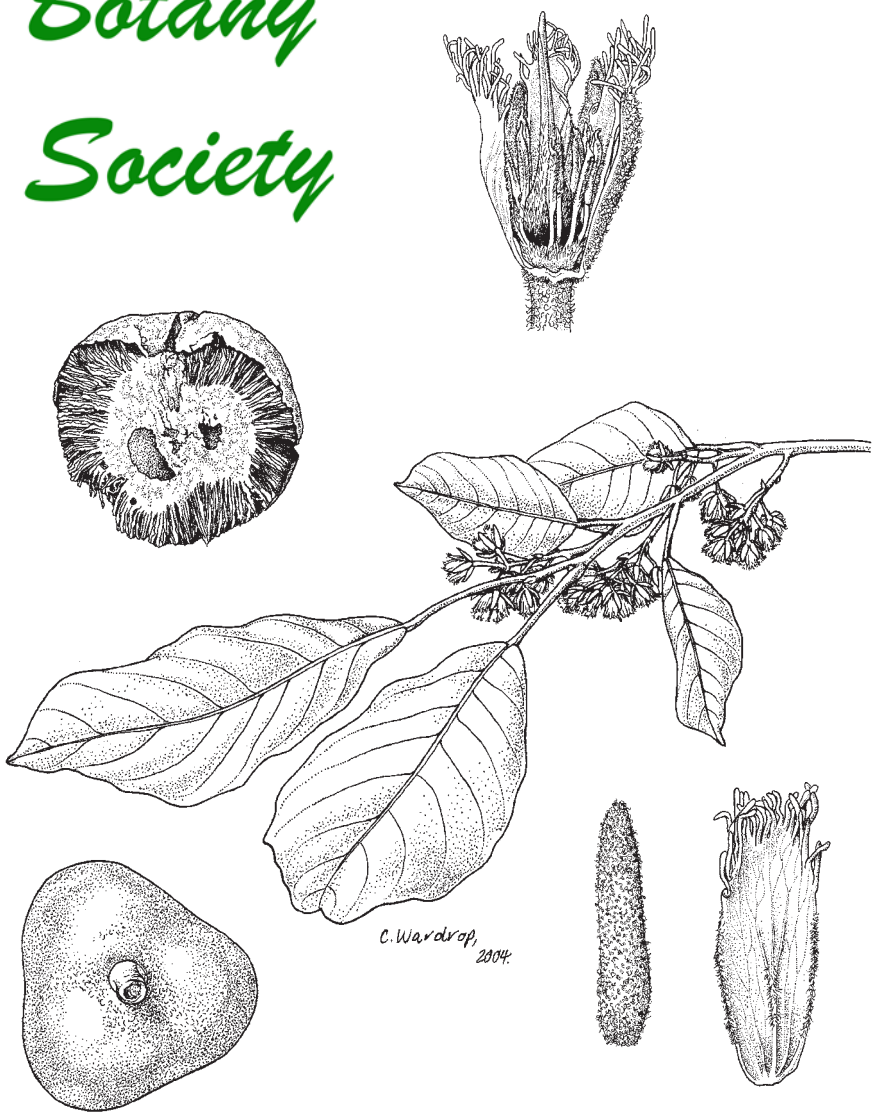
ASBS

Australasian Systematic Botany Society



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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

Council

Other constitutional bodies

Hansjörg Eichler Research Committee

David Glenny
Sarah Mathews
Heidi Meudt
Joanne Birch
Katharina Schulte
Murray Henwood
Chair: Dan Murphy, Vice President

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.

Public Officer

Anna Monro
Australian National Botanic Gardens
GPO Box 1777
Canberra, ACT 2601
Tel: (+612) (02) 6250 9530
Email: anna.monro@environment.gov.au

Affiliate Society

Papua New Guinea Botanical Society

Advisory Standing Committees

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David Cantrill
Bob Hill
Ad hoc adviser to Committee: Bruce Evans
Chair: John Clarkson, Treasurer

Grants Policy
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Web presence

ASBS Website: www.asbs.org.au

Webmasters

Anna Monro
Australian National Botanic Gardens
Canberra, ACT 2601 Australia
Tel: (+612) (02) 6250 9530
Email: anna.monro@environment.gov.au

Murray Fagg
Australian National Botanic Gardens
Tel: (+612) (02) 6250 9561
Email: murray@anbg.gov.au

ASBS Facebook Group

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

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

Cover image: *Elaeocarpus sedentarius* Maynard & Crayn. Leafy twig with clockwise from top: open flower, petal, sepal, proximal end of fruit, longitudinally sectioned fruit. *Artist*: Catherine Wardrop (NSW). *With permission of* CSIRO Publishing.

Publication dates of previous issue

Australas. Syst. Bot. Soc. Newslett. 170 (Mar 2017)
ASBS Web site: 28 Apr 2017. Printed version: 5 May 2017

From the President

2017 Conference

Preparations for the joint ASBS-SASB meeting in Adelaide are proceeding apace. Early registrations are open through the conference website (Web ref. 1: see also pp. 5 and 50). Please make sure you regularly visit it to keep abreast of developments and news – and start your travel planning!

Gender equity

Equity is a key issue for our Society and our discipline. Council is concerned to ensure that the Society is meeting community standards in terms of gender representation. In response to the realisation that one of its committees is all male, Council decided at a previous meeting (22 April 2016 teleconference) to focus on recruitment of females to existing and upcoming vacancies on Council and its committees. Council chose not to mandate a gender representation proportion because of concerns that this would be impractical in a small society where vacancies rarely attract more than a single nominee. It is considered that paying greater attention to identifying and eliminating the barriers to greater female participation and providing support and encouragement to potential officers and committee members is likely to facilitate smoother transitions between successive Councils and better outcomes for women and the Society. If this turns out not the be the case, a future Council may consider a mandate or an alternative approach.

To determine if there is any evidence of an entrenched gender bias across the Society more broadly we have conducted a brief review of our committees, awards and recent conference participation and roles. The results (Table 1) should be viewed in the context of the gender proportions across the various categories of membership (which are presented first).

This simple analysis does not address changes in the society or workforce through time. Caveats aside, the results indicate that for most of the Society's committees and activities gender balance is not consistently or seriously incongruent with the underlying membership balance (41% female). There are two areas, however, in which females are clearly under-represented: Nancy Burbidge Medal recipients and lecturers, and Council positions.

The first Nancy T. Burbidge Memorial Lecture was delivered by Selwyn Everist at the 1979 Sydney conference. Since then only 3 of the 22 lecturers (14%) have been female. The first Nancy T. Burbidge Medal, the Society's highest honour, was awarded in 2001 to Judy West. In total 13 medals have been awarded, 3 of them (23%) to women. The recipient of the Burbidge medal is invited to deliver the lecture, and since establishment of the medal in 2001 it has been customary for them to do so.

This paucity of female recipients of the Burbidge honours is striking. While there has been some change through time – none

Australasian Systematic Botany Society Inc.

Nominations for membership of the 2017–18 Council

In accordance with Section 13 of the Society's Rules, nominations are hereby called for membership of Council. Council consists of the following positions:
President, Vice-President, Secretary, Treasurer and two (2) Councillors.

Nominations must be received by the Secretary, Jennifer Tate at Massey University, Institute of Fundamental Sciences, Private Bag 11222, Palmerston North, New Zealand (j.tate@massey.ac.nz) before 5 pm Friday 29th September.

Nomination forms can be obtained from the Secretary (j.tate@massey.ac.nz) or from the ASBS web site at *www.asbs.org.au/council/2017-18_Council_Nominations_Web.pdf*

Notes

- A member may be nominated simultaneously for any number of positions on Council but is ineligible to hold more than one position at one time.
- Interested members are encouraged to nominate for a position on Council.

Table 1. Summaries of female representation in membership, participation, awards and official positions in the Australasian Systematic Botany Society.

	Total	Female	%
Membership (current)			
Ordinary	180	79	44%
Student	58	31	54%
Retired	59	18	31%
Unemployed	11	5	45%
Life	3	1	33%
Total	**331**	**135**	**41%**
Recent conference participation			
Alice Springs 2016			
Presentations	40	15	38%
Keynotes	1	0	0%
ASBS student support	7	2	29%
Canberra 2015			
Presentations	49	25	51%
Keynotes	3	2	67%
ASBS student support	9	4	44%
ASBS Awards and Honours (historic)			
Nancy Burbidge Medal (est. 2001)	13	3	23%
Nancy Burbidge Lecture	22	3	14%
Pauline Ladiges Prize (est. 2008)	8	4	50%
CSIRO Poster Prize (est. 2009)	7	2	29%
Hj. Eichler Grants (est. 1997)	66	36	55%
Australian Conservation Taxonomy Award	5	2	40%
ASBS Committees and Chapter Conveners (appointed by Council) (current)			
Financial Standing Committee	4	0	0%
Grants Policy Standing Committee	6	2	33%
Hansjörg Eichler Research Committee	7	4	57%
Chapter Conveners	10	4	40%
Total	**27**	**10**	**37%**
Council Positions (historic)			
President	17	2	12%
Vice-president	20	3	15%
Secretary	14	6	43%
Treasurer	13	2	9%
Councillor	35	12	34%
Total	**99**	**25**	**25%**

of the lecturers pre-2001 were female – the proportion of females honoured in both the pre- and post-medal eras is clearly much lower than that of the current plant taxonomic workforce. A partial explanation may be found in demographic change through time in taxonomic workplaces, which a generation or two ago were considerably less gender balanced than today, particularly with respect to senior research and leadership positions (Nancy Burbidge herself was a pioneer!). This would be reflected in the Burbidge honours more strongly than in any of the other ASBS activities or instruments because the Burbidge honours recognise lifetime achievement.

The other area is that of Council positions. Having only 25% of positions occupied by women over the life of the Society leaves considerable room for improvement which the 50% female representation target adopted by Council was designed to help achieve. While the current Council (33% females) beats the long-term average (25%), the numbers suggest that there exist substantial barriers to females taking up and serving in these positions. Identifying and eliminating such barriers will be an ongoing task for the present and future Councils, indeed for the entire taxonomy workforce.

Equity is a key issue for our Society and our discipline and one Council is attempting to systematically address.

Membership

Unfinancial members, currently numbering over 60, are gently reminded to settle up as

soon as possible. Hopefully some, or many, will have paid before the end of the financial year which will have passed by the time this is published. It is important for the Society, and the Treasurer's sanity, that members avoid falling unintentionally into arrears. If a member does not wish to renew, unthinkable though that is, a quick email to the Treasurer would save him/her the effort of chasing a zephyr. A brief explanation would also be appreciated so that if the Society has failed the member in any way we can strive to improve our service in the future, and hopefully win the member back!

Decadal Plan

It has happened – funding has been secured from the Ian Potter Foundation to pursue development of the Decadal Plan for Taxonomy and Systematics. Kevin Thiele has been employed by the Academy of Sciences (which is auspicing and administering the project) and the writing has begun in earnest. Please engage and contribute to the development of ideas through the *noto*|*biotica* blog (Web ref. 2). The following progress report from Kevin Thiele that was emailed to the membership in early July provides further detail:

The Working Group for the taxonomy and systematics decadal plan project (Table 2) is now meeting fortnightly, to workshop ideas and help with the drafting of the Plan. These meetings, and the participants, are proving invaluable, with Working Group members contributing very valuable time and thoughts. Working Group members (Table 2) are available for contact and discussion to learn more or to contribute.

The Plan is shaping up, and we're on a good track for the release of an Exposure Draft at the joint ASBS/SASB meeting in Adelaide in late November. As currently envisaged, the Plan will comprise the following sections:

1. Executive Summary
2. Intent, Scope and Audience
3. Partners and Process
4. Biosystematics and Taxonomy: What are they, and why are they important?
5. Snapshot: Australasian Biosystematics and Taxonomy in 2018
6. Education: The Foundation of our Science
7. Services: Addressing National Priorities
8. Frontiers for a New Decade
9. Strategic Plan: Roadmap for the Next Decade
10. Governance: Managing Australasian Biosystematics and Taxonomy
11. Resources: Realising the Plan
12. Appendices

Sections 2–4 have been drafted, and drafting of Section 5 has commenced. Section 4 will be made available for comment on the noto|biotica website (Web ref. 2) very soon. In many ways, Section 4 is one of the core parts of the document, as it seeks to establish the value and importance of taxonomy and systematics for science and society. Any feedback on that section once released for comment will be very welcome by the Working Group.

Another key part of the document will be Section 8. This section will establish our shared vision for the next decade. We need to think big, bold, and strategically for this section. To that end, see the announcement elsewhere in this Newsletter of the Taxonomy 2028 Challenge (p. 27), where we will be seeking ideas and visions from the whole taxonomy and systematics community. This will be your opportunity to put your thinking caps on and

Australasian Systematic Botany Society Inc.

Notice of 2017 Annual General Meeting

The Annual General Meeting of the Australasian Systematic Botany Society Inc. will be held in conjunction with the ASBS/SASB joint meeting in Adelaide,
on Tuesday 28th November at 3.30 pm (Adelaide time),
at the University of Adelaide, North Terrace Campus

The purpose of this meeting is to:

- confirm the minutes of the annual general meeting held on 26th September 2016 (see *ASBS Newsletter* 168–9: 2–19);
- receive reports from Council on activities of the Society during the preceding financial year;
- declare the results of the vote for membership of Council.

Table 2. Decadal Plan Working Group members

Dr Kym Abrams	Postdoctoral Fellow (ABRS), University of Western Australia and WA Museum Research Associate
Dr Claudia Arango	Research Associate, Queensland Museum
Prof. Andy Austin	Head, Department of Genetics & Evolution, and Director, Australian Centre for Evolutionary Biology & Biodiversity (ACEBB), The University of Adelaide
Dr Shane Ahyong	Senior Research Scientist, Australian Museum
Dr Bill Barker	Honorary Research Associate, State Herbarium of South Australia
Dr Ilse Breitwieser	Portfolio Leader, Systematics, LandCare Research NZ
Prof. David Cantrill	Executive Director Science, Royal Botanic Gardens Victoria
Prof Gerry Cassis	Professor of Biology, Evolution & Ecology Research Centre (E&ERC), University of New South Wales
Prof. Darren Crayn	Director, Australian Tropical Herbarium; President, Australasian Systematic Botany Society
Rachael Fowler	PhD candidate, The University of Melbourne
Ms Sue Fyfe	Director, Biodiversity Science, Parks Australia, DoEE
Dr Mark Harvey	Head of Department and Senior Curator, Western Australian Museum
Dr Ailsa Holland	Science Leader, Species and Herbarium Collections, Queensland Herbarium
Dr John Hooper	Head of Biodiversity & Geosciences Program, Queensland Museum
Dr Pat Hutchings	Senior Principal Research Scientist, Australian Museum
Dr Peter Johnston	Mycologist, Landcare Research NZ
Dr Leo Joseph	Group Leader, Vertebrate Collections, CSIRO; Chair, Council of Heads of Australian Faunal Collections
Dr John La Salle	Director, Atlas of Living Australia
Prof. Peter Lockhart	Institute of Fundamental Sciences, Massey University
Dr Tom May	Senior Research Scientist (Mycology), Royal Botanic Gardens Victoria
Dr Jane Melville	Senior Curator (Terrestrial Vertebrates), Museum Victoria
Dr Rolf Schmidt	Collection Manager (Invertebrate Palaeontology), Museum Victoria
Dr Katharina Schulte	Research Scientist, Australian Tropical Herbarium
Prof. Roger Shivas	Agri-Science Queenland
Dr Jen Tate	Senior Lecturer, Institute of Fundamental Sciences, Massey University NZ, Secretary, Australian Systematic Botany Society
Dr Kevin Thiele	Project Manager, Systematics and Taxonomy Decadal Plan, Australian Academy of Science
Dr Ken Walker	Senior Curator (Entomology), Museum Victoria
Dr Genefor Walker Smith	Collection Manager, Museum Victoria
Prof. Michelle Waycott	Director, State Herbarium of South Australia; Chair, Council of Heads of Australasian Herbaria
Dr Peter Weston	Honorary Research Associate, National Herbarium of New South Wales
Mr Anthony Whalen	General Manager, Australian Biological Resources Study, DoEE
Dr Nerida Wilson	Western Australian Museum; President, Society of Australian Systematic Biologists
Prof. David Yeates	Director, Australian National Insect Collection

help envisage (and envision) the future.

This is also an early announcement that the Working Group plans to hold stakeholder and sector meetings in all major cities, probably in September. Details and dates should be worked out in the coming weeks. These meetings will be an important opportunity to workshop ideas arising from the Taxonomy 2028 Challenge, and to develop a consensus for the future and the Plan.

Web references

1. ASBS/SASB conference 2017. *systematics.ourplants.org*
2. Decadal Plan blogsite. *notobiotica.posthaven.com*

Darren Crayn
President, ASBS

Systematics 2017

Integrating Systematics for Conservation and Ecology

Adelaide — 27–29 November

A joint meeting of the Society of Australian Systematic Biologists,
the Australasian Systematic Botany Society, and
incorporating the Invertebrate Biodiversity and Conservation Biennial Meeting

for more information visit: systematics.ourplants.org
and please subscribe on the website for updates

Society of Australian Systematic Biologists

Eichler Research Fund reports

Rare and endangered *Eucalyptus magnificata*: taxonomy, genetic diversity and demography.

Tim Collins
University of New England, tcollins@myune.edu.au

Eucalyptus magnificata L.A.S.Johnson & K.D.Hill, is an endangered species endemic to the Northern Tablelands Bioregion of eastern Australia (NSW Scientific Committee 2000). Different concepts held by the New South Wales and Queensland herbaria on the recognition of *E. magnificata*, combined with a scattered distribution and longstanding uncertain taxonomic determinations of some gatherings, indicated that a detailed study was needed.

Research was carried out as a part-time BSc Honours project at the University of New England (UNE) examining morphology, phytochemistry and genetics using Illumina-based Genotyping-by-sequencing (GBS; Elshire *et al.* 2011). Species included in the study were selected based on a close relationship to *Eucalyptus magnificata* in the current taxonomic arrangement (Brooker 2000). An award of $1,500 was made from the Hansjörg Eichler Scientific Research Fund to expand the number of GBS samples of *E. magnificata*, *E. baueriana* Schauer and *E. conica* H.Deane & Maiden, and to also include samples of *E. polyanthemos* subsp. *polyanthemos* Schauer in analyses.

There were two main aims to this project:

1. to resolve the taxonomic uncertainties in *Eucalyptus magnificata*, given that some northern populations near Tenterfield and Warwick are currently designated as *E*. aff. *magnificata* and *E*. cf. *magnificata*; and
2. to determine long-term survival prospects of *E. magnificata,* listed as an "endangered species" by the NSW Government, by examining distribution of genetic diversity, the demographics of each population (assessing tree age and recruitment across each site, and summarising the overall health of populations), the results serving any reassessment of conservation management.

To address the first aim, I used phenetic analyses of adult and seedling morphology, phytochemistry, and analyses of genetic data with both hierarchical and non-hierarchical approaches. Single nucleotide polymorphism (SNP) variation was analysed by Bayesian non-hierarchical clustering using STRUCTURE (Pritchard *et al.* 2000). Molecular evidence supported results from morphological and phytochemical analyses showing distinct differences between named species and a putative new species. The multiple lines of evidence gathered during this study provide strong support for the recognition of trees at Dalveen, Queensland, as a separately evolving entity at species level. The results resolved *E. magnificata s. str.* as distinct from the new species, and revealed putative hybrid populations geographically near *E. magnificata*. They also indicated that the 'aff.' and 'cf.' populations belong to *E. conica*.

To address the second aim, I tested the hypothesis that larger populations have higher genetic diversity, a greater range of demographic viability, and better overall health leading to better long-term survival prospects. Analysis of heterozygosity found inbreeding was not a factor in any of the trees from large or small populations in the study. Genotypic divergence was found to be low among all populations of *E. magnificata*, with the small and relatively isolated Enmore (Type) population, near Armidale NSW, having the greatest divergence. Extending the sampling, with the support of the Hansjörg Eichler Scientific Research Fund, produced more detailed and reliable measures of genetic health, as well as greater resolution of the species boundaries.

