of the noted entomologist, Mr Alex Walker Scott. He regarded his stay there as “unforgettable” due to the entomological studies undertaken with such enthusiasm and the excellent illustrations

of a large number of the species determined and illustrated by Mr Walker Scott's two daughters, Harriet and Helena (Vinney 2018). These substantial and intricate illustrations showed all states of metamorphosis and were recorded in a series of more than 100 folio plates.

On the following day he rode 40 miles from Ash Island to climb the Sugarloaf, the highest mountain in the area at 3,288 feet. Along the way he lists a great number of native flora with which he was quite familiar as these plants were well known in cultivation in Vienna. Beautiful informative descriptions of plants, birds, geological outcrops, vistas, sensations, the landscape and panoramas feature in this section of the diary which was included in historiographer Karl Scherzer's compilation of the official descriptive account of the voyage of the *Novara* (Web. ref. 2).

After returning to Sydney, Frauenfeld explored south of Sydney, deciding to only go as far as Kiama. He travelled there by steamer but returned by coach and horseback. He wrote at length and with great detail of the physical attributes of the spectacle of the Kiama Blowhole. Travelling on to Dapto, the inclement weather prevented the “lying in wait” for possums but next day went through “luxuriant vegetation” to the Illawarra Mountains where leeches bothered “the hikers quite severely”. Catching the mail coach to Wollongong for the continuation of the journey he noted that in some places

giant trunks of *Eucalyptus robusta* 30 to 40 feet in circumference entangled with lianas, draped with parasites and mixed with the glorious tree ferns reminded me of tropical luxuriance.

More detailed descriptions follow as he travels by mail coach to Campbelltown and then the last 32 miles to Sydney by the train which had only opened a few months previously on 17 May 1858.

The next section of the diary was to Botany Bay where Cook, Banks and Solander had stepped ashore and Frauenfeld is moved to write

It was an indescribable feeling to stand in the spot, where, years earlier, those men whose names will be known in the world as long as science lives, first placed their feet, at a time when the means of navigation were so imperfect, that the privations, trials and dangers of such a voyage in unknown

waters must have increased extraordinarily.

The botanical treasures collected there also occasioned Cook to give the Bay its name.

Whilst staying at the guesthouse in Botany Bay where the owner kept a “truly significant menagerie” Frauenfeld lists and describes the collection, many of them Australian natives and including two “Native Dogs”.

Apart from the men engaged in science already mentioned, Frauenfeld met Dr Alfred Roberts and Mr W.S. Macleay. Time did not permit him to study Macleay’s collections which covered almost all sections of natural history. The collection of parasitic flies was of particular interest to Frauenfeld and the diary continues with specific information with regard to various distinctions and differences found in flies and spiders, recorded by Macleay but according to Frauenfeld, not agreeing with existing suppositions of the time.

Frauenfeld does not record in his diary the wonderful receptions, social balls, hospitality and parties given by the people of the colony of New South Wales and enjoyed by the members of the *Novara* but these events, as recorded in the newspapers of the day, are available for perusal on *Trove*.

Throughout his diary Frauenfeld records the correct scientific nomenclature for the species he observes and thus creates an historical reference for the environments in which he travelled. In this short summary of the diary these scientific names have been omitted but are found in the translated text and listed in the Appendices (Web ref. 1).

Frauenfeld returned to Vienna to pursue a distinguished career as an Austrian entomologist and zoologist. He was heavily involved in the development of the Vienna Natural History Museum and his founding of the Zoological and Botanical Society deserves special mention. He was Secretary of the Imperial Royal Zoological Academy of Vienna which elected “the honourable gentleman Sir Charles Darwin” on 23 May 1867 as a member (Burkhardt et al., 2005).

Botanical collections from the *Novara* expedition

Robyn Barker, State Herbarium of South Australia

There is not a lot of evidence on the web of the botanical collections which originated from this expedition. Eduard Schwarz, ship’s doctor, and Anton Jelinek, horticulturist, were both

Frauenfeld’s incredibly wide contribution to science is listed on WorldCat which records 207 works in 374 publications in 2 languages on subjects ranging from algae, fossils, entomology, literature and accounts of journeys he had undertaken, to name just a selection (Web ref. 3).

The translated section of his diary concludes with these words;

I only want to add that I acquired a live native bear, *Phascolarctos*, which unfortunately, however, perished during my absence on the Kiama excursion following the upsetting of a decanter in my apartment; likewise that an *Echidna bistris*, which Mr. W. Scott sent to me, plunged into the sea on the stormy, first night under canvas from Sydney. (Web ref. 1).

The New Zealand and Tahiti sections of his diary are yet to be translated.

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- Burkhardt, F. et al. (2005). *The Correspondence of Charles Darwin*. Volume 15, 1867. Appendix III, p. 253.
- Vinney, V. (2018). *Transformations: Harriet and Helena Scott, colonial Sydney’s finest natural history painters*. (New South Publishing: Sydney).

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1. <https://www.uow.edu.au/~morgan/novara8.htm>
2. <https://www.uow.edu.au/~morgan/frauenfeld.htm>
3. <https://www.uow.edu.au/~morgan/novara4.htm>
4. <https://www.worldcat.org/identities/lccn-no2005040360/>

Further reading

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responsible for the botanical activities of the voyage. Schwarz was apparently out of his depth in this area according to a contemporary, Wawra (Web ref. 1), but two of his collections

visible in Vienna through JACQ (Web ref. 2) are the lectotype of the Australian taxon *Haloragis tetragynus* (Labill.) Hook. f. var. *decumbens* Schindl. collected from Ash Island (see narrative above) and the holotype of the New Zealand species, *Solanum apopsilomenum* Bitter; a second label other than the formal expedition label on the latter specimen indicates that it was collected from Mount [illegible] on September 28th 18[5]8¹ but this is unlikely to be correct.

For Anton Jelinek there are 69 specimens on JSTOR, but only one of these is Australian and is appropriately named *Parmelia jelinekii* Krenph., while there are three from New Zealand, *Sticta menziesii* var. *palmata* Krenph., *Placopsis cribellans* f. *tuberculifera* I.M.Lamb and *Piper excelsum* G.Forst. There are a further three collections from New Zealand, *Hypnum faulense* Reichardt, *Lolium perenne* L. and *Potamogeton cheesemanii* A.Benn. accessible through the Vienna database (Web ref. 2).

Others to collect plants on the voyage were Frauenfeld and Hochstetter. *Hypnum frauenfeldii*

¹ Recorded in the protologue as 1838. Neither of these years are correct as the *Novara* went to New Zealand after being in Australia, having come from Shanghai via Puynipet (now Pohnpei) Island in Micronesia and Sikyana (now Sikaiana) Island in the Solomon Islands (Web ref. 3).

Hampe, collected from Dapto, NSW, was named for the former while *Bazzania hochstetteri* (Reichardt) E.A.Hodgs., *Cyperus hochstetteri* Nees ex J.Krauss and a naturalised species in WA, *Indigofera hochstetteri* Baker, are named for Hochstetter.

Some of the botanical collections (algae, lichens, fungi, mosses and hepatics and Ophioglossaceae and Equisetaceae) were written up in 1870 in the Botanischer Theil, part 3 of *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859...* available at Web ref. 4. No doubt as more specimens are digitised further specimens which may be of interest will become available. Specimens are to be found in other European herbaria such as B, G-DC, LE and M but from a search of the AVH any representation in Australasia is apparently minimal.

Web references

- 1: www.nationaalherbarium.nl/FMCollectors/home.htm
- 2: <https://herbarium.univie.ac.at/database/results.php>
- 3: <https://www.uow.edu.au/~morgan/novara1.htm>
- 4: <https://www.biodiversitylibrary.org/item/194563#page/9/mode/1up>

ABRS report

Staff updates

Haylee Weaver has joined the Bush Blitz team part-time for twelve months from February 2019. This is to help back-fill Kate Gillespie, who is on maternity leave until February 2020. Haylee will continue to work part-time with ABRS on fauna-related activities, including managing the Australian Faunal Directory. Kate Garrock joined the Bush Blitz team in December 2018. Kate has a background in ecological research and was most recently employed as field ecologist at Mulligans Flat Woodland Sanctuary. Zoe Knapp will move into another team within the Department of the Environment and Energy for six months from March 2019.

Flora of Australia

In February 2019 the *Flora of Australia* (FoA) digital platform was updated to a new version, to address some previously identified bugs and issues (web ref. 1). The ABRS would like to

thank contributors to the FoA for their patience while the editing functionality was down. The FoA is now available for editing again.

In late 2018, the ABRS assessed the 'state of the FoA'. This included reviewing current gaps and updates required to FoA content, to inform priorities for future work. A summary report outlining the findings of this assessment is included in this edition of the *ASBS Newsletter*. The report is also available online on the FoA (Web ref. 1), alongside a spreadsheet outlining the status of FoA content at family level (e.g. partial/full treatment available, current gap).

Recently published treatments include: Pittosporaceae, contributed by Lindy Cayzer; family-level profiles for Apiaceae, Araliaceae, Griselinaceae, Myodocarpaceae, contributed by Andrew Perkins; and the Royal Botanic Gardens Victoria also continues to develop family-level profiles.

The ABRS is working to develop a Bryophytes of Australia (a web link will be provided next newsletter) project alongside the FoA on the digital platform. The Bryophytes project will initially include content from the *Australian Mosses Online* (Web ref. 2) before expanding to also include liverworts and hornworts. The taxonomy will be drawn from the *National Species List* (Web ref. 3).

Please contact the ABRS by email (see below) with any feedback about the FoA content and platform functionality, or if you would like to contribute new taxon profiles or update existing descriptions.

Bush Blitz

The first expedition for 2019 will be in the Cape Range, WA at the end of June (dates TBC) and involve BHP employees. Areas to be surveyed will include the Cape Range National Park and Learmonth Training area. The second expedition will be held in the Little Desert National Park, Victoria in October/November (dates TBC).

Botanical teams for these expeditions are being coordinated with the assistance of WA Herbarium and National Herbarium of Victoria respectively.

Grants

The 2019–20 National Taxonomy Research Grant Program (NTRGP) Research Grants and Capacity-Building Grants rounds closed to submissions on 29 November 2018. Successful applications will be announced in March 2019. More information on the NTRGP is available at the ABRS website (Web ref. 4).

Web references

- 1: www.ausflora.org.au
- 2: www.anbg.gov.au/abrs/Mosses_online/index.html
- 3: <https://biodiversity.org.au/nsl/>
- 4: www.environment.gov.au/science/abrs/grants/

Zoe Knapp & Anthony Whalen

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March 2019

State of the *Flora of Australia* 2018

Australian Biological Resources Study, Department of the Environment and Energy
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Overview

This report outlines results from a 2018 assessment of the ‘State of the *Flora of Australia*’ (Flora) undertaken by the Australian Biological Resources Study (ABRS). We reviewed available content (treatments, prepared as taxon profiles), gaps and updates needed to align Flora content with current accepted taxonomy (Australian Plant Census: APC). Results of this assessment will be used to inform priorities for future work to build Flora content. As the Flora is a national collaborative resource, the ABRS encourages feedback from the botanical community on these priorities. The full report, and a list of family-level treatments available in the Flora (including gaps and updates required to existing content), is available online (Web ref. 1).

Background

In 2017 the Flora of Australia (Flora) was delivered on an interactive online (eFlora) platform (Web ref. 1), developed through a partnership project between the ABRS, Council of Heads of Australasian Herbaria (CHAH) and the Atlas of Living Australia (ALA). Initially, content was loaded from the published Flora hard copy

volumes (ABRS 1981–2015), into a collection of digital taxon profiles. This content represents about half of the originally planned c. 60 Flora hard copy volumes, or about half of Australia’s native and naturalised vascular plants. Given the Flora hard copy series was published over a 34 year period, some of this content will need updating in line with current taxonomy. Since the launch of the new eFlora platform, the ABRS has continued to work with botanical taxonomists to add new taxon profiles. The move to online delivery has made the Flora discoverable, accessible and interactive, and allows for more rapid updates as needed. For example, treatments at various ranks can now be included without waiting for a whole volume to be complete. This provides an exciting opportunity to build momentum toward completing the Flora.

Methods

In July 2018, we conducted a snapshot assessment of the status of Flora content (treatments). For the purpose of our assessment, a ‘complete’ Flora was considered to fully reflect the APC (web ref. 2). We compared a list of APC-accepted family, genus and species names with a list of Flora taxon

names, to determine which plant families:

- Had been treated for the Flora (existing content)
- Were yet to be treated for the Flora (gaps)
- Had non-APC-compliant names and taxonomies (updates needed). The latter was determined by: 1. Comparing the number of genera treated in each family, in the Flora vs the APC; and 2. Manual review to check for any further discrepancies.

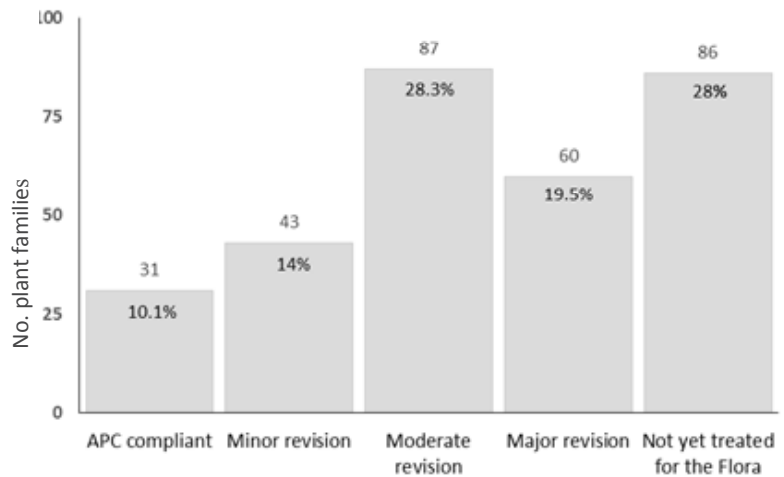


Fig. 1. Extent of updates required to harmonise family-level *Flora of Australia* treatments with the *Australian Plant Census*.

To assist with prioritising updates and new treatments for the Flora, we categorised family-level Flora treatments as either: APC-compliant (complete and up-to-date treatment); requiring minor (editorial), moderate (> 50% complete) or major (< 50% complete) revisions; or complete treatment needed (gap). More detail about these categories is available in the full report. Since the first hard copy volume of the Flora was published in 1981, the ABRs has received numerous manuscripts for publication in planned, but as yet unpublished, Flora volumes. We included the taxa treated in these manuscripts in our assessment.

Results

At the time of our assessment, the eFlora contained 11,612 taxa (216 family, 1,472 genus and 9,924 species) profiles, plus an additional 42 partial and unedited family treatments on file at ABRs. The eFlora includes at least partial treatments of 221 (72%) of the 307 APC-accepted families, represented either through taxonomic or nomenclatural changes.

Figure 1 shows the number of APC-accepted families for which digital and unpublished Flora content is either available, requires updating or is currently

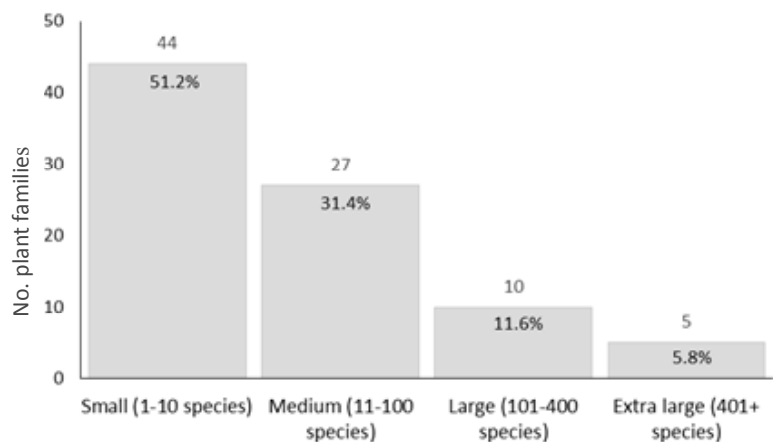
lacking (as yet untreated).

