

ASBS

*Australasian
Systematic
Botany
Society*



Newsletter

No. 157 December 2013

Price: \$5.00

ISSN 1034-1218

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

Council

President

Bill Barker
State Herbarium of South Australia
PO Box 2732, Kent Town, SA 5071
Australia
Tel: (+61)/(0) 427 427 538
Email: bill.barker@sa.gov.au

Secretary

Frank Zich
Australian Tropical Herbarium
E2 Building, J.C.U. Cairns Campus
PO Box 6811
Cairns, Qld 4870
Australia
Tel: (+61)/(0) 7 4059 5014
Fax: (+61)/(0) 7 4232 1842
Email: frank.zich@csiro.au

Councillor

Ilse Breitwieser
Allan Herbarium
Landcare Research New Zealand Ltd
PO Box 69040
Lincoln 7640
New Zealand
Tel: (+64)/(0) 3 321 9621
Fax: (+64)/(0) 3 321 9998
Email: breitwieseri@landcareresearch.co.nz

Vice President

Mike Bayly
School of Botany
University of Melbourne, Vic. 3010
Australia
Tel: (+61)/(0) 3 8344 5055
Email: mbayly@unimelb.edu.au

Treasurer

John Clarkson
Queensland Parks and Wildlife Service
PO Box 156
Mareeba, Qld 4880
Australia
Tel: (+61)/(0) 7 4048 4745
Mobile: (+61)/(0) 437 732 487
Fax: (+61)/(0) 7 4092 2366
Email: john.clarkson@qld.gov.au

Councillor

Leon Perrie
Museum of New Zealand Te Papa Tongarewa
PO Box 467
Wellington 6011
New Zealand
Tel: (+64)/(0) 4 381 7261
Fax: (+64)/(0) 4 381 7070
Email: leonp@tepapa.govt.nz

Other Constitutional Bodies

Public Officer

Anna Monro
Australian National Botanic Gardens
GPO Box 1777
Canberra, ACT 2601
Australia
Email: anna.monro@environment.gov.au

ASBS Website

www.anbg.gov.au/asbs

Webmasters

Murray Fagg
Australian National Herbarium
Email: murray.fagg@environment.gov.au

Anna Monro
Australian National Botanic Gardens
GPO Box 1777
Canberra, ACT 2601
Australia
Tel: +61 (0)8 8222 9348
Email: anna.monro@environment.gov.au

Affiliate Society

Papua New Guinea Botanical Society

Hansjörg Eichler Research Committee

Philip Garnock-Jones
David Glenny
Betsy Jackes
Greg Leach
Nathalie Nagalingum
Christopher Quinn
Chair: Mike Bayly, Vice President
Grant application closing dates:
Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Australian Conservation Taxonomy Award:
in temporary abeyance

Cover image: *Ternstroemia monostigma* W.R.Barker (Pentaphylacaceae), a New Guinea endemic. Male and female flowers and parts (minus petals), fruit, seed in section. Artist Taikika Iwagu. With permission of the National Herbarium of Papua New Guinea.

Publication dates of previous issue

Australas. Syst. Bot. Soc. Newslett. 156 (September 2013):
ASBS Web site: 15th Oct 2013; Printed version: 21st Oct 2013

From the President

With a new year comes a new council. Welcome to new Councillor Leon Perrie of the Museum of New Zealand Te Papa Tongarewa. Leon joins fellow Kiwi Ilse Breitwieser on our team.

The last Council's activities for its term ending in December 2013 are reported in the extensive minutes and reports presented at the recent Annual General Meeting in Sydney (p. 3). Below I present recent developments and, importantly, what Council sees as major areas of activity for the next year.

Goals for the next term of Council

As well as ongoing business dealing with membership, quarterly newsletter production, 6-monthly Eichler research grants, and so on there are a number of areas of focus for Council for the coming year. Highlighted in my President's Report to the AGM (see pp. 4–7), they include:

- Progressing evidence-based white papers on Australasian plant systematics. With the Council of Heads of Australasian Herbaria agreeing to participate as an organisation and then approval given by members attending a forum held at the Sydney conference, the small organising group is moving to engage with the systematics community in the production phase. See p. 24.
- Continuing to encourage local chapters where appropriate. We already have a further development in Canberra: see below.
- Progressing New Zealand expansion centred on the coming annual conference at Palmerston North, for which dates have now

been announced (see p. 26).

- Revising our agreement with the Nature Conservancy on the Australian Conservation Taxonomy award. See also p. 21.
- Putting our financial management into a documented strategy that optimises our capacity to invest conservatively.
- Determine how best to deal with the substantial final bequest to our Society by the late Marlies Eichler. See summary of the views of members in a discussion at the AGM on p. 4.

A new local chapter convener

Since the Sydney conference Council has gladly accepted Alexander Schmidt-Lebuhn's offer to fill the long vacant position of convener of the Canberra chapter. Welcome, Alexander!

A change to our Public Officer

At our last Council meeting on 1st December Annette Wilson informed us of her resignation from this post which is given to a member living in the Australian Capital Territory, as part of our incorporation requirements. Annette has diligently performed this role over two separate terms 2001–2003 and 2009–2013. We are very grateful to Annette for this important contribution. Council approved Anna Monro as the new Public Officer. Thanks Anna!

Our Society's archives

Also at our last Council meeting Pina Milne highlighted the need to better curate our archives in the library of the National Herbarium of Victoria. The material is not well organised at present. It was suggested that

Australasian Systematic Botany Society Inc.