Outputs

Preliminary results of morphological, phytochemical and molecular analyses were presented at the ASBS 2016 conference in Alice Springs. An Honours thesis submitted to the University of New England, contains a comprehensive account of the project. A manuscript presenting results of all analyses,

and describing the newly discovered species *Eucalyptus dalveen ined.*, is currently being prepared. A report on *E. magnificata* has been submitted to the NSW Local Land Services and the Office of Environment and Heritage detailing precise population sizes and locations, genetic diversity and divergence, and site-specific threats. Seeds of *E. magnificata* from the two largest populations have been provided to the Australian PlantBank, Australian Botanic Garden, Mount Annan.

Acknowledgements

In particular, I would like to thank the Australasian Systematic Botany Society for supporting this work through the Hansjörg Eichler Scientific Research Fund. I also thank Prof. Jeremy Bruhl and Dr Rose Andrew for their supervision, support and advice in my research; the Director of the National Herbarium of NSW for access to the collection and loan of material, the Office of Environment and Heritage NSW and various landowners for permission to study and collect in New South Wales and Queensland; and the University of New England and the School of Environmental and Rural Science for funding and facilities including the N.C.W. Beadle Herbarium.

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NSW Scientific Committee (2000) '*Eucalyptus magnificata* (a tree) - endangered species listing.' Available at *www.environment.nsw.gov.au/determinations/EucalyptusMagnificataEndSpListing.htm* [Accessed 16/2/2016].

Pritchard, JK, Stephens, M, Donnelly, P (2000) Inference of population structure using multilocus genotype data. *Genetics* **155**, 945–959. *www.genetics.org/content/155/2/945.long*

A review of the subtribe Neurachninae Clayton & Renvoize (Poaceae: Panicoideae: Paniceae) using DNA sequences

E.J. Thompson
c/o Queensland Herbarium

This study showed that the subtribe Neurachninae is not monophyletic based on phylogenetic analysis of molecular data that included six plastid loci (ndhF, matK, rbcL, rpl16, rpoC2 and trnLF) and one nuclear locus (ITS). Neurachninae as represented by Soreng et al. (2015) is shown from this study to consist of four well-supported groups identified from analysis of the molecular data. The four groups have distinctive morphology including one group that corresponds to Neurachninae sens. str. The study revealed that several new taxa are represented including species, genera and subtribes.

The recent phylogenetic analysis of molecular and morphological data by Soreng et al. (2015) concluded that Neurachninae is comprised of six genera: *Ancistrachne* S.T.Blake, *Calyptochloa*, (C.E.Hubb.) E.J.Thomps. & B.K.Simon, *Cleistochloa* C.E.Hubb. Clayton & Renvoize (syn. *Dimorphochloa* S.T.Blake), *Neurachne* R.Br., *Paraneurachne* S.T.Blake and *Thyridolepis* S.T.Blake. The current study confirmed the circumscription of Neurachninae by Clayton & Renvoize (1986) but with *Paraneurachne* nested inside *Neurachne*, and *Thyridolepis* the only monophyletic genus in the analysis. *Ancistrachne*, *Calyptochloa* and *Cleistochloa* represent the three other groups that correspond to three new subtribes. *Ancistrachne* is not monophyletic with *Ancistrachne maidenii* (Ham.) Vickery sister to *Calyptochloa*. Consequently, *A. maidenii* will be transferred to a new genus. *Ancistrachne uncinulata* (R.Br.) S.T.Blake and *A. numaeensis* comprise a sister group to Neurachninae. Two undescribed species currently placed in *Dimorphochloa* are also sister to *Calyptochloa*. As a result these undescribed species represent a new genus. *Cleistochloa* and *Dimorphochloa* comprise a sister group to *Calyptochloa*.

The results from this study will be published following further analyses involving morphological data.

Acknowledgements

I am indebted to ASBS for the financial support from the Hansjörg Eichler Scientific Research

Fund. This support provided essential finance for laboratory consumables for DNA extraction at the Queensland University of Technology (QUT), Gardens Point, Brisbane. I express my utmost gratitude to Dr Jennifer Firn for her highly valued encouragement and support at QUT. I express my gratitude to Dr Melodina Fabillo for her continuous support and guidance in the laboratory and technical assistance with sequence alignment, data analysis, interpretation of results, and reviewing a draft of this report. As an Honorary Associate at BRI, I am extremely grateful to Dr Gordon Guymer for his tireless support. I am most thankful to Guillame Lannuzel and Bruno Fogliani, Axe II "Diversités biologique et fonctionnelle des écosystèmes terrestres", Paita, New Caledonia for providing leaf material and caryopses of *Ancistrachne numaeensis*.

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Articles

Nancy Burbidge admitted to the Australian Women's Pioneer Hall of Fame

John Clarkson
Queensland Parks and Wildlife Service, Atherton

After the conference in Alice Springs last year my wife Marion and I visited the National Pioneer Women's Hall of Fame (Web ref.). Founded by Molly Clark of Old Andado Station in 1993, and located in the former HM Gaol and Labour Prison, the Hall of Fame is dedicated to preserving the place of women in history for their special contribution to Australia's heritage. The museum contains a fascinating array of historical records, literature, personal manuscripts, stories, artefacts, photographs, artworks and memorabilia of Australian women who were first in their respective fields of endeavour.

Fig. Nancy Tyson Burbidge.
Photo originating from CSIRO

One of the things that struck me as I walked around the exhibits was how poorly women's contribution to science was represented in the collection. There were some; like Agnes Bennett, the first woman to gain a science degree at Sydney University; Adrienne Clarke, the first female chairperson of CSIRO; Dorothy Hill, the first woman appointed to the Chair of any Australian University and the first woman elected as a Fellow of the Australian Academy of Science; and Denise Allen, the first woman to winter on the Antarctic continent and the first woman to complete winter postings at all four Australian Antarctic bases — but not one botanist.

I sought out the curator, Dianna Newham, and spoke to her about some of our pioneering female

botanists and followed this up with some information on Nancy Burbidge (Fig.). I had all but forgotten the matter until an email arrived from Dianna in May telling me that the Hall of Fame's Acquisition Committee had met earlier that month and accepted Nancy's nomination. Nancy's story will now be added to the Hall of Fame's Herstory Archive.

The archive is used by researchers and provides inspiration for future exhibitions at the Hall of Fame and online. The archive is to be substantially upgraded in the second half of this year and I plan to put together an additional package of material on Nancy. On and off over the years I have been gathering information on the various memorials to Nancy (p. 11) and I would appreciate hearing from any member who might have photographs or information that I could pass on to the Hall of Fame.

Web ref. *http://pioneerwomen.com.au/*

Nancy Tyson Burbidge AM, DSc

Andrew Burbidge, Perth

Nancy Tyson Burbidge was born on 5 August 1912 in Cleckheaton, Yorkshire, United Kingdom and moved to Australia with her parents in 1913, living at Katanning. Her mother Eleanor founded the Kobeelya Church of England Girls School in Katanning and she was educated there, at Bunbury High School, and then at The University of Western Australia UWA), where she graduated with a BSc in 1937. At an early age Nancy developed an interest in the Australian bush, especially its flora (Fig. 1). This interest was stimulated when, after graduating from UWA, she was awarded a scholarship providing free passage to the United Kingdom, enabling her to spend 18 months at the Royal Botanic Gardens Kew Herbarium from 1939 to 1940. While at Kew she worked mainly on Australian grasses, which became a life-long interest, and prepared a comprehensive review of *Enneapogon*.

Returning to Australia, she worked at the Institute of Agriculture at UWA. While there she undertook a three-month field trip to the De Grey River region in the Pilbara, which stimulated an interest in the taxonomy and ecology of the quintessential arid zone genus *Triodia* (spinifex grasses). In 1942–3 Nancy worked for the WA Forests Department, researching root development and mycorrhizae of *Pinus pinaster*. Unable to obtain a position at the Western Australian Herbarium because the head would not employ women, she moved away from WA, first to South Australia at the Waite Agricultural Research Institute, working on the regeneration of native pastures, and then to Canberra.

A turning point in Nancy's career came with her appointment, in 1946, to the new position of Systematic Botanist in the CSIRO Division of Plant Industry. There she developed an embryonic herbarium and plant identification service into the Herbarium Australiense, later renamed the Australian National Herbarium. Her position was later converted to Curator. Soon, she initiated what was to become an outstanding part of her contribution to Australian botany, assisting all Australian plant taxonomists, wherever located. This was done mainly through her work for the Systematic Botany Committee of the Australian and New Zealand Association for the Advancement of Science (ANZAAS) and more specifically through a series of publications, culminating in works such as *Select list of publications in systematic botany available in Australia* (1951) and *Dictionary of Australia Plant Genera* (1963). She was one of the initiators of the Australian Systematic Botany Society (later the Australasian Systematic Botany Society), which remembers her through the Nancy T. Burbidge Memorial lecture series, first delivered in 1979, and in the naming of its foremost honour for contributions to Australasian plant systematics The Nancy T. Burbidge Medal. In 1973 she was a prime mover in the establishment of the Committee (later Council) of Heads of Australian Herbaria. In 1953–4 she returned to Kew as the fourth Australian Botanical Liaison Officer. Among a significant output from her term is the microfilm of Robert Brown's manuscript at the British Museum (Natural History) with a comprehensive mimeographed finding aid.

Despite being based in Canberra, Nancy's early interest in the WA flora never abated, and she returned periodically for collecting trips. Her

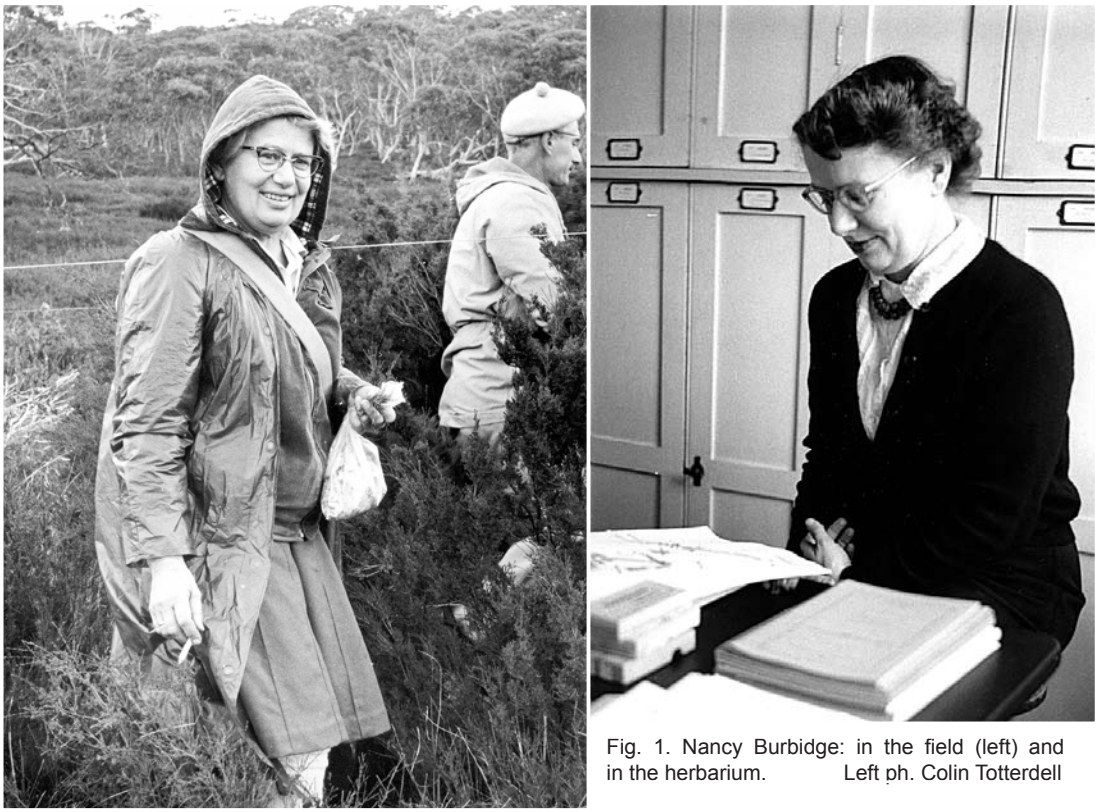

Fig. 1. Nancy Burbidge: in the field (left) and in the herbarium. Left ph. Colin Totterdell

association with UWA also continued, firstly adding an MSc to her qualifications in 1945, and then in 1961 she became the first UWA woman to graduate with a DSc. One of three volumes of her thesis was the seminal work *The phytogeography of the Australian region*[1]. She was a prolific collector, with more than 8,000 numbers, mainly lodged at the Australian National Herbarium (CANB).

Nancy wrote and illustrated many scientific and popular papers, reports and books. Among the reports were a series on the flora of the Australian Capital Territory, which were later the basis of a book, *The Plants of the Australian Capital Territory*, co-authored with Max Gray (1963). Her interest in grasses led to the publication of *Australian Grasses* (three volumes, 1966, 1968, 1970), later to be revised and augmented by other botanists.

A committed conservationist, Nancy was a founding member of the ACT National Parks Association, which lobbied for more protected areas. This resulted in the declaration of several areas, notably Gudgenby Nature Reserve; later to become Namadgi National Park. Mt Burbidge, located within the park, recognises her involvement.

Despite her enormous contribution to and output in her chosen profession, Nancy's interests and activities were not confined to botany. She was an advocate for a greater role of women in science and other professions, being active in the Australian Federation of University Women (President 1957–8) and the Pan Pacific and South East Asian Women's Association as well as actively supporting other causes such as scholarships for Aboriginal women.

Nancy was keenly interested in and supported plans for the preparation of a new Flora of Australia and in 1973 she was relieved of her responsibilities at the Herbarium Australiense to enable her to devote all of her time to the Flora project, which developed under the auspices of the Australian Academy of Science. There, as well as carrying out administrative duties, she undertook a comprehensive revision of the list of systematic botany publications in Australian libraries, building on the list she had published

[1] Subsequently published in *Australian Journal of Botany* 8: 75–212.

25 years earlier. Unfortunately the progressive deterioration in her health and untimely death on 4 March 1977 meant that she was unable to continue to lead the Flora project.

Nancy's contributions to Australian botany and conservation have been recognised in many ways. Among these was the award of the Clarke Medal by the Royal Society of NSW (1971), Honorary Life Membership of the ACT National Parks Association (1972) and Member of the Order of Australia (1976). In 2006, the ACT government honoured her with a plaque on the city's Honour Walk in the city centre. The Nancy Burbidge Amphitheatre in the National Botanic Gardens is another ongoing memorial. An altar piece in St Michael's Anglican Church, Mount Pleasant, WA, is dedicated to her.

Botanists have recognised her contributions by naming plant species after her: *Sclerolaena burbidgeae* (1978), *Acacia burbidgeae* (1979: Fig. 1), *Bulbostylis burbidgeae* (1980), *Aristida burbidgeae* (1984), *Boerhavia burbidgeana* (1984), *Nicotiana burbidgeae* (1984), *Triodia burbidgeana* (1992), *Picris burbidgeae* (1993), *Sesbania burbidgeae* (2010), *Vittadinia burbidgeae* (2005) and *Beaufortia burbidgeae* (2016).

Fig. 2. *Acacia burbidgeae*. Ph. R. Purdie

The history of the Nancy Burbidge memorials

John Clarkson
Queensland Parks and Wildlife Service, Atherton

Nancy Burbidge was active in the establishment of the Australian Systematic Botany Society (which became the Australasian Systematic Botany Society in 2011). She is probably best known to members of this Society, particularly the younger members, for her contribution to plant systematics. However, Nancy was active in many cultural and scientific societies and associations in both Canberra and elsewhere. Some of these included the Australian Federation of University Women, University Women's Graduate Association, the Pan-Pacific and South-East Asia Women's Association, the Royal Society of Canberra, the Australian and New Zealand Association for the Advancement of Science, the Australian Institute of Agricultural Science and the Pacific Science Association. She was also a foundation member of the National Parks Association of the ACT; its first Secretary; a committee member for 11 years; and president for two terms. It is not surprising then that she is remembered in many ways by these societies in and around Canberra. Here are some of the ways she is remembered.

The Nancy T. Burbidge Medal

The idea of awarding a medal to recognise outstanding contribution to Australian plant systematics was first discussed by the 1996-97 Council under the presidency of Tim Entwisle. Tim announced the decision in his report to the Annual General Meeting held in Adelaide on the 1st October 1997 (Entwisle 1997). There was some delay in having the medal struck (Entwisle 1998) and the first medal was not awarded until 2001.

The medal (Fig. 1) measures 6 cm in diameter. The obverse features the ASBS logo of a *Xanthorrhoea* plant with flowering scape surrounded by a circle. The letters ASBS on the rim are bisected by the inflorescence. The

reverse bears around the rim the inscription: AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY ● NANCY T. BURBIDGE MEDAL ●. The name of the medallist and the year the medal is awarded is engraved in the centre.

The first batch of medals was produced in 2001 by Premier Awards in Milperra, NSW. A second batch of almost identical medals was made by the same company in 2011, recognising the change in the Society's name to Australasian Systematic Botany Society.

1. The award is subject to a number of criteria.
2. The Nancy T. Burbidge Medal is awarded to a person who has made a longstanding and significant contribution to Australian systematic botany. It is the foremost award that can be conferred by the Society.
3. The award is made by the Australasian Systematic Botany Society on the recommendation of Council. The award is not necessarily made each year.
4. Normally only one medal will be presented in any calendar year although Council retains the right to depart from this in exceptional circumstances.
5. Nominees need not be members of the Australasian Systematic Botany Society but must be proposed and seconded by two financial members of the Society.
6. Nominees need not be Australasian, nor be working in Australasia, but their contributions should have a significant Australasian focus.
7. The nominee must be living when the decision to award the medal is made. However, the death of the nominee between this time and the date set for the presentation does not preclude the award being made posthumously.
8. Nominations for the award can be made at any time.
9. Nominations shall include a statement outlining the contribution of the nominee to Australasian systematic botany and the names of 2 referees.
10. There is no nomination form. Nominations must be submitted in writing to the Secretary. These should be marked private and confidential. E-mail is acceptable.

Medallists are encouraged to deliver a lecture as part of the medal presentation ceremony. Where possible, this is incorporated in the program of the annual ASBS conference as a key note address. A list of awardees is given in Table 1.

The Nancy T. Burbidge Lecture

On the evening of 14 February 1978, discussions were held at a meeting of the Canberra Chapter of ASBS on ways of honouring the memory of Nancy Burbidge. Estelle Canning, the Secretary of the Canberra Chapter, addressed the Council Meeting of ASBS held at Sydney University the following evening and put forward five recommendations for consideration by Council (Wilson 1978a). After discussion, Council agreed to accept these recommendations with slight changes. It resolved that:

Fig. 1. The Nancy T. Burbidge Medal, obverse (left) and reverse.

- a Nancy T. Burbidge Memorial Lecture be established
- the lecture form part of the botanical programme of ANZAAS meetings or general meetings of ASBS at the discretion of Council
- the subject of the lecture be a topic dealing with an aspect of the Australian flora
- the lecturer be selected by Council of ASBS and any necessary subvention be assisted by ASBS
- ASBS Council Secretary invite members to contribute to ASBS funds (as memorial to N.T.B.) in several consecutive issues of the ASBS Newsletters and that any other invitations to subscribe be handled by a Committee from Canberra Chapter.

Table 1. Nancy T. Burbidge medallists

Year	Medalist	Award report
2001	Dr Judith G. West	ASBS Newsletter 109: 12-13
2002	No award	
2003	Prof Robert S. Hill Prof David J. Mabberley	ASBS Newsletter 115: 12 ASBS Newsletter 116: 1-3
2004	Mr Alexander S. George	ASBS Newsletter 127: 2
2005	Dr Barbara G. Briggs	ASBS Newsletter 125: 32
2006	No award	
2007	No award	
2008	Prof Stephen D. Hopper	ASBS Newsletter 136: 15-16
2009	No award	
2010	No award	
2011	Prof Michael D. Crisp Prof Pauline Y. Ladiges	ASBS Newsletter 147-8: 1-3
2012	Mr Bruce R. Maslin	ASBS Newsletter 153:25-30
2013	Prof Philip J. Garnock-Jones	ASBS Newsletter 157: 29-31
2014	Dr Peter H. Weston	ASBS Newsletter 161: 31-34
2015	Prof John A. Elix	ASBS Newsletter 165:37-43
2016	Dr Anthony E. Orchard	ASBS Newsletter 168-9:21-30

ASBS Secretary, Karen Wilson, duly reported on Council's decision in the ASBS Newsletter of March 1978 (Wilson 1978b) and invited members to send donations to the Treasurer, Mike Lazarides. By the time the subsequent Newsletter was published in May, donations totalled $225 (Anon 1978). Council's decision was discussed at length and ratified at the 4th General Meeting of the Society held in Melbourne on 30th August 1978 (Wilson 1978c).