Figure 2 shows the number of families as yet untreated for the Flora, based on number of species in each family (as per the APC). There are no digital or unpublished treatments for 86 APC-accepted families, representing 862 genera and 28% of APC families. Most families (~51%) are small with 10 or fewer species, and relatively few (~17%) include more than 100 species (Figure 2). In total, approximately 16,000 new taxon profiles are required to align the Flora with the APC, plus the revision of taxa that are partially represented through synonymy.

Next Steps

Delivering the Flora on the new eFlora platform provides an opportunity to build momentum with

Figure 2. Number of plant families (in the APC) in different size classes that are yet to be treated for the *Flora of Australia*.



updating and filling gaps in the Flora. However, building a comprehensive and current Flora is a multi-faceted challenge and there is much work yet to do. This includes: updating and delivering previously submitted (unpublished) treatments; updating content in line with taxonomic changes over time; managing and aligning linked data; managing new content contributions; and working with the ALA to improve the platform functionality.

ABRS invites feedback on this report to inform future priorities for updating and building the Flora. Over the next 5 years, the ABRS intends to focus on:

- Updating existing content, initially focusing on smaller families (<15 taxa) for which information is available in the literature/ other floras. The ABRS considers working to harmonise existing Flora content with the APC as a priority for future work as this will help simplify governance and workflow processes and reduce confusion for users.
- Working with relevant authors to make previously submitted (unpublished) treatments available, either publicly (if publication-ready) or in draft (accessed on the Flora platform with ABRS permission).
- Following a top-down approach to fill gaps in the Flora, focusing first on completing all family-level profiles, followed by genus- and then species-level profiles. This may be undertaken by working with managers of other Floras, and with the broader botanical taxonomic community, sharing data where available.

Varying levels of updates are required to harmonise existing content with the APC, ranging from minor editorial changes, updates in line with taxonomic knowledge (e.g. new range records, nomenclatural updates), to creation of new taxon profiles (e.g. for recently described taxa). Our results showed that, of the 221 families already treated for the Flora, 31 (14%) were considered APC-compliant, 47 (21%) require minor editorial review, 87 (39%) require a moderate level of revision and 60 (27%) require a major level of revision. These results show that there may be some easy wins for harmonising the Flora with the APC, such as focusing initially on the 43 family treatments requiring minimal updates. For example, *Dryandra* species taxon profiles can be

combined into *Banksia* by simply updating the names as needed.

Families requiring more extensive revision may be updated over time in consultation with the botanical taxonomic community and as new treatments or revisions are published. For example, to align the Chenopodiaceae Flora treatment (Wilson 1984, see web ref. 5 and 6) with the APC, required updates include: combining six genera into *Tecticornia*; creating taxon profiles for new species described since the family was treated for the Flora; and updating other taxon profiles in line with nomenclatural and taxonomic changes. As another example, the Flora treatment of Solanaceae (Purdie et al. 1982, see web ref. 3 and 4) includes 22 of the now accepted 26 (APC) genera, and 198 of the 316 APC-accepted species. As a result of taxonomic revision to the family since the original publication of the Flora treatment, more than 100 additional Flora treatments (as taxon profiles) are now needed to align the legacy Flora treatment with the current APC concept of the family.

Further revision will likely be needed, beyond the changes resulting from identified differences between the APC and the Flora taxon names lists. Flora content may require some editorial review and curation of linked data, for example, ensuring distribution maps (delivered from the Australasian Virtual Herbarium) accurately reflect the treatment presented. Linked data and images from other databases are important parts of Flora treatments but were not addressed in this analysis. In the future, the ABRS may review which taxa are poorly represented in the Australian Plant Image Index to encourage new contributions. Flora treatments currently require inclusion of dichotomous keys to support identification. In the future, we may look at new ways of linking other types of keys such as matrix-based keys (e.g. existing Lucid keys).

The ABRS will seek to fill gaps in the Flora through multiple avenues. This includes: adapting treatments from available scientific literature, sharing data with other Floras, engaging the taxonomic community to provide content and funding the creation of new content through the National Taxonomy Research Grant Program (Web ref. 7). The ABRS has identified some priority families for new treatments (see Final Priority Plant Taxa List in Web ref. 7). Our results show that many of the current gaps include small

families (< 10 taxa), which could also be a priority for future work. The ABRS will consider a range of factors for prioritising the development of new Flora treatments, such as taxonomic stability, levels of endemism, and the availability of new publications or other information resources that could be applied to taxon profiles.

The ABRS planned top-down approach to building the Flora will progressively build a framework for the Flora onto which the later additions can be built. While the ABRS is taking this approach, contributions of flora treatments at any rank are welcome at any time. The APC is used here as a benchmark for a completed Flora. However, in some cases new Flora treatments may move ahead of the APC.

The ABRS will provide assistance and training to any interested or potential Flora contributors regarding managing Flora content (including curating linked data) on the electronic platform. Please contact the ABRS at for more information or to receive a copy of the Flora of Australia Contributor Guidelines.

Acknowledgements

The ABRS is grateful to the Flora of Australia Advisory Group, and particularly to Kevin Thiele, for their strategic guidance in building and updating the Flora's content.

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- Web ref. 5: Paul G.Wilson (2018) Chenopodiaceae. In: *Flora of Australia*. Australian Biological Resources Study, Department of the Environment and Energy, Canberra. <https://profiles.ala.org.au/opus/foa/profile/Chenopodiaceae>
- Web ref. 6: www.environment.gov.au/science/abrs/publications/flora-of-australia/vol04 (downloadable pdf file is available on the web page).
- Web ref. 7: www.environment.gov.au/science/abrs/grants/research-grants

Contacting ABRS

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Palaeo pages

How do we make progress with Australian Cenozoic palaeobotany?

Bob Hill

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As I approach 20 years back at the University of Adelaide, following a similar period of time at the University of Tasmania, I have been reflecting on the major research challenges in palaeobotany amongst the collections held in our David T. Blackburn Palaeobotany collection. During the past few years I have received large private collections from the families of David Blackburn and David Christophel and it is apparent that these two people made enormous contributions to our collections of Australian Cenozoic plant macrofossils. I estimate that our individual catalogued macrofossil specimens now number well over 100,000. However, it is also clear from these collections that despite excellent work by a

lot of people, including many Honours and PhD students, only a small fraction of the fossils have been identified and published.

Hence I am looking for a fresh approach to what we do. I am proposing to slowly release photos of what I consider to be key fossil taxa and seek the help of the Australasian botanical community in identifying them. Almost all of our fossils are leaves, mostly in very good condition. We can see the leaf size and shape, the venation pattern, and usually fine detail of the cuticle pattern. We often know (or think we know) the family the leaves belong to, but rarely much more than that.

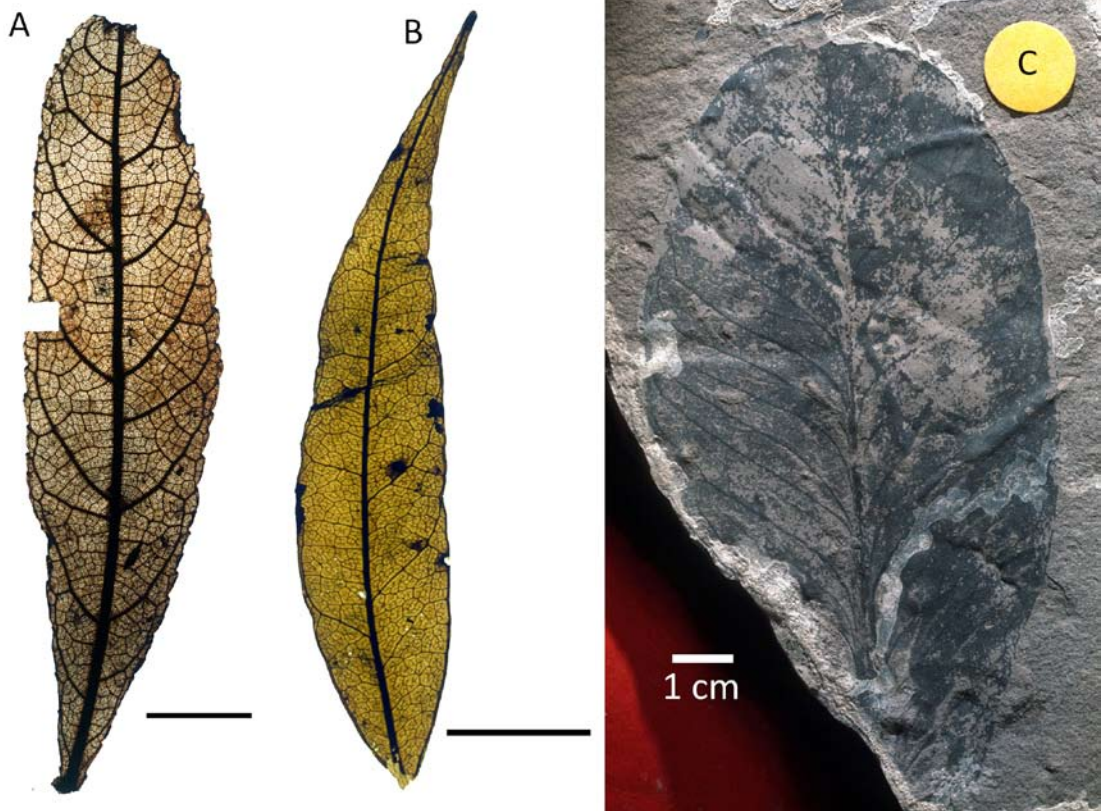


Fig.: A,B. Mummified leaves from the Anglesea location. C. Impression fossil of a leaf from the Maslin Bay location. Scale bar = 1cm in every case. The scale for C is estimated and will be refined later, when more information is available.

What I would like to do is to put photos of 2-3 leaf taxa in the *ASBS Newsletter* on a regular basis and ask for your help in identifying them. If you can assist, and this leads to a publication identifying a fossil taxon, then I will guarantee you a place as an author – that is a fair return for your intellectual input.

Most recently I received David Christophel's collections, commencing in late December 2018. This includes tens of thousands of photographic negatives and we are now scanning these. There is a huge task in matching negatives to specimens and to cuticle slides – over many decades these have become detached from each other. Hence it may be a little while before I have a significant number of fossil taxa to share with you. I include two photographs from the mid Eocene Anglesea location with this article, but I have yet to match these with a cuticle slide and a specimen, so these are simply to show you the quality of the fossils

we have. I also include one specimen from the Maslin Bay site (also mid-Eocene), where the preservation is not quite as good and the organic remains of the leaf are fragmentary, so we rely on the impression left in the matrix to show us features of leaf size, shape and venation.

These mid-Eocene sites in southern Australia represent highly diverse, broad-leaved angiosperm forests, with the closest modern analogues likely to be from north Queensland through to mid-montane Papua New Guinea, although nowhere is a perfect match, given these fossil forests were growing at about 60°S.

If anyone has any comments to make on this approach, or if you would like to be more formally involved in what we are trying to achieve here, please email me.

Coming conference

ASBS-NZPCN 2019 Conference, Wellington updates

Planning and organising for the 2019 conference are now in full swing! Following up from our presentation at the 2018 ASBS Conference in Brisbane, published as an article in the Dec 2018 *ASBS Newsletter* (Web ref. 1), we've a few updates to share with you regarding the 2019 conference.

2019 Conference at a glance

Conference title: "Taxonomy for Plant Conservation – Ruia mai i Rangiatea"

This is a joint conference of ASBS and the New Zealand Plant Conservation Network (Web ref. 2)

Our venue is the Museum of New Zealand Te Papa Tongarewa (Web ref. 3), Wellington, New Zealand

Dates: 24-28 November 2019

Overview: 5 full days including presentations, workshops, field trips, and public events.

Follow us on Facebook (web ref. 4), Twitter (Web ref. 5) and Instagram (Web ref. 6)

On-line information: Get more details and subscribe to updates on the conference website (Web ref. 7)

Please support our sponsors!

Important dates to diary

April 2019: The conference website has been fully updated with registration costs, field trip and workshop options, and other important information to help you plan. Get helpful information now on transport and accommodation options from our website—if you know you are coming, book accommodation now.

From now: Early-bird registration (with reduced registration fees) is now officially open! We invite you to register, pay and submit an abstract to the conference on our website.

If you are planning to collect plants in New Zealand during your stay, make sure you get your permit applications in soon. See the conference website for more details.

Source some items for our silent auction (see related article in this newsletter).

23 August 2019: Abstracts are due. Early-bird registration closes. Standard fees will apply from this date.

24-28 November: The conference is on!

Various dates from Oct-Dec 2019: A number of other conferences and events of potential interest to conference attendees are happening in Wellington and elsewhere in New Zealand around the same time as our conference. For those planning to come to the conference, why not stay a bit longer in New Zealand to take advantage of these other opportunities? Check out the latest list on the conference website.

Confirmed workshops

We will be offering seven half-day or full-day pre-conference workshops on Sunday 24 November. Please note: all workshops will need to have a minimum number of participants to go ahead, and spots will be limited, so register early to make sure you don't miss out on your first choice. For more information on the seven workshops, including venue, cost, and draft programmes, please check the conference website.

Workshop #1: Wikipedia Edit-a-thon on Australasian endangered plant species

An Edit-a-thon is an all-day attempt to improve Wikipedia's coverage of a particular topic. Led by experienced Wikipedia editors Mike Dickson (Web ref. 8) and Siobhan Leachman, participants will learn how to edit pages, correct mistakes, add references, and upload photos. Complete beginners are welcome; training and troubleshooting is provided. This edit-a-thon will focus on adding content on New Zealand and Australian endangered plant species to Wikipedia. Our goal for this full-day workshop is to collectively improve the representation of Australasian endangered plants in Wikipedia.

Workshops #2 & #3: Botanising with iNaturalist – workshops for beginners and advanced users

iNaturalist (Web ref. 9) is the world's biggest online community dedicated to recording all species. Being a botanist in the iNaturalist community is both great fun and useful; we connect people to nature and grow both botanical knowledge and future botanists. There will be two half-day iNaturalist workshop options, a morning workshop for beginners, and an afternoon workshop for advanced users. You may sign up for one or both! The morning workshop will give you an introduction, starting from scratch

and get you up to speed as both an observer and an identifier on iNat. The afternoon workshop will focus on how to take your iNat use to the next level, including bulk operations, curating the iNaturalist species tree and nomenclature, managing projects, dealing with threatened species, and other advanced functions. Both workshops will be led by Jon Sullivan (Web ref. 10), who is the site admin of iNaturalist NZ–Mātaki Taiao and a trustee on the charitable trust that operates iNaturalist NZ. His day job is an ecology lecturer at Lincoln University.