2014 Membership Fees

These are due on January 1st each year.

You should have been emailed an invoice for current and any back fees.

Subscription rates:

Ordinary/Institutional members \$45 (AUS)

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

This is also an opportunity to donate to the Research Fund

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

Please direct enquiries to John Clarkson our Treasurer



Fig. 1. At the recent *Systematics without Borders* conference. From left, most of the organising committee: Pauline Markwell, Karen Wilson, Frank Koehler, Murray Henwood, Peter Weston, Nerida Wilson, Shane Ah Yong, and Nathalie Nagalingum. Ph. Mike Bayly

rather than imposing on one person, the job could be become more achievable and access facilitated earlier if a group of members dealt with this at the one time. Please contact the Secretary or me if interested in helping.

Marking our first forty years

Council only remembered we were in our fortieth year when Kevin Thiele wished me a happy CHAH birthday in October last year. Our current efforts to match the high level of support achieved 40 years ago from both major sides of politics for biosystematics, biosurvey and conservation seems an appropriate coincidence. I encourage articles in the Newsletter over the coming year of a visionary or retrospective nature. A search of the archives for interesting items is a must. The Editors or Council welcome participation and ideas from members. We do have inaugural members and early office bearers, for example, who might like to contribute.

The *Systematics without Borders* conference

On behalf of members and Council I extend a big thank you to those who organised our recent conference (Fig. 1), held jointly with the Society for Systematic Biologists and Invertebrate Biodiversity and Conservation (see pp. 24–36). It was a stimulating few days that ran like clockwork. This was the latest of several annual meetings that engaged with other Societies. In my view there are real team-building benefits in keeping a tight scope round the majority of our conferences, working within our most frequent, immediate natural working relations within plant systematics and evolution. From my perspective, our periodic forays into wider areas of science and with other organismic groups are become all the more attractive and stimulating.

Bill Barker

ASBS Inc. business

35th Annual General Meeting of the Australasian Systematic Botany Society Inc. Minutes

DT Anderson Lecture Theatre, Heydon-Laurence Building, University of Sydney, NSW
3rd December 2013

Meeting opened at 5:10 pm

Present: Bill Barker (President), Mike Bayly, Frank Zich (Treasurer), John Clarkson (Secretary), Pina Milne, Ilse Breitwieser, Leon Perrie (Councillor elect), and 45 members were in attendance.

1. Apologies

Pauline Ladiges, Margaret Stimpson

2. Minutes of the 2012 Annual General Meeting

It was proposed that the minutes of the 34th Annual General Meeting (as published in

the *Australian Systematic Botany Society Newsletter* Number 153) be accepted.

Moved: Bill Barker; seconded: Barry Conn.
Motion carried.

3. Business arising from minutes

Actions taken to address two resolutions from the 2012 AGM were explained to the meeting.

- Guidelines to assist future conference organisers have been prepared. These will be continually updated based on experiences of conference organising committees. Copies are available from the Secretary.
- Council has continued to progress matters related to the crisis facing plant systematics in Australasia. Kevin Thiele will present a discussion paper following the afternoon tea break tomorrow. This will be followed by an open forum.

4. Correspondence

Letter from the ACT Registrar General granting an extension of the time to hold the AGM to 31st December 2013.

5. President's Report

The President moved that his report be tabled (Attachment 1)

Moved: Bill Barker; Seconded: Dale Dixon.
Motion carried.

Bill then discussed the major points from the report via a powerpoint. The full report will be published in the Newsletter.

6. Treasurer's Report

The Treasurer tabled the financial report for the 2012–13 financial year (Attachment 2) then briefly discussed the Society's strong financial position and major items of income and expenditure. Differences in the General Fund surpluses compared with the previous year were attributable largely to the sponsorship of students attending the International Botanical

Congress in Melbourne in 2011, which was much greater than to our annual conference owing to comparably higher registration fees.

In response to a question from Judy West, Frank outlined the ways Council might support local chapters.

Peter Weston commended the Society's support of conferences, given his experiences on the current conference organising committee.

The Treasurer moved that the financial report be accepted.

Moved: Frank Zich; seconded: Peter Wilson.
Motion carried.

7. Newsletter Report

Bill Barker, one of the Newsletter editorial team, spoke to his report on the Newsletter. See Attachment 3.

8. Web Page Report

Murray Fagg continues to maintain the ASBS web page assisted by Anna Monro. Extensive editorial work has corrected minor errors and ensured all links are functioning.

Bill called for a vote of thanks for Murray and Anna's efforts. Carried with acclamation.

9. Research Grants Report

The Vice-President presented a short report on Eichler grants awarded since the last AGM and briefly discussed the future of the Nature Conservancy's Australian Conservation Taxonomy (ACT) Award. See Attachment 4.

The Nature Conservancy is keen to continue its support for the ACT Award but its focus might change a little. Details will appear in the Newsletter when negotiations are concluded.

Students and supervisors are encouraged to support these grants by submitting well prepared applications.

Australasian Systematic Botany Society Inc.

Hansjörg Eichler Research Grants

Applications for close on March 14th 2014

We invite applications from members.

**For eligibility and other information see the ASBS website
or contact Vice-President Mike Bayly (address inside front cover)**

The Vice-President called for a vote of thanks for members of the Research Committee, Phil Garnock-Jones, Betsy Jackes, Greg Leach, Nathalie Nagalingum, Chris Quinn and David Glenny. Carried with acclamation.