The inaugural lecture was delivered by Selwyn Everist, Director of the Queensland Herbarium, at the 5th General Meeting of the Society held at Sydney University on the 19 January 1979. The text of the lecture "The role of herbaria in Australia today" was published in the magazine *Search* (Everist 1979). At the General Meeting of the Society, held in Adelaide on 14 May 1980, there was further discussion on the lecture (West 1980). Although members present were supportive of the lecture, the general opinion was that it was not necessary to hold it each year. Between then and 2001, when the first Nancy T. Burbidge Medal was awarded, the lecture was delivered on average every two years (Table 2). Since then the lecture has generally been linked to the award ceremony associated with presentation of the medal.

The Nancy T. Burbidge Memorial Amphitheatre

At the suggestion of the Pan Pacific and South-East Asia Women's Association, ACT and with the approval of the Canberra National Memorials Committee, a memorial in the form of a small amphitheatre (Fig. 2) was constructed in the eucalypt lawn of the National Botanic Gardens, Canberra. The memorial was opened in the presence of Her Excellency, Lady Cowen on 14 September 1980. The stone and timber amphitheatre is used as an open-air classroom and meeting place for students and other groups (Web ref. 1). ASBS supported the project and provided funds towards a small plaque erected at the site (Canning 1980). The amphitheatre was the site of a memorial service honouring the contribution of Hansjörg and Marlies Eichler to Australasian systematic botany held in association with the ASBS conference held in Canberra in December 2015 (Fig. 2; Barker 2015).

Mount Burbidge

In October 1992, acting on a submission by the National Parks Association of the ACT, the ACT Department of the Environment and

Table 2. Nancy T. Burbidge Lectures from inception in 1979.

Year	Lecturer	Title of Lecture	Venue	Place of publication
1980	H.T. Clifford	Seedlings and the Australian flora	Adelaide	
1983	B.J. Grieve	History of key to flora of temperate WA	Perth	*ASBS Newsletter* 39: 1–7
1985	H.E. Connor	The effect of Australian dicotyledons on the taxonomy of the angiosperms	Thredbo	*ASBS Newsletter* 43: 1–15
1986	D.E. Symon	The diversity of *Solanum* fruits: a world survey	Brisbane	*ASBS Newsletter* 52: 1–7
1988	J.H. Willis	Melbourne: a focal point for early botanical activity	Melbourne	*ASBS Newsletter* 56: 1–4
1989	R. Schodde	Origins, radiations and sifting in the Australasian biota: changing concepts from new data and old	Sydney	*ASBS Newsletter* 60: 2–11
1990	R.C. Carolin	There is one thing greater than armies: an idea whose time has come	Canberra	*ASBS Newsletter* 65: 1–7
1993	E.M. Truswell	Vegetation change in the Australian Tertiary in response to climatic and phytogeographic forcing factors	Hobart	*ASBS Newsletter* 74: 10 (abstract).
1994	G.A.M. Scott	Cryptogams: the better investment	Kuranda	*ASBS Newsletter* 80: 13–18
1996	P.Y. Ladiges*[1]	Biogeography after Burbidge	Melbourne	*Australian Systematic Botany* 11(2): 231–242
1998	M.D. Bennett	Genomic organization and systematics in the 21st century	Sydney	
1999	A.A. Burbidge	Conservation of the biota of the South-West Botanical province of Western Australia	Perth	*ASBS Newsletter* 102: 25–33
2001	J.G. West*	Future directions of systematics in Australia	Sydney	
2003	R.S. Hill*	Fire, air, water and earth: elemental evolution of the Australian flora	Melbourne	*Philosophical Transactions of the Royal Society of London* B 359: 1537–1549.
2008	S.D. Hopper*	Old Australian landscapes yield new perspectives on biodiversity evolution and conservation	Adelaide	*ASBS Newsletter* 136: 15–16 (abstract)
2011	M.D. Crisp*	Evolution of the Australian flora	Melbourne	
2012	B. Maslin*	Nancy Burbidge memorial speech	Perth	*ASBS Newsletter* 153: 25–30
2013	P. Garnock-Jones*	Sex and the Land Plant life cycle	Sydney	*ASBS Newsletter* 157: 29–31
2014	P. Weston*	Problems and progress in plant systematics since Nancy Burbidge	Palmerston North	*ASBS Newsletter* 161: 31–34
2015	G. Kantvilas	Jack Elix and Australian lichenology	Canberra	*ASBS Newsletter* 165: 37–43
2016	A. Orchard*	Allan Cunningham: botanist, explorer, ecologist, geographer (and zoologist, geologist, plant geographer, anthropologist, agricultural consultant, linguist, and social commentator).	Alice Springs	*ASBS Newsletter* 168–9: 21–30

* Indicates Nancy T. Burbidge Medallist; [1] Nancy T. Burbidge Medal awarded in 2011

Fig. 2. Nancy T. Burbidge Memorial Amphitheatre and plaque, Australian National Botanic Gardens, Canberra. Left, ASBS honouring Hansjörg and Marlies Eichler in 2015; right, The plaque. Ph. M. Fagg, J. Clarkson

Planning gazetted the name Mount Burbidge for a previously unnamed 1,720m peak in the Namadji National Park (Townsend 1992). It was a well-deserved memorial to Nancy who was an indefatigable worker for the declaration of a national park in the ACT (Anon 1992). The peak (Fig. 3) at 35° 42′ 44.1″ South 148° 53′ 47.3″ East, about 50km SSW of Canberra, is east of Mount Kelly and south east of Mount Namadji. Getting to the summit requires some effort (Web ref. 2) but it can be seen from the Boboyan forest car park.

Fig. 3. Mount Burbidge (mid ground) in the Namadji National Park. Ph. Paul Ma

ACT Honour Walk

Nancy's name was added to the ACT Honour Walk in Canberra in December 2006 (Porter 2001). Plaques on the ACT Honour Walk (Fig. 4), located on Ainslie Avenue between London Circuit and the Canberra Times Fountain outside the Canberra Centre, recognise individuals or groups from across all categories of endeavour that have made significant and outstanding contribution to the ACT (Web ref. 3). Nancy shares this honour with such notable Australians as Manning Clark, Frank Fenner, Charles Bean and Walter Burley Griffin (and for that matter the ACT Brumbies, the Canberra Raiders and the Canberra Capitals).

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Wilson, K.L. (1978b). Nancy T. Burbidge Memorial Lecture. *Australian Systematic Botany Society Newsletter* 14: 6–7.

Wilson, K.L. (1978c). Abbreviated Minutes of the 4th General Meeting held in Melbourne on 30th August, 1978. *Australian Systematic Botany Society Newsletter* 17: 3–4.

Web ref. 1. Nancy T Burbidge Memorial Amphitheatre. *www.anbg.gov.au/gardens/visiting/exploring/memorials/burbidge-amphitheatre.html* (accessed 23 June 2017).

Web ref. 2. *http://mntviews.blogspot.com.au/2015/01/kelly-burbidge-nsw-australia.html* (accessed 23 June 2017).

Web ref. 3. *www.cmd.act.gov.au/communication/act-honour-walk* (accessed 6 August 2017).

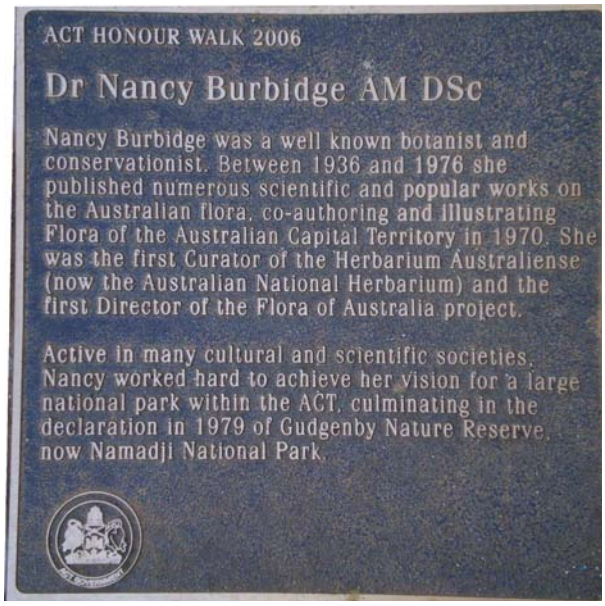


Fig. 4. The plaque on the ACT Honour walk honouring Nancy's contribution to the ACT community.

For the greater glory of God. A dedication to the memory of Nancy Burbidge

Karina Knight[a] and John Clarkson[b]
[a]Western Australian Herbarium,
Department of Biodiversity, Conservation and Attractions, Perth;
[b] Queensland Parks and Wildlife Service, Atherton

In a number of biographies of Nancy Burbidge there are references to an altar frontal dedicated to her memory in St Michael's Anglican Church in the Perth suburb of Mount Pleasant. We have located the piece (Fig. 1) and, with generous assistance provided by the parish priest The Reverend Pamela Turner, obtained photographs and learned some of the history surrounding it.

Nancy's father, William Burbidge, was an Anglican clergyman who emigrated with his family from England to Australia in 1913. He was appointed to the parish of Katanning in the diocese of Bunbury. It was here that Nancy's mother, Eleanor, founded the Kobeelya Church of England Girls School (Web ref.) in 1917 and where Nancy received her early education.

Nancy's only sibling, an older brother, Edward, was also an Anglican clergyman. He retired to Mount Pleasant where he assisted the parish priest by taking services at St Michael's at Christmas, Easter and other occasions. Hence the connection with St Michael's. In November 1978, a little over a year after Nancy's death, Edward and his family presented the altar frontal to St Michael's in her memory.

Throughout the centuries, decorations and ornaments placed in churches have tended to show either old traditional designs or the beauties of God's creation. This frontal follows the latter with distinctively Australian images. A small embroidered label (Fig. 2a) attached to the back of the frontal is headed "A.M.D.G." (Ad maiorem Dei gloriam). It attributes the design to Heather McSwain and the magnificent embroidery to Laila Hilton and Thyra Robertson. Rev'd Turner gave us a small type written note by Mrs McSwain explaining the symbolism of the frontal.

> The study of Australian trees, shrubs and plants was the absorbing interest of Nancy Burbidge's life and was her life work. So the frontal shows three *Banksia* flowers of great beauty. These might suggest the three persons of the Blessed Trinity. Each flower

Fig. 1. The altar frontal donated to St Michael's Anglican Church in memory of Nancy Burbidge.
Ph. K. Knight

Fig. 2. The altar frontal. Left, a small embroidered label attached to the back of the frontal provides details of its creators. Right, Many of the techniques that have gone into the production of the frontal are illustrated in this close up of one of the honey-eaters. Ph. K. Knight

> growing into light gives the idea of Christ, the Light of the World. Birds flying free have long been used to suggest freedom. In this case the freedom of our aspirations, or again our prayers rising up to God. These birds are honey-eaters — a bird common locally. Honey in turn suggests sweetness — the sweetness of the love that is God. Brilliant colours below the Banksias give an idea of a stained glass window in an older building — a reminder of Nancy's lifelong devotion to her Church.

Mrs McSwain points out that this is her interpretation and that "each one who sees it will read into it their own ideas and meaning". For example Rev'd Pamela suggested that the flowers might imply fecundity and the Fruits of the Spirit, and the birds could be viewed as feeding on the word of God and taking it to the world.

The embroidery work, a combination of techniques including applique, hand and machine stitching and metal thread work, is exquisite as the detail in the honey-eaters testifies (Fig. 2b).

The frontal is one of several donated to St Michael's by Edward and his family. This particular one is considered the Festival Frontal and is used throughout the liturgical year, particularly between Christmas and Pentecost. Sadly it is showing signs of deterioration. It has wax marks and the fabric is fraying near the top and on the corners. Professional advice provided to the church on its conservation suggests that in time it will disintegrate and the only option is to make another, especially if it remains in frequent use.

Web ref. *http://katanningaccommodation.com.au/kobeelya-school-museum-history/*

The Eileen Ramsay collection at the National Herbarium of Victoria

Alison Vaughan
National Herbarium of Victoria

A valuable collection of Victorian Mallee flora has recently been transferred to the National Herbarium of Victoria (MEL) from the Mildura City Council. Collected by Eileen Ramsay in the 1940s and 1950s, the collection of over 1000 specimens includes several species that were new records for Victoria at their time of collection, as well as many important weed records for the area. The Ramsay collection joins the almost 800 unmounted – and 77 mounted and databased – Ramsay specimens already at MEL.

Hilda Eileen Ramsay (1886–1961) was an amateur botanist and plant collector based at Red Cliffs, east of Mildura. A founding member of the Sunraysia Field Naturalists' Club, Ramsay collaborated closely with Jim

Willis at MEL and regularly sent specimens to MEL for identification throughout the 1950s.

Ramsay's forays into plant collecting began in 1949, when she was put in touch with Edith Packe and Dr Reuben T. Patton at the Mildura Branch of the University of Melbourne. In biographical notes provided to MEL in 1955, Ramsay writes that she had 'been interested always in Nature, especially the wild life but had had no previous opportunity to pursue this interest' (Ramsay 1955b). She wished to undertake the University of Melbourne's Botany course by correspondence and, though she was 'refused any opportunity' to formally enrol in the University (Ramsay 1955b), the establishment of the Mildura Branch nevertheless provided her with the contacts and opportunity to undertake serious botanical study. Correspondence between Edith Packe and Jim Willis shows that Ramsay was an enthusiastic collector, accompanying Packe and Patton on field trips in the region, as well as keeping a lookout for plants of interest to the University on her own excursions (Packe 1949).

More often than not, however, Ramsay was accompanied on her collecting trips by entomologist John Plant, another founding member of the Sunraysia Field Naturalists' (Chandler 1965).

Ramsay's collecting activity was confined to the far north-west of the Victorian Mallee. In her own words Ramsay wished 'most earnestly to help put this comparatively little known and less cared-for Mallee area of Victoria on the map, botanically, at least' (Ramsay 1955b). She began collecting at a time when an emerging conservation ethos coincided with rapidly expanding agricultural activity in the Mallee, and her self-penned biographical notes reveal both her passion and concern for the Mallee landscape: 'I wish life was long enough to deal with all its aspects. So much of its almost prehistoric growths and formations are disappearing ever more rapidly' (Ramsay 1955b).

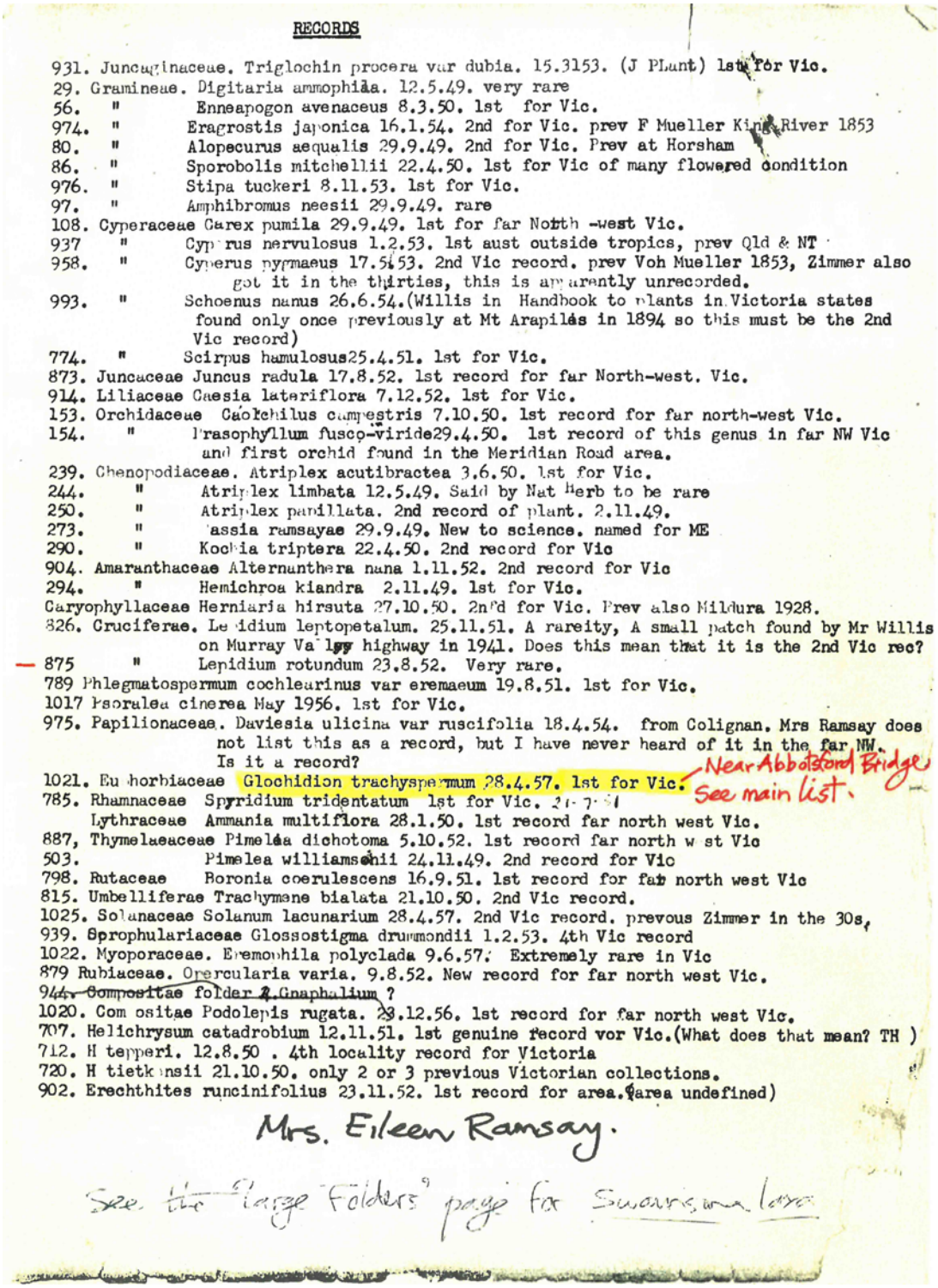
Although she focussed on vascular plants, her collecting efforts did not discriminate among them: 'all plants, large and small, are welcome' (Ramsay 1955b). Within four years of beginning her collecting endeavours, 'she had collected 1000 examples of the local flora' and, within a decade, she had 'added at least ten native species to the Victorian flora, two being new to science' (Willis 1975, p. 230). A list of specimens in the Ramsay herbarium (and their associated collecting information) was compiled by Mallee botanist Tom Henshall in the mid-1960s. The register includes a page listing the botanical novelties and rarities within the collection, attesting to its scientific value (Fig. 1).

Although the full significance of the Ramsay collection will only be revealed once the collection is fully processed and novelties and duplicates within the existing MEL collection are assessed, the significance of Ramsay's contributions to botany are for now best summed-up by Willis's dedication in his description of *Bassia ramsayae*, which he named in her honour:

> The specific epithet is a tribute to Mrs E. Ramsay of Red Cliffs, whose energy and high enthusiasm have been responsible for the discovery of this and several new species in her district, also for other important additions to our Victorian Mallee flora during the past decade. (Willis 1957, p. 153)

The arrangement with MEL was that Ramsay would forward a duplicate specimen of everything she sent for determination; Willis (or a colleague) would identify the specimens then return a set to Ramsay. Much of the undatabased Ramsay material at MEL – still in quaint brown paper packages tied up with string – bears notes by Willis referring to letters from Ramsay, but these letters were not located in the Willis archives held in the library at the Royal Botanic Gardens Victoria. However, the number of distinct packages – 34 over an eight-year period – suggests a regular and enthusiastic correspondence.

In addition to her correspondence with Willis at MEL, Ramsay occasionally sought botanical advice from botanists such as H.M.R. Rupp (for orchids), J.M. Black (on the flora of South Australia) and T.R.N. Lothian (the head of the Adelaide Botanic Gardens, who was working on *Wahlenbergia* at the time) (Barker 2015). These collaborations ensured that the collection was – for a while, at least – a reliable and up-to-date reference herbarium for the Mallee flora.