Workshops #4 & #5: Plant identification

Otari Native Botanic Garden and Wilton's Bush Reserve (Web ref. 11) is the only public botanic garden in New Zealand dedicated solely to native plants. It is also home to the largest forest remnant in Wellington City. Come along and experience this national treasure as we host two half-day workshops running morning and afternoon on the day. These workshops will give participants the opportunity to look closely at New Zealand ferns in the field and under the microscope with the Te Papa Botany team (WELT), and to do some field botanising in the forest with the Wellington Botanical Society (Web ref. 12). There will be guided walks telling the story of the forest, gardens, and the unique New Zealand flora. Botanists from Landcare Research and the Department of Conservation will also be helping out on the day. It shall be a fantastic day for beginners and experts alike!

Workshops #6 : Basics of illustration

This workshop is meant for those who would like to produce simple illustrations, but think they cannot draw or don't know how to get started. We will work with photographs to create illustration-quality line drawings. You will learn some basic drawing techniques using pens. Composition, scale and preparation for digitisation will be discussed. By the end of the workshop, you should have some line drawings that you can be proud of and would not hesitate to include in your publications, laboratory manuals or teaching resources. This full-day workshop will be led by ASBS member Tanya Scharaschkin. (Web ref. 13).

Workshop #7: Science Communication Skills for Botanists

Have you ever wanted to blog but been too afraid to try? Do you enjoy storytelling? Do you not enjoy storytelling because you think you're not a good storyteller, and would like to improve?

Would you like to help raise the profile of taxonomy and systematics in Australia and New Zealand? This workshop is all about learning to improve your science communications and media skills – your storytelling – for a good cause. It will cover storytelling in all its forms, from writing to being interviewed.

Important note: this will be an extended workshop, with a program of work – writing stories and helping improve other's stories – during the two months (20 Sept-20 Nov) before the physical 1-day workshop in Wellington. This workshop is led by ASBS member Kevin Thiele (Taxonomy Australia: Web ref. 14), CSIRO communication advisor Andrea Wild (Web ref. 15), and a New Zealand science communicator TBD.

Confirmed field trips

Field trip organisers: Anita Benbrook and Tim Park

We can now confirm we will have a total of five different, full-day field trips on offer for Wednesday 27 November. Please note: all field trips will need to have a minimum number of participants to go ahead, and spots will be limited, so register early to make sure you don't miss out on your first choice.

For more information on these and other field trips, please check the conference website.

1. Old-growth forests of Wainuiomata and Remutaka (travel by bus; good fitness required)
2. Coasts, freshwater lake and lowland beech forest across the harbour (travel by bus; good fitness required)
3. Rugged south Wellington coast & ecological restoration (travel via 4WD vehicles on rough terrain)
4. Mātū/Somes Island plants and wildlife (travel via ferry; easy walking)
5. Otari-Wilton's Bush, Te Papa herbarium and Bush City (travel via bus; easy and accessible to all).

Queries

Please don't hesitate to get in touch with us (plants2019nz@gmail.com) with any queries or ideas you have. Looking forward to seeing as many of you as possible in November in Wellington!

Heidi Meudt & Rewi Elliot
Joint conference co-organisers



NZPCN

The Australasian Systematic Botany Society
and the
NEW ZEALAND PLANT CONSERVATION NETWORK



**Taxonomy for Plant Conservation
– Ruia mai i Rangiātea**

24–28 November 2019, Wellington, New Zealand

Conference registration open now!

We invite you to register for the Taxonomy for Plant Conservation conference to be held at the Museum of New Zealand Te Papa Tongarewa in the last week of November.

Start planning now!

Spaces in workshops and field trips are limited, so register early to get your top choices.

Check out the *recently updated conference website* (see below) to get all the important details about conference dates, venue, accommodation, programme, keynote speakers, field trips, workshops, silent auction, and more!

The *conference theme*, ‘Taxonomy for Plant Conservation – Ruia mai i Rangiātea’ aims to capitalise on the vast expertise of our two societies. There will be multiple upskilling workshops, three days of symposia, and a chance to explore Wellington’s forests and rugged coastlines on our five different full-day field trips.

Feel free to *contact the organising committee* by email at plants2019nz@gmail.com if you have any queries, otherwise we will keep subscribers to the conference web site up to date with developments, or follow us on Facebook or Twitter for announcements.

We look forward to seeing you in Wellington in November!

Ngā mihi nui

Nā Rewi, Heidi and the Organising Committee

Sponsors

Thank you to our sponsors! Their commitment to plant conservation networking is evident in their support for our conference.

If you or your organisation is in a position to show your support please contact us for a sponsorship package today at info@nzpcn.org.nz



Manaaki Whenua
Landcare Research



Wildlands



OTARI
WILTON'S BUSH TRUST

Conference website: <https://systematics.ourplants.org/>

Facebook: <https://www.facebook.com/plants2019nz/>

Twitter: https://twitter.com/asbs_2016

Instagram: https://www.instagram.com/asbs_nzpcn2019/



Web references

- 1: www.asbs.org.au/asbs/newsletter/pdf/18-dec-177.pdf
- 2: www.nzpcn.org.nz/
- 3: <https://www.tepapa.govt.nz/>
- 4: Facebook: <https://www.facebook.com/plants2019nz/>
- 5: Twitter: https://twitter.com/asbs_2016
- 6: Instagram: https://www.instagram.com/asbs_nzpcn2019/
- 7: Conference website: <https://systematics.ourplants.org/>
- 8: <https://www.giantflightlessbirds.com/about/>
- 9: <https://www.inaturalist.org/>
- 10: https://inaturalist.nz/people/jon_sullivan
- 11: <https://wellington.govt.nz/recreation/enjoy-the-outdoors/gardens/otariwilsons-bush/collections>
- 12: www.wellingtonbotsoc.org.nz/
- 13: www.botanicalartqld.com.au/artist/96
- 14: <https://www.taxonomyaustralia.org.au/>
- 15: <https://blog.csiro.au/author/andreawild/>

2019 ASBS-NZPCN Conference Charity Auction. Items required! Can you help?

Matt Ward, NZPCN Secretary. mattwardward@gmail.com

I am happy to announce we will be having a charity auction at the combined 2019 New Zealand Plant Conservation Network (NZPCN) and Australasian Systematic Botany Society (ASBS) “Taxonomy for Plant Conservation – Ruia mai i Rangiātea” joint conference running this November in Wellington, New Zealand.

The charity auction is a fundraiser that the NZPCN has carried out successfully at our conferences since 2013. The funds raised from the auction will be split 50/50 between our two societies and used to bolster the allocated research funds of each society.

The NZPCN will split its share of the funds raised between the ‘David Given Scholarship’ and the ‘John Sawyer Plant Conservation Fund’ (Web ref. 1). The ASBS will use the funds raised to bolster its Scientific Research Awards, which currently include the ‘Hansjörg Eichler Scientific Research Fund’ and the ‘Marlies Eichler Postdoctoral Fellowship’ (Web ref. 2).

The auction process

The auction will be silent, allowing some level of mystery as to whom you may be bidding against when you wish to win a must-have item. Each conference attendee will be given a number in their conference pack for use when bidding. Bidding will simply involve adding your number and the dollar value you wish to bid on a sheet next to the item, which will be on display at the conference. It’s a fun and exciting way to support

your societies! Depending on the number of items up for grabs, the conclusion of each auction may occur in a staggered fashion to prevent any conclusion confusion. More running details will be established closer to the date.

Call for suggestions of items

To make the auction a success, we rely on worthy donations from individuals, businesses, institutions and agencies. This is where you can help! If you can donate an item, or have a suggestion for a donation, please let me know. Items which garner substantial interest include artwork, experience vouchers, books, outdoor gear, handmade uniqueness, etc. You can see what was on offer at our 2015 conference here: (Web ref. 3). Te Papa Press has kicked things off by kindly donating three fantastic NZ-themed hardback books.

There is an excellent chance of the silent auction having extra-interesting items this year with the trans-Tasman tie-in. So let’s make the auction a ripper and raise as much as possible for our societies’ worthy funds.

Questions or item donations

Please contact me on the above e-mail address for any queries or to make your donation!

Web references

1. www.nzpcn.org.nz/page.aspx?nzpcn_awards
2. www.asbs.org.au/asbs/research-funds/index.html
3. www.nzpcn.org.nz/page.aspx?nzpcn_events_conference_2015_auction

In a few words

With each generation, the amount of environmental degradation increases, but each generation takes that amount as the norm.

P.H. Kahn (1999). *The Human relationship with Nature*. (MIT Press).

News

Awards

Ann Prescott OAM

Congratulations to South Australian botanist, Ann Prescott, who was recognised in the Australia Day Honours (Web ref.). Ann was awarded a Medal of the Order of Australia for her services to conservation and the environment. She is probably best known in botanical circles for her *It's Blue with Five Petals* field guides for the Adelaide region and for Kangaroo Island. She ventured into taxonomy in an earlier life, preparing the treatment of Aizoaceae for the *Flora of Australia* (volume 4) with Jackie Venning and has also been heavily involved in the running of plant identification workshops. Ann worked closely with one of our foundation members of the Australian Systematic Botany Society, Enid Robertson.

Web ref. <https://www.gg.gov.au/australia-day-2019-honours-list>

David Mabberley – Thackray Medal 2018

The Society for the History of Natural History has awarded the 2018 Thackray Medal to David Mabberley for his *Painting by numbers: the life and art of Ferdinand Bauer* (Sydney, NewSouth Publishing, 2017, ISBN: 978-174223 5226). Congratulations David. This is the second time that the medal has been given for a book based on the outcomes of the 1801-1805 expedition led by Matthew Flinders. *Nature's Investigator, the diary of Robert Brown in Australia*, compiled by Tom Vallance, David Moore and Eric Groves and published by ABRs, won the award in 2002. The Thackray Medal was

instituted in 2000 to commemorate the life and work of John Thackray, Past President of the Society...the medal is awarded for a significant achievement in the preceding three years in the history of those areas of interest to the Society, that is the biological and earth sciences in the broadest sense.

Vicki Funk and Chris Martine – recipients of major ASPT awards

The American Society of Plant Taxonomists (ASPT) have selected two American botanists with links to Australasia for their most prestigious awards for 2018. The Asa Gray Award, recognising a lifetime of achievement in plant

systematics has been awarded to Vicki Funk of the U.S. National Herbarium at the Smithsonian (Web ref. 1). Vicki is probably best known in Australasia for her work in Compositae but she has also been a speaker at ASBS meetings in the past.

The Peter Raven Award, for individuals broadly involved in the communication of plant taxonomy, has been awarded to Chris Martine, the David Burpee Chair in Plant Genetics & Research and the Director of the Manning Herbarium at Bucknell University (Web ref. 2). Chris has conducted considerable field work in north-western Australia and published on the dioecious *Solanum* species of that region.

You can read the information supplied by their nominators in *Systematic Botany* 44(1) (5 February 2019) and be exhausted and/or inspired by what they have both achieved. These articles are not yet freely available (Anderson 2019, Wagner et al. 2019).

References

- Anderson G. J. (5 February 2019). Christopher Martine – recipient of the 2018 Peter Raven Award. *Systematic Botany* 44(1): 5-6. <https://doi.org/10.1600/036364419X697822>
- Wagner W. L., Stevenson D. W. & Specht C. D. (5 February 2019). Vicki A. Funk – recipient of the 2018 Asa Gray Award. *Systematic Botany* 44(1): 1-4. <https://doi.org/10.1600/036364419X697822>
- Web ref. 1: https://aspt.net/news-blog/2018/2018-asa-gray#.XL_KdWd2dMw
- Web ref. 2: https://aspt.net/news-blog/2018/2018-raven-award#.XL_PQmd2dMw

Andrew Rozefelds – outstanding paper award from JSE

Andrew Rozefelds and Marcelo Pace received a Journal of Systematics and Evolution (JSE) Outstanding Paper award (Web ref. 1) for their recent paper on the discovery of the first wood fossil of Vitaceae from the Southern Hemisphere (Rozefelds & Pace 2018). The journal has an annual award for papers having an important impact in systematics and evolution. A background to the paper was published in *Plant Press* (Web ref. 2). As we heard at the recent conference in Brisbane, Andrew is now investigating a fossil fruit with links to the Moraceae, another family without previous records in Australia.

References

Rozefelds, A.C. & Pace, M.R. (2018). The first record of fossil Vitaceae wood from the Southern Hemisphere, a new combination for *Vitaceoxylon ramunculiformis*, and reappraisal of the fossil record of the grape family (Vitaceae) from the Cenozoic of Australia. *Journal of Systematics and Evolution* 56(4): 283-296. <https://doi.org/10.1111/jse.12300>

Web ref. 1: https://nmnh.typepad.com/the_plant_press/awards-and-honors/

Web ref. 2: <https://nmnh.typepad.com/files/vol21no2.pdf>

Other news

New edition of tropical rainforest plants key

It is with great pleasure that we announce the online release of the seventh edition of the interactive identification and information system *Australian Tropical Rainforest Plants* (known as the RFK). The key is accessible on-line (Web ref. 1).

Edition 7 is a major update of what has been a very long term project. The geographical coverage is significantly extended with the addition of Central East Queensland (CEQ) rainforests south from Townsville to Rockhampton. Other enhancements include 200 additional species, nearly 3000 new images, updates to scientific names and current taxonomic concepts, and fully revised distribution coding.

For more information on this release see Web ref. 2.

Next we are working on the release of this version as a Lucid Mobile App which will enable use on mobile devices.

Web references

1: www.canbr.gov.au/cpbr/cd-keys/RFK7/key/RFK7/Media/Html/index_rfk.htm

2: www.canbr.gov.au/cpbr/cd-keys/RFK7/key/RFK7/Media/Html/about.htm

Frank Zich

Digitisation of the NSW collection

Marco Duretto announced on ASBS Facebook that the digitisation of the 1.4 million herbarium specimens in NSW is about to start (also Web ref.). The project will be carried out by Netherlands company, Picturae, who have previously been involved in the digitisation of specimens at the Smithsonian, Kew and the Natural History Museum (BM). The process is expected to take two years and the digitised specimens will be relocated to the new NSW herbarium to be built at

Mt Annan. Karen Wilson has provided an image of the installed equipment for the processing on the ASBS Facebook site.

Web ref. <https://www.rbgsyd.nsw.gov.au/About/Major-Projects/Digitisation-of-National-Herbarium-of-NSW>

New director for the Atlas of Living Australia

Dr Andre Zerger has been appointed as the new director of the Atlas of Living Australia (ALA). Most recently, he managed the Data Services team at the Bureau of Meteorology, leading national data infrastructure programs for water and environmental data with distinct parallels to the ALA. You can read more about him on the ALA site (Web ref.).

Web ref. <https://www.ala.org.au/newsletter/introducing-dr-andre-zerger-atlas-of-living-australia-director/>

The need for conservation in urban environments

Since our cities are usually built on the land best suited for agriculture and frequently in habitats which have now all but disappeared it should not be surprising that there are some 39 threatened plant and animal species in Australia which are now found only in cities and a lot more species that have cities as part of their natural range. Since cities are expanding their futures are in jeopardy. What can be done? Soanes & Lentini (2019) pose the question and suggest some answers in a paper which is not freely accessible but is discussed by the same authors in *The Conversation* (Web ref.). Note however that an open access article in the same issue of the journal by American authors (Magle et al 2019) discusses the same concept with respect to urban wildlife and the authors have developed the Urban Wildlife Information Network to collect long-term data on mammals. Might the same suggestion work in Australia for at least some of our threatened species?