10. ASBS Facebook Page

Mike Bayly gave a short report on the ASBS Facebook page that he and Todd McLay set up earlier in the year. At the time of the meeting, there were 109 members. Interested members are encouraged to visit the page at www.facebook.com/#!/groups/434955569922530/

11. Other business. Future grant opportunities from the Hansjörg Eichler Research Fund

Noting the increase in the funds in the Hansjörg Eichler Research Fund following the substantial bequest from the estate of Marlies Eichler, the President indicated that Council planned to establish a sub-committee to consider ways these funds could be used to further the object of the Society to promote the study of plant systematics. Bill asked members for suggestions and a short discussion ensued.

Suggestions summarised were:

- Support field work to gather data on taxa of conservation concern (Kelly Shepherd). However, care should be taken to ensure that this does not remove the obligations of herbaria to conduct this work (unrecorded speaker).
- New methodologies can handle large number of DNA sequences. With some co-ordination it might be possible to pool samples from a number of researchers thus taking advantage of the economy of scale. Perhaps a project such as this might be funded from the Research Fund (Peter Weston).
- It might be possible to use grants to lever bigger grants from elsewhere (Gill Brown).
- Grants be offered to non-funded retirees (Karen Wilson).
- Engage a professional writer to word-smith the white paper on the crisis facing plant systematics in Australasia for the target audience(s) (Judy West).
- Partner with organisations to support post-doctorates. For example ABRs might be

willing to co-badge a research position (Darren Crayn).

- Increase the level of the current student grants (Karen Wilson).
- Approach Bioplatforms Australia (www.bioplatforms.com.au) as a consortium to get sequencing done. Judy West will obtain contact. Maurizio Rossetto or Darren Crayn may be able to help. (Judy West).
- Council should consider preparing information for people who might consider making a bequest to the Society on their death (Kelly Shepherd).

Once the sub-committee is appointed, members are encouraged to continue to provide suggestions.

12. Election of Officers

The Secretary informed the meeting that only one nomination for each Council position was received by the closing date. The nominees were therefore elected unopposed. The Council for 2013-14 is:

- President: Bill Barker. (Nominated: John Clarkson. Seconded: Stuart Worboys).
- Vice-president: Mike Bayly. (Nominated: Todd McLay. Seconded: Pauline Ladiges),
- Secretary: Frank Zich. (Nominated: Stuart Worboys. Seconded: Andrew Thornhill),
- Treasurer: John Clarkson. (Nominated: Andrew Thornhill. Seconded: Bruce Wannan),
- Councillor: Ilse Breitwieser. (Nominated: Peter Heenan. Seconded: Rob Smissen).
- Councillor: Leon Perrie. (Nominated: Bill Barker. Seconded: John Clarkson).

Bill Barker took the chair and called for a vote of thanks to Pina Milne for the outstanding job she has done in dealing with membership matters. Carried with acclamation.

13. Next Meeting

As usual the next Annual General Meeting will be held in association with the 2014 conference to be held in Palmerston North. Date, time and venue will be announced in due course.

Meeting closed at 6:20 pm.

Attachment 1

President's report

2013: ASBS's 40th year

The year 1973 was significant for the beginnings of several organisations impinging on the Australian environment and plant systematics in particular. This was a heady time when both major parties embraced the science and conservation of the environment in State and Commonwealth arenas. The formation of the Council of Heads of Australian Herbaria¹ and our Australian Systematic Botany Society in that year was undoubtedly driven as part of the thrust of the broad community into politics. The new national Labor government established the Australian Biological Resources Study², which has for many years been critical in the context of our society to promoting taxonomic research and the iconic *Flora of Australia* series.

The meeting that established our Society was held in the National Herbarium of Victoria on 7th April 1973 under the chairmanship of Professor Carrick Chambers. The first Council, appointed at the inaugural meeting in Perth later that year, comprised: President Trevor Whiffin, Vice-President Dennis Carr, Secretary Don McGillivray, joint Treasurers Andrew Kanis and Mike Lazarides (these latter four deceased), and Councillors Des Boyland and Alex George. Roger Carolin and Don Blaxell worked up the Society's first constitution, which was accepted at our first Annual General Meeting later that year at ANZAAS in Perth.

From the start the activities of the Society mainly revolved around local Chapters in each capital, often bringing existing fora under the Society banner, and the continuation of the annual contributed taxonomic paper sessions in Section 12 Botany of ANZAAS, in association with which we held our Annual General Meetings. Only later did we take on independent annual thematic conferences.

As a result, here we are, forty years later, a society whose consistent strength has been in its interactive membership.

We have felt mature enough to embrace our broader Australasian region. We had in 1974 an early passive link with Papua New Guinea with an affiliation to the fledgling PNG Botanical Society. Amalgamation in 2011 with our New

Zealand colleagues, with a change of name, has brought together two countries with similarly rich traditions and achievements in science and the environment, particularly in plant systematics, but with interesting differences in political and scientific governance.

We have yet to develop a strength in advocacy and promotion of our science. At this time of decline in governmental support for plant systematics and science generally, well could we do with a similar renaissance to that which occurred forty years ago.

Goals as President

In my report to the December 2012 issue of the *Newsletter* I indicated a number of issues that needed to be tackled within the broader range of activities of the Society.

- Addressing concerns about the current state of support for Australasian plant systematics;
- Endeavouring to make the Society more relevant to our membership;
- Improving the relevance to our newly broadened constituency in New Zealand;
- Addressing some immediate issues for the previous Council with the *Newsletter*

Each of these has been progressed and are dealt with in more detail later in this or other reports to the meeting.