RECORDS

931. Juncaginaceae. Triglochin procera var dubia. 15.3153. (J PLant) 1st for Vic.
29. Gramineae. Digitaria ammophiàa. 12.5.49. very rare
56. " Enneapogon avenaceus 8.3.50. 1st for Vic.
974. " Eragrostis japonica 16.1.54. 2nd for Vic. prev F Mueller King River 1853
80. " Alopecurus aequalis 29.9.49. 2nd for Vic. Prev at Horsham
86. " Sporobolis mitchellii 22.4.50. 1st for Vic of many flowered condition
976. " Stipa tuckeri 8.11.53. 1st for Vic.
97. " Amphibromus neesii 29.9.49. rare
108. Cyperaceae Carex pumila 29.9.49. 1st for far North -west Vic.
937 " Cyperus nervulosus 1.2.53. 1st aust outside tropics, prev Qld & NT
958. " Cyperus pygmaeus 17.5.53. 2nd Vic record. prev Voh Mueller 1853, Zimmer also got it in the thirties, this is apparently unrecorded.
993. " Schoenus nanus 26.6.54.(Willis in Handbook to plants in Victoria states found only once previously at Mt Arapiles in 1894 so this must be the 2nd Vic record)
774. " Scirpus hamulosus25.4.51. 1st for Vic.
873. Juncaceae Juncus radula 17.8.52. 1st record for far North-west. Vic.
914. Liliaceae Caesia lateriflora 7.12.52. 1st for Vic.
153. Orchidaceae Caolchilus campestris 7.10.50. 1st record for far north-west Vic.
154. " Prasophyllum fusco-viride29.4.50. 1st record of this genus in far NW Vic and first orchid found in the Meridian Road area.
239. Chenopodiaceae. Atriplex acutibractea 3.6.50. 1st for Vic.
244. " Atriplex limbata 12.5.49. Said by Nat Herb to be rare
250. " Atriplex pandillata. 2nd record of plant. 2.11.49.
273. " Bassia ramsayae 29.9.49. New to science. named for ME
290. " Kochia triptera 22.4.50. 2nd record for Vic
904. Amaranthaceae Alternanthera nana 1.11.52. 2nd record for Vic
294. " Hemichroa kiandra 2.11.49. 1st for Vic.
Caryophyllaceae Herniaria hirsuta 27.10.50. 2nd for Vic. Prev also Mildura 1928.
826. Cruciferae. Lepidium leptopetalum. 25.11.51. A rareity, A small patch found by Mr Willis on Murray Valley highway in 1941. Does this mean that it is the 2nd Vic rec?
875 " Lepidium rotundum 23.8.52. Very rare.
789 Phlegmatospermum cochlearinus var eremaeum 19.8.51. 1st for Vic.
1017 Psoralea cinerea May 1956. 1st for Vic.
975. Papilionaceae. Daviesia ulicina var ruscifolia 18.4.54. from Colignan. Mrs Ramsay does not list this as a record, but I have never heard of it in the far NW. Is it a record?
1021. Euphorbiaceae Glochidion trachyspermum 28.4.57. 1st for Vic. Near Abbotsford Bridge
785. Rhamnaceae Spyridium tridentatum 1st for Vic. 21-7-54 See main list.
Lythraceae Ammania multiflora 28.1.50. 1st record far north west Vic.
887, Thymelaeaceae Pimelea dichotoma 5.10.52. 1st record far north west Vic
503. Pimelea williamsonii 24.11.49. 2nd record for Vic
798. Rutaceae Boronia coerulescens 16.9.51. 1st record for far north west Vic
815. Umbelliferae Trachymene bialata 21.10.50. 2nd Vic record.
1025. Solanaceae Solanum lacunarium 28.4.57. 2nd Vic record. prevous Zimmer in the 30s,
939. Sprophulariaceae Glossostigma drummondii 1.2.53. 4th Vic record
1022. Myoporaceae. Eremophila polyclada 9.6.57. Extremely rare in Vic
879 Rubiaceae. Opercularia varia. 9.8.52. New record for far north west Vic.
~~944. Compositae folder~~ 2.Gnaphalium ?
1020. Compositae Podolepis rugata. 23.12.56. 1st record for far north west Vic.
707. Helichrysum catadrobium 12.11.51. 1st genuine record vor Vic.(What does that mean? TH)
712. H tepperi. 12.8.50 . 4th locality record for Victoria
720. H tietkensii 21.10.50. only 2 or 3 previous Victorian collections.
902. Erechthites runcinifolius 23.11.52. 1st record for area.(area undefined)

Mrs. Eileen Ramsay.

See the 'large Folders' page for Swan Swamp Lake

Fig. 2. 'Records' – botanical novelties and rarities from the Ramsay herbarium, as compiled by Tom Henshall. The additional handwritten notes are in Bob Parsons' hand.

Ramsay donated her collection to the Mildura Arts Centre in 1960. The collection was on display at Rio Vista, the building that houses the Mildura Arts Centre, for several years before being removed from display (Barker 2015). Although the collection remained, in theory at least, 'accessible for consultation by local or visiting botanists' (Willis 1975, p. 231), the lack of annotations on the specimens suggest it was little-used. Seven specimens were, however, loaned to Dr Bob Parsons at La Trobe University in 1979, albeit after much persuasion by Parsons of the virtues of herbarium loans for botanical research and upkeep of collections. Parsons subsequently suggested that the entire collection be moved to Melbourne to make it more accessible for botanical research, but the Mildura Council firmly believed that 'the collection should remain in Sunraysia to be enjoyed by future generations of Sunraysia people' (Anonymous 1979).

With the collection remaining unused over 30 years later, the Mildura Rural City Council agreed to permanently transfer the collection to the State Botanical Collection at the National Herbarium of Victoria in March 2016.

Given our understanding that Ramsay sent a duplicate specimen with everything she sent to MEL for determination, we expect that many of the MEL specimens will prove to be duplicates of those from Ramsay's personal herbarium. However, as many of the MEL collections lack the level of collecting detail recorded with her main collection, their value as scientific resources (and as potential duplicates for other herbaria) will be greatly improved by cross-checking them with Ramsay's personal herbarium.

As well as being a highly valued scientific collection, the Ramsay collection has proved inspirational for more creative pursuits. In 2015, Melbourne artist and printmaker Christine Johnson undertook a residency at the Art Vault in Mildura, creating a series of works inspired by Ramsay's herbarium. With the help of local plant enthusiasts, Johnson re-collected several species from Ramsay's much-loved Mallee, from which she produced botanical cyanotypes for inclusion in an exhibition entitled *Voyages Botanical* (Port Jackson Press 2016; RBGV 2016).

The Ramsay collection from Mildura is currently being remounted to archival standards by the volunteer team at MEL, and the determinations are being checked and updated as required. Once remounted and checked, the specimens are being photographed in preparation for their use in MEL's first DigiVol expedition. DigiVol – which has been developed in collaboration with the Atlas of Living Australia (ALA) – is an online volunteer program that allows interested members of the public to help database specimens from museums and herbaria around the world by transcribing label information from specimen images (see Web ref.).

In a letter to Miss Davis at MEL – who was assisting Willis in acquiring biographical details of as many extant collectors as possible – Ramsay wrote that she was 'proud to be enrolled with those who have helped and are helping to preserve as much as possible of Australia's flora' (Ramsay 1955a). In turn, we are hoping to enrol locals from the Mildura region to help with the transcription of the Ramsay collection, and the preservation of her botanical legacy. Once vetted by staff at MEL, the data will be added to the collections database and made available via the Australasian Virtual Herbarium, thereby ensuring that the collection can indeed be enjoyed (virtually, at least) by future generations of Sunraysia people.

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A background to Eileen Ramsay's botanising

Robyn Barker
State Herbarium of South Australia

Alex George and I are both registered valuers with the Australian Government's Cultural Gifts Program (Web ref. 1) which basically offers tax incentives to encourage people to donate cultural items to public art galleries, museums, libraries and archives in Australia. Herbaria also come under this mix, but there are not a great number of private herbaria about these days and so this has not been an irksome task, for me at least. This particular valuation (Barker 2015) was not even for tax purposes but it took me into rather unfamiliar territory and proved to be an interesting study. And it showed once again that the botanical world is a small one.

Alison in her article (Vaughan 2017) has given a more than adequate background to the Eileen Ramsay Herbarium, covering: its collection by Mrs Ramsay, usually with entomologist, John Plant (1931–2014); her connections with the University of Melbourne and later Jim Willis at the National Herbarium of Victoria (MEL); the donation of both plant and insect collections to the Mildura Arts Centre in 1960; and their display in the then museum section of the Centre together with photographs by Les Chandler[1] and Aboriginal artefacts collected by Hal Thomas[2]. In 1966, presumably after the specimens had been removed from display, Tom Henshall[3], in his then capacity as President of the Sunraysia Field Naturalists' Club (formed in 1949), compiled a list of species in the herbarium (see fig. 1 in Alison's article). He indicated that the names of some of the specimens were already out of date, but there is no evidence that his offer to update them was taken up. The specimens then suffered the usual fate of such regional collections. Once the driving force has gone and without anyone prepared to devote the time to curate them and keep them in the public eye, they quickly fall into disuse and are consigned to a cupboard, or in this case a series of insect-proof plastic boxes, until someone either recognises their value or they are thrown out. Prompted by both John Plant and Mary Chandler, amongst others, the Mildura Arts Centre, who no longer maintained a museum section, were urged to donate the Ramsay herbarium to MEL. Negotiations to achieve this were begun in 2013.

Mary Chandler, long term resident and a fount of knowledge on the history and local environment of the Mildura area, is the daughter of photographer Les Chandler, mentioned above, and a long term friend of John Plant, who lived in the same street as her. Mary and her father were both members of the Sunraysia Field Naturalists' Club and frequently went bush with Mrs Ramsay and John Plant. It turned out that Mary is also a cousin of Tom Henshall and in January 2015 she indicated that he would turn 90 that year and was living in Milton on the NSW coast. Mary was also responsible for the only photo seen of Mrs Ramsay (Fig. 1) and sent me scanned copies of the two articles in which it has been reproduced, both of them without acknowledgement of her as photographer (L. Chandler 1965; M. Chandler (undated)). And lastly she provided me with her account of the life of John Plant (M. Chandler 2014) which she intended sending to a newspaper. I acknowledge her generosity in sharing this information for the preparation of my report.

Some of the people mentioned in Alison's report were associated with the Mildura campus of the University of Melbourne.

[1] Les Chandler was a founding member of the Sunraysia Field Naturalists' Club and also of the Nature Photographers' Club of Australia (Web ref. 2).

[2] Hal Thomas was an amateur archaeologist of the Mildura and District Anthropological Group. The group collected tens of thousands of artefacts from the region in the 1950s and these were later donated to the Museum of Victoria (McWilliams ?2016)

[3] This is the same Tom Henshall who later moved to Alice Springs and was for many years associated with the Alice Springs Herbarium.

Fig. 1. "Mrs Ramsay, holding botanical specimens, watches John Plant capturing a rare moth." Original ph. M. Chandler: reproduced from Chandler (undated)

Opened in May 1947, this was the first completely residential Australian university campus[1]. It was established to cope with retraining the flood of returned World War II service personnel. Several thousand students, many of them of mature age, undertook their first year of studies in medicine, engineering, architecture, dental science and, in some cases, science at the campus which boasted its own cinema, post office, hospital, shops, library, sporting grounds, and an annual magazine appropriately named *Dust* (Web ref. 3). The campus closed at the end of 1949 when the demand for places declined.

All three volumes of the short-lived *Dust* contain a photograph of the staff and Edith Packe, technician in Botany, features in all of them. Packe made herbarium collections now housed in MELU, MEL and CANB, but there is little other information to be found on her. An obituary is mentioned in the papers of Margaret Blackwood in the Melbourne University Archives; Blackwood was the lecturer in botany at the Mildura campus in 1947 but left for Cambridge to do a Ph.D. in 1948. Reuben T. Patton (1883–1962) only joined the staff in Mildura in 1949 and does not feature in any of the photographs; he had been a lecturer in Agricultural Botany and Plant Pathology at Melbourne University from 1921 to 1948 and it is likely that this was just a short term placement following retirement (Web ref. 4). But a young John Plant is featured in the 1949 photograph, next to Edith Packe, and this is in line with a statement from Mary Chandler (2014) who wrote of him that:

> His first job was a Lab Technician at the Mildura Branch of the University of Melbourne, which was located out at the old air force base (established during World War II). During his time there he was both allowed and encouraged to sit in at lectures which greatly suited him as he was in the Science Department. This encouraged him to further his interest in entomology.

[1] I had assumed that the reference was to a war-time campus in my report.

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Web ref. 4: *www.eoas.info/biogs/P000697b.htm*

Preiss's account of his Western Australian travels

Karen Wilson and Alastair Wilson
Sydney

J.A.L. (Ludwig) Preiss is very well-known for his natural history collections made in south-western Australia in the early days of the colony (1838-1842) – see, for example, Calaby (1967), McGillivray (1975), Marchant (1990). Soon after his return to Germany he wrote a short account (Preiss 1842) of his travels and the material he had collected. Those like me (KW) who do not read German have probably been unaware of this account, which has now been translated by AW.

One wonders what might have been if his intention to undertake a second long journey in Australia had been realised.

Journey report (Preiss 1842)

> In the face of numerous requests, the undersigned feels obliged to make public a few words on his natural history excursions in west and south-west Australia, and especially on the provenance of the natural history collections brought from there to Hamburg. He must leave it for another occasion to report in detail, in a separate description, on this strange country of which so little is still known.
>
> At the time the undersigned left Hamburg (1837), the west of Australia was still very much unknown, and only very little of its natural history resources had reached Europe, and those more by accident than design. These circumstances were the particular reason for a journey just to the west coast of that vast country.
>
> I arrived in Fremantle on December 4, 1838, and since it was my intention to engage in a comprehensive study of this part of Australia with respect to natural history, I was very soon convinced that I would have to spend several years on the project. Consequently I was unable to begin my return journey until January 1842.
>
> In the interim I traversed this land in all directions, from latitude 30º to 35º 10' S (310 English miles [500 km]) and from longitude 114º 55' to 119º 35' E (280 English miles [450 km])[1].

[1] This represents an area roughly bounded by Leeman, Lake Moore, Albany and Cape Leeuwin. KW.

> The geological character of west Australia is substantially different from that of the other already well-known parts of this large island. If we assume that there is some connection between the curious distribution and diversity of form of the plants and these geological characteristics, then this will explain why my collections are extraordinarily rich in peculiar and new forms.
>
> I observed the greatest diversity of plants on quite sterile iron-bearing loamy soils of the highlands, while the vegetation on alluvial soils appeared very uniform. However, the so-called lowlands, which extend from the sea to the Darling Range, are of Tertiary form, and consist of a white coral-bearing sand, have on the other hand no little variation in their growth forms.
>
> With few exceptions this land is not suitable for agriculture; yet the number of plant species is considerably larger than in any other country I know. It is characteristic here, as I also observed in South Africa, that some plants are reliant on only a single habitat, and thus occur, as it were, in islands. So, as well as these plant species being exterminated by encroaching civilisation and other circumstances, it is probable that they have even completely disappeared.
>
> Incidentally, I should note that I have acquired a particularly copious quantity of plants of this kind, an abundance for the most part collected and presented to me of chiefly those forms which appear to me to be either completely unknown or only partly known on the continent of Europe.
>
> The whole inland area has a strongly undulating appearance, apparently of volcanic origin, and at first glance gives the overall impression that nature has left its work unfinished here. On the plains, the forests consist of *Casuarina* trees, *Banksia menziesii* and *B. caleyi*, and in the highlands there are various species of eucalypts of considerable height (140 ft [43 m]). Since these forests are very open (frequently they are also burnt down to a great extent by the Aborigines), the land is greatly lacking in ferns and mosses. However, in one winter I collected 60 species of fungus, which I immediately illustrated and described from life. Parasitic orchids do not

occur in this part of Australia.

For the most part, lack of fresh water is an obstacle to cultivation of the land and makes travelling in the summer months very difficult, frequently making it impossible to continue a journey. It often happened that in two, three or even four days I came across no palatable water, putting me in an awkward situation.

The water in this considerably saline country is generally of poor quality and generally undrinkable. In February (summer month), when evaporation is at its greatest, the water in the large puddles in the interior – I can only describe the so-called rivers as such – is 25% salt. For that reason, it is only during the spring months (September and October), when all the vegetation is at its most magnificent, that it is possible to undertake longer journeys.

The collections I have brought back are as follows: 168 species of minerals, rocks and fossils.

My herbarium consists of three to four thousand species in about 200,000 specimens; also a collection of interesting wood species. Against each species I have accurately recorded the location, height above sea-level, time of flowering and anything else of interest. I was able to remove mature seeds from 570 species; these are in such perfectly fresh condition that many have already been germinated in the local botanic garden.

I have brought back about 2000 species of insects of all orders, consisting of a large number of specimens.

There are 200 species of land, freshwater and saltwater crustacea.

Also included are 181 species of birds, some with eggs and nests, all in excellent condition and mostly described by me, which should be noted with regard to the utility of the survey. On their way of life, and that of all other animals, I have also recorded what I was able to observe, or what I could learn accurately from the Aborigines.

Most of the mammals occurring in this country belong to the division Macropodideae. Those I brought back consist of 21 genera and 37 species; two or three of these are new genera and include embryos in ethyl alcohol. Of twelve species of wallabies, four or five are undescribed, even according to Gould's latest revision.

I have illustrated and described 60 species of fish, although I do not have specimens of them all, as I did not have enough (95%) ethyl alcohol, and what was available there was not suitable.

Reptiles 60-80 species, zoophytes 20 species, crustaceans 16 genera, arachnoids about 40 species.

A not inconsiderable number of intestinal parasites collected from higher classes of animals will show that I have not neglected the smaller items that meet the eye.

Since I took into particular consideration the greatest possible completeness and quality of the specimens and their preservation in perfect condition, my entire collection was packed in metal-lined chests and soldered in Australia; everything arrived here in such an excellent state that we can say that rarely have specimens of this quality been brought back to Europe from such far-flung travels, and also that everyone who has had a close look at these collections until now has shown as much delight at the beauty of the specimens as at the peculiarity of the forms.

It is my intention to undertake as soon as possible a second, even longer journey in Australia from the Gulf of Carpentaria across country to the Swan River Colony; for that reason I shall deliver to Professor Lehmann the natural history specimens I have brought back, as soon as they are generally arranged, and entrust the description and publication to him and other celebrated natural historians. I therefore ask Professor Lehmann to contact all those who wish to take part in this literary work.

L. Preiss
Hamburg

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An online multi-access identification key to *Cassinia*, *Ozothamnus* and their satellite genera

Alexander N. Schmidt-Lebuhn & Kirsten Cowley
Australian National Herbarium, CSIRO, Canberra

The *Cassinia* group (Asteraceae tribe Gnaphalieae) comprises approximately 100 species of woody daisies occurring across most of Australia and New Zealand, with the centre of diversity in south-eastern and eastern Australia. Following an updated taxonomy of the circumscription originally suggested by Anderberg (1991) it includes *Cassinia* R.Br. (c. 40-50 species), *Ozothamnus* R.Br. (c. 40-50), *Haeckeria* F.Muell. (2), *Ixodia* R.Br. (2), *Odixia* Orchard (2), and monotypic *Apalochlamys* Cass., *Calomeria* Vent., and *Paenula* Orchard. *Ozothamnus* is polyphyletic, and most of the other genera are phylogenetically nested in *Ozothamnus* sect. *Ozothamnus* (Schmidt-Lebuhn and Constable 2013).

While some species are widespread and common, the group also includes taxa of conservation concern, such as Tasmanian *Ozothamnus reflexifolius* Leeson & Rozefelds, known from only one population, or *O. selaginoides* Sond. & F.Muell., which is presumed extinct. Some are attractive and cultivated as ornamentals, in particular *O. diosmifolius* (Vent.) DC. (Fig. 1), whereas one species is a declared noxious weed in New South Wales.

We have recently published a multi-access key to the *Cassinia* group using the Lucid software (Identic Pty Ltd 2014), which we hope will facilitate the identification of its species. It is available online (Web ref. 1).

All characters except aromatic scent are illustrated with example photographs or diagrams. The terminology used to describe characters is deliberately chosen to be accessible to non-specialists, for example using "leaf widest in basal part" instead of "leaf ovate or lanceolate". In addition to 38 morphological characters, the key allows taxonomic subselection down to the level of section and geographic subselection to the states of Australia.