References

Magle, S.B. and 19 other authors (2019). Advancing urban wildlife research through a multi-city collaboration. *Frontiers in Ecology and the Environment* (Early View). <https://doi.org/10.1002/fee.2030>

Soanes, K. & Lentini, P.E. (2019). When cities are the last chance for saving species. *Frontiers in Ecology and the Environment* (Early View). <https://doi.org/10.1002/fee.2032>

Web ref. <https://theconversation.com/the-39-endangered-species-in-melbourne-sydney-adelaide-and-other-australian-cities-114741>

Megaphylogeny resolves global patterns of mushroom evolution

Good to see Australasian representation (Neale Bougher, Peter Buchanan, Pam Catcheside and Jerry Cooper) in this multi-authored paper. Using multigene and genome-based data, Varga et al. (2019) assembled a 5,284-species phylogenetic tree and inferred ages and broad patterns of speciation/extinction and morphological innovation in mushroom-forming fungi.

Reference

Varga, T. and 61 others (2019). Megaphylogeny resolves global patterns of mushroom evolution. *Nature Ecology & Evolution* 3, pp. 668–678. <https://www.nature.com/articles/s41559-019-0834-1>

BBC announces new David Attenborough program on plants

Plants are to be the focus of the next BBC natural history production, *Green Planet*. A new five-part series will

demonstrate that plants are as aggressive, competitive and dramatic as animals – locked in desperate battles for food, for light, to reproduce and to scatter their young... They are social – they communicate with each other, they care for their young, they help their weak and injured... They can plan, they can count, they can remember.

Attenborough will also be involved in a seven-part series, *One Planet, Seven Worlds*. Each hour long episode will cover the story of the wildlife and landscapes of a continent.

Web ref. <https://www.radiotimes.com/news/2019-01-31/bbc-green-planet-david-attenborough/>

Twenty six new bee species from study

Twenty six new species of *Leioproctus* (*Colletellus*) bees have been described from arid and semi-arid environments of WA, NT and SA (Leijds et al., 2018, Web ref.). Six of the new species were described as a result of BushBlitz activities but the rest resulted from a study of collections already in museums, particularly those of Terry Houston of the WA Museum. Twelve of the species have not been collected in the last 30 years. A classic case of a need for more taxonomists and collectors!

References

Leijds, R., Dorey, J. & Hogendoorn, K. (31 Dec 2018). Twenty six new species of *Leioproctus* (*Colletellus*): Australian Neopasiphaeinae, all but

one with two submarginal cells (Hymenoptera, Colletidae, *Leioproctus*). *ZooKeys* 811: 109-168. <https://doi.org/10.3897/zookeys.811.28924>

Web ref. <https://australiascience.tv/twenty-six-new-bee-species-discovered-in-the-australian-outback/>

Women in botany: the trials and tribulations of two Lucys

An account of the trials and tribulations of two women botanists who graduated in the 1920s in New Zealand, Lucy Cranwell and Lucy Moore.

Web ref. <https://www.newsroom.co.nz/@summer-newsroom/2019/01/10/392399/the-two-lucys-kiwi-botanists-in-their-brothers-shorts>

Myrtle rust alarm raised

Myrtle rust was first recorded in a NSW nursery in 2010. Since then it has spread to all states on the east coast and it is now urgent that a draft action plan launched last year be implemented (Web ref.).

Web ref. <https://www.theguardian.com/environment/2019/jan/24/calls-for-emergency-action-plan-as-myrtle-rust-pushes-plants-to-extinction>

Joe Miller new Executive Secretary of GBIF

On February 4th the GBIF Governing Board approved the appointment of Dr Joe Miller as the new Executive Secretary of GBIF. After earning his PhD at the University of Wisconsin-Madison, Joe spent the majority of his career so far at the Australian National Herbarium in Canberra followed by a five-year tenure at the U.S. National Science Foundation (NSF). As a researcher, Miller has studied the evolution, biogeography and systematics of the Australian flora, with a particular focus on the plant genus *Acacia*. His current research focus is in the field of spatial phylogenetics, integrating GBIF species occurrence data with phylogenies that describe the evolutionary relationships between organisms. This research provides quantifiable and comparable data on diversity and endemism with direct applications to conservation planning.

Joe will join the 26 staff of the GBIF Secretariat in Copenhagen on 15 March, where he will have overall responsibility for the development and implementation of GBIF's strategic plans, the operation of its infrastructure, the condition of its international network and its financial stability. He takes over from Donald Hobern, who is stepping down after seven years as Execu-

tive Secretary and more than 12 years at the GBIF Secretariat. [Adapted from announcement by GBIF]

Web ref. <https://www.gbif.org/news/6TZGo8VgmLEG7EbQGMpjaE/dr-joe-miller-named-new-gbif-executive-secretary>

What is the most widely traded illegal wild product in the world today?

The answer to this question may surprise you since it is not an animal. The answer is rosewood.

Rosewood is the most trafficked form of flora or fauna in the world, measured by value or volume, according to the United Nations Office on Drugs and Crime. It's traded far more than elephant ivory, rhino horn, and pangolin scales put together, and is often called the "ivory of the forest." [Web ref. 1]

But what is rosewood? As is usual when common names are used it means different things depending on where you are. The legislation passed in 2017 banning the trade in rosewood referred to all *Dalbergia* (Fabaceae) species, even though only some of them produce the genuine rosewood, characterized by a persistent strong sweet smell. Other non-rosewood species of *Dalbergia* also produce a valuable timber.

Web ref. <https://e360.yale.edu/features/the-rosewood-trade-the-illicit-trail-from-forest-to-furniture>

What should we call the dingo?

Opposing views are being expressed in the zoological community about the taxonomy of the dingo and whether it should be considered a distinct taxon. Smith and 22 other authors (2019 and Web ref. 1, 2) consider it is "genetically, phenotypically, ecologically, and behaviourally distinct" and favour the use of *Canis dingo* Meyer while Jackson and 11 other authors (2019) argue that the correct name is *Canis familiaris* L., that of the domestic dog.

References

- Jackson, S.M. et al. (5th March 2019). The Dogma of Dingoes—taxonomic status of the dingo: A reply to Smith et al. *Zootaxa* 4564 (1): 198-212. <https://doi.org/10.11646/zootaxa.4564.1.7>
- Smith, B.P. et al. (5th March 2019). Taxonomic status of the Australian dingo: the case for *Canis dingo* Meyer, 1793. *Zootaxa* 4564, No. 1. <https://doi.org/10.11646/zootaxa.4564.1.6>
- Web ref. 1: <https://theconversation.com/the-dingo-is-a-true-blue-native-australian-species-111538>
- Web ref. 2: <https://theconversation.com/why-the-wa-government-is-wrong-to-play-identity-politics-with-dingoes-102344>

One billion trees program causing problems in NZ

Tax-payers are funding prison and community nurseries while commercial nurseries go bust. Those left in the industry are competing for huge tenders in an environment where undercutting is common and delivering to timelines requires "magic". Nurseries have gone into receivership, and quality control has slipped to the point where 21,000 plants had to be ripped out after an Australian weed was planted instead of the specified New Zealand native. (Web ref. 1).

So says a report from New Zealand where the supply is clearly not up to the demand and the added requirement for locally-sourced seed for this and other programs is adding a further level of complexity. Those who should be benefitting from the project are given impossible timelines and are being paid a pittance – hence the nursery receiverships and the mistakes in identification (Web ref. 2) with both *Kunzea* and *Myoporum* species (web ref. 2).

Let's hope that the one million trees already planted in Melbourne's western suburbs don't experience the same problems (Web ref. 3). But here they are unlikely to be native trees

Web references

- 1: <https://www.newsroom.co.nz/@environment/2019/02/10/432776/chaos-and-crisis-in-native-plant-industry>
- 2: <https://www.newsroom.co.nz/2018/10/24/289264/unwanted-organism-sold-as-native-plants>
- 3: <https://pursuit.unimelb.edu.au/articles/one-million-urban-trees>

Climate change effects on terrestrial Australian flora and fauna

An invited review addresses the impacts of climate change on Australian biological systems (Hoffmann et al. 2019). This multi-authored paper consists of eight case studies including three on the effects of climate change on die-back in WA's south-west forests, in the Sydney region and on Macquarie Island, two on effects on biota in the alpine region, one on effects on biodiversity in the wet tropics rainforest, one on the effects on bird morphology and one on the effects on orchid phenology. All of the studies are summarized in Appendix 1.

Reference

Hoffmann, A.A. & 16 other authors (2019). Impacts

of recent climate change on terrestrial flora and fauna: Some emerging Australian examples. *Austral. Ecology* 44: 3-27. <https://doi.org/10.1111/aec.12674>

Australia's Environment 2018

The *Australia's Environment* report (Web ref. 1) aims to make spatial information on environmental conditions more accessible and easily interpreted at different levels of detail. Information is accessible as a fact sheet; briefing material; an article in *The Conversation* (Web ref. 2) or as a web atlas

Web references

- 1: <http://wald.anu.edu.au/australias-environment/>
- 2: <https://theconversation.com/australias-2018-environmental-scorecard-a-dreadful-year-that-demands-action-114760>

ANU Climate Update 2019

The ANU Climate Change Institute presents an overview of how our climate is changing and how we are responding to these changes in Australia and around the world with a series of presentations (Web ref.).

Web ref. <http://climate.anu.edu.au/events/anu-climate-update-2019>

Botanic Gardens Climate Change Summit

Public talks held as part of the inaugural Botanic Gardens Climate Change Summit in Melbourne in December 2018 can be accessed on-line (Web ref.).

Web ref. <https://www.rbg.vic.gov.au/plants-and-landscapes/landscape-succession-strategy/climate-change-alliance-inaugural-summit>

Points of view

Promoting efficiency for the grant proposal system

Gross & Bergstrom (2019) provide an interesting look at the grant proposal system and the amount of time wasted in writing applications for limited funding. Proposals to overcome this include a partial lottery that selects proposals for funding randomly from among those that pass a qualifying standard can restore lost efficiency by reducing investigators' incentives to invest heavily in preparing proposals. Lotteries could also improve efficiency by compelling administrators to deemphasize grant success as a primary measure of professional achievement. If lotteries are politically untenable, another remedy would be to fund researchers based on their previous research successes, although in such a way that avoids establishing barriers to entry for junior scientists or scientists from historically underrepresented demographic groups."

Reference

- Gross K, Bergstrom CT (2019). Contest models highlight inherent inefficiencies of scientific funding competitions. *PLoS Biol* 17(1): e3000065. <https://doi.org/10.1371/journal.pbio.3000065>

The act of drawing can teach more about botanical morphology than writing

Not sure that this is a particularly controversial topic, but maybe some find drawing up a description more informative than drawing a particular plant. For novices the terminology used

in a description would presumably be off-putting anyway.

Reference

- Stagg, B. C., & Verde, M. F. (2018). A comparison of descriptive writing and drawing of plants for the development of adult novices' botanical knowledge. *Journal of Biological Education*, 53: 1, 63-78. <https://doi.org/10.1080/00219266.2017.1420683>

Challenges for botanic garden science

In an Opinion piece in the very first issue of the new journal, *Plants, People Planet*, an extensive global survey of botanic gardens by Botanic Garden Conservation International (BGCI) found that public engagement in botanic gardens was

overwhelmingly aesthetic—orchid festivals, light shows, and music events. Almost none of the gardens promoted their scientific research or unique plants as a visitor attraction or reason to visit. Scarcely surprising then that governments and municipal authorities who provide public money to botanic gardens increasingly see them as primarily visitor attractions rather than scientific institutions with a meaningful role to play in helping to solve the big environmental problems.

The author, Paul Smith of BGCI, gives some suggestions for how this might be changed.

Reference

- Smith, P. (2019). The challenge for botanic garden science. *Plants, People Planet* 1(1): 38-43. <https://doi.org/10.1002/ppp3.10>

Botanical art

Margaret Flockton Award

Now in its 16th year and with a prize purse of \$7000, the Margaret Flockton Award attracts the best professional and amateur scientific botanical illustrators from around the world.

The winning works and artists in the Margaret Flockton Award 2019 are:

1st Prize (\$5000) – Edmundo Saavedra, Mexico for *Monstera deliciosa* (Fig. 1)

2nd Prize (\$2000) – Alastair Robinson, Melbourne, Australia for *Cephalotus follicularis* (Fig. 2)/

Highly commended – Loh Xiang Yun, Singapore for *Wrightia laevis*

Highly commended – Alice Tangerini, USA for *Piper sotobosquense*

Highly commended – Luisa Crisostomo, Portugal for *Arbutus unedo*

The full exhibition can be seen on the web at the exhibition website (Web ref. 1) or directly in a Flickr gallery (Web ref. 2).

Twenty-six scientific botanical illustrators from 17 countries gave us a total of 44 works to judge. Artists from Argentina, Canada, Colombia and Singapore are welcome newcomers to the list of participating countries.

Jo White, Director Science and Conservation, Royal Botanic Garden Sydney, opened the show and was able to present Alastair Robinson with his prize. We are so pleased that Alastair was able to fly in from Melbourne for the day.

The judges for the 2019 Award were Editor, *Flora of NSW* Vol 1-4 and RBG Honorary Associate, Gwen Harden; RBG Botanist, Russell Barrett, and RBG Botanical Illustrator and Margaret Flockton Award Curator, Catherine Wardrop.

A comment from the judging panel:

Both of the winning works were so highly valued for their absolute scientific accuracy and the logical arrangement of components on the plates. Although quite different stylistically, each artist used pen and ink to render a great deal of information with techniques reflecting the experience of the artist. The winning work also captures a beautiful sensitivity to light and form; surfaces and textures are modelled in such a way that really inspires wonder at the act of observing, and joy at the act of drawing.

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australianbotanicgarden.com.au/What-s-On

9 August – 15 September 2019

Visitor Centre

The Blue Mountains Botanic Garden

Mount Tomah

bluemountainsbotanicgarden.com.au/whatson

MARGARET FLOCKTON AWARD

The artist must be very pleased with this work.

The exhibition is at present on the move to The Australian Botanic Garden Mount Annan and then The Blue Mountains Botanic Garden.