Our team

I took on the job of President in the belief that I had a strong and committed Council to work with and this view has been more than confirmed during the last year. I must thank each of them for their significant contributions to a year of activity and achievement.

Council meetings during 2013

Council conducted most business through the year via exchange of emails and phone calls. However, the Secretary and Treasurer, who both live in North Queensland, met regularly on matters.

We did conduct two Council meetings during this term. The first was a June teleconference, relatively recently allowed through constitutional change; it proved very useful to ensure we kept on track with a broad range of activities. We've just had the other: the traditional face-to-

¹ See p. 55. ² See p. 56.,

face meeting on registration day of the annual conference, in which we wind up outstanding business for the term and ensure all activities in the Annual General Meeting and the associated conference are dealt with appropriately.

Our finances

I believe our finances are in a remarkably good state and the Treasurer's report will very much confirm this.

Member fees

Of particular note is the achievement of what must be a record level of financial members. I'm sure we've never had just a handful unfinancial. I applaud Pina Milne for making a big effort in encouraging members to pay past and current fees.

Research funds

The Eichler grants are proving popular with students. In 2012 the Society and the Nature Conservancy offered the first annual Australian Conservation Taxonomy award. Under the initial agreement this was limited to two two-year grants. Led by our Vice President, we have been in discussion with James Fitzimmons of the Nature Conservancy to move forward with an improved model. I leave it to Mike Bayly to report on any developments in this matter.

Until her death Marlies Eichler annually provided substantial donations to the long-standing research fund that bears her husband Hansjörg's name. Her final bequest of a major part of her estate has taken the New South Wales government Trustees a long time to finalize. We are very grateful to Peter Weston for continuing beyond his Presidency on Council to see this process through. We have provided room in our agenda for suggestions on how the research fund can be adapted to take advantage of this almost doubling of its funds¹. We want to make haste slowly in seeking to get an approach that best meets our members' needs.

Investments

While we have relatively conservative and successful investments that give us both long-term income and immediate access to funds, Council has been discussing establishing procedures for ensuring that we have a sound investment strategy that will provide continuity across Councils and Treasurers and be responsive to changes to broad economic

trends. This is something for our new Council and Treasurer in the coming year.

Sustaining Australasian plant systematics

Prior to, during, and since the last Annual General Meeting in Perth a number of people have been concerned by the growing tendency of Governments to reduce their commitment to the plant, algal and fungal knowledge base provided by plant systematics. This reduction in support is not confined to taxonomic and associated knowledge. We are living in what has been described as a new Dark Age where decisions are based on short-term expediency rather than long-term planning founded on the best attainable knowledge and understanding.

At the last AGM it was resolved that Council should make an effort to reverse these trends. I indicated in my first President's letter in the December 2012 *Newsletter* that it had to be a concerted effort by a coordinated team to build a strong case for this; it wasn't just a matter of a single individual throwing the odd grenade.

I have been fortunate to find two willing allies in Ilse Breitwieser and Kevin Thiele two herbarium heads who were present with David Mabberley and Peter Weston's Council in a meeting on the first evening of the 2012 Perth conference. We have taken the last year to refine our approach to what is undoubtedly a crisis of large and potentially long-standing effect and to garner some wider institutional support.

Our proposal is to produce a solid evidentiary base for lobbying for improved support for activities in plant systematics. It will need a credible cost-benefit component. It is essential that it has ownership by our systematists and systematics institutions and, for success, it has to involve an achievable process with minimal outlay.

Our proposed method is to:

- Establish working groups on various facets of the acquisition, maintenance and delivery of knowledge in plant systematics. These groups will produce evidence and concepts that collectively deliver a solid technical document including what we do, our achievements, a response to common misconceptions, and case studies
- Collate selected chronological data to service a cost-benefit appraisal of our activities.
- Produce one or more white papers for use in

¹ See p. 4

- promotion and lobbying in varying arenas
- Work to realistic time lines

The outlines of this proposal will be presented tomorrow in the Conference where we will canvass views and ideas in a forum¹.

It has been great news to hear that Kevin and Ilse have obtained agreement of the Council of Heads of Australasian Herbaria to collectively lend its support to this project. I am hoping that this conference will see us proceed to engaging with many of you early in the new year to produce the documentation necessary to form a platform for confronting this major issue of our time.

Being relevant to members

This Society exists very much for its membership. Traditionally its work revolved through the year around local centres and quarterly communication through the Newsletter, and annually through conferences and the research grant scheme, which largely addresses student needs.

Local chapters

I thank John Clarkson for leading our efforts to re-energise our local convenerships. Times change, but one hears regrets that local chapters are not as active as they might be. Reasons for decline will vary and we've encouraged some changes in Chapters where our enquiries have been welcomed. We thank Juliet Wege (in 2012) in Perth, Ian Cowie in Darwin, Matt Baker in Hobart and Hernan Retamales in Brisbane for picking up the baton in their cities. How chapters operate to stimulate plant systematics in their town is very much in the hands of the local membership. Council is happy to provide advice and support where appropriate.

The Newsletter

Production and distribution is largely back on track. The Newsletter is subject to a separate report².

Conferences

I cannot remember an ASBS conference that has been anything other than well organised and stimulating. The bar for the quality of conferences continually rises – sometimes I think it might be too high. We certainly see yet another highly successful conference here in Sydney. Our thanks go to the Organising

Committee which includes ASBS members Peter Weston, Karen Wilson, Murray Henwood, Nathalie Nagalingum and the late Elizabeth Brown.