With the exception of a species known only from a lost type, all species are illustrated with detail photographs from stereomicroscopy (e.g. capitula, involucral bracts, leaf and stem surfaces, bark). Photographs of living plants were taken in the field where possible, obtained from the *Australian Plant Image Index* (APII: Web ref. 2) or kindly provided by colleagues. All species have profiles showing nomenclature based on the *Australian Plant Census* (APC: Web ref. 3) and *Australian Plant Name Index* (APNI: Web ref. 4), information on ecology, distribution maps, selected representative specimens and references, and each entity in the key is linked to its *Atlas of Living Australia* entry.

The key currently covers 112 species and subspecies. A small number of undescribed species for which data were collected but whose publication is expected for the next few months have been held back on request of the authors. The key will be updated when those species have been published. It does not cover two hybrids and three of the six phrase name taxa recognised by the APC.

We would be grateful if users of the key could communicate any mistakes they may find or other useful feedback to alexander.s-l@csiro.au.

Acknowledgments

The project to develop the key was funded by BushBlitz through the Applied Taxonomy funding scheme, and we also thank the herbaria AD, BRI, HO, NE, NSW and PERTH for making available specimens for study, Anthony Orchard for lending his expertise on *Cassinia* to the project, Miguel de Salas for information on the distribution of Tasmanian *Ozothamnus*, Kevin Thiele for providing images, Thekla Pleines for helping with the species profiles, Matt Taylor (Identic) for making formatting corrections to the key and uploading it, and Nunzio Knerr for assistance with generating distribution maps.

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Fig. 1. *Ozothamnus diosmifolius* in south-eastern Queensland.

Decadal Plan

The Taxonomy 2028 Challenge – shaping the future of biosystematics and taxonomy in Australasia

You're invited to take part in the Taxonomy 2028 Challenge, to help create a vision for systematics and taxonomy in Australasia for the coming decade.

We'd like you to scan the horizon, and share what you see. Where would you like taxonomy and systematics to be in a decade? What achievements or programs would you like to see in place? What milestones would you like us to pass? What innovations in technology, infrastructure, funding or organisation will make a big difference to your work and to our taxonomy and systematics?

An inspiring and ambitious vision for the future is a key element of the Decadal Plan for Biosystematics and Taxonomy in Australasia 2018–2028, which is currently under development (see Web ref. 1). In thinking about this, please think in concrete terms. We're after ideas that, after discussion and with broad community consensus, can be included in the Plan as specific objectives (such as projects, programs or milestones of activity) that will benefit both our science and our end-users. We will use these as hooks to argue for more resources, to create more visibility for our discipline, and to foster a more general appreciation and understanding of the value of taxonomy and systematics.

We also need to build the foundation for the next decade (2028–2038), so please think ahead.

The Taxonomy 2028 Challenge will work as follows. Please write a description of your idea. This should be fairly concise if possible, but your contribution could be a couple of lines, a paragraph, some dots points, a blog, or a full-blown discussion paper. Ideas cannot be too big, or too small (though we prefer big). If you have lots of ideas, please write separate pieces for each, unless they go together as a package. There's no limit to the number of contributions per person.

In order to keep some consistency, please try to structure your contribution something like this:

1. By 2028 we will … [the big idea]
2. This will result in …., …., …. [the impact]
3. This matters because …., …., …. [the importance]
4. Resources to achieve this will be …., …., …. [the details]

Please try to think in the context of your own work and research group, but also outside to biodiversity in general - the Plan, after all, will

cover all of biodiversity. Goals such as "By 2028 we will develop a complete phylogeny of all [.....] in a cool genus beginning with C" may be a little narrow in scope.

It's probably a good idea to discuss your ideas with colleagues and friends, either before or after you write the first draft.

When you're ready, please email your contribution(s) to me. Indicate in the email whether you're happy to be publicly acknowledged, or would prefer to remain anonymous.

All contributions will be published on the *noto|biotica* blogsite (Web ref. 2) for comment and discussion as they come in. At the close of the Challenge, we'll analyse all contributions for common themes, and use them for further discussions including for sector meetings later in the year. All contributors will be acknowledged in the final Decadal Plan.

We're very keen to hear from as many people in our sector as possible; so, whether you're paid staff, volunteer, associate, or student, whether you work directly in taxonomy or biosystematics, or in associated roles such as curation or bioinformatics, please put your thinking caps on.

Prizes

We're also very keen to hear from students and Early Career Researchers (after all, it's your future we're talking about). As encouragement, three prizes are up for offer, to a student or ECR who contributes the:

- most popular idea
- most novel idea;
- most ambitious vision.

CSIRO Publishing is dedicated to publishing excellence in taxonomy and systematics (Web ref. 3), and has generously offered a prize for the winner of each category above. The prize consists of a $100 book voucher, as well as a subscription to your choice of journal (*Australian Systematic Botany* or *Invertebrate Systematics)* (Web refs 4, 5) and free open access for your next publication to one of the above journals. Prizes will be judged for contributions received before 31 August 2017.

So – please do the vision thing, and let's start shaping our future.

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KevinThiele
kevin.thiele@science.org.au

Postscript

Four blogs have just been added to the *noto|biotica* website, three of them by Kevin. All make interesting reading. So have a look at them and perhaps they will inspire an idea that you too can contribute. *Eds.*

News

Leadership changes at the Allan Herbarium

In the March and December 2016 ASBS Newsletter we reported on staff changes and some research and collection news from the Allan Herbarium, Lincoln, New Zealand. Now we are reporting on leadership changes at the Allan Herbarium.

Ilse Breitwieser stepped back from all of her leadership roles on 1 July 2017. For the next 5 years or so Landcare Research gives her the opportunity to concentrate fully on completing revisions on *Craspedia* and other genera in the New Zeaalnd Gnaphalieae (Compositae) and to continue being the Editor-in-Chief of the Flora of New Zealand.

After a few years at the Berlin-Dahlem Botanical Garden and Botanical Museum, Ilse arrived at Landcare Research at the end of 1995. She led the plant systematics programme from 1995 to 2004, was line manager of the plant systematists from 2004 to 2016, Director of the Allan Herbarium from 1999 to 2017, and from 2004 led the Characterising Land Biota portfolio that includes collections, research and information systems of five of New Zealand's Nationally Significant Collections and Databases (i.e., the Allan Herbarium (CHR), the National New Zealand Flax collection, the

New Zealand Arthropod Collection (NZAC), the New Zealand Fungarium (PDD), and the International Collection of Microorganisms from Plants (ICMP)). Although all of these roles were very interesting and fulfilling, they did not allow much time for research. However, since our stakeholders identified *Craspedia* as the top priority for systematics research of flowering plants in New Zealand, Landcare Research accepted Ilse's proposal that in order to deal with this priority she would need about five years of concentrated research.

Aaron Wilton took over from Ilse on 1 July 2017 as portfolio leader of Characterising Land Biota and Director of the Allan Herbarium.

Aaron joined Landcare Research in 1997 as a plant systematist, but got soon drawn into managing the Allan Herbarium (2001–2008) and biodiversity informatics. Aaron continues to lead the biodiversity informatics programme within the portfolio that has developed systems such as the Plants Names Database, an information system for the five Nationally Significant Collections within the portfolio, and the tools and processes for the electronic Flora of New Zealand. He has been actively involved in the New Zealand Virtual Herbarium (recently amalgamated into the Australasian Virtual Herbarium), the New Zealand Organism Register (NZOR), HISCOM and is currently on the Executive of TDWG. When Peter Heenan left Landcare Research a year ago, Aaron took over the leadership of the plant systematics area.

Rob Smissen took over from Aaron on 1 July 2017 the leadership of the plant systematics area. Rob got into leadership duties in Landcare Research's matrix with team (line management) and portfolios (strategic direction; work planning) a year ago by being the line manager of the plant systematists. He is now changing to the other side of the matrix and will be responsible for plant systematics strategy and work plans.

Ines Schönberger continues her role as Herbarium Manager of the Allan Herbarium. However, in addition to the line management of the herbarium technicians, she has now taken on also the line management of the plant systematists.

Ilse Breitwieser and Aaron Wilton

News from the West

On July 1st 2017, Western Australia's Department of Parks and Wildlife (which includes the Western Australian Herbarium) merged with the Botanic Gardens and Parks Authority (Kings Park), the Perth Zoo and the Rottnest Island Authority to form the Department of Biodiversity, Conservation and Attractions. As a taxonomist I'm accustomed to nomenclatural changes, but I will note that it's the fourth since I started working at the Herbarium in 2001, at which time it was part of the Department of Conservation and Land Management, before becoming the Department of Environment and Conservation (2006–June 2013) and more recently the Department of Parks and Wildlife (July 2013–June 2017). The Acting CEO of the new Department is Mark Webb, former CEO of the Botanic Gardens and Parks Authority and recent Acting CEO of the Department of Agriculture and Water Resources. Individual email addresses have changed to *@dbca.wa.gov.au* but, with the exception of the departmental name change, postal and delivery addresses for the Western Australian Herbarium will remain the same.

All volumes of *Nuytsia* are now freely available online following the digitisation of Volumes 1–14 (1970–2002) by the Biodiversity Heritage Library (BHL). Volumes 15–28 remain accessible through FloraBase. There are plans to make *Nuytsia* completely available via the BHL (with the exception of the current year's volume) and to provide a direct link from FloraBase to BHL for each paper in the earlier suite of volumes. The team at BHL are also in the process of scanning the *Western Australian Herbarium Research Notes* (Volumes 1–12: 1978–1986) and *Kingia* (Volume 1: 1988–1990).

Projects

Philipp Hühn, a masters student of Gudrun Kadereit (Johannes Gutenberg-Universität Mainz), recently visited the Western Australian Herbarium for six weeks to conduct systematic research on Camphorosmoideae (Chenopodiaceae), with a focus on the genera *Maireana* and *Sclerolaena*. Kelly Shepherd and other Herbarium staff are hopeful that he will continue this work as part of a PhD dissertation. Keelin Smith is well into her

Honours project at the University of Western Australia investigating taxonomic boundaries in *Anthotium* (Goodeniaceae), supervised by Kelly Shepherd, Kevin Thiele and Pauline Grierson. Terry Macfarlane and Ryonen Butcher will commence an ABRS-funded project on *Tephrosia* (Fabaceae) on July 1st that aims to produce an eFlora treatment of the genus in Western Australia and the Northern Territory along with a key to the genus Australia-wide.

A fond farewell

In late May, Paul Wilson's career was quietly celebrated by staff, associates and volunteers at the Western Australian Herbarium along with members of his family. Paul has made an astonishing contribution to the taxonomy and conservation of Australian Asteraceae, Chenopodiaceae and Rutaceae, including working two or three days a week for some 25 years since he officially retired. An APNI search reveals an astonishing 641 names (excluding autonyms) attributed to him, both novel taxa and new combinations, as I note in the following farewell toast to a most humble and kind botanist.

(Paul G. Wilson) Paul G. Wilson, illustris botanicus (aet. 89).

A slender, villose, spring-flowering classical taxonomist with bright, shining eyes. A master of the insightful taxonomic comment or note that invariably results in a more junior botanist thinking that they've made a novel discovery, only to find that it's already been mentioned in the literature. Willing to respond to new data by making novel nomenclatural combinations, thereby boosting his publication list and the number of taxonomic names attributed to him.

Habitat. Often found reclining in an arm chair with a *Theobroma cacao* L. treat, or pottering in Hortus Wilsonii (more rarely climbing ladders inappropriately). Now strangely absent from the Western Australian Herbarium (PERTH) after a long period of harmonious cohabitation with other botanists.

Conservation status. One of a kind.

Dedications. Wilson's significant contribution to the taxonomy of the Australian flora was first acknowledged in the form of *Bassia wilsonii* Ising, which then became *Sclerolaena wilsonii* (Ising) A.J.Scott before being unceremoniously sunk under *Sclerolaena holtiana* (Ising) A.J.Scott by none other than Wilson in the *Flora of Australia*. One suspects that

Fig. 1. Last day at the office for Paul G. Wilson.

this may have been due to the embarrassment he felt in having a species named after him, which raises the question of whether a fresh taxonomic assessment is required.

Wilson was, however, unable to sink them all: there's *Ptilotus wilsonii* Benl, *Podotheca wilsonii* P.S.Short, *Drummondita wilsonii* Mollemans, *Cryptandra wilsonii* Rye and *Acacia wilsonii* R.S.Cowan & Maslin (syn. *Racosperma wilsonii* (R.S.Cowan & Maslin) Pedley). And let's not forget *Phebalium wilsonii* N.G.Walsh & Albr., later recombined by Wilson as *Nematolepis wilsonii* (N.G.Walsh & Albr.) Paul G.Wilson (1998), which means he has essentially named a species after himself! There is also an appropriately cryptic dedication in that taxonomically baffling samphire genus *Tecticornia*: *T. indefessa* K.A.Sheph., meaning unwearied or indefatigable in reference to Paul's tireless work. And finally, *Boronia citriodora* subsp. *paulwilsonii* Duretto—it beggars belief that anyone would treat him as a subspecies!

Juliet Wege
Western Australian Herbarium

Fig. 2. Staff, associates and volunteers of the Western Australian Herbarium celebrate Paul Wilson's career together with his family. Seated (L and R): Jane Hilton and Annemarie Menadue. Front row (L–R): Annette Wilson, Margaret Lewington, Barbara Rye, Paul Wilson, Margaret Wilson, Carol Wilkins and grandchild, Amanda Spooner, Rosemarie Rees. Middle row (L–R): Chris Hollister, Cheryl Parker, Ryonen Butcher, John Huisman, Jonica Foss, Julia Percy-Bower, Terry Macfarlane, Skye Coffey, Kelly Shepherd, Elizabeth Gardiner. Back row: Alex Chapman, Juliet Wege, Ben Richardson, David Coates (obscured), Nicholas Lander, Kevin Thiele, Michael Hislop (obscured), Peter Foss.

Academy funding of Decadal Plan

Congratulations to all of those hardworking members of ASBS and CHAH in particular who first initiated what began with expressions of concern about the state of systematics at the ASBS conference in Perth in 2012 (ASBS Newsletter 153, p. 1–4 and pp. 31–37). Regular phone hook ups by those concerned from that time evolved through Papers of various hues on plant taxonomy into what is now to be a broader Decadal Plan for Biosystematics and Taxonomy in Australasia 2018–2028 backed by the Australian Academy of Science. All their work on our behalf, which included regular reports at all of the ASBS meetings since the work commenced, have finally paid off.

The project is being led by Dr Kevin Thiele and the Academy's Dr Chris Hatherly, supported by a Working Group and a Steering Committee. Work on the plan is already in full swing, as reported by our President (p. 2), with a draft due in November this year and the plan to be finalised by early 2018. A call for ideas through a "Taxonomy 2028 Challenge" that has been sent to members appears on p. 27.

The impetus of the Academy support has led to reports in the media (e.g. Web ref.).

Web ref. *www.science.org.au/news-and-events/news-and-media-releases/new-plan-unlock-secrets-australasian-megadiversity*

SASB Membership – dues

From 2017-18 on, our sister society, the Society of Australian Systematic Biologists, is imposing a membership fee to support their activities. The fees and payment page is now available on the Society's website (Web ref.) and fees can be paid by card or Paypal.

Web ref. *https://www.sasb.org.au/*

A new look for ALA

The Atlas of Living Australia has launched a new look website following a review of the existing site in late 2016. Areas identified in the review as needing a fix included the home page, the design of the site and the provision of support materials and user guides. The new look site addresses some of the feedback received, but there are still further improvements to be implemented.

Changes already made include:

- Improvement in how content is grouped for easier navigation.
- Extra content providing more concise information about the ALA, what it does and how to use it. For example, the new Sites and Services page.
- A more up-to-date visual design.
- Basic user support materials easier to find. See the "How to use the ALA" page under the "Learn about the ALA" menu. There still need to be further improvements in this space.
- Easier to sign up, and sign in, by making this more prominent on the homepage.
- Easier to contact ALA by providing an easy to find contact form and clearer call to actions on pages.

Any feedback you have can be addressed to Hannah Scott or Robina Sanderson or any questions or comments to Hannah who is the Communication Manager for the project.

[Adapted from information provided to herbaria]

Queensland's first fully-comprehensive regional ecosystems map coverage

The launch of the first fully-comprehensive regional ecosystems coverage for Queensland was posted on the ASBS Facebook page by Gill Brown on 29th May. The map coverages at 1:100 000 scale, developed by Queensland Herbarium botanists over the last 30 years, can be accessed on-line (Web ref. 1) together with a report on the mapping program (Web ref. 2: see also p. 48 in this Issue)

Also available on the internet are media release (Web ref. 3) and the video of the launch by the minister (Web ref. 4).

Web references

1: *https://data.qld.gov.au/dataset/biodiversity-status-of-pre-clearing-and-2015-remnant-regional-ecosystems-ver-10-queensland-series*
2: *https://publications.qld.gov.au/dataset/redd/resource/42657ca4-848f-4d0e-91ab-1b475faa1e7d*
3: *https://www.facebook.com/leeanneenochmp/videos/vb.297511687070414/798556076965970/?type=2&theater*

4: *http://statements.qld.gov.au/Statement/2017/5/30/qld-ecosystems-mapped-and-online-in-worldleading-science-achievement*

Congratulations Dr McLay

Mike Bayly posted on Facebook on 31st May that Todd McLay has been officially notified that his PhD has been passed. Todd's Ph.D. project was on the evolution of *Xanthorrhoea* and he is of course co-establisher and administrator with Mike of the ASBS Facebook page, established in 2013.

Aussie in Top 10 species for 2017

Joining new species of spider, rat, millipede, centipede, ant, stingray, katydid and worm were two plant species in the Top 10 for 2017 (web ref.). One was an endangered epiphytic orchid from southern Colombia while the other was another new, functionally dioecious, species of *Solanum* from northwestern Australia. The name "*ossicruentum*" was suggested by school students in Lewisburg, Pennsylvania, and is a reference to the blood red stain which appears when young fruits are cut (*cruentum*), while mature fruits are hard and bony (*ossi*) (Martine et al. 2016).

References

Martine, C. T., Cantley, J. T., Frawley, E. S., Butler, A. R., and I. E. Jordan-Thaden (2016) New functionally dioecious bush tomato from northwestern Australia, *Solanum ossicruentum*, may utilize "trample burr" dispersal. *PhytoKeys* 63: 19–29.

Web ref.: *www.esf.edu/top10/*

"Twin" *Daviesia* species

Lost in the media attention given to two new species of *Daviesia* named by Mike Crisp and Lynn Cook after Arnold Schwarzenegger and Danny DeVito (Web ref. 1, 2), was the information that there is finally a comprehensive, up to date, monograph of the genus *Daviesia* (Crisp et al. 2017). When last revised by Bentham in 1865 the genus consisted of 55 species. Now there are 131 species, with many new taxa described by Crisp alone or with one of his co-authors in the monograph. And there is a revised, though not formalised, infrageneric classification. This monograph, like many others, has taken a long time to come to fruition since the author has had to wait until retirement to complete work begun 40 years ago.

References

Crisp, M.D., Cayzer, L., Chandler, G.T. & Cook, L.G. (2017). A monograph of *Daviesia* (Mirbelieae, Faboideae, Fabaceae). *Phytotaxa* 300(1): 1–308. *www.mapress.com/j/pt/issue/view/phytotaxa.300.1*

Web ref. 1: *http://ab.co/2oBh84p*

Web ref. 2: *www.anu.edu.au/news/all-news/unlikely-pair-of-plants-named-after-stars-of-movie-twins*

Buried audit

According to a comprehensive report in the Western Australian media on May 24th, a state government audit, since buried without any trends being made public, indicated that five endangered West Australian species have become extinct in the wild, three threatened ecological communities have been destroyed and the fate of at least 41 other species is unknown since no monitoring has been done for more than a decade. Surprisingly no further response or information surrounding the report has been seen in the media.

Web ref. *www.watoday.com.au/wa-news/buried-audit-shows-wa-species-plunging-into-extinction-20170523-gwbgvq*

Great Barrier Reef

In May it was reported that the 2050 plan to save the Great Barrier Reef was no longer achievable due to climate change (web ref. 1). The Reef 2050 Long Term Sustainability Plan, released in 2015, was devised to combat the possibility of the reef being added to the UNESCO's list of world heritage sites in danger and it was members of the Reef 2050 advisory committee who made the call. Despite this, the GBR was not listed as being in danger when the UNESCO Committee met in June (their recommendation can be viewed at Web ref. 2). It was also in June that Deloitte Access Economics published a report (downloadable from Web ref. 3) putting a value of A$56 billion dollars on the reef. This value far outweighed that quoted for the Carmichael coal mine, and the reef also far exceeded the mine in its annual contribution to the Australian economy and the number of jobs it would support (Web ref. 4). The editor of *The Guardian* took exception to this valuation (Web ref. 5) indicating that "there

are things that money just can't measure, and nature is valuable because it can't have a price". He further argued that putting a monetary value on it "suggests that it is useful and exploitable". Can anyone identify any nature that isn't useful and being exploited in some way?