Web references

1. <https://www.rbgsyd.nsw.gov.au/Science/Botanical-Illustration/The-Margaret-Flockton-Award-2019>
2. <https://www.flickr.com/photos/botanic-gardens-sydney/albums/72157690685022893>

Lesley Elkan and Catherine Wardrop
Margaret Flockton Award Curators

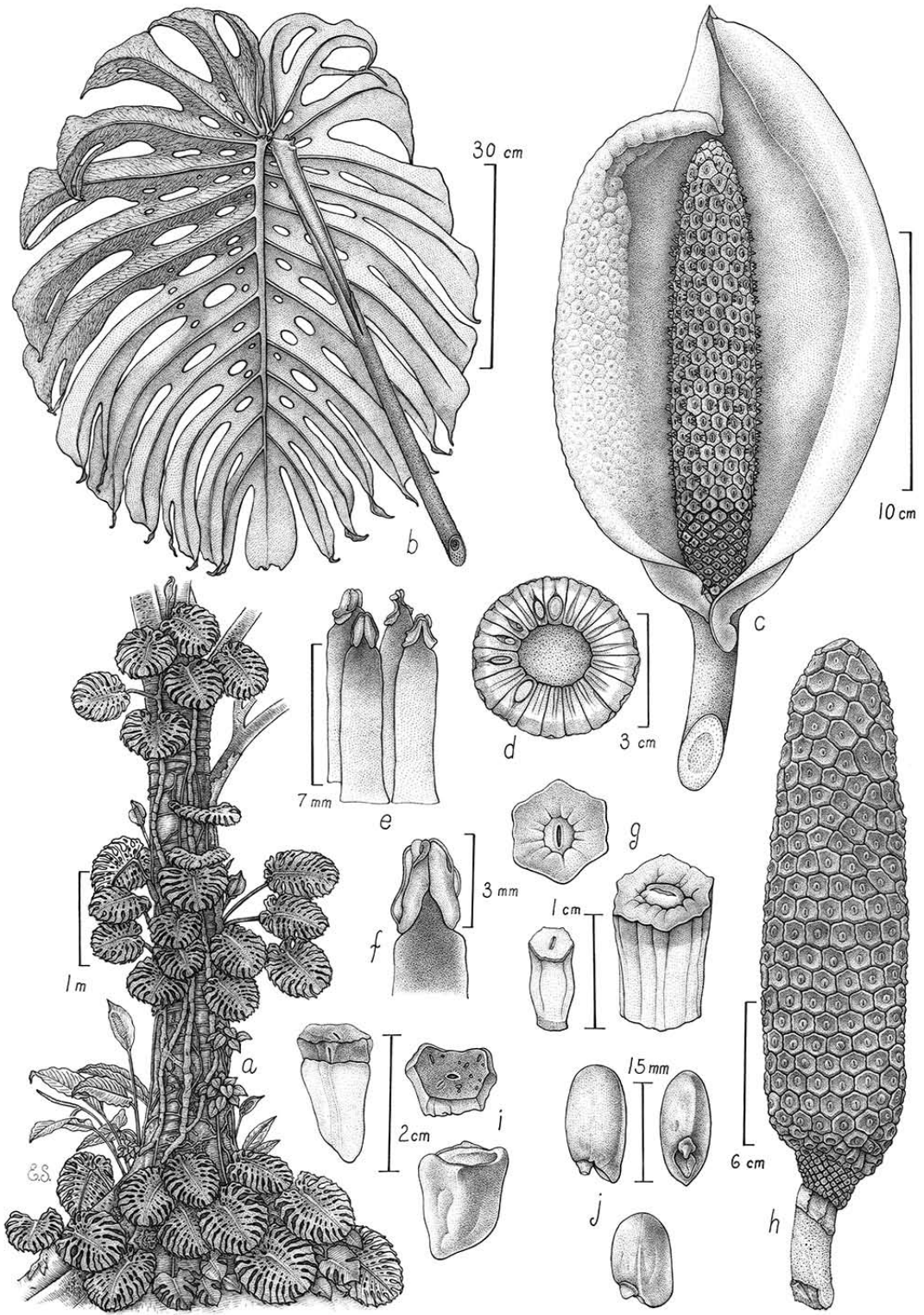


Fig. 1. *Monstera deliciosa*, by Edmundo Saavedra, Mexico.
Margaret Flockton Award 2019 Winner With permission.

Obituaries

Les Pedley

Gordon Guymer, Queensland Herbarium

Born in Ipswich on May 19, 1930, Les Pedley attended Ipswich Grammar School and on finishing school in 1948 he became a cadet in the Department of Agriculture and Stock in Brisbane. After a 5-year cadetship, during which time he gained a Bachelor of Science from the University of Queensland, he was appointed as Assistant Botanist in 1953 at the then Botany Branch and Herbarium located in George Street in Brisbane.

In the 1960s Les was seconded to CSIRO to work on two Queensland Land Use surveys — Nogoia-Belyando in 1964 to 1965 and Maranoa-Balonne in 1968 to 1969. In 1968 he carried out a survey of the vegetation of Cape York Peninsula with Ray Isbell (CSIRO, Canberra). From these surveys Les developed a love and appreciation for Queensland's open country and the plants and birds that inhabited these landscapes.

Les studied Latin and French at high school and in the later part of the 1970s he returned to the University of Queensland to pursue an Arts degree including further Latin studies. This he successfully completed in 1980. Les's Latin skills,

plant nomenclature and taxonomic knowledge were always greatly appreciated by his colleagues and friends at the Queensland Herbarium.

Les was the Australian Botanical Liaison Officer at The Herbarium, Royal Botanic Gardens, Kew, from 1971 to 1972, and he thoroughly enjoyed this experience. He returned to work at Kew in 1992 and while there he wrote accounts of legumes for the *Handbook of the Flora of Ceylon*.

Most of Les's working life was spent at the Queensland Herbarium where he undertook taxonomic research into Australian legumes and in particular the genus *Acacia*. Les formally described over 180 plant species new to science, most of these from Queensland, and contributed over 4000 specimens to the Queensland Herbarium collections.

Les was the Editor of the Queensland Herbarium's scientific journal, *Austrobaileya*, from 1977 to 1988, and he was a member of the Editorial Committee of the *Flora of Australia* from 1980 to 1988.

Les officially retired from the Queensland Herbarium as Assistant Director in 1988 but he enthusiastically continued to pursue his taxonomic studies as a Research Associate at the Herbarium. He worked 5 days a week, dropping back to 4 days, for the next 30 years and published more scientific papers in 'retirement' than he did while employed.

Also in retirement, Les participated in the Royal Geographical Society expeditions to Heathlands



Fig. Les on the occasion of his 'official' retirement in 1988 with an original painting of *Acacia caroleae* that he named after his wife Carole.

Ph. Qld Herbarium

in Cape York Peninsula in 1992 and to Sweers Island in the Gulf of Carpentaria in 2002. In 2008 Les was awarded an Australia Day Achievement Award from the Department in recognition of his outstanding contribution to Queensland botany.



Fig. Les, on left, receiving one of the awards presented by ASBS President Bryan Barlow at the Boden "Large genera" conference, at Thredbo in Feb 1986; right, on the Mimosoideae Group field trip in Brisbane Waters Nat. Park, Aug 1981.

Ph. Bruce Maslin



While Les didn't suffer fools lightly, he willingly and cheerfully mentored many professional and amateur botanists over his lifetime. He was more than willing to share his encyclopaedic knowledge and experience of legumes and was generous with his time and skills in sharing that knowledge. Any question, no matter how simple, naive or apparently stupid, was always answered in a kind manner and with as much accuracy as possible.

Les is honoured by the legume genus *Pedleya* and five native plant species have been named in his honour: *Acacia pedleyi*, *Commersonia pedleyi*, *Diploglottis pedleyi*, *Ptilotus pedleyanus* and *Tephrosia pedleyi*.

Les passed away on November 27, 2018,

Brisbane. He is survived by his wife Carole, children Anne, Helen, James and Robert, and three grandchildren.

We all loved Les and he will be greatly missed.

Recollections of Les Pedley

Paul Forster, Queensland Herbarium

Les, when I first met him, was the Deputy Director of the Queensland Herbarium when it was based at Indooroopilly. His office was piled with stacks of paper and at the time he was also *Austrobaileya* editor. But for the better part of the last 30 years he was a valued research associate and assiduously turned up to 'work' four days a week most of the year. As the resident *Acacia* and *Tephrosia* (amongst other groups) expert, he was extremely tolerant with being pestered for identifications, invariably given with comments about the taxonomic history of the species and the numerous uncertainties as to the classification of the particular group. A number of plant collectors targeted groups for Les that he indicated required further taxonomic work. A very rich set of collections from the last 20 years, particularly for

Acacia and *Tephrosia* in tropical Queensland and elsewhere is the end result of this. With *Acacia* in particular, he always emphasised the importance of fruit and seed characters – though collectors generally just collect when the plants are in flower.

Aside from 'work' Les had a particular fondness for cricket and football (soccer) and was a loyal supporter of the Salvation Army, particularly with Christmas Day activities for the disadvantaged. The state of play with politics was also of much interest, although, a careful man by nature, meant that careful commentary ensued. Most importantly of all were family and other close friends. I'm not sure if 'work' was an escape from any of these, but in reality he really wanted to finish his research on some of the groups he was working

on. To that end we will be publishing a number of his taxonomic manuscripts that remain.

Les was a remaining link to past botanists and staff at BRI such as Stan Blake, Sel Everist,

Bob Johnson and Lindsay Smith and he saw the institution from its days in the Brisbane City Botanic Gardens, to Indooroopilly and finally to Mt Coot-tha at Toowong.

Remembering Les Pedley

Alex George, 'Four Gables', Kardinya, WA



Fig. The *Flora of Australia* Editorial Committee, 1981. Left to right: Les Pedley (BRI), Paul Wilson (PERTH), Jim Ross (MEL), Barbara Briggs (NSW), Bob Robertson (Chairman), Hansjoerg Eichler (CANB), David Symon (AD), Arthur Chapman (BFF), Alison McCusker (BFF, Secretary). Ph. Alex George

In 1979 Les Pedley was appointed to represent Queensland on the original *Flora of Australia* Editorial Committee and served until 1988. The Committee's first role was to plan the early volumes and, importantly, develop the format. Like all members, Les made a vigorous contribution and accepted that, when a decision went against his view, the *Flora* was a national project and some compromises had to be made. Initially under the skilful chairmanship of Sir Rutherford (Bob) Robertson, the Committee made an excellent team and developed a positive work ethic that continued as the project proceeded.

In 1981 Les participated in the first workshop held for planning accounts for the *Flora*, on the genus *Acacia*. For the Bureau of Flora and Fauna, as it then was, this was an important meeting because it established the protocols and procedures that were followed for later workshops. Being one of the foremost specialists in Australian *Acacia* at that time, Les's contribution was greatly valued.

Les's term as Australian Botanical Liaison

Officer (ABLO) at Kew ran from 7 May 1971 to 15 April 1972. Most of his research centred on several genera of legumes, but he also studied *Polycarpaea* (Caryophyllaceae), *Polygala* (Polygalaceae) and *Hedyotis* (Rubiaceae). The last involved looking into generic limits and required study of taxa from Asia, Africa and the Americas. His term coincided with that of Jim Ross as the South African Botanical Liaison Officer, a specialist on African species of *Acacia*, and the two had many fruitful discussions, as well as developing a lasting friendship. Towards the end of his term Les paid a rewarding visit to the herbarium in Prague (PR) which holds the main collections of Karel Domin who collected in Australia, and in Queensland in particular, in 1909–10.

Les's research is a substantial contribution to our knowledge of the Australian flora, especially *Acacia*. Always a good colleague, my abiding memory of Les is his cheerful disposition and smiling face.

Vale Professor Robert James Johns, 1944–2019

Barry Conn and others

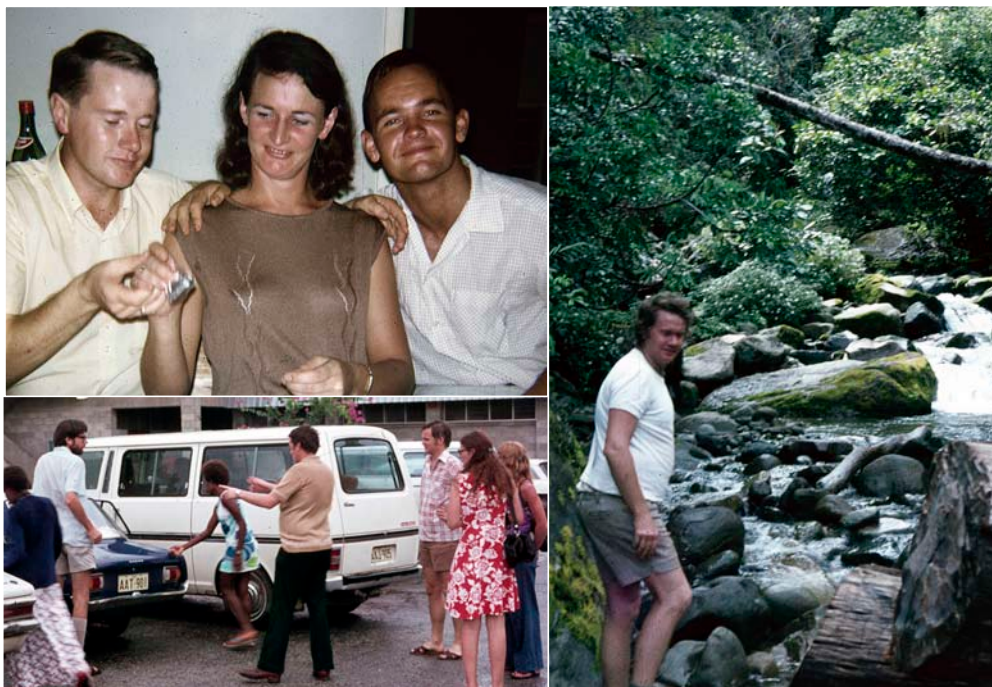
Prof. Robert (Bob) Johns passed away in London on 21 April 2019 after a long illness.

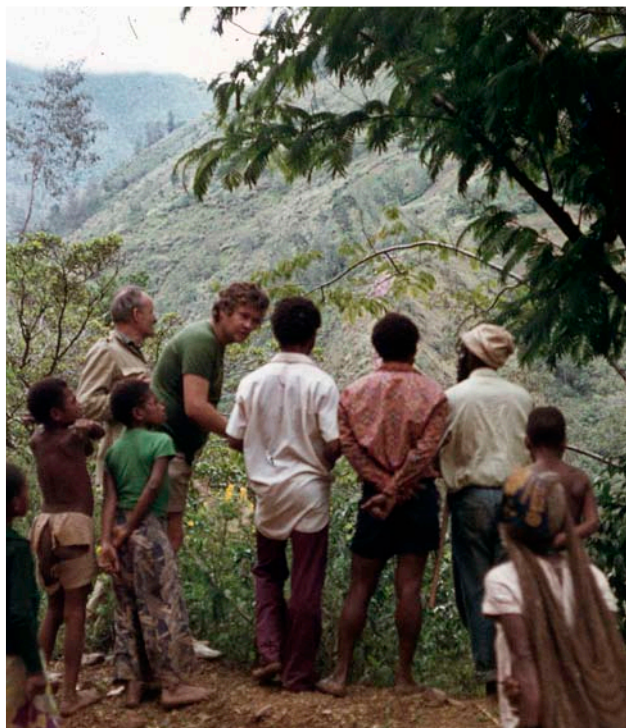
Born in New Zealand on 14 July 1944, Bob graduated from the University of Auckland in 1966 with a B.Sc. and in 1968 with an M.Sc. He first came to Papua New Guinea in 1968 as a Research Assistant for the Department of Geography, Australian National University to manage their field station on Mt Wilhelm. He joined the PNG National Herbarium in 1969. In 1971 Bob took up a lecturing position at the PNG Forestry College, Bulolo to teach botany, dendrology and forest ecology before moving to the PNG University of Technology (UNITECH) in 1979 as Senior Lecturer. He was Head of Department from 1987 until 1990 when he moved to the Royal Botanic Gardens, Kew to take up the position of Curator for Ferns and Gymnosperms. He retired from Kew in 2004 but continued as a Research Fellow, which allowed him to continue his work on the ecology of the flora from both Papua New Guinea and Indonesian New Guinea

(Papua), with particular emphasis on the ferns. In addition to Kew, Bob continued to be a familiar face at herbaria in Leiden, Lae and Bogor. He was an active participant of the Flora Malesiana Project, attending all of their symposia, which commenced in 1989. His contributions to the floristics and ecology of the vascular flora of Malesia will be recognised posthumously at the 11th International Flora Malesiana symposium in Brunei in June.