We are already looking forward to our next annual conference at Massey University, Palmerston North at this time next year. The organising team led by Jen Tate is already engaged in preparation.

ASBS Facebook page

This innovation was launched this year by Todd McLay and Mike Bayly. It has proved popular to over one hundred signed up participants. A report will be presented later in the meeting³.

The membership

Numbers are very healthy and have returned to over 300, which I suspect has been an aspirational figure for Councils over the years. The increase this year undoubtedly arises from the drive for payment of past and current membership fees (see above). We have had a significant number of members drop off our books each year as they become unfinancial for more than two years. Clearly we should try matching this achievement each year.

For the future we need to further nurture our young New Zealand alliance. Next year's conference in Palmerston North is a critical stepping stone to increasing our New Zealand numbers which understandably are relatively low at present. With the new Council we will have a strong New Zealand representation, Ilse Breitwieser and now Leon Perrie from herbaria there, Mike Bayly, who has spent substantial time in postgraduate and postdoctoral work there, and me, through a number of field trips over many years and latterly many months working in the Allan Herbarium.

Conclusion

We have vehicles to promote systematics and involve our members, not only through conferences, but also via local Chapters, the Newsletter, and now Facebook. While Council must keep them working appropriately, it is in the hands of membership to jump on board and make the journey productive, rewarding, and fun.

Bill Barker

¹ See p. 24.

² See p. 21.

³ See p. 4

Attachment 2

Treasurer's report

Presented at the Society's Annual General Meeting in Sydney, Australia, 3rd December 2013.

1. Introduction

I am pleased to present the financial statements of the Australasian Systematic Botany Society (ASBS) for the year ended 30 June 2013. The finances of the Society are run on a financial year basis.

2. Membership

At 30 June 2013 the membership of ASBS numbered 314, which is an increase on the number of members at the same time last year (228) due to the concerted efforts of ASBS Council to encourage non-financial members to pay subscriptions owing and encouraging lapsed members to rejoin the Society. The proportion of Full (62%+) and Concessional members (30%) remains the same as last year, and the number of Gratis memberships (16) has remained the same. Twenty four new individual members joined ASBS between July 2012 and 30 June 2013 (see list below).

A very small proportion (1.3%) of paying members were non-financial at the end of June, which is notably lower than the previous few years (26% in 2012) thanks to a continued concerted effort to encourage payment of fees.

The following new members for 2012 and 2013 are welcomed to the Society:

- Mr Benjamin Anderson, Inglewood, WA
- Mr Steven Dillon, Bayswater, WA
- Mr Brian Ellery, Kalamunda, WA
- Mr Charles Foster, Glenorie, NSW
- Ms Ni Gari, Adelaide, SA
- Ms Caroline Gill, Beaconsfield, WA
- Mr Kehan Harman, Leederville, WA
- Clare Herscovitch, Summerhill, NSW
- Dr Susan Hoebee, Bundoora, VIC
- Mr Nunzio Knerr, Downer, ACT
- Mr Paul Macintyre, Warnbro, WA

- Dr Adrienne Markey, Bayswater, WA
- Mr Kenneth Mills, Esperance, WA
- Mrs Lorna Ngugi, Sumner, QLD
- Miss Carla Perkins, Keperra, QLD
- Ms Chrissie Prychid, Armidale, NSW
- Mr Hernan Retamales, Ashgrove, QLD
- Miss Nuttanun Soisop, Adelaide, SA
- Dr Jennifer Tate, Palmerston North, NZ
- Ms Cate Tauss, Padbury, WA
- Mr John Thompson, St Johns Wood, QLD
- Dr Juliet Wege, Bayswater, WA
- Mr Edward White, Beerwah, QLD
- Dr Gilbert Whyte, Jiliby, NSW

Fifty five members made donations to the Hansjörg Eichler Research Fund totalling \$2,370. All donors, including the following members who agreed to being publicised, are acknowledged for their generous support:

Chris Betteridge	Barbara Briggs
John Clarkson	Trevor Clifford
Barry Conn	Darren Crayn
Rogier de Kok	Jan De Nardi
Wayne Gebert	Laurence Haegi
Frank Hemmings	Rod Henderson
John Hosking	Duncan Jardine
Laurence Jessup	Kevin Kenneally
Pauline Ladiges	Merran Matthews
Bill McDonald	Dirk McNicoll
Andrew Mitchell	Dan Murphy
Jordan Reid	Matt Renner
Elizabeth Sheedy	Kelly Shepherd
Bryan Simon	John Thompson
John Thomson	Stephen van Leeuwen
Bruce Wannan	Barbara Waterhouse
Peter Weston	Molly Whalen
Karen Wilson	Peter Wilson

3. General Fund

Brian Woods of DFK Kidsons audited the accounts in November 2013 for the third consecutive year.

3.1 Income

Table 1. Membership of ASBS as of 30th June 2013 (non-financial members in brackets)

Fee	Full	Concessional	Gratis	Total
Ordinary	189 (3)	n/a	0	189 (3)
Student	n/a	50 (0)	0	50 (0)
Retiree	n/a	45 (1)	0	45 (1)
Unemployed	n/a	7 (0)	0	7 (0)
Institutional	7(0)	n/a	13	20 (0)
Life	n/a	n/a	3	3
Total	196 (3)	102 (1)	16	314 (4)

The Income on the General Fund was \$37,287. A significant contribution to this arises through two transfers of funds. The first was receipt of the second Australian Conservation Taxonomy Award (ACTA) (\$10,000) contribution. The second was the transfer of \$5,000 sponsorship grant from ABRS for the organisers of the ASBS Perth Conference.