Web references

1: *https://www.theguardian.com/environment/2017/may/25/great-barrier-reef-2050-plan-no-longer-achievable-due-to-climate-change-experts-say?utm_source=esp&utm_medium=Email&utm_campaign=GU+Today+AUS+v1+-+AUS+morning+mail+callout&utm_term=227754&subid=18697320&CMP=ema_632*

2: *http://whc.unesco.org/archive/2017/whc17-41com-7BAdd-en.pdf*

3: *https://www2.deloitte.com/au/en/pages/economics/articles/great-barrier-reef.html*

4: *https://www.theguardian.com/environment/2017/jun/26/great-barrier-reef-valued-at-56bn-as-report-warns-its-too-big-to-fail*

5: *https://www.theguardian.com/commentisfree/2017/jun/28/the-guardian-view-on-pricing-the-great-barrier-reef-a-dangerous-absurdity*

$411M committed for getting rid of fire ants

First detected in Australia in 2001, the red fire ant is to become the subject of the second biggest eradication programme by biosecurity. Agricultural ministers meeting in Melbourne supported recommendations from an independent review completed in 2016 and have agreed to spend $411.4 million over the next 10 years.

Web references

1: *https://www.theguardian.com/environment/2017/jul/26/biosecurity-blitz-to-target-red-fire-ants-that-threaten-australian-way-of-life?utm_source=esp&utm_medium=Email&utm_campaign=GU+Today+AUS+v1+-+AUS+morning+mail+callout&utm_term=236909&subid=18697320&CMP=ema_632*

2: *www.agriculture.gov.au/about/media-centre/communiques/ag-ministers-forum-july-2017*

The oldest fossil mushroom

A new genus and species of fossil mushroom from the Lower Cretaceous Crato Formation of northeast Brazil. *Gondwanagaricites magnificus* is remarkable for its exceptional preservation as a mineralized replacement in laminated limestone. All other fossil mushrooms are known from amber inclusions. *Gondwanagaricites* represents the oldest fossil mushroom to date and the first fossil mushroom from Gondwana. [Adapted from the abstract].

Reference

Heads SW, Miller AN, Crane JL, Thomas MJ, Ruffatto DM, Methven AS, et al. (2017) The oldest fossil mushroom. *PLoS ONE* 12(6): e0178327. *https://doi.org/10.1371/journal.pone.0178327*

Big bang of *Amorphophallus* flowering

Nobody knows why many *Amorphophallus titanum* plants in cultivation flowered globally in 2016. Before 2000 there had been less than 50 recorded for the previous century. Some theories and nice pictures at the reference below and good business for the gardens concerned.

Web ref.: *www.bbc.com/earth/story/20170119-lots-of-corpse-flowers-bloomed-in-2016-and-nobody-knows-why*

Australasian Systematic Botany Society Inc.

2017 Membership Fees

These were due on January 1st this 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

Download a membership form from the membership section of the ASBS web site.

Please direct enquiries to Treasurer John Clarkson (*treasurer.asbs@gmail.com*).

Find your inner child

Developed for children, these two different animations "Story of Flowers", released recently by AMKK, and the somewhat older "Caterpillar Shoes" by The Old Branch, are good for a short break for you or to share with children.

Web references

https://www.youtube.com/watch?v=vDpFyHmt0AE

https://www.youtube.com/watch?v=tYa6OLQHrEc

ABRS report

Staff updates

Glen Cook commenced a permanent contract with ABRS on June 15 as Business and Grants Manager, replacing Eleanor Hearder. Glen has been working at Old Parliament House, and has previously worked in the Department of the Environment and Energy.

***Flora of Australia* and an Australasian eFlora platform**

A public launch of the new eFlora platform being built by the Atlas of Living Australia (ALA) is drawing closer. Some exciting new functionality and design elements have just been introduced and released for initial testing by registered users. Please contact us if you would like to be added to the test group.

Treatments already supplied to ABRS continue to be worked through as priorities allow. New Guidelines for Contributors have been completed and are available from ABRS. The website will be demonstrated as part an e-Flora symposium to be held at the International Botanical Congress in Shenzhen, China, in July 2017.

As promised in the last Newsletter, the following vascular plant groups have been identified as priorities for completion of the *Flora of Australia*. These priorities will apply to the next ABRS Research Grants round, but note that this list in no way precludes grant submissions on other groups and many of the groups listed here are partially complete, and/or already have work underway:

Apiaceae; Araliaceae; Asteraceae (tribes Astereae & Gnaphalieae); Bignoniaceae; Campanulaceae (incl. Lobeliaceae); Crassulaceae; Cunoniaceae (incl. Eucryphiaceae & Davidsoniaceae); Cyperaceae; Dilleniaceae; Elaeocarpaceae; Ericaceae; Geraniaceae; Lamiaceae; Menyanthaceae; Montiaceae; Myrtaceae (tribes Chamelauceae, Kanieae, Myrteae & Syzygieae); Oleaceae; Orchidaceae; Orobanchaceae; Oxalidaceae; Pedaliaceae; Plantaginaceae; Polygalaceae; Portulacaceae; Rhamnaceae; Rubiaceae; Scrophulariaceae (incl. Myoporaceae); Stylidiaceae; & Surianaceae.

Fungi of Australia

The new volume covering Australian Inocybaceae was released in June and is available now from CSIRO Publishing.

Grants

Applicants for the 2017 Student Travel Grants program have recently been notified of the outcomes. Successful applications will soon be listed on the ABRS website (Web ref.).

Bush Blitz

The Bush Blitz team had a very successful expedition to Quinkan country, Cape York Peninsula (March 2017) with approximately 600 specimens collected including Northernmost occurrence, and first record from Cape York, of the Turpentine (*Syncarpia glomulifera*). The team also had a successful expedition at the Bradshaw military training area, Northern Territory (May 2017).

Upcoming planned expeditions

The next expedition is to Lake Mungo in SW New South Wales in late August 2017 and the Great Victoria Desert in late September 2017.

References

Web ref.: *www.environment.gov.au/science/abrs*

Russell Barrett, Chris Palmer & Anthony Whalen
ABRS, June 2017

Web sites of interest

reCollections: a journal of museums and collections

reCollections is an independent, peer-reviewed journal which began in 2006. There are two prime focuses for its work, museum practices and the role of museums in society and the history, collection, interpretation and display of museum collections. Articles relate specifically to Australia and the Asia-Pacific region or issues that are broadly relevant to museums or material history.

While completed issues are published twice yearly, articles are published online as soon as they have been reviewed and edited. Two which caught my eye were "Weird and wonderful. The first objects of the National Historical Collection: and "Dead museum animals. Natural order or cultural chaos", both by Libby Robin. Another, "Visualising nature: models and wall charts for teaching biology in Australia and New Zealand", invoked memories of first year botany and zoology. These items were used widely in my undergraduate years but somehow I doubt they are used today. If not, what has happened to them?

A series of thought-provoking questions reflecting concerns at the time regarding museums and collections were posed by the editorial board in volume 4. Not included in the list, however, was any reference to the various threats to collections being experienced today.

Web ref. *http://recollections.nma.gov.au/*

Chief Curiosity Correspondent

Emily Graslie is the Chief Curiosity Correspondent of the Chicago Field Museum. A fantastic title for a science communicator charged with sharing the behind-the-scenes work of scientists and promoting the value of research collections across the various media forms. Her most accessible work is probably through YouTube on an educational site called *The Brain Scoop*. And she is clearly very good at her job, having been involved in the production of 170 videos viewed 18 million times globally.

Web ref. *https://www.youtube.com/thebrainscoop*

Treenet

Treenet began in 1997 in Adelaide with a focus on street tree plantings but has now evolved into a national urban tree research and education cluster, still based around the University of Adelaide's Waite Arboretum.

For most of their years they have been running a very popular 2 day street tree symposium at the beginning of September. The 18th National Street Tree Symposium will take place on the 7-8th September 2017 followed by a 20th birthday post-symposium tour. Details of the society and the symposium on their web site.

Web ref. *https://www.treenet.org/*

ArbNet

ArbNet is an interactive, collaborative, international community of arboreta. It facilitates the sharing of knowledge, experience, and other resources to help arboreta meet their institutional goals and works to raise professional standards. Participants can:

- become accredited through the ArbNet Arboretum Accreditation Program and demonstrate their organisation's level of achievement.
- identify accredited arboreta for collaboration in scientific, collections, and conservation activities through the Morton Register.
- access helpful resources on topics like management, operation, and outreach efforts of arboreta.
- participate in online discussions to share best practices and exchange information.
- read news from the international arboretum community and share events and news for broader exposure

Adapted from their website]

Web ref. *www.arbnet.org/*

Points of view

Thoughts on authorship

Laurie Haegi brought a newspaper article in *The Economist* to my attention some time ago in response to an earlier ASBS item questioning the number of authors needed to publish a taxonomic paper and who did what (*ASBS Newsletter* 159). The paper I used as an example at that time did attract a private response and the usual expected reasons, making it impossible to publish. But *The Economist* article (Web ref. 1) based on a review of more than 34 million peer-reviewed papers published between 1996 and 2015 confirmed the result — the average number of authors per paper is rising even though in the same period the average author's number of papers published is apparently falling.

In a comment on an article discussing these findings (Web ref. 2) its author pointed to authors who have become "improbably prolific", usually through their names being added to papers because of their status; the 100 most published authors in one field for instance having an average of 311 published papers to their names between 2013 and 2015. At the other end of the spectrum are those who have contributed only marginally to a project and who may have, in the past, been acknowledged, but are now able to use these authorships to build a career.

More provocative thoughts on authorship are gathered in a collation of 13 papers (Web ref. 3) including: removal of journal names from authorship citations; how to detect when authorship of a scientific paper has been bought; the inevitable inadequacies of Impact Factors; advocating a requirement for ORCIDs (author identifiers) for publication; a suggestion that shorter titles get more citations. In one of the papers entitled *Factory Science* it quotes the *Australian Code for the Responsible Conduct of Research* (Web ref. 4), a booklet which was unfamiliar to me. Their note on authorship reads:

> The right to authorship is not tied to position or profession and does not depend on whether the contribution was paid for or voluntary. It is not enough to have provided materials or routine technical support, or to have made the measurements on which the publication is based. Substantial intellectual involvement is required.

Web references

1: Why research papers have so many authors. *The Economist* Nov 26th 2016 *https://www.economist.com/news/science-and-technology/21710792-scientific-publications-are-getting-more-and-more-names-attached-them-why*

2: *www.columbus-web.org/en/news-and-events/item/148-all-together-now,-or-how-hamsters-become-co-authors-of-scientific-papers.html*

3: *www.sciencegeist.com/topic/authorship*

4: *https://www.nhmrc.gov.au/guidelines-publications/r39*

Taxonomy chaos hampers conservation!

It's all our fault. We taxonomists can't agree on a universal classification and so the ecologists are left without a "stable and agreed taxonomy for conservation" which they decided they needed back in 2004. And, according to Garnett & Christidis (2017), no action has been taken to achieve this since that time.

I'm not sure where these people have been doing their work but I can point to a number of places where stable taxonomies have been attempted for plants. One is our own *Australian Plant Census* (APC: Web ref. 1), and other *National Species Lists*, fundamental to on-line resources such as the Atlas of Living Australia and GBIF. Others include the *Plants of Southern Africa Checklist* (unfortunately not updated since 2012: Web ref. 2), the *Euro+Med Plant Database* (Web ref. 3) and finally, *The Plant List* (web ref. 4) a collaboration between the Kew and Missouri Botanical Gardens. These lists all share a number of features: the taxonomies of most of the world's organismic groups, even the vascular plants, must change because we simply don't know enough about them; the maintenance of all these lists are all so inadequately funded they continue to be out

of date by several years; they are undoubtedly all of them compiled by those very taxonomists whose numbers have been steadily dropping for years and who would rather be carrying out their research and providing a better taxonomy than the myriad of other jobs which keep them away from this.

Garnett and Christidis's suggested that the International Union of Biological Sciences (IUBS) take over the governance of taxonomy and create boundaries for taxa that can be applied consistently across multiple life forms. Interestingly, the President of the IUBS welcomed the suggestion (Web ref. 5). He was:

> confident that the IUBS could help to develop a consensus on a method of taxonomy that uses the latest knowledge and modern technology for all living organisms — across every scale of size and complexity.

It is no surprise that such a statement comes from a non-taxonomist.

I do have sympathy with some of the problems faced by Garnett and Christidis (there are many plants which cause exactly the same problems as the animal examples they cite) but their suggestion seems bizarre; it would clearly need to set up a whole new infrastructure (time and money) while at the same time alienating the very people on which it depends.

For other viewpoints on this matter see, amongst others, our own ASBS Facebook page, that by Schuiteman in the *Orchid Research Newsletter*, number 70 (downloadable at Web ref. 6) and that of New Zealand entomologist, Darren Ward (Web ref. 7).

References

Garnett, S.T. & Christidis, L. (2017). Comment. Taxonomy anarchy hampers conservation. *Nature* 546 Issue 7656 (1st June 2017): 25–27. *https://doi.org/10.1038/546025a*

Web ref. 1: *https://biodiversity.org.au/nsl/services/apc*

Web ref. 2: *http://posa.sanbi.org/searchspp.php*

Web ref. 3: *http://ww2.bgbm.org/EuroPlusMed/query.asp*

Web ref. 4: *http://www.theplantlist.org/*

Web ref. 5: *www.nature.com/nature/journal/v546/n7660/full/546600d.html*

Web ref. 6: *https://www.kew.org/sites/default/files/ORN%2070.pdf*

Web ref. 7: *https://aucklandecology.com/2017/06/16/unhappy-taxonomists/*

Can Facebook be used by scientists to combat disinformation?

Any comments on this from those who use Facebook? An argument for the use of Facebook for the mobilization of scientists can be seen in the threat to the collections in Louisiana recently (see Items of Interest) but this is a different call.

> Arguably, the dissemination of science communication has recently entered a new age in which science must compete for public attention with fake news, alternate facts, and pseudoscience. This clash is particularly evident on social media. Facebook has taken a prime role in disseminating fake news, alternate facts, and pseudoscience, but is often ignored in the context of science outreach, especially among individual scientists. Based on new survey data, scientists appear in large Facebook networks but seldom post information about general science, their own scientific research, or culturally controversial topics in science. The typical individual scientist's audience is large and personally connected, potentially leading to both a broad and deep engagement in science. Moreover, this media values individual expertise, allowing scientists to serve as a "Nerd of Trust" for their online friend and family networks. Science outreach via social media demands a renewed interest, and Facebook may be an overlooked high-return, low-risk science outreach tool in which scientists can play a valuable role to combat disinformation. [Abstract]

References

McClain, C.R. (2017). Practices and promises of Facebook for science outreach: Becoming a "Nerd of Trust". PLOS Biology *https://doi.org/10.1371/journal.pbio.2002020*

Robyn Barker

Items of interest

As in the last issue some of these items have been prompted from postings on the ASBS Facebook page. Such cases are acknowledged.

Robyn Barker

Informational confusion – words you wish you had said

This introduction to a review by Pierre L. Ibisch of two new books under the heading "What works in an uncertain and complex world" in the journal *Conservation Biology* caught my eye.

> The age of enlightenment and knowledge working as we knew it has ended. The biggest challenge science and the so-called knowledge society are facing is no longer knowledge gaps; rather, the challenge is the abundance and ambiguity of ever-increasing information. Even within small scientific disciplines, there is too much existing and new information to be digested by experts who are expected to put it into context and know and interpret it for further processing and application. Even worse is the decoupling of society at large from scientists and experts. Although most individuals handle much more information than their predecessors in previous decades or centuries, informational diversity and abundance make it difficult to prioritize, assess, and filter for quality information to ensure the best possible fundament for acquiring knowledge and eventual wisdom. Improving access to media and the fast development of information technology do not make people automatically better informed; instead, it seems to accelerate our entry into post factual times and informational confusion.

Web reference. *http://onlinelibrary.wiley.com/doi/10.1111/cobi.12961/full?mc_cid=41a4f4c5bd&mc_eid=5ec9edb8b0*

The profitability of scientific publishing

The enormous profits made by firms such as Elsevier, Springer and Wiley-Blackwell from scientific publishing and the bizarre way in which scientists and governments are exploited in the process has long been known. As the Deutsche Bank indicated in 2005 "the state funds most research, pays the salaries of most of those checking the quality of research, and then buys most of the published product". Attempts to stop this from happening were reflected in the setting up some years ago of freely available "open access" journals, such as *PLOS Publications*, but for various reasons, including the need for scientists to publish or perish and to publish in prestigious journals, the big publishers continue on their way. Likewise with the setting up of the controversial *Sci-Hub*, a site designed to "remove all barriers in the way of science" where papers which are inaccessible are pirated and made freely available to those who cannot access them. A US court has just awarded Elsevier US$15 million for copyright infringement but this is unlikely to affect the site (Web ref. 2), except perhaps in locating it.

Jim Croft posted a link on Facebook to the first article which provides a background to the multinationals that profit from scientific publishing.

Web references

1: *https://www.theguardian.com/science/2017/jun/27/profitable-business-scientific-publishing-bad-for-science*

2: *https://www.nature.com/news/us-court-grants-elsevier-millions-in-damages-from-sci-hub-1.22196*

Accessing pay-walled papers legitimately

Further to the above and for those uncomfortable with the thought of Sci-Hub, note the availability of a new tool known as *Unpaywall* (Web ref. 1), launched in April this year. This is a free tool which searches for legal open access versions of pay-walled papers. Once installed if the user accesses a pay-walled paper a green or grey tab will appear on the screen. The green sign indicates that there is a free version of the paper available on another site whereas the grey sign indicates that a free version has not been located. The journal *Nature* gives further background (Web ref. 2). If you, like us, would have trouble adding this to your government computer, another member has suggested

that the other way you can try accessing the inaccessible is through the website Open Access Button (Web ref. 3). A little more clunky and launched in 2013, this one checks availability first and if it is not available then a request can be sent to the author to share it. Unfortunately of all the papers tested on this site none of them resulted in free access.

Web references

1: *http://unpaywall.org/*

2: *https://www.nature.com/news/unpaywall-finds-free-versions-of-paywalled-papers-1.21765*

3: *https://openaccessbutton.org/*

Australian origin for Pohutakawa

An article describing two new fossil species of *Meterosideros* from Tasmania (Tarran et al, 2017; Web ref. 1) was the source of some consternation in the New Zealand media (Web ref. 2, 3) in June. The iconic New Zealand Christmas Tree may well have originated in Australia where it is extinct today. [Posted on Facebook by Jim Croft].

References

Tarran, M., Wilson, Peter G., Macphail, M.K., Jordan, G.J. & Hill, R.S. (2017). Two fossil species of Metrosideros (Myrtaceae) from the Oligo-Miocene Golden Fleece locality in Tasmania, Australia. *American Journal of Botany* 104: 891-904. *https://doi.org/10.3732/ajb.1700095*

Web ref. 1: *www.adelaide.edu.au/news/news93042.html*

Web ref. 2: *www.radionz.co.nz/national/programmes/afternoons/audio/201848638/pohutukawa-an-aussie*

Web ref. 3: *www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11881073*

An analysis of changes to the code respecting e-publication

Analysis of vascular plant data from the International Plant Names Index (IPNI) indicates that e-publication changes introduced in the Melbourne Code have been accepted by botanists but there has not been any marked increase in the rate of species description and nor have there been increasing numbers of participants or journals involved in their publication.