Bob published extensively on the botany and ecology of both Papua New Guinea and West Papua and his work can be found in journals and books. One of his early publications, *Common Forest Trees of Papua New Guinea*, is still used as a major teaching resource at both Bulolo and Lae campuses. He taught many of PNG's foresters and set very high standards in his courses. For example the pass mark for Dendrology was 85%, a requirement met by nearly all graduating students. He was also an excellent organiser, securing NZ Government funding to build the

Fig. Bob Johns in early days in Papua New Guinea. Clockwise from top left (personalia from left) a, Bob, Joy Shaw (later Foreman), Don Foreman in Lae in early 1970; b, below Mt Michael, 1976; c, Peter Stevens, Bob, David Frodin, Camilla Huxley, at the second meeting of the PNG Botanical Society, Port Moresby, 1976. Ph., a, Robyn Barker, b–c, Bill Barker





library at the Bulolo Forestry campus as well as European Union funding to build the forest herbarium at the Taraka campus.

Although working in London from 1990, Bob continued to mentor many Papua New Guineans foresters and botanists from both UNITECH and the University of PNG over the years, providing encouragement and support as they continued their studies for a higher degree. His heart always belonged to Papua New Guinea.

Some interesting links to Bob Johns

<https://www.facebook.com/floramalesiana/photos/a.201155620275428/971539926570323/?type=3&theater>

www.brit.org/sites/default/files/public/Iridos/Iridos_20_2.pdf

www.nationaalherbarium.nl/FMCollectors/images/PhotoJ/JohnsR-photo.gif

Fig. 2. Bob in his element interacting with the local community, with Bernard Verdcourt below Mt Wilhelm, 1976.

Ph. Bill Barker

Deaths

John Dawson, 1928–2019

Ilse Breitwieser, Allan Herbarium, Lincoln

Dr John Dawson passed away on 11 Mar 2019. Born on 1 Feb 1928, he was Associate Professor of Botany at Victoria University of Wellington until his retirement in 1988.

During his botanical career (Web ref. 1) John focused particularly on botanical research in New Caledonia, exploring its botanical links with New Zealand, and researching its largest family Myrtaceae. He also undertook research in Apiaceae.

John wrote eight books on New Zealand plants,

including *New Zealand's Native Trees* (with Rob Lucas), which won New Zealand Post's Illustrated Non-fiction Award as well as Book of the Year in 2012. John was also well known for teaching adult education classes and his regular talks and tours at Otari-Wilton's Bush. He was recipient of the Allan Mere Award for 2016 (Web ref. 2).

Web references

1. [https://en.wikipedia.org/wiki/John_Dawson_\(botanist\)](https://en.wikipedia.org/wiki/John_Dawson_(botanist))
2. www.nzbotanicalsociety.org.nz/newsletter/NZBotSoc-2016-126.pdf

Australasian Systematic Botany Society Inc.

Marlies Eichler Postdoctoral Fellowship

Applications close on 31st July 2019

We invite applications from members.

For eligibility and other information see the ASBS website
www.asbs.org.au/awards/marlies-eichler-postdoc.html

or contact Vice-President Heidi Meudt (vicepres.asbs@gmail.com)

David Moore

An obituary of David Moore by Mark Carine of the Natural History Museum has been published in the *Newsletter of The Society for the History of Natural History* 115: 6–7 (January 2019).

Items of interest

At last some sense – quality not quantity for scientific papers

Australia's chief scientist Alan Finkel expresses concerns about the rigour and reproducibility of research being published today. "Financial and career incentives keep researchers on a treadmill, churning out [an estimated 1.6 million] papers" per year. How many of these are flawed and how do we shift from quantity to quality? See his suggestions for how this might be achieved and some further comment from a US advisory board for research integrity on the same page.

Web ref. <https://www.nature.com/articles/d41586-019-00613-z>

European examples of herbarium images with transcribed specimen and label data

To help with the interpretation of herbarium specimen data, Dillen et al. (2019) have put together a dataset of 1,800 herbarium specimen images from European herbaria with their data transcribed. Whether the interpretation is by a person, trained or otherwise, or by a machine these specimens "reflect the multiple potential obstacles that transcription methods may encounter, such as differences in language, text format (printed or handwritten), specimen age and nomenclatural type status." These specimens may well be of use for those Australasian herbaria who might be considering the documentation of their overseas material.

Reference

Dillen M, Groom Q, Chagnoux S, Güntsch A, Hardisty A, Haston E, Livermore L, Runnel V, Schulman L, Willemsen L, Wu Z, Phillips S (2019). A benchmark dataset of herbarium specimen images with label data. *Biodiversity Data Journal* 7: e31817. <https://doi.org/10.3897/BDJ.7.e31817>

Weed dating, not speed dating, another way of meeting that "significant other"

Here is another novel way to get people interested in the removal of weeds (*ASBS Newsletter* 177, p. 45), and also raise money (Web refs 1–4). Just a word of warning if you are interested in finding out more: be careful that any site you visit is

about removing, rather than smoking, weeds!

Web references

1. <https://www.theage.com.au/lifestyle/life-and-relationships/weed-dating-the-new-way-for-melbourne-s-singles-to-get-dirty-20190414-p51e05.html>
2. www.pocketcityfarms.com.au/events/weed-dating
3. <https://modernfarmer.com/2014/10/weed-dating/>
4. www.stuff.co.nz/auckland/local-news/western-leader/9849075/Try-out-weed-dating

Buffel grass and fire in inland Australia

A video on this web site demonstrates the scale of the problem of the spread of buffel grass into arid areas.

Web ref. <https://theconversation.com/the-summer-bushfires-you-didnt-hear-about-and-the-invasive-species-fuelling-them-112619>

Rare plants conserved by cultivation

We all know about *Wollemia nobilis*, a relatively recently discovered Australian tree which is very vulnerable in the wild but is now distributed as cultivated specimens throughout the world. A somewhat different story is that of *Pilea peperomioides*, first collected by George Forrest from southwestern Yunnan in China. Now rare in its native habitat, thanks to its unusual look, ease of propagation and its adaptability to life as a houseplant (Web ref. 1) it found its way out of China into Scandinavia via missionaries. That unusual look got it noticed, social media made it trendy (Web ref. 2) and now this once difficult to obtain plant is available at your local Bunnings. You can read more about its history and how its identity caused puzzlement at Kew and elsewhere (Web ref. 3).

Other species, such as the American *Franklinia alatamaha* (Web ref. 4) and the Mexican *Deppea splendens*¹ (Web ref. 5), became extinct in the wild soon after their discovery, and now only exist as cultivated specimens, often in botanic gardens. The first sighting in the wild of *Franklinia* was in 1760, although a collection of seeds was not

¹ Also known as *Csapodya splendens*.

made until 1775. It was described in 1785 as a new genus honouring Benjamin Franklin and the specific name indicated its place of collection in Georgia. The year 1803 was the last time it was observed in the wild. In contrast, *Deppea splendens*, commonly known as the Golden Fuchsia, was only found in the cloud forest of the Chiapas in Mexico in the 1970s and not described until 1987 by Breedlove & Lorence. In the year before it was described the forest was cleared by local corn farmers and it would appear that no *Deppea splendens* survived. However seed had been grown in the University of California Botanic Gardens from the original herbarium collection and seeds and cuttings were dispersed to other botanic gardens.

Clearly Botanic Gardens have an important role in the preservation and conservation of such plants (Web ref. 6) and it's nice to know that we can go and see both the *Wollemia* and the *Franklinia*, but not the *Deppea*, right here in Adelaide.

Web references

- 1: <https://www.vox.com/the-goods/2019/3/21/18274568/pilea-peperomioides-plant-instagram-sill-circular-leaves>
- 2: <https://www.bhg.com.au/new-plant-trend-pilea>
- 3: www.wildchicken.com/nature/garden/ga008_a_chinese_puzzle.htm
- 4: <https://daily.jstor.org/americas-mysterious-lost-tree/>
- 5: www.indefenseofplants.com/blog/2018/12/5/the-golden-fuschia-a-case-study-in-why-living-collections-matter
- 6: <https://www.nature.com/articles/s41477-017-0019-3.epdf>

Oranges (and apples) from America

The US Environmental Protection Agency (EPA) is in the process of allowing growers to use two common antibiotics, streptomycin and oxytetracycline, as routine treatment against a bacterial disease which is crippling the citrus industry in America (Web ref. 1). The disease is commonly known as citrus greening or huanglongbing, and is caused by the bacterium *Candidatus Liberibacter asiaticus* (Web ref. 2). Trees will be sprayed several times per year, beginning with the 'first flush' of leaves this spring. And the sad thing is that these sprayings may not even be beneficial. Opinions differ between microbiologists and plant pathologists on the effects this spraying will have on antibiotic resistance as well as on other microbes present on the trees and in the soil. This disease is not in

Australia as yet, but only thanks to our stringent biosecurity (Web ref. 3).

As if the oranges were not enough, the apple industry is suffering similar difficulties, but this time a causative agent has still to be identified (Web ref. 4).

Web references

- 1: <https://www.nature.com/articles/d41586-019-00878-4>
- 2: www.agriculture.gov.au/pests-diseases-weeds/plant/huanglongbing
- 3: www.fruitnet.com/asiafruit/article/175970/australia-dodges-citrus-greening-disease
- 4: <https://www.economist.com/united-states/2019/04/13/young-apple-trees-are-dying-and-no-one-understands-why>

Before you design your poster have a look at these approaches

These postings (Web ref. 1, 2) appeared on *BotanyOne*, although not together. Both have elements which might help in presenting your next poster.

Web references

1. <https://www.botany.one/2019/03/presenting-a-poster-at-a-conference/>
2. <https://blog.aspb.org/communicating-effectively-with-graphics/>

Floral morphology meets developmental genetics

Here is a review, recommended by Bob Parsons, of the unravelling of one of the characteristics we use all the time in plant taxonomy, the variety of forms of flowers and how they arose. .

In this review, evolutionary and genetic conclusions are drawn together, especially considering how known genes may control individual processes in the development and evolution of ground plans. These components include organ phyllotaxis, boundary formation, organ identity, merism (the number or organs per whorl), variation in the form of primordia, organ fusion, intercalary growth, floral symmetry, determinacy and, finally, cases where the distinction between flowers and inflorescences is blurred. It seems likely that new pathways of ground plan evolution, and new signalling mechanisms, will soon be uncovered by integrating morphological and genetic approaches. [From abstract].

Reference

- Smyth, D.R. (2018). Tansley Review. Evolution and genetic control of the floral ground plan. *New Phytologist* 220: 70–86. <https://doi.org/10.1111/nph.15282>

Land plant evolution

Remember this topic and the alternation of generations, the foundation of many Botany 1 courses of the past. Here (Bowman et al., 2017) is an updated version indicating the development of new biochemical, hormone response and signalling pathways as well as new transcriptional complexity in a *Marchantia* species. Another paper suggested by Bob Parsons.

Reference

Bowman, J.L. and 112 other authors (2017). Insights into Land Plant Evolution Garnered from the *Marchantia polymorpha* Genome. *Cell* 171(2): 287-304.E15. <https://doi.org/10.1016/j.cell.2017.09.030>

Origins of alternation of generations in land plants

Only the abstract of this paper by Libertin et al. (2018) is freely available but an article in *The Guardian* (Web ref. 1) summarises the findings. A newly recognised fossil fern with spores, *Cooksonia barrandei*, from the Silurian (432 Ma) indicates that the development of a dominant sporophyte generation may have been earlier than first thought and challenges some of the text book teachings on the alternation of generations.

References

Libertin, M., Kvaček, J., Bek, J., Žárský, V. & Štorch, P. (2018). Sporophytes of polysporangiate land plants from the early Silurian period may have been photosynthetically autonomous. *Nature Plants* 4: 269–271.

Web ref. 1. <https://www.theguardian.com/science/2018/may/24/spore-heroes-unlocking-life-cycle-secrets-earliest-land-plants>

Worldwide decline of insects – a review

Factors causing the alarming decline in insect numbers globally and a call for changes in current agricultural practices, particularly those surrounding the use of pesticides are elucidated in Sanchez-Bayo & Wyckhuys (2019). At the present rate they predict that 40% of the world's insects will disappear within decades.

Reference

Sanchez-Bayo, F. & Wyckhuys, K.A.G. (2019). Worldwide decline of the entomofauna: A review of its drivers. *Biological Conservation* 232, April 2019, 8–27. <https://doi.org/10.1016/j.biocon.2019.01.020>

Bees in suburbia and neonicotinoid levels

It's official. Bees in suburbia have been found to do better than those in the country (Web ref.

1). My recollection is that this was also found on the ABC's *Catalyst* program, the two part *Great Australian Bee Challenge* shown on the 29th January and the 5th February (Web ref. 2). Many such beehives are found on rooftops in cities throughout the world and the bees make use of the flowers in city parklands and local gardens. Such was the case on the roof of Notre Dame where three beehives were kept. Fears were held for the safety of the bees after the fire which swept through the building recently, but they were found to have survived (Web ref. 3).

On a less happy note, an analysis of 200 samples of honey collected between 2012 and 2016 from around the world indicated that the majority contained neonicotinoid pesticides, implicated in an increased mortality in bee populations. The EU has now banned the use of these pesticides (Web ref. 4).

Web references

- 1: <https://daily.jstor.org/buzzing-in-at-the-bee-bee/>
- 2: <https://www.abc.net.au/catalyst/stories/by-date/2019/>
- 3: <https://www.abc.net.au/news/2019-04-21/notre-dame-bees-survive-fire-no-lungs-smoke/11034244>
- 4: <https://www.theguardian.com/environment/2017/oct/05/honey-tests-reveal-global-contamination-by-bee-harming-pesticides>

Collectors, economics and biodiversity in Fiji and Australia

The discovery of a new swallowtail butterfly in Fiji in 2018 has led to an influx of tourists and also an influx of collectors. You can read all about the problems associated with this discovery on the pages of Nature Glenelg Trust, a not-for-profit environmental organization which has been doing great work in the NRM regions between Melbourne and Adelaide (Web ref.). While you are on the site have a look at some of the inspiring work that the group has been doing since its formation in 2011.

Web ref. <http://natureglenelg.org.au/human-nature-complexities-collectors-economics-and-biodiversity-in-fiji-and-australia/>

Wipeout

Here is a sight that no-one wants to see: the destruction of road verge in England along with its 17,000 orchids in full flower..

Web ref. <https://www.plantlife.org.uk/uk/blog/road-verge-disaster-17000-orchids-gone-in-one-day>

Plant peculiarities

In Defense of Plants often features some intriguing plant variations. Here are two, a fern gametophyte that was thought to be a liverwort but looks like an alga (Web ref, 1) and, what appears to be some overkill, ants tending floral nectaries in spiny

cacti (Web ref. 2).