Subscription fees from members remains the steady source of income to the General Fund. The total income from membership (\$13,075) was \$2,798 higher than the previous year.

Interest income on the RaboDirect online savings account was \$4,002.

Remaining stocks were written off last year and book sales continued at their previous low rate. Income from sales is now recorded as miscellaneous sales not as gross revenue from trading or donations.

3.2 Expenditure

Expenditure from the General Fund was \$26,572. Contributing to this expenditure are: the first payment for the second Australian Conservation Taxonomy Award (\$6,000) and the second payment for the first Australian Conservation Taxonomy Award (\$1,930); the 2012 ASBS Conference in Perth expenses includes \$1,800 in travel awards for 12 students, \$2,000 seed funding and \$5,000 from ABRS as sponsorship; and the auditors remuneration of \$3630. The net cost of the conference was \$1,800.

Newsletter printing costs were, as usual, a large component of the routine expenses of the General Fund (\$3,353).

As with the last few year's Treasurer's reports it is worth highlighting that the regular income and expenses of the Society are tightly coupled. This remains the case. Revenue from memberships this year was sufficient to cover all routine expenses. Given the healthy state of the General Fund (assets of \$122,192), Council doesn't feel it is necessary to increase subscription rates at this point, but subscription rates should continue to be assessed annually to ensure the Society is covering its regular expenses.

3.3 Current Assets in the General Fund

At the end of June 2013 the Society held assets of \$122,192. This represents an increase of \$10,743 over the 2011/12 level.

4. The Hansjörg Eichler Research Fund

Research Fund investments had another year of growth. This year has seen a solid return of \$29,396 (compared to \$15,074 in 2012, \$22,562 in 2011 and \$23,855 in 2010).

Fifty five individual donations were received totalling \$2,370 by members in conjunction with membership payments. These funds are initially paid into the General Fund and will be transferred into the Hansjörg Eichler Research Fund in November 2013.

The Council awarded 5 Hansjörg Eichler Research Grants this year for a total of \$9980. The grants of between \$1,950 and \$2,030 (amounts requested and exchange rates account for the variation) were awarded in the September 2012 and March 2013 rounds to Jessie Prebble, Megan Hirst, Charles Foster, Todd McLay and Emma Lewis.

Assets of the Research Fund increased during the period from \$468,414 in 2012 to \$487,827 in 2013.

5. Taxation

The ASBS continues with its tax-exempt status. Organisers of conferences are reminded that ASBS is not registered as a GST gathering organisation. Planners of large conferences need to work with an organisation with an ABN and the relevant status to undertake transactions involving GST or work through a registered institution (such as a herbarium). Smaller conferences and workshops can be run through the Society as long as no GST is charged or recovered.

6. Summary

The Society remains in a strong financial position. In 2012/13 the General Fund had an operating surplus of \$10,714 and accumulated assets of \$122,192, a \$16,000 improvement on the previous financial year largely based on improved membership returns and reduced *Newsletter* expenses. The investments of the Hansjörg Eichler Research Fund have now returned three consecutive years of positive returns that, coupled with donations of members, saw the fund this year grow in value by \$19,416 to \$487,827.

Frank Zich
Treasurer
November 2013

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
(An incorporated association)
FINANCIAL REPORT
FOR THE YEAR
ENDED 30 JUNE 2013

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
COUNCIL MEMBERS' REPORT

Your Council members submit the financial statement of the Australasian Systematic Botany Society Incorporated for the year ended 30 June 2013.

Council Members

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

President	William (Bill) Barker	Appointed September 2012
Vice President	Michael Bayly	Appointed September 2012
Secretary	John Clarkson	Appointed July 2011
Treasurer	Frank Zich	Appointed December 2010
Councillor (Assistant Secretary)	Ilse Breitwieser	Appointed July 2011
Councillor (Assistant Treasurer)	Pina Milne	Appointed December 2010

Principal Activities

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

Significant Changes

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

Operating Results

The operating results are as set out hereunder:

	Year ended June 2013	Year ended June 2012
	\$	\$
Research Fund	19,416	16,714
General Fund	10,714	-6,109
Total	30,130	10,605

Signed in accordance with a resolution of the members of the Council.

William Barker (President)

Frank Zich (Treasurer)

November 2013

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
INCOME STATEMENT
FOR THE YEAR ENDED 30 JUNE 2013