References

Nicolson, N., Challis, K., Tucker, A. & Knapp, S. (2017). Impact of e-publication changes in the International Code of Nomenclature for algae, fungi and plants (Melbourne Code, 2012) - did we need to "run for our lives"? *BMC Evolutionary Biology* 17: 116. *https://doi.org/10.1186/s12862-017-0961-8*

Web ref. *https://bmcevolbiol.biomedcentral.com/articles/10.1186/s12862-017-0961-8*

Better access to DNA results from herbarium specimens

Using second-generation sequencing, some of the classic roadblocks to using herbarium DNA have been overcome. No longer is the degraded nature of most herbarium DNA preventing sequencing. Instead, several kilobases of genomic sequence can be obtained, especially from high-copy number compartments such as plastomes (chloroplast genomes). Genomic skimming presents an important and cost-effective boost to using herbarium DNA-sequences in phylogenetic studies at species-level and beyond. At the same time, although herbarium DNA appears to bear the signature of ancient DNA, the accuracy of the herbarium DNA sequences obtained appears to be surprisingly high, as post-mortem miscoding lesion damage in most herbarium DNA is found to be negligible. [Modified from abstract. Heidi Meudt pointed to this article on Facebook]

Reference

Freek T. Bakker. 2017. Herbarium genomics: skimming and plastomics from archival specimens. *Webbia* 72: 35-45. *http://dx.doi.org/10.1080/00837792.2017.1313383* [Open access]

Improving accessibility to old tropical botanical collections

This is a review article and therefore probably contains little which would be new to a practicing systematist. It is also ostensibly about tropical collections, but mostly applies equally well to any herbarium collections. Nonetheless it does contain an interesting summary of early herbaria and how and where they obtained their collections and how they were stored. It then deals with the first attempts at international standardization of information from herbarium specimens after WW2 and how the information was projected, leading up

to how it is done today through the World Wide Web. All of this we now take for granted, but our access to specimens nowadays (with a few exceptions) is truly remarkable. When we get frustrated with an image not downloading in 30 seconds, just think of how long it might have taken just 20 years ago to have access to the same specimen!

Reference

Friis, I. (2017). Old tropical botanical collections: how to improve their availability, comprehensibility and use in modern taxonomy? *Webbia* 72: 5-16. *http://dx.doi.org/10.1080/00837792.2017.1301708* [Behind pay wall]

Herbarium exposure for the wrong reasons

Just for the record here is a selection of the diverse global media which reported the news about the destruction of herbarium specimens mentioned in the last issue of the Newsletter. Mistakes were made and let's hope that we can all learn from it without having to get too bogged down in paper work in the future. But fascinating to see how variable [and sometimes wrong] the accounts were, when apparently based on the same original report.

Web references

http://mobile.abc.net.au/news/2017-05-08/irreplaceable-plant-specimens-destroyed-by-biosecurity-officers/8504944?pfmredir=sm [original report]

https://www.sciencesetavenir.fr/nature-environnement/plantes-et-vegetaux/des-specimens-rares-de-plantes-du-mnhn-detruits-par-les-services-australiens_112862

www.telegraph.co.uk/news/2017/05/08/australian-biosecurity-officials-destroy-irreplaceable-plant/

www.sciencemag.org/news/2017/05/botanists-fear-research-slowdown-after-priceless-specimens-destroyed-australian-border

https://www.theguardian.com/environment/2017/may/08/australian-biosecurity-officials-destroy-plant-samples-from-19th-century-france?CMP=share_btn_fb

www.researchcareer.com.au/archived-news/fiery-mistake-destroys-historic-plants

http://news.trust.org/item/20170508085323-i62q6/

https://www.gizmodo.com.au/2017/05/australian-biosecurity-officers-just-destroyed-an-irreplaceable-plant-collection/

www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11852319

www.stuff.co.nz/world/australia/92360044/australian-customs-destroys-unique-plant-specimens-after-quarantine-mixup

... and for the right reasons

Michelle Waycott was the prime interviewee in the report above. She clearly had a busy month or so since she also appeared several times in an ABC Landline report (Web ref. 1) into the potential for a seaweed industry in South Australia, part of which was filmed in the State Herbarium of South Australia. This was an exemplary report which recognised the value of the herbarium collection as part of wider research into sustainable harvesting of marine algae, whether it be directly from beaches or from farming. The foraging for native seaweeds for use as a food in some Adelaide restaurants presumably raises the same problems as for any other plant food. Are there poisonous algal species?

And then, taking advantage of the publicity received because of the unfortunate mistakes above, she penned an article for *The Conversation* focusing on all of the values herbarium specimens are able to bring to the scientific world in this digital age.

Web ref. 1: *www.abc.net.au/news/2017-06-03/super-seaweed:-making-the-most-of-this-versatile/8589316?pfmredir=sm*

Web ref. 2: *http://theconversation.com/from-joseph-banks-to-big-data-herbaria-bring-centuries-old-science-into-the-digital-age-77718?utm_source=facebook&utm_medium=facebookbutton*

Have there been any biosecurity breaches caused by Herbarium specimens?

In response to the destruction of herbarium specimens by biosecurity authorities, Jim Croft asked on the ASBS Facebook page whether anyone knew of any record of any herbarium specimens being the agency of biosecurity breaches.

> Trying to think of a documented biosecurity breach that can be traced directly (or indirectly) to herbarium specimens. Does anyone have any examples? From Australia/New Zealand, or overseas? There have been

botanic gardens escapes, but I'm looking for a case study from herbaria.

Discussion in Adelaide had realised no examples. There was no response to the Facebook question, but it is certainly worth continuing to pose it.

A whole collection under threat of destruction

In April, somewhat before the French and New Zealand specimens were destroyed in Australia, curators of the natural history museum of the University of Louisiana were given 48 hours by university administrators to find new housing for their collections or they would be given away to another institution. Failure to remove the collection from campus by the end of July would result in the destruction of the collections. The collection consisting of 3-6 million preserved fish and half a million plant specimens, had ended up being stored in the University's stadium while awaiting museum renovation but the need to upgrade the stadium in August this year meant the collections had to be relocated. A post on Facebook mobilised the scientific community and numerous offers to take the collections were received – at least saving the specimens from their threatened destruction (although subsequently the administrators indicated that they had never intended to destroy the collection; Web ref. 2), but they will no longer be a part of the natural history museum at the University of Louisiana (Web ref. 1).

Some musings on the fate of such collections by Elizabeth Merritt, founding director of the Centre for the Future of Museums (part of the American Alliance of Museums) can be found at Web ref. 3.

Web references

1: *www.sciencemag.org/news/2017/04/louisiana-threatened-natural-history-collection-gets-reprieve*
2: *www.atlasobscura.com/articles/natural-history-museums-closing-survival-modernizing*
3: *http://futureofmuseums.blogspot.com.au/2017/04/monday-musing-orphan-collections.html*

The vascular plant holdings of Paris

A recent article (Le Bras et al. 2017), brought to our attention by Karen Wilson, on the three centuries of herbarium holdings of the French Muséum national d'histoire naturelle (P), estimates that 90% of their vascular plant holdings (5,400,000 specimens) are now databased. Of these, 99% have one or more images and 16% have had their field-collecting information captured. There is a brief discussion of the major herbaria held at P (not including the Labillardière or Baudin collections from Australia), including a useful list of when various historic herbaria were acquired. This is followed by a list of the various projects and their funding by which the data-basing has been achieved. What has been achieved so far is incredible but, from an Australian perspective, attempting to find information on Baudin or Leschenault et al. collections is extremely time consuming and frustrating. The minimal information available in the database (accessed through the Web ref. below) and sometimes its interpretation, means that all potential specimen images have to be opened and examined. Coincidentally, Friis (see p. 40) made exactly the same complaint about his search for Urticaceae material from Gabon; he had to open and look at 3000 images in order to find 80 collections. In order for the database to be truly useful, it is likely that proper interpretation of the labels of many of the specimens is going to require more specialist input than previously, a problem faced by most herbaria.

References

Le Bras, G. et al. (2017). The French Muséum national d'histoire naturelle vascular plant herbarium collection dataset. *Scientific Data* 4, Article number: 170016 (2017). *https://doi.org/10.1038/sdata.2017.16* [Open access]

Web ref.: *https://science.mnhn.fr/institution/mnhn/collection/p/item/search/form*

The Nagoya Protocol

The Nagoya Protocol, an international agreement adopted under the Convention on Biological Diversity (CBD), on access to genetic resources and fair and equitable sharing of benefits arising from their utilization, entered into force on 12 October, 2014. Australia signed the protocol in January 2012. David Cantrill has pointed to a useful fact sheet (web ref.) prepared by the members of the Global Genome Biodiversity Network (GGBN) policies task force. It provides answers to a lot

of questions about this as yet, little understood protocol.

For experiences with the protocol by others, see the two Watanabe articles in *Bioscience* (Watanabe 2015, 2017).

References

Watanabe, M.E. (2015). The Nagoya Protocol on access and benefit sharing. *Bioscience* 65: 543-550. *https://doi.org/10.1093/biosci/biv056*

Watanabe, M.E. (2017). The Nagoya Protocol: big steps, new problems. *Bioscience* 67: 400. *https://doi.org/10.1093/biosci/bix019*

Web ref.: *http://wiki.ggbn.org/ggbn/ABS_Fact_Sheet_and_Answers_to_Frequently_Asked_Questions*

Obituary

Antonius (Tony) Mircea Moscal
16 March 1928 — 21 May 2017

Alex Buchanan, Gintaras Kantvilas, Lyn Cave and Matt Baker
Tasmanian Herbarium

Tony was born in a small town in the Bukovina district of northern Romania. His father was a herbalist who prepared and sold herbal medicines. Assisting his father in this work introduced Tony to the identification and gathering of certain plants from the natural environment.

Besides Romanians, there was also a colony of German settlers in the district so that Tony attended school with German-speaking children, some of whom were his good friends. Thus he picked up a smattering of German which was soon to be very helpful for him.

At the end of the Second World War, when he was aged 16, the Russians invaded Romania and young men were required to register for military service. The talk of the town was that these men would be conscripted to serve as crew in Russian submarines. Tony went to register but, somehow, he missed the office and kept on going, headed westwards and crossed into Hungary and Austria. After several adventures along the way, he reached the North Sea town of Bremerhaven, Germany, where he found work as a farm-hand. Here he was married and two children were born. Tony then began working at the American military base in Bremerhaven, firstly as a security guard and then as crew on the tugboats that towed loads of redundant military hardware to the deep water of the Skagerrak, off Norway, for disposal.

Tony found it increasingly difficult to obtain employment in post-war Germany. In about 1949 he decided to emigrate to Australia and made the necessary applications. In his childhood, he had looked at maps of Australia and noticed that some parts of western Tasmania were marked as "Unexplored". He decided that Tasmania was the place for him. The family sailed from Bremerhaven, via Suez, and arrived in Tasmania sometime around 1950. The family first settled at Collinsvale where they fitted in easily with other German-speaking immigrants.

Tony became a house-painter and worked with a crew of painters in the Hobart area. However, it was not long before he joined the Hobart Walking Club and began his own exploration of south-west Tasmania (Fig. 1). On these trips, his old interest in special plants came to the surface. Tony took a particular interest in Tasmanian endemic species and he set out to find and record all of them in the wild. As his knowledge of these plants increased, he brought specimens to the Tasmanian Herbarium (HO) where he was encouraged by the then Curator, Dr Tony Orchard. Thus began his long association with HO.

His interest in endemics, a love of the bush and of exploring remote areas led to his collaboration with Dr Mick Brown, then botanist with the Tasmanian National Parks and Wildlife Service, and then with the University of Tasmania's Prof. Jamie Kirkpatrick. Together they produced *Threatened Plants of the Tasmanian Central East Coast* (Kirkpatrick et al. 1980) and the *Atlas of Tasmania's Endemic Flora (*Brown et al. 1983). The latter

Fig.1. Tony Moscal. Anti-clockwise from top left: a, In his later years; b, Rafting down the Franklin River (from the 'Franklin River Journey' film); c, On the edge of Lake Pedder before it was flooded.
From Catherine Tindal (Tony's granddaughter)

work in particular inspired professional and amateur botanists of the day to collect and record Tasmania's endemic flora, if only to "fill in some empty grid cells" on the maps.

In his later working life, Tony was employed by the Federal Department of Infrastructure, work that took him to remote places, painting lighthouses and other installations, including the lighthouse on Maatsuyker Island in the far south-west. Even better, in Tony's opinion, was that he was granted leave each summer to conduct botanical field work. He continued his collaboration with Mick Brown and Jamie Kirkpatrick, and with HO, seeking out ever more remote areas that he would often identify from maps and then walk to. Access to areas was also gained with his faithful VW Beetle or hitch-hiking. On one occasion, people driving back from the West Coast encountered an exhausted bedraggled Tony hitchhiking home after having walked to a remote sinkhole near the Alma River that he had spotted on a map. In much the same way, Tony "discovered" a remarkable relic patch of Huon Pine in a "crater" on the flanks of Greystone Bluff. In the first few years, under the supervision of Prof. Jamie Kirkpatrick, his botanical excursions took him to the forests of eastern Tasmania including the area that later became the Douglas-Apsley National Park (Kirkpatrick et al. 1980).

From 1983 to 1987 Tony participated in the Tasmanian Herbarium's remote area collecting project. Three to four weeks each summer were spent in parts of south-west Tasmania that were poorly known botanically. Access was by fishing boat, an incredibly heavy and unwieldy canoe, walking or helicopter. Plants were collected and pressed and dried in the field, and on one trip (to the Jubilee Range) the drier caught fire in

the tent. All that was rescued were the scorched collecting books which remain in HO's archive. Tony contributed in excess of 2000 vascular plant specimens from these expeditions. During this period Tony focussed more and more on bryophytes and when he retired in the early 1990s he purchased a stereoscopic microscope and a compound microscope for the identification of his collections. Much of the identification work was done in the herbarium where Tony set himself up with his kit and books, and worked incredibly long hours, sustained, seemingly, only by an endless supply of Rum and Raisin dark chocolate. His prodigious output of identified specimens, all packeted and labelled, taxed the Herbarium's filing system, and a separate Moscal shelving section had to be established to accommodate his bryophytes. This effort was published together with Jamie Kirkpatrick as the *Atlas of Mosses and Liverworts in Tasmania* (Moscal and Kirkpatrick 1997). It represents a prodigious achievement, all underpinned with specimens from truly remote places in western Tasmanian wilderness.

Tony collected in excess of 31 000 specimens including the type specimens of seventeen taxa of angiosperms and two of bryophytes. Of these, all of his vascular plant specimens (13 130) and lichen specimens (912) have been databased at HO (Fig. 2). The remaining specimens are mainly bryophytes, of which over 6 600 have been databased and some 10 000 more remain to be entered into HO's database.

As Tony's health began to fail he donated his equipment to the Herbarium and moved to northern Tasmania.

Two taxa were named in Tony's honour: *Epacris moscaliana* Crowden and *Persoonia moscalii* Orchard.

Tony Moscal was a remarkable man, one of those special characters that appear only very rarely: intrepid, determined, industrious and largely self-taught. He leaves a valuable legacy of specimens from places unlikely to be visited again and, amongst those who knew him, fond memories.

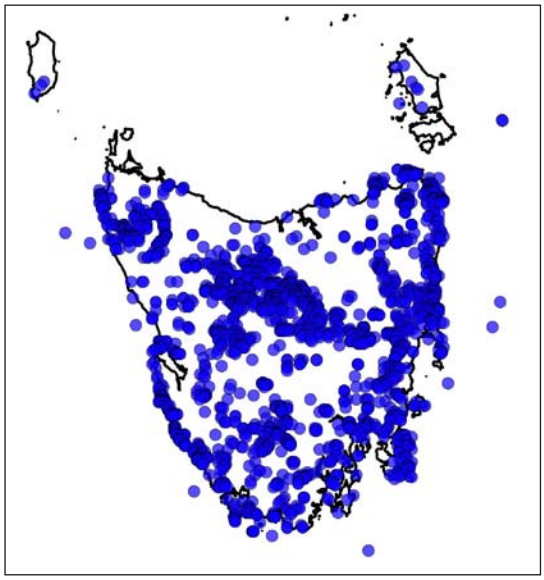


Fig. 2. The geographical spread of 17,754 databased Moscal collections dating from 1976.
Fom the Australasian Virtual Herbarium

Publications

Kirkpatrick, J.B., Brown, M.J. and Moscal, A. (1980). *Threatened Plants of the Tasmanian Central East Coast.* Tasmanian Conservation Trust, Hobart.

Brown, M.J., Kirkpatrick, J.B. and Moscal, A. (1983). Conservation of endemic vascular plants in alpine Tasmania. *Proceedings of the Ecological Society of Australia* 12:168–169.

Moscal, A., Askey-Doran, M.J., Kirkpatrick, J.B., Lambourne, M.J., Dalton, P.J. and Seppelt, R. (1996). *A preliminary assessment of the conservation and reservation status of Tasmanian bryophytes, a Regional Forest Agreement environment and heritage assessment,* A report to the Tasmanian RFA Environment and Heritage Committee, Tasmanian Parks and Wildlife Service, Hobart.

Whinam, J., Eberhard, S., Kirkpatrick, J.B. and Moscal, T. (1989). Ecology and conservation of Tasmanian *Sphagnum* peatlands, Tasmanian Conservation Trust, Hobart.

Moscal, A., and Kirkpatrick, J.B. (1997). *Atlas of Mosses and Liverworts in Tasmania.* Tasmanian Conservation Trust Inc, Hobart.

Brown, M.J., Kirkpatrick, J.B., and Moscal, A. (1983). *An atlas of Tasmania's endemic flora: including the distribution and conservation status of Tasmanian endemic higher plant species.* Tasmanian Conservation Trust, Hobart.

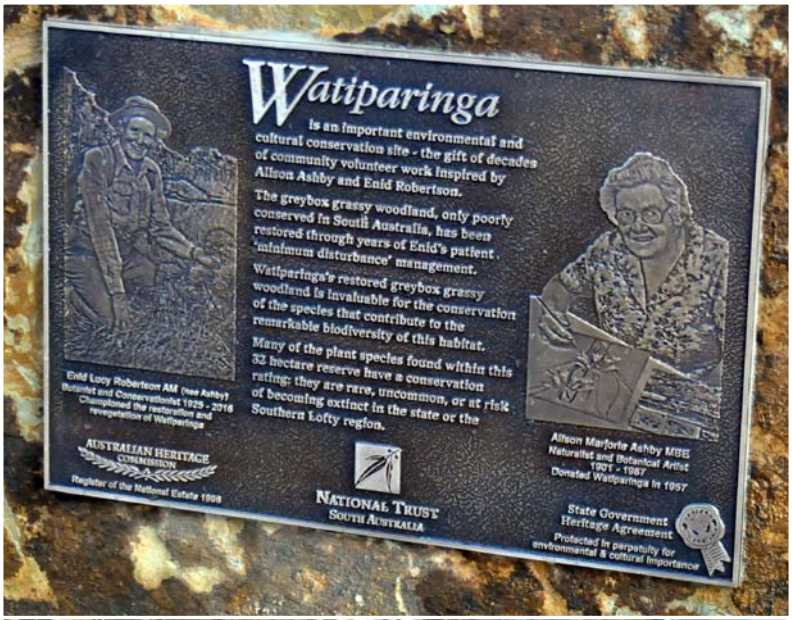
Kirkpatrick, J.B., Moscal, A. and Askey-Doran, M. (1994). *National Estate values of the Great Western Tiers,* Tasmania: the flora and the vegetation. Tasmanian Conservation Trust, Hobart

In memoriam

Commemorating
Enid L. Robertson (1925–2016)

Enid Robertson, South Australian botanical stalwart and conservationist as well as an original member of ASBS, died last year. She was a member of the well-known Ashby family, owners of Wittunga, and a niece of Alison Ashby whose name is known to many of you as a collector and painter of Australian wild flowers. An account of Enid's myriad scientific and conservation activities is in preparation for *Swainsona,* the newly named journal of the Botanic Gardens and State Herbarium of South Australia.

A bush gathering was held at the Watiparinga National Trust Reserve, Belair, on 28th May 2017 to mark the passing of Enid Robertson and also to unveil a plaque commemorating the conservation work of both Enid and her aunt, Alison Ashby.



The Watiparinga Reserve, once part of the original Ashby farm, Wittunga, was gifted to the National Trust by Alison Ashby in 1957. There were two conditions – the land was not to be built upon, and the capital of the endowment set aside for its maintenance was to be preserved. Sixty years later, thanks to the efforts of community volunteers, inspired by both women and instructed by Enid in particular, it is difficult to visualise this land as having once been cleared. Greybox grassy woodland, now mostly gone from the surrounding area, has been restored at Watiparinga and provides

Fig. At Watiparinga Reserve in restored woodland. Above, The plaque showing Enid Robertson on left and Alison Ashby on right. Below, Master of Ceremonies and chief speaker Helen Robertson (front right) with sister Anne (far left) together lifted the veil.
Ph. B. Barker

a refuge for rare and endangered plants and animals.