Web references

- 1: www.indefenseofplants.com/blog/2019/1/26/swassertang-a-fern-disguised-as-a-liverwort
- 2: www.indefenseofplants.com/blog/2019/4/3/an-intruiging-relationship-between-ants-and-cacti

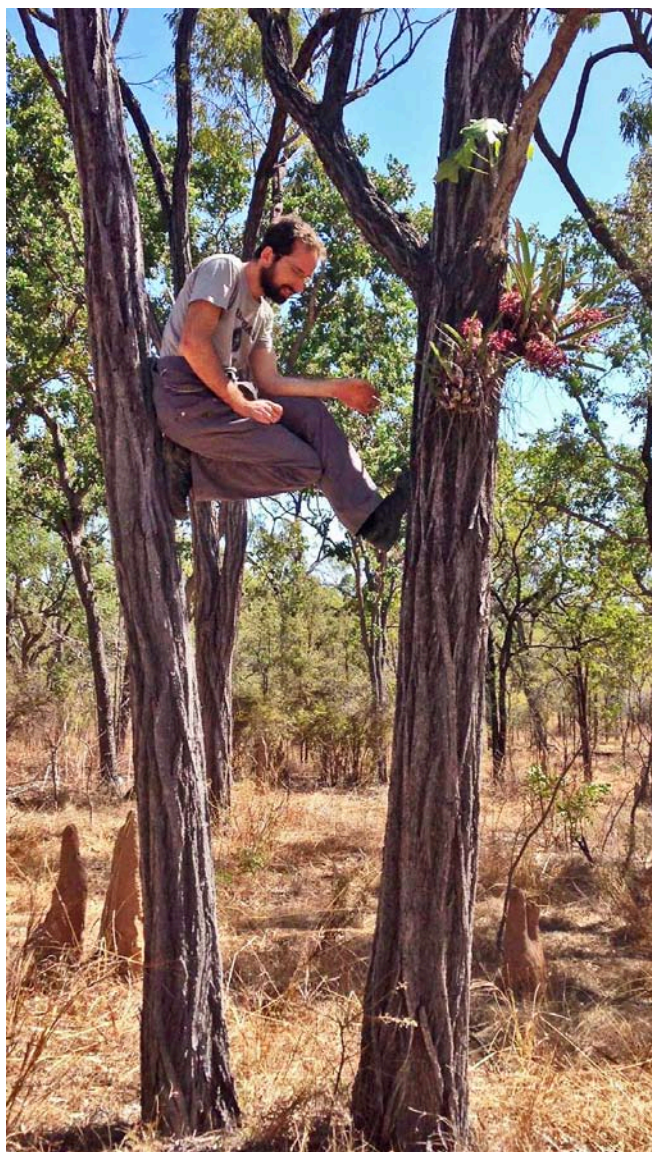
Member profile

Lars Nauheimer, by himself

Australian Tropical Herbarium, Cairns

Hello ASBS,

In addition to the Marlies Eichler grant in 2018, I was



also granted a bit of space here in the newsletter and asked to introduce myself to the society. I am not entirely comfortable with the idea of writing about myself, but happy for the opportunity given that my experiences with the society have been very positive. I could attend the last two conferences in Adelaide and Brisbane and met an exceptional amount of friendly and inviting people with diverse backgrounds and interests. I am happy to become a part of this society and glad if I can contribute something.

The Marlies Eichler grant is a new instalment that was made possible due to the generous inheritance of Marlies and Hansjörg Eichler to the ASBS. It is targeted to help postdoctoral researchers that have already an ABRS grant, which unfortunately is a bit tightly calculated. In my case, the ASBS Marlies Eichler grant will extend my employment at the ATH and my work on the systematics of the donkey orchids (*Diuris*). So thank you very much, ASBS!

Since I came to Australia in 2015, I have worked in the Australian Tropical Herbarium in Cairns as postdoctoral research fellow. Together with Katharina Nargar and Mark Clements, I apply phylogenetic and phylogenomic methods to unravel the biodiversity of Australasian orchids. My two main projects are focussing on the beautiful

Fig. New methods in orchidology. Lars pondering a *Cymbidium* at Chillagoe, Qld.

Ph. Lars Nauheimer

and challenging genus *Thelymitra* and since 2018 the similarly beautiful and not less confusing genus *Diuris*. Both genera are relatively diverse (with roughly 100 species each) and contain a good number of species with unclear species circumscriptions, i.e. they are difficult to distinguish in the field where you notice the variability in species and the similarity between species. To get behind the biodiversity and evolution of these two rather complex genera, we apply multiple phylogenomic approaches based on a thorough sampling of specimens. While I came to Australia with some background in phylogenomic methods, I had no experience with orchids or the Australian flora in general. I am therefore very thankful to be able to work in a team with Katharina and Mark, in which we can complement each other very well.

Before coming to Australia, I had worked on Araceae for my PhD and on Sapindales and Nymphaeales during postdoctoral positions where I focussed on biogeography and molecular dating aspects. Orchids are a rewarding group to work with as they have extraordinary life strategies and are pretty to look at. But I think all groups have a lot to offer, if one just looks closely. Probably since I started studying biology, my interests have been all over the shop, wherever I looked. But the most fascinating stories I found are the diverse interactions of organisms, their life strategies and the bigger picture that hold everything together. What brought me to systematics was surely the utterly fascinating concept of evolution with all its complexity and implications. When I found out how we are able to build hypotheses of the evolutionary history of organisms just by comparing some of their DNA, I was hooked. It seemed surprisingly simple and very powerful when I was new to the field, although looking

deeper into something usually reveals the limitations and the unexpected complexities that one could not grasp at a superficial level. Still today, I am continuously surprised and excited how the field develops. I had not anticipated how much the field would change when I started my PhD and we can only make rough predictions of where it will go in the future, but I am definitely excited about what is to come. The research we can do today on *Thelymitra* and *Diuris* would not have been possible or affordable five years ago. We can analyse hundreds and thousands of nuclear loci instead of a handful. What can we do in five more years or a decade? I don't know, but it is good that we have a decadal plan for that!

While looking into the future, I deeply appreciate that systematics relies on the look into the past. We need to understand what we know so far and ask useful questions like, who described what species when, from where, and why? Where is the type from? Where was the Australian plate 20 million years ago again? What was it doing there? And why?

Anyway, I think I am getting a bit off topic here. I am a bit sad that I never had the chance to meet Marlies and Hansjörg Eichler and I know not much about them. I would probably like to have asked them a number of questions, in particular about their experiences immigrating to Australia in the 50's and whether they have been welcomed in a similarly warm and friendly way as I have. It is great to see that they have made such a large contribution to the society over the years and continue to support students and young scientists through their grants. I am happy to have received their generous support and hope to be able to contribute a bit to the society through that. Thanks Marlies and Hansjörg!

Lars

Websites of interest

***The Conversation* – New Zealand version launched**

Coinciding with the latest unbelievable happenings in Christchurch which shocked us all was the news that the Australian version of *The Conversation* now has a New Zealand editor and the site has become Australasian (Web ref. 1). Many of the first articles refer to different aspects of the terror attack.

The Conversation is going global and you can get responsible news from UK, US, France, Canada, Africa and Indonesia. For instance it was here that I first read about teff, *Eragrostis tef* (Zucc.) Trotter, an ancient grain from Ethiopia and the latest to become trendy in Europe and the US for its health benefits (Web ref. 2). Rich in iron, calcium, and fibre, teff with 11% of protein is an excellent source of essential

amino acids, in particular lysine, which is often deficient in grains. As well as this Teff grains are gluten free and they have a low glycemic index. Hyejin Lee (2018) gives a further background to the economics surrounding this crop and its importance to Ethiopia. Meanwhile it is available in Australia and New Zealand for those who want to try it.

References

Lee, H. (2018). Teff, a rising global crop: current status of Teff production and value chain. *The Open Agricultural Journal* 12: 185–193. DOI: 10.2174/1874331501812010185

Web ref. 1: <https://theconversation.com/new-zealand-joins-a-growing-global-conversation-79354>

Web ref. 2: <https://theconversation.com/ethiopia-needs-to-improve-production-of-its-golden-crop-teff-heres-how-112987>

Consortium of European Taxonomic Facilities (CETAF)

This great site (Web ref. 1) tracks what is happening in European taxonomy.

We [CETAF] ARE a taxonomic research network formed by institutions of reference in Europe. We HOLD 80% of the worlds' described biodiversity as specimens, collections and their data. We CONNECT over 5000 researchers in European Natural History Museums, Natural Sciences Museums, Botanic Gardens and other research institutions. We CONTRIBUTE to Europe's knowledge-base by enhancing the synergies of our Member's collections and research capabilities. [from Website]

It was here that a paper by Hobern et al. (2019) on the call for a new alliance connecting data and expertise was first seen.

References

Hobern, D. and 15 others (8 Mar 2019). Connecting data and expertise: a new alliance for biodiversity knowledge. *Biodiversity Data Journal* 7:e33679. <https://doi.org/10.3897/BDJ.7.e33679>

Web ref. 1: <https://cetaf.org/>

Eucalypt Australia

Eucalypt Australia is a grant-making Charitable Trust that focuses on eucalypts. Norwegian-born Bjarne Klaus Dahl spent his working life among the eucalypt forests of Victoria, in the early days as a forest assessor in government service, and in later years as a forester in industry. During that time, he developed an affinity with the Australian

bush and a high regard for the silvertop ash, *Eucalyptus sieberi*. Bjarne Dahl linked his well-being and financial prosperity to eucalypts, so much so that he left his entire estate to the Forests Commission of Victoria. A Trust was established in 2007 and there is now a medal for work in Eucalypts named in his honour.

You can read more about Dahl on the Trust's website (Web ref.), find out who recipients of the medal have been, and also find out about an impressive list of activities that happen on National Eucalypt Day, March 23rd [Adapted from Website]

Web ref. www.eucalyptaustalia.org.au/

Yale Environment 360

This came to light when locating the article on rosewoods (p. 46).

Yale Environment 360 is an online magazine offering opinion, analysis, reporting, and debate on global environmental issues.

They feature original articles by scientists, journalists, environmentalists, academics, policy makers, and business people, as well as multimedia content and a daily digest of major environmental news. [from Website]

Amongst the articles noted was one on the building of a 2700 mile road network in Papua by the Indonesian government which "is bringing a whole new level of destruction" to wild areas, including Lorentz National Park, a highly ranked World Heritage site (Web ref. 1), one on extreme botany in Hawaii (web ref. 2), an exploit some of our own also engage in (Web ref 3), and President Trump's border wall disrupting protected areas of rare tamaulipan brushland habitat in the Lower Rio Grande Valley National Wildlife Refuge (Web ref. 4).

Web references

1: <https://e360.yale.edu/features/a-highway-megaproject-tears-at-the-heart-of-papuas-rainforest>

2: <https://e360.yale.edu/features/extreme-botany-the-precarious-science-of-saving-rare-endangered-plants>

3: <https://www.abc.net.au/news/2017-12-07/abseiling-botanists-discover-rare-plants-nsw-national-park/9235832>

4: <https://e360.yale.edu/features/as-work-begins-on-trumps-border-wall-a-key-wildlife-refuge-is-at-risk>

Fauna & Flora International

In a similar vein to the one above this site has

information about flora and fauna conservation projects in more than 40 countries across the world. Established in 1903 their mission is to conserve threatened species and ecosystems worldwide, choosing solutions that are

sustainable, based on sound science, and which take into account human needs.

Web ref. <https://www.fauna-flora.org/about>

Book reviews

The go-to reference for south-east Australian rainforest plants

Review by: Andrew Thornhill
State Herbarium of South Australia

Rainforest plants of Australia: Rockhampton to Victoria – interactive identification key

**By Gwen Harden, Hugh Nicholson,
Bill McDonald, Nan Nicholson, Terry
Tame & John Williams**

Gwen Harden Publishing; 2014

**USB: RRP \$100: web price \$50 (in
Australia), SKU: 9780977555321; Mo-
bile App (Android and iOS) \$49.99**

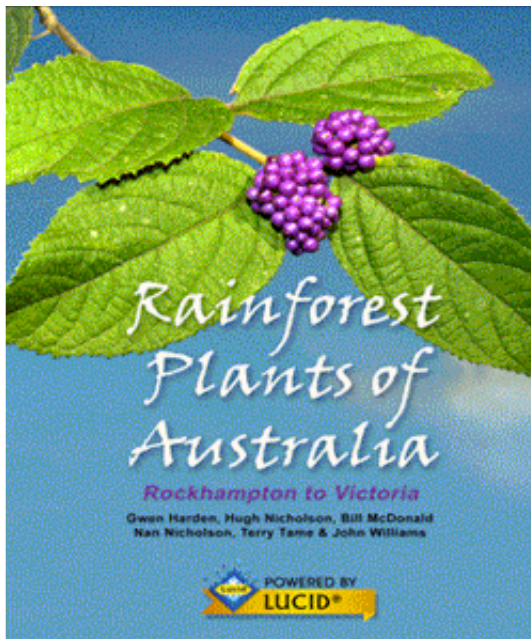
Rating: Five Stellaria *****

<https://rainforests.net.au/>

When I first moved to the Australian Tropical Herbarium one of the first things I did was to buy the six volumes of Nan and Hugh Nicholson's *Australian Rainforest Plants*. My plan was to digitise the books and get as much information out of them as possible to use for my research. Little did I know that Nan and Hugh and their co-authors were one step ahead of me, and I'm glad they were.

What has been produced is an incredibly thorough resource that can be explored in a number of ways. It should not be underestimated how big a project and effort it must have been to make this key. There are descriptions and images for 1139 taxa and more than 11 000 pictures! Information is provided

in a number of ways including a species list, a common name list and an interactive Lucid key. Even better is that the species lists and common name lists can easily be copied, there are no static picture names that block you from quickly compiling a list of plants. The key provides other useful resources too such as information on what different types of rainforest there are, instructions on how to use the key, a list of references and a list of useful websites for further reference. It is not just a list of plants and a key it is much, much more.



As for how the key works, well, if you are confident that you already know what species you have, then you can look it up in the list, click on its name, and a fact sheet will appear with information on habit, plant description, fruit type, flower, and distribution and multiple pictures of the plant are included with the fact sheet (usually about ten pictures for each species!). If you have an unidentified plant then you can use the interactive key using the diagnostic characters that you

have available to you. You also don't have to be an alpha taxonomist to use the key because all characters are illustrated with a diagram to show what the term means. This means that people who just have a passing interest in identifying one

plant should just as easily be able to use it as your hardcore botanists who spend their lives in the rainforest.

One thing that I really like, and which highlights the attention to detail that has gone into making this product, is that when you open the box, the first thing you see is a USB stick in the shape of a key. The key is a key! To set the key up you plug it into your computer and follow the installation instruction inside the front cover of the box. I tested the key on two different laptops, one running Windows 7 and one running Windows 10 and had no problems loading the key. One thing that you must do though is check for updates. Since the first release of the key, Java has changed its security, and so you need to visit a website (Web ref.) to download the most recent update to make sure that the key works in your browser. Again, it's worthwhile pointing out the effort it has taken to make sure that the key continues to work smoothly, and also, is up to date with the most current accepted taxonomy. This means that your key never goes out of date too, which is much more advantageous than an identification book that can be valid when you buy it but be left redundant when names are changed.

I could see room for future improvements. If the developers of the key happen to read this, it would be nice to have non-native plants identified by an asterisk in the list of scientific names and common names. At the moment it is not known whether a plant is a native, or a weed, or naturalised until the name is clicked and the information sheet is brought up. It's a minor thing, but as someone who wants to make lists of only native plants for research, then I think it

would be very helpful. Also indicating at the top of the plant lists that synonymous names are in italics would help the user. It took me a couple of clicks to realise what the italicised names were, and is also counterintuitive to how other species lists are usually presented. Finally, making an option to sort by family could prove useful to people who have some idea of what they already have. I managed to overcome this by searching for Myrtaceae but it was a slightly convoluted way of searching. The benefit I see in all of these suggestions is that the developers can decide if they may be useful and in their next update make the changes for everyone. That is the beauty of having an identification service that is electronic and easily updatable.

But in conclusion if you are interested in rainforests south of the Tropic of Capricorn and want to learn about the plants that grow in them then you MUST! buy this key. It should become the go to reference for identifying the rainforest plants of south-eastern Australian. It caters both for the general public who may have a passing interest in plants as well as the specialist botanist who would like to identify what they have. The books that formed the basis of this key were excellent but the *Rainforest plants of Australia: Rockhampton to Victoria* key takes things to a whole new modern level. As an even added bonus, since being sent this key for review, a mobile app version has become available. This would be an extremely useful identification tool for those who don't want to lug around a computer in the field.