	Notes	2013 \$	2012 \$
RESEARCH FUND			
Income			
Donations to Research Fund		-	-
Investment Income	2	29,396	15,074
General Fund Transfer (member donations)		-	1,640
Total Income		29,396	16,714
Expenditure			
Research Grants		- 9,980	-
Total Expenditure		- 9,980	-
Surplus	3	19,416	16,714
GENERAL FUND			
Income			
Sales – Books		-	39
Less Cost of Goods Sold		-	-
Opening stock – Books		-	207
Closing stock – Books		-	-
Cost of Goods Sold/written off		-	207
Gross Revenue from Trading		-	- 168
Advertising in Newsletter		100	50
Conference		7,500	-
Australian Conservation Taxonomy Award		10,000	10,000
Investment Income	2	4,002	4,883
Subscriptions to ASBS Inc.		13,075	10,277
Donations to Eichler Fund		2,370	1,970
Transfer from Eichler Fund		-	-
Sale of miscellaneous items		30	300
Sundry income		210	
Total Income		37,287	27,312
Expenditure			
Transfer to Research Fund: member donations		-	1,640
Eichler Award		-	2,000
Australian Conservation Taxonomy Award		7,930	6,000
Auditors' remuneration		3,630	1,980
Bank fees, Credit card charge facility		665	475
Conference expenses including Student Grants		9,300	10,800
Newsletter expenses (printing, postage)		3,353	7,150
Registrar General returns		72	35
ASBS Council Travel (AGM, Special GM)		1,123	3,041
Miscellaneous expenses (e.g. postage)		500	300
Total Expenditure		26,572	33,421
Surplus	3	10,714	- 6,109

The accompanying notes form part of these financial statements.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
BALANCE SHEET
AS AT 30 JUNE 2013

	Note	2013 \$	2012 \$
ASSETS			
Current Assets			
RESEARCH FUND			
Cash at Bank		9,949	19,952
Investments			
Colonial Managed Investment		82,794	70,645
Commonwealth Term Deposit		218,004	210,000
Australian Bond & Growth Funds		117,081	-
Australian Bond Fund		-	96,505
Growth Fund		-	71,339
Total Current Assets Research Fund		487,827	468,441
GENERAL FUND			
Cheque Account		14,387	7,643
Savings Account		107,805	103,806
Total Current Assets General Fund		122,192	111,449
Total Current Assets		610,020	579,890
NET ASSETS		610,020	579,890
MEMBERS' FUNDS			
Accumulated surplus – opening	3	579,890	569,285
Surplus for the period	3	30,130	10,605
Total Members' Funds		610,020	579,890

The accompanying notes form part of these financial statements.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2013

Note 1: Statement of Significant Accounting Policies

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

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

The financial report has been prepared on a cash basis.

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

(a) Membership

Membership is recorded on a cash basis.

(b) Income Tax

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

(c) Comparative Figures

Where required by Accounting Standards comparative figures have been adjusted to conform with the changes in presentation for the current year.

(d) Members Funds

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

	2013	2012
	\$	\$

Note 2: Investment Income

RESEARCH FUND

Interest Received

Cheque Account

7	3
---	---

Distributions

Term Deposit

8,004	10,987
-------	--------

Colonial First State (Diversified Fund)

12,149	-1,313
--------	--------

Australian Bond and Growth Fund

9,237	5,397
-------	-------

Total Investment Income

29,396	15,074
---------------	---------------

GENERAL FUND

Interest Received

Cheque Account

3	
---	--

Savings Account

3,999	4,883
-------	-------

Total Investment Income

4,002	4,883
--------------	--------------

Note 3: Accumulated Funds

RESEARCH FUND

Accumulated Surplus – Opening

468,441	451,727
---------	---------

Surplus for the period

19,416	16,714
--------	--------

Accumulated Surplus – Closing

487,857	468,441
----------------	----------------

GENERAL FUND

Accumulated Surplus – Opening

111,449	117,558
---------	---------

Surplus for the period

10,714	-6,109
--------	--------

Accumulated Surplus – Closing

122,163	111,449
----------------	----------------

Total Surplus for the period

30,130	10,605
---------------	---------------

Total Accumulated Surplus

610,020	579,890
----------------	----------------

Note 4: Research Committee

The Australasian Systematic Botany Society is an approved research institute.
The approved membership of the Research Committee comprises:

Mike Bayly (Chair)	
David Glenny	Appointed March 2013
Nathalie Nagalingum	Appointed July 2011
Philip Garnock-Jones	Appointed July 2011
Greg Leach	Appointed August 2009
Betsy Jackes	Appointed July 2003
Chris Quinn	Appointed July 2003
Bill Barker	(stepped down November 2012)

**AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
STATEMENT BY THE MEMBERS OF THE COUNCIL**

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

In the opinion of the Council:

1. The financial report as set out on pages 1 to 7 presents a true and fair view of the Society's financial position as at 30 June 2013 and its performance for the year ended on that date.
2. At the date of this statement, there are reasonable grounds to believe that the Society will be able to pay its debts as and when they fall due.

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

President
William Barker – President

Treasurer
Frank Zich – Treasurer

Dated this day of November 2013



DIRECTOR
Brian Woods CPA

19 November 2013

AUST0001/4/BW/tm

The Council
Australasian Systematic Botany Society Incorporated

Attention: Mr Frank Zich (Treasurer)

Dear Sir, *Frank*

Management Report – related to the audit of the financial statements for the Australasian Systematic Botany Society Incorporated

We have pleasure in presenting this report to the members of the council in respect of our audit of the financial report of the Australasian Systematic Botany Society Incorporated for the year ended 30 June 2013. Our audit has been finalised, and we would like to report our findings. This report should be read in conjunction with our letter of engagement dated 23 July 2013.

In performing the audit we concentrated on areas of material risk of error in the financial statements to allow us to reach our opinion efficiently. Our audit was not carried out with a view to arriving at any conclusion on the adequacy or otherwise of the Society's systems of internal control. Accordingly, our audit work may not bring to light all weaknesses in systems or procedures which may exist.

However, we aim to use our knowledge of the Society gained during our work to make comments and recommendations which we hope will be useful to you. The matters together with our recommendations are included as **Appendix A**.