It was in this setting that people associated with Enid gathered on a wintry day which threatened rain. Her eldest daughter Helen recounted stories of Enid which had been compiled by the family and also read out a tribute from Enid's long-standing botanical colleague, Ann Prescott, who was unable to attend. Russ Sinclair and the chair of the Watiparinga Management Committee, Trent Porter, also provided reminiscences on Enid and Watiparinga, but by this time the threatening rain was turning to real rain and the advent of a particularly heavy shower brought a slightly premature ending to the speeches. Despite this people still lingered to observe the unveiling and to share a cup of tea and further reminiscences. Somehow the weather seemed appropriate for the occasion. Undoubtedly, in similar circumstances, it would not have impeded Enid from achieving her goal for the day.

Robyn Barker

New books and reports

Focus on Flora: Native plants of the Adelaide Hills & Barossa.
Kersbrook Landcare Group.
Axiom, Publishers and Distributors, July 2017
ISBN: 9781864768206
$39:95 + postage and handling.
http://kersbrook.landcaregroup.org.au/book_request.php
www.communitywebs.org/klg/main.php?pid=157

The 280 species illustrated in this highly colourful book primarily represent the most commonly seen plants from the reserves of the northern part of the Adelaide Hills to the Barossa, between Lobethal and Nuriootpa, but it is possible to use it for the whole of the Adelaide Hills. The photography and the text are by a small group from the Kersbrook Landcare Group.

Species are divided into 8 colour-coded habit types, easily identified in the closed book, and each species treatment (one per page, with a few exceptions, e.g. orchids) has 2-3 or more photographs. There is a lot of information included under each of the species, which are grouped in families within their habit type. A sample of a number of pages and the cover can be downloaded on-line (Web ref.) and so you can judge for yourself, but I was particularly interested in the remarks under "Special interest" which often gives information about biological interactions with other species and the "Similar species" information.

The book is a credit to the small group of dedicated volunteers involved and deserves to be successful. It represents exceptionally good value and it would be perfect for the casual visitor, even those visiting botanists who may be attending the ASBS meeting here in Adelaide in November.

Web ref.: *www.communitywebs.org/klg/assets/focus-on-flora-book-sample-klg.pdf*

Totara - A Natural and Cultural History
Philip Simpson
Auckland University Press; June 2017
HB; c. 340 pp.; ISBN: 9781869408190
RRP: NZ$75 – freight free within NZ
www.pottonandburton.co.nz/store/totara

> The 'mighty tōtara' [*Podocarpus totara*] is one of New Zealand's most extraordinary trees. Among the biggest and oldest trees in the New Zealand forest, the heart of Māori carving and culture, trailing no. 8 wire as fence posts on settler farms, clambered up in the Pureora protests of the 1980s: the story of New Zealand can be told through tōtara.

Philip Simpson's previous books on New Zealand native trees, *Dancing Leaves: The story of New Zealand's cabbage tree, ti kouka* (Canterbury University Press, 2000) and *Pohutukawa and Rata: New Zealand's Iron-hearted Trees* (Te Papa Press 2005) both received multiple awards and his third book has been eagerly awaited (Web ref. 1). Simpson is unique in his ability to combine the scientific expertise of the trained botanist with a writer's ability to understand the history of Māori and Pākehā interactions with the environment. [Compiled from information on the web sources cited].

A preview of the book reproduces three of the chapters in full (Web ref. 2). Potton and Burton are the distributors of the book (see above).

Web references

1: *www.stuff.co.nz/nelson-mail/lifestyle-entertainment/weekend/2479290/Telling-the-story-of-a-forest-giant*

2: *https://cdn.auckland.ac.nz/assets/press/all-books/pdfs/2017/Simpson_Totara_blad.pdf*

The Plant Messiah: Adventures in Search of the World's Rarest Species

Carlos Magdalena
Penguin Books, London; May 2017
HB & eBook; 240 pp; ISBN10: 0241292328; ISBN13 9780241292327

I noticed this book on Goodreads (Web ref. 1) and have been looking for reviews in the scientific literature ever since, but so far with no luck. The only review found in *The Economist* (Web ref. 2) is no longer accessible to me because I have apparently reached my article limit, but with a bit of luck those of you who are interested will still be able to access it. A Google preview of the book (Web ref. 3) gives the titles for all of the chapters with full access to the Prologue and the first three chapters, although these are not really the ones of interest here. Interviews with the author, Carlos Magdalen of Kew Gardens, are available (Web refs 4, 5). Apparently he is not your average horticulturist!

Web references

1: *https://www.goodreads.com/book/show/32887685-the-plant-messiah*

2: *www.economist.com/news/books-and-arts/21723089-botanical-horticulturalist-importance-saving-plants-extinction-carlos*

3: *https://books.google.com.au/books?id=rendDQAAQBAJ*

4: *https://www.52-insights.com/carlos-magdalena-the-plant-messiah/*

5: *https://inews.co.uk/essentials/news/environment/no-bad-plants-unfriendly-ones/*

State of the World's Plants 2017

Royal Botanic Gardens, Kew

The second international *State of the World's Plants* symposium, held at Kew on 25–26 May 2017, coincided with the release of a glossy report of the same name (Web ref. 1, 2). Whereas the prior year's report covering data from roughly the year 2015 (also Web ref. 1) was "focused predominantly on synthesising knowledge of the numbers of different categories of plants" and the main threats to their existence, this year's concentration was on characteristics of plants that make them more or less resilient to current and future threats. Attention was also paid to the rapid accumulation of knowledge about the world's plants. For instance, globally there were 1730 species new to science listed for the past year, and now 225 plant species have their whole genome sequenced and 6075 species are classed as invasive.

Such reports, while available on the web in the short term, are often overlooked for addition to library holdings.

Web references

1: *https://stateoftheworldsplants.com/*

2: *https://stateoftheworldsplants.com/2017/report/SOTWP_2017.pdf*

State Botanical Collection Significance Assessment

Royal Botanic Gardens, Victoria
November 2016

Were you a contributor to the survey associated with this report? Last year the Royal Botanic Gardens Victoria commissioned a significance assessment of the state's botanical collection which comprises the herbarium specimen, library, archive, and botanical art collections. Their aim was to gain an understanding of the significance of these collections to the wider community. Users were asked to fill out a short survey about how they used the collection and whether or not it was important them. The survey closed on 1 July 2016. If you did contribute to the survey, or even if you didn't, you may be interested to see the results. Even if you are reasonably familiar with these holdings, it is sobering to see just how much of our history resides in such institutions. While this is just one such, it is arguably the most important one in Australia. The report can be accessed on line (Web ref.)

Web ref. *https://www.rbg.vic.gov.au/documents/SBC_Significance_Assessment_FINAL_29.11_.16_.pdf*

Queensland's Regional Ecosystems. Building and maintaining a biodiversity inventory, planning framework and information system for Queensland.

V.J. Neldner, D.W. Butler & G.P. Guymer

Queensland Herbarium
Department of Science, Information Technology and Innovation, Brisbane.
2017.

This comprehensive report documents the development over many years of a consistent, seamless and robust 1:100 000 scale regional ecosystem coverage for Queensland and backgrounds the maps launched recently (see News). Downloadable from the internet.

Web ref. *https://publications.qld.gov.au/dataset/redd/resource/42657ca4-848f-4d0e-91ab-1b475faa1e7d*

Scientific review of the impact of land clearing on threatened species in Queensland

V.J. Neldner, M.J. Laidlaw, K.R. McDonals, M.T. Mathieson, R.I. Melzer, R.Seaton, W.J. McDonald, R.Hobson & C.J. Limpus
Queensland Government, Brisbane.
2017.

This report (Web ref.) produced by Queensland's Species Technical Committee reviews the recent literature on the land clearing impacts, evaluates the extent loss of modelled habitats for threatened species since European settlement, and includes case studies of three plants and five animals. [Thanks to John Neldner for the information on this report, launched on 21st July by the Queensland Minister for Environment and Heritage Protection].

Web ref. *www.ehp.qld.gov.au/wildlife/threatened-species/documents/land-clearing-impacts-threatened-species.pdf*

The Australian Bird Guide

Danny I. Rogers, Peter Menkhorst, Rohan Clarke, Jeff Davies, Peter Marsack & Kim Franklin
CSIRO Publishing. May 2017
PB; 576 pp; ISBN: 9780643097544
RRP $49.95
www.publish.csiro.au/book/6520/

> The most comprehensive and beautifully illustrated field guide to Australia's unique birdlife.

So claims the publisher's website, through which this book can be purchased (although it can be found for lower prices elsewhere) and through which sample pages can be viewed. Eight years in the making, it covers 927 species in 576 pages and 4700 illustrations and if the reviews seen are accurate the claim is more than justified. Two comprehensive reviews give background to the project (Web refs 1, 2).

Web references

1: *https://www.chriswatson.com.au/blog/the-australian-bird-guide*

2: *www.smh.com.au/entertainment/books/the-australian-bird-guide-obsession-and-technology-breed-a-tweet-treat-20170424-gvqzsu.html*

Policy Quarterly

Institute for Governance and Policy Studies
University of Wellington

Policy Quarterly (Web ref.) is a New Zealand journal published four times a year targeting readers in the public sector, including politicians and their staff, public servants and a wide variety of professions, together with others interested in public issues. Its length and style are intended to make the journal accessible to busy readers. All of its editions are freely downloadable. The one that initially caught my eye was a special issue *Marine Governance* (May 2017). Another is *Protecting Nature* (February 2016). There are undoubtedly others which may be of interest to readers.

Web ref. *http://igps.victoria.ac.nz/publications/publications/list/10/1*

GDE (Groundwater Dependent Ecosystems) Atlas

Available to all

Perhaps of limited use to most of our members, *GDE Atlas*, developed by CSIRO, Jacobs and the Bureau of Meteorology, is now being projected on the Bureau's site (Web ref. 1). The Atlas (Web ref. 2) contains information about aquatic, terrestrial and subterranean ecosystems. It is a "web-based mapping application [that] allows you to visualise, analyse and download GDE information from an area of interest without needing specialised software".

Web references

1: *www.bom.gov.au/water/about/publications/document/BOM_GDE_Atlas_info_sheet_WEB.pdf*

2: *www.bom.gov.au/water/groundwater/gde/map.shtml*

Coming annual conference

Joint ASBS/SASB Conference, Adelaide, 26-29 November 2017

Systematics 2017:
Integrating Systematics for Conservation and Ecology

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

Conveners:
Andy Austin
(andy.austin@adelaide.edu.au) or
Michelle Waycott
(michelle.waycott@adelaide.edu.au).

The next ASBS conference, joint with the Society of Systematic Biologists, will be held at the University of Adelaide, in the Braggs lecture theatre with the preconference welcome and the dinner to be held at the National Wine Centre. The conference website, now live, provides registration costs, plenary speakers, symposium themes, and other details.

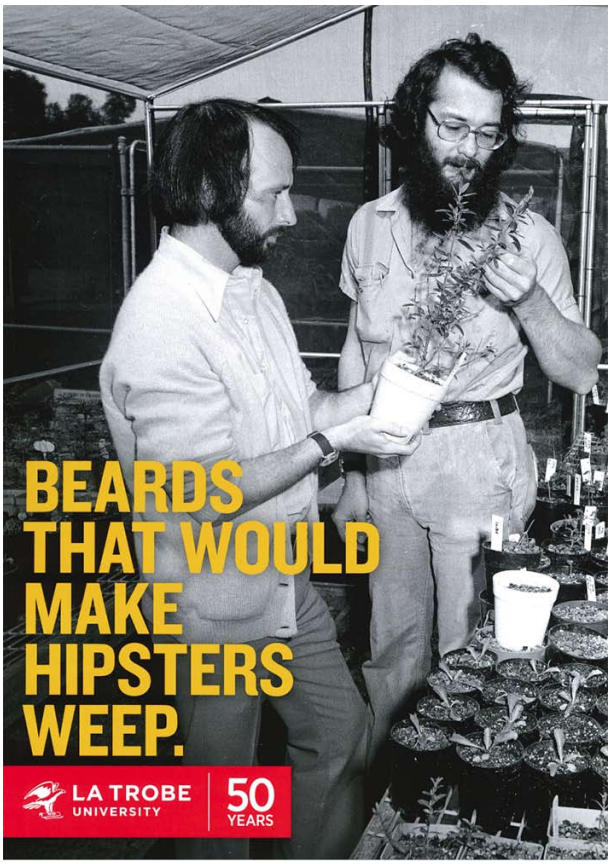
A *call for papers* will be made shortly; the present *closing date for abstracts* is 22nd September.

Early bird registration is available until 22nd September.

A preconference career development workshop (for women) is available to a restricted number of people. It is designed for early career Ph.D. students but is open to all.

If you have *any questions* please email the Conference conveners.

A picture from the past



Ali Kellow reproduced this poster on the ASBS Facebook page, asking who could name the botanists concerned. It was spotted in the corridors of La Trobe University by inaugural member of ASBS Bob Parsons.

Those of you who have been around the Society long enough would have no trouble recognising our first President Trevor Whiffin, on the left, but more may have a little trouble recognising the late Bob Anderson, on the right, Trevor's PhD student, who worked on the systematics and volatile oils of *Correa*. According to Ali, the photo originally illustrated an article on Bob's research in a university newsletter.

At our annual conference ASBS offers a student award, named in memory of Bob, for the best presentation by a student who has overcome odds not generally experienced by our student members, for example in coming from a developing country.

We welcome such pictures of historical interest for our pages.

Chapter conveners

Adelaide
Robyn Barker
State Herbarium of South Australia
Department for Environment, Water & Natural Resources
PO Box 1047, Adelaide SA 5001
Tel: (+618)/(08) 8222 9348
Email: robyn.barker@sa.gov.au

Armidale
Jeremy Bruhl
Department of Botany
Univ. of New England, Armidale, NSW 2351
Tel: (+612)/(02) 6773 2429
Email: jbruhl@une.edu.au

Brisbane
Vacant

Cairns
Katharina Schulte
Australian Tropical Herbarium (CNS)
James Cook University Cairns Campus
PO Box 6811, Cairns Qld 4870
Tel: (+617)/(07) 4232 1686
Email: katharina.schulte@jcu.edu.au

Canberra
Alexander Schmidt-Lebuhn
Centre of Australian National Biodiversity Research
CSIRO Plant Industry
Canberra, ACT 2601
Tel. (+612)/(02) 6246 5498
Email: Alexander.S-L@csiro.au

Christchurch
Ilse Breitwieser
Allan Herbarium, Landcare Research New Zealand Ltd
PO Box 69040. Lincoln 7640. New Zealand
Tel: (+643)/(3) 321 9621
Email: breitwieseri@landcareresearch.co.nz

Darwin
Ian Cowie
Northern Territory Herbarium
PO Box 496, Palmerston, NT 0831
Tel.: (+618)/(08) 8999 4511
Email: ian.cowie@nt.gov.au

Hobart
Miguel de Salas
Tasmanian Herbarium,
Tasmanian Museum and Art Gallery
PO Box 5058, UTAS LPO, Sandy Bay, Tas. 7005
Tel: (+613)/(03) 6226 1806
Email: Miguel.deSalas@tmag.tas.gov.au

Melbourne
Frank Udovicic
National Herbarium of Victoria
Private Bag 2000, South Yarra, Vic. 3141
Tel: (+613)/(03) 9252 2313
Email: frank.udovicic@rbg.vic.gov.au

Perth
Juliet Wege
Western Australian Herbarium
Department of Environment & Conservation
Locked Bag 104, Bentley Delivery Centre, WA 6983
Ph: (+618)/(08) 9219 9145
Email: Juliet.Wege@dbca.wa.gov.au

Sydney
Peter Weston
National Herbarium of NSW
Mrs Macquaries Road, Sydney, NSW 2000
Tel: (+612)/(02) 9231 8111
Email: peter.weston@rbgsyd.nsw.gov.au

Wellington
Heidi Meudt
Museum of New Zealand Te Papa Tongarewa
PO Box 467, Cable St
Wellington 6140, New Zealand
Tel: (+644)/(4) 381 7127
Email: Heidi Meudt <HeidiM@tepapa.govt.nz>

Contacting major Australasian herbaria and systematics institutions

AD tel: (+618)/(08) 8222 9307 fax: (+618)/(08) 8222 9353 *www.environment.sa.gov.au/Science/Science_research/State_Herbarium*	HO tel: (+613)/(03) 6226 2635 fax: (+613)/(03) 6226 7865 *www.tmag.tas.gov.au/collections_and_research/tasmanian_herbarium*	MEL tel: (+613)/(03) 9252 2300 fax: (+613)/(03) 9252 2350 *www.rbg.vic.gov.au/science/herbarium-and-resources*	NSW tel: (+612)/(02) 9231 8111 email: *feedback@rbgsyd.nsw.gov.au* *www.rbgsyd.nsw.gov.au*
CANB tel: (+612)/(02) 6246 5108 fax: (+612)/(02) 6246 5249 *www.anbg.gov.au/*	BRI tel: (+617)/(07) 3896 9321 fax: (+617)/(07) 3896 9624 *www.qld.gov.au/environment/plants-animals/plants/herbarium/*	DNA tel: (+618)/(08) 8999 4516 fax: (+618)/(08) 8999 4527 *http://lrm.nt.gov.au/plants-and-animals/herbarium*	PERTH tel: (+618)/(08) 9219 8000 fax: (+618)/(08) 9334 0327 *http://dbca.wa.gov.au/plants-and-animals/wa-herbarium*
ATH Tel: (+617)/(07) 4232 1837 *www.ath.org.au/*	NT tel: (+618)/(08) 8951 8791 fax: (+618)/(08) 8951 8790 *www.lrm.nt.gov.au/plants-and-animals/herbarium*	AK tel: (+649)/(9) 306 7060 *www.aucklandmuseum.com/collections-research/*	CHR tel: (+643)/(3) 321 9999 fax: (+643)/(3) 321 9997 *www.landcareresearch.co.nz*
WELT tel: (+644)/(4) 381 7261 fax: (+644)/(4) 381 7070 *http://collections.tepapa.govt.nz/*	*Australian University Herbaria* Contact CHAH representative: Murray Henwood University of Sydney email: *murray@bio.usyd.edu.au*	ABRS tel: (+612)/(02) 6250 9417 fax: (+612)/(02) 6250 9555 email: *abrs@environment.gov.au* *www.environment.gov.au/science/abrs*	*Council of Heads of Australasian Herbaria* (CHAH) Chair: Prof. Michelle Waycott (AD). email: *Michelle.Waycott@sa.gov.au* *www.chah.gov.au*

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

Back issues

Back issues of the Newsletter are available from Number 27 (May 1981) onwards, excluding Numbers 29, 31, 60, 84–86, 89–91, 99, 100, 103, 137–139, and 144. Here is the chance to complete your set.

Cost: Free

***Australian Systematic Botany Society Newsletter* No. 53**
Systematic Status of Large Flowering Plant Genera
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*.

Cost: Number 53: $5, plus $1.75 postage (in Australia)
Cheques payable to "ASBS Inc." Mastercard & Visa payments accepted.

For back issues of the newsletter ONLY, contact:
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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.

Every effort is taken to distribute the Newsletter quarterly; delays or rare combined issues are attributable usually to the availability of the Editors who act in a voluntary capacity rather than to lack of copy. As soon as possible after compilation of each issue a searchable pdf version (in full colour) is placed on the Society web site and announced to members by email, and printed copy (in grey scale) is produced and distributed to members who have requested it.

Citation: abbreviate as *Australas. Syst. Bot. Soc. Newslett.*

Instructions to contributors

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A 20% discount applies for second and subsequent entries of the same advertisement. Advertisements from ASBS members are usually exempt from fees but not the insertion costs in the case of a flyer.

The Editors

Please contact us for clarification or additional information.

Bill Barker State Herbarium of South Australia PO Box 1047 Adelaide SA 5001 Tel. (+61)/(0) 427 427 538 Email: *bill.barker@sa.gov.au*	**Book Reviews editor**: John Clarkson Queensland Parks & Wildlife PO Box 156 Mareeba, Qld 4880 Tel: (+61)/(0) 7 4048 4745 Email: *John.Clarkson@qld.gov.au*	Robyn Barker State Herbarium of South Australia PO Box 1047 Adelaide SA 5001 Tel. (+61)/(0) 8 8222 9348 Email: *robyn.barker@sa.gov.au*

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