Web reference

<https://rainforests.net.au/updates/>

A compendium all botanical libraries must have

Review by: David Mabberley
Oxford and Sydney

Plants of the World: an illustrated encyclopedia of vascular plants
By Maarten J.M. Christenhusz, Michael F. Fay, Mark W. Chase
Kew Publishing, Royal Botanic Gardens, Kew, 2018
792 pp. ISBN 978 1 84246 6346,
e-ISBN 978 1 84246 6360;
[University of Chicago Press:
ISBN- 13: 978-0-226-52292-0; ISBN-
13: 978-0-226-53670-5 (e-book)]
£65.00

This book is a monumental achievement – in all senses, as it is packed with information, making a truly encyclopaedic account of vascular plants – and weighs 3.265 kg.

It has illustrious predecessors. Post-Linnaean attempts at comprehensive accounts of the natural families of vascular plants begin with Michel Adanson's *Familles des Plantes* (1763), in the 1966 reproduction of which Frans Stafleu wrote that Adanson provided “for the first time a logically and philosophically sound basis for a natural classification of plants”. Adanson

included cryptogams as did Jussieu's *Genera plantarum* (1789; which the present authors cite as the first such effort, perhaps because this work is the modern nomenclatural starting date for family names), Jaume Saint-Hilaire's illustrated *Exposition des familles naturelles* (1805) and Lindley's *An introduction to the natural system of botany* (1830), the ultimate for seed-plants being Bentham and Hooker's *Genera plantarum* (1862-1883), followed by the voluminous output of the Engler school. In more concise form in the last century was that of the Kew botanist, John Hutchinson, his *The families of flowering plants* (1934, third ed. 1973), based on a Theophrastan f u n d a m e n t a l division between woody and herbaceous plants, to be followed by the more familiar works of Takhtajan, Cronquist and Thorne and the critique of their 'consensus' by Corner. Today we have the exhaustive treatise in production, Kubitzki's *The families and genera of vascular plants* (1990-).

Concise semi-popular compendia in the last century included, for angiosperms, Heywood's *Flowering plant families of the world* (1978), which, re-written with Brummitt and others, appeared in a revised Kew version in 2007, complete with explicit paraphyly, an approach now appearing increasingly quaint to most. But its format is the model for *Plants of the World* which differs from that last manifestation most markedly in recognising only monophyletic families, almost exactly those in APG IV and the authors' published systems for ferns and gymnosperms. What is immediately evident is the lavish use of images, mostly photographs (including self-portraits), almost all by the first

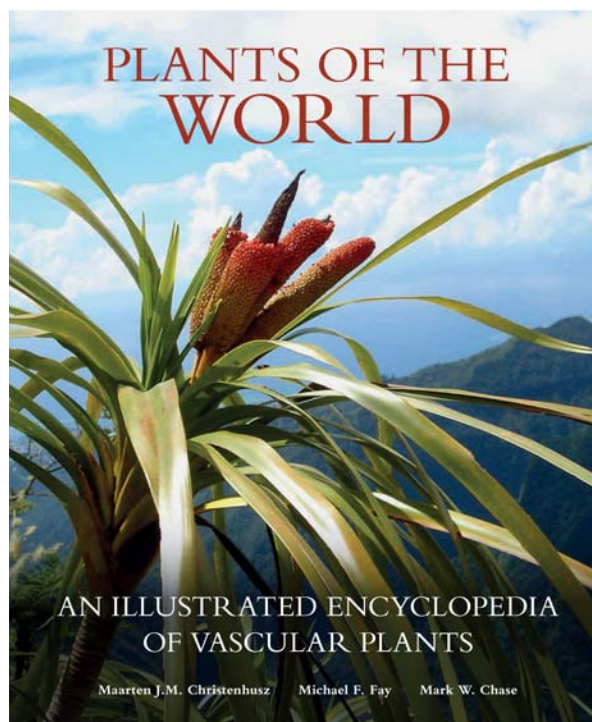
author but also by 76 others (p. 672), so that all the families have germane illustrations. This is one of the most valuable original aspects of the book.

The opening pages include handy tips on 'How to use this book'; an introduction pointing up the (neglected) importance of plants in conservation circles, evolution of land plants, plants and human culture, naming of plants, classification and the Angiosperm

Phylogeny Group, fossil plants, families, etymology and common names, genera, phyto-geography, economic botany, then straight into the text (p. 18). Each family has a general description, notes on distribution, phylogeny and evolution, list of genera with number of species, uses, etymology. Each grouping has its own references, while the end of the book has a good glossary (with photographic illustrations), a voluminous bibliography by family, as well as general references and an

index of scientific and common names.

The underlying philosophy, besides monophyly, is to recognise large families rather than splits ("Where family limits are drawn is a matter of convention and taste, and time will tell which system users will find easiest to apply"). So among ferns there are Cyatheaceae s.l.; Aspleniaceae s.l. and Polypodiaceae s.l. with subfamilies, though these are discussed in detail, because those are often treated as families by others. This broad approach is also applied to genera in line with the subsequently published on-line GLOVAP, which has attracted odium in many quarters. Indeed, many of the most controversial 'lumpings' in that work, e.g. a gigantic *Pyrus* and *Hakea* including *Grevillea*, are presaged here, though the authors



write that the “taxonomic combinations...have not been made...these nomenclatural changes are highly unpopular due to the common application of many of these names”. The combinations were provided in GLOVAP. Some genera like the Australian *Josephinia* are maintained, though sunk (in this case in *Sesamum*) in GLOVAP. But as the authors of this book opine that *Eucalyptus* should be (re-)expanded, not yet covered in GLOVAP, we have clearly not reached the end of controversy.

So there is a broad view of *Lycopodium*, and several other genera of ‘pteridophytes’, notably *Thelypteris* s.l. and *Hemionitis* for all Pteridaceae subfam. Cheilantheoideae (and this reviewer is not sad to see the ludicrously named ‘Gaga’ sunk into *Aspidotis*), is taken in contradistinction to a recently published ‘consensus’ classification (though they are not the first, not least in Australasia, to question that ‘consensus’). They point out that Equisetales are now considered closer to ferns than to fossil *Calamites*, a widely-held view. As far as angiosperms go, there are minor departures from AGP IV, notably *Peltanthera* and Calceolariaceae are amalgamated with Gesneriaceae and the name Adoxaceae is replaced by Viburnaceae.

It is clear that like all such compendia, the authors are heavily reliant on well-known websites, dictionaries and other plant books (see in particular the uses sections) but a great debt is

particularly owed to Peter Stevens’s invaluable Angiosperm Phylogeny website (Web ref.).

The style is in general accessible, even rather jaunty, though a whole page ‘box’ given to myths about *Fouquieria* seems out of place. One irritant is the unnecessary adoption or even coining of English names for families so far surviving without, Tetracarpaceae being called the delicate-laurel family, but take a guess at what are the fynbos family, kwongan rush family, ticotree family and tow-tow family. There are some rather unfortunate turns of phrase like that under Rafflesiaceae, “flower size increase... perhaps related to parasitism and loss of leaves and roots, allowing them to invest more energy in flowers” (p. 332). Proof-reading seems to have been good, though, for example, Melanthiaceae and Melianthaceae (p. 342) are confused, and some of the binomials used, like *Cleome sesquiorygalis* and *Hopea wightiana*, for example, are lost in synonymy. But these are minor cavils.

At the price this book is a bargain and Kew Publishing has done an excellent job in editing and production. Not everyone will be content with the underlying philosophy, but there is nothing else like this chunky volume. Your library needs it – if only for the illustrations.

Web reference.

www.mobot.org/MOBOT/Research/APweb/welcome.html

New books

Morphology and identification of the world’s conifer genera

By Viet Martin Dörken & Hubertus

Nimsch

Kessel Publishing House; 2019

ISBN: 9783945941539; 186 pp; 80

colour plates; 29 Euro + postage

<https://www.forstbuch.de/produkt/morphology-and-identification-of-the-worlds-conifer-genera-doerken-v-m-nimsch-h>

If you are into conifers the publishers provide a substantial enough glimpse into this publication for you to decide for yourself if you require it for your library. Bob Parsons drew it to our attention and played a role in proof-reading and editing the content.

Mr Guilfoyle’s Shakespearian botany

Edited by Diana E Hill and Edmée

Cudmore

The Miegunyah Press; 2018.

ISBN: 9780522873986; HB; 253 x 196

mm; 714 gm; \$AU45;

ISBN: 9780522873993; eBook, 82.3

MB; \$AU22.99

<https://www.mup.com.au/books/mr-guilfoyles-shakespearian-botany-paperback-softback>

This is the first volume in a trilogy on William Robert Guilfoyle, appointed director of the Melbourne Botanic Gardens in 1873. Gathered together in this volume are his collected writings on the dozens of plants, fruits and flowers William Shakespeare referred to in his plays and

poems. Each entry is accompanied by Basilius Besler's ground-breaking illustrations and delicate watercolours by Jacques le Morgues [From website].

You can find out more about the book from the publisher's web-page and the following websites.

Web sites

<https://www.smh.com.au/entertainment/how-horticulturalist-william-robert-guilfoyle-revealed-the-botany-of-shakespeare-20180824-h14gx5.html>

<https://queenslandreviewerscollective.wordpress.com/2019/01/11/mr-guilfoyles-shakespearian-botany-edited-by-diana-e-hill-edmee-cudmore/>

<https://www.botany.one/2019/03/bigging-up-bills-botany/>

<https://www.abc.net.au/radionational/programs/blueprintforliving/mr-guilfoyles-shakespearian-botany/10205042> (audio)

Plants that kill. A natural history of the World's most poisonous plants.

By Elizabeth A. Dauncey & Sonny Larsson

Kew Publishing; 2018.

ISBN: 9781842466575, RRP

\$AU59:95, 224 pp.

This is another book from Kew Publishing. We have a copy in our library and it is such an attractive book just to look at and dip into. There are existing reviews which you can investigate (Web refs 1–2).

Web references

1. <https://queenslandreviewerscollective.wordpress.com/2018/04/12/plants-that-kill-by-elizabeth-a-dauncey-and-sonny-larsson/>
2. <https://www.botany.one/2018/05/plants-that-kill/>

The spirit of inquiry: how one extraordinary society shaped modern science

By Susannah Gibson

Oxford University Press; 2019.

ISBN: 9780198833376; 400 pp., HB, 234x153mm

<https://global.oup.com/academic/product/the-spirit-of-inquiry-9780198833376>

The Cambridge Philosophical Society is celebrating 200 years in existence and this volume celebrates its history and the development of science in those years. Further information, including a table of contents and a blog can be found on the publisher's website and a review is

found at the site below.

Web ref. <https://www.nature.com/articles/d41586-019-00608-w>

Downloadables

Natural history of the Coorong, Lower Lakes, and Murray Mouth region (Yarluwar-Ruwe)

Edited by Luke Mosley, Qifeng Ye, Scoresby Shepherd, Steve Hemming & Rob Fitzpatrick

Royal Society of South Australia; 2019

ISBN: 978-1-925261-80-6, PB,

\$AU77.00; ISBN: 978-1-925261-81-3

Ebook (PDF), Free.

<https://doi.org/10.20851/natural-history-clmm>

<https://www.adelaide.edu.au/press/titles/natural-history-clmm/>

This book, a volume in the Natural History Series by the Royal Society of South Australia, explores the natural history of the Coorong, Lower Lakes, and Murray Mouth (Yarluwar-Ruwe) region of South Australia, a region that has been listed as a Wetland of International Importance under the Ramsar Convention.

The book is divided into four main themes: a historical overview of the region; its physical-chemical nature; its biological systems; and its management, resource use and conservation. The effects of large-scale anthropogenic change, climate change, global warming and sea level changes are discussed from multiple perspectives, as are the effects of acid sulfate soils and the overall consequences of the Millennium Drought on the water quality, biological life and food web.

The discussion includes information from Ngarrindjeri leaders about the history and culture of the Ngarrindjeri people, the traditional owners of the region's land and waters. The book concludes by establishing the vision and framework required for the important and increasing role that the Ngarrindjeri Nation will play in the shared long-term management of the region. [Publisher's blurb]

Despite its size (155.35 MB) the book downloaded in less than a minute.

Lichens of subtropical Queensland
By Roderick W Rogers; 2016
Online resource (iv, 179 pp); illustrations; 5.45 MB

Only available electronically in PDF through Qld Herbarium website

<https://www.qld.gov.au/environment/plants-animals/plants/herbarium/publications>

It is now more than 50 years since I first started to study lichens, and is over 40 years since I came to Brisbane as a young academic. I have seen too many Botanists die without making the information they had gathered available to others. This set of keys is intended to ensure that future lichenologists have a convenient starting point, and that until they spring into action, those who wish to name a lichen collected in Queensland south of the tropic have a working document available. [From the preface]

This work, brought to our attention by Russell Barrett, contains an introduction to lichens, with an emphasis on those of the subtropical region of Queensland, and a series of dichotomous keys, beginning with a key to the 14 sections. Following these are keys to the genera of each of these sections and then an alphabetic treatment of the genera with keys to species. Earlier versions are available on the web so check that you have the latest.

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The Society

The Australasian Systematic Botany Society is an incorporated association of over 300 people with professional or amateur interest in botany. The aim of the Society is to promote the study of plant systematics.

Membership

Membership is open to all those interested in plant systematics. Members are entitled to attend general and chapter meetings, and to receive the Newsletter. Any person may apply for membership by filling in a "Membership Application" form, available on the Society website (www.asbs.org.au), and forwarding it, with the appropriate subscription, to the Treasurer. Subscriptions become due on 1 January each year.

The ASBS annual membership subscription is AU\$45; full-time students \$25. Payment may be by credit card or by cheques made out to Australasian Systematic Botany Society Inc., and remitted to the Treasurer. All changes of address should be sent directly to the Treasurer as well.

ASBS publications

Australasian Systematic Botany Society Newsletter

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Edited by Helen Hewson, 1987

This Newsletter issue includes the reports from the February 1986 Boden Conference on the "Systematic Status of Large Flowering Plant Genera". The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concepts; the value of chemical characters, pollination syndromes, and breeding systems as generic determinants; and generic concepts in the Asteraceae, Chenopodiaceae, Epacridaceae, *Cassia*, *Acacia* and *Eucalyptus*.

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Evolution of the Flora and Fauna of Arid Australia (book)

Edited by W.R. Barker & P.J.M. Greenslade.

Peacock Publications, ASBS & ANZAAS, 1982

This collection of more than 40 papers will interest all people concerned with Australia's dry inland, or the evolutionary history of its flora and fauna. It is of value to those studying both arid lands and evolution in general. Six sections cover: ecological and historical background; ecological and reproductive adaptations in plants; vertebrate animals; invertebrate animals; individual plant groups; and concluding remarks.

Cost: \$20, plus \$10 postage (in Australia).

This book is almost out of print. There are a few remaining copies.

To order a copy of this book email Bill Barker at: bill.barker@sa.gov.au

History of Systematic Botany in Australasia (book)

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990

No longer available

Australasian Systematic Botany Society Newsletter

The Newsletter keeps ASBS members informed of Society events and news, and provides a vehicle for debate and discussion. In addition, original articles, notes and letters (not exceeding ten published pages in length) will be considered.

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