We take this opportunity to thank you for the co-operation and assistance extended to us during the audit.

If you would like any further information or would like to discuss any of the issues raised please do not hesitate to contact Brian Woods of this office.

Yours faithfully,
DFK Kidsons

B Woods

Brian Woods
Director

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ABN: 72 093 232 261

Level 1, 345 Sheridan Street
PO Box 548 North Cairns QLD 4870
POSTAL ADDRESS
PO Box 548 North Cairns QLD 4870
TELEPHONE 07 4031 1390
FACSIMILE 07 4031 1490
EMAIL admin@dfkkidsons.com.au
www.dfkkidsons.com.au



APPENDIX A

Observation and Recommendations

Control Related Weaknesses

1. Receipts

It is recognised that the Society has undertaken significant steps in regards to the implementation of controls for receipt of membership fees and donations. However, as there will always remain a possibility that these may be received by the Society in cash we consider that there is a risk that all receipts may not be recorded in the financial statements.

We commend the Society's continued efforts to ensure that receipts are issued for all membership fees and donations received in a timely manner.

2. Annual return of association

It is a requirement under the Associations Incorporation Act 1981 that Incorporated Associations must lodge an annual return to the Office of Fair Trading.

We recommend that:

- the Treasurer lodges the return for 2013 within the relevant due dates.

Key accounting issues

3. Financial records

A review of the documents provided has shown that there is still room for improvement in the reconciliation process.

We recommend that:

- the Treasurer give consideration to purchasing and utilizing an accounting system appropriate to the Society's needs (e.g. MYOB)

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4. Financial statements

The members of the council have determined that the Society is not a reporting entity and have prepared the financial reports on the basis that special purpose financial reports are sufficient. It is noted that additional accounting work was required by the auditor to ensure that the financial statements correctly reported the transactions during the period in the correct format.

We recommend that:

- the Treasurer considers engaging the auditor to assist in the preparation of the financial statements.

5. Investment portfolio

A review of the financial transactions reveals a significant opportunity for the Society to consider options to improve the return on investments.

We recommend that:

- the Treasurer gives consideration to seeking external assistance to implement an investment policy and to maximize returns on investments.

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DIRECTOR
Brian Woods CPA

Independent auditor's report to the members of the Australasian Systematic Botany Society Inc.

Report on the financial report

We have audited the accompanying financial report, being a special purpose financial report, of the Australasian Systematic Botany Society Inc., which comprises the balance sheet as at 30 June 2013, council members' report, the income statement, notes to the financial statements, a summary of significant accounting policies, other explanatory notes and the statement by the members of the council, for the period ended 30 June 2013.

The responsibility of the members of the council for the financial report

The council members of the Society are responsible for the preparation and fair presentation of the financial report and have determined that the accounting policies described in Note 1 to the financial statements which form part of the financial report, are appropriate to meet the financial reporting requirements of the Incorporated Society and the needs of the members. The council members' responsibility also includes establishing and maintaining internal control relevant to the preparation and fair representation of the financial report that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's responsibility

Our responsibility is to express an opinion on the financial report based on our audit. No opinion is expressed as to whether the accounting policies used, as described in Note 1, are appropriate to meet the needs of the members. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

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

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The financial report has been prepared for distribution to members for the purpose of fulfilling the council members' financial reporting responsibilities under the Incorporated Society's constitution. We disclaim any assumption of responsibility for any reliance on this audit report or on the financial report to which it relates to any person other than the members, or for any purpose other than that for which they were prepared. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independence

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

Matters relating to the electronic presentation of the audited financial report

The auditor's report relates to the financial report of the Australasian Systematic Botany Society Inc. for the year ended 30 June 2013, included on the Australasian Systematic Botany Society website. The Society's council members are responsible for the integrity of the Australasian Systematic Botany Society website. We have not been engaged to report on the integrity of the Australasian Systematic Botany Society website. The auditor's report refers only to the statements named above. It does not provide an opinion on any other information which may have been hyperlinked to / from these statements. If users of this report are concerned with the inherent risks arising from electronic data communications they are advised to refer to the hard copy of the audited financial report to confirm the information included in the audited financial report presented on this website.

Qualification

Receipts from donations and membership subscriptions are a significant source of revenue for the Australasian Systematic Botany Society Inc. The Australasian Systematic Botany Society Inc. has established controls in respect of the collection of donations and other fundraising activity revenue prior to entry in its financial records. However, it is impractical to establish complete control over the collection of cash donations and other fundraising activity cash revenue. Accordingly, our audit procedures for donations and other fundraising activity revenue had to be restricted to the amounts recorded in the financial records. Therefore we are unable to express an opinion on whether donations and other fundraising activity revenue obtained by the Australasian Systematic Botany Society Inc. are complete.

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Qualified Auditor's opinion

In our opinion (except for the effects on the financial report of such adjustments, if any, as might have been required had the limitation of our audit procedures referred to in the qualification paragraph not existed), the financial report presents fairly in accordance with the accounting policies described in Note 1 to the financial statement, the financial position of the Australasian Systematic Botany Society Inc. as of 30 June 2013, and the results of its operations (and its cash flows) for the year then ended.

Signed on 19 November 2013

Brian Woods
DFK Kidsons
Certified Practising Accountant FCPA

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Attachment 3

Research grants report

Eichler research grants

There were three rounds of Eichler research grants since the last Annual General Meeting, closing on September 2012, March 2013, and September 2013. Overall 14 applications were received and seven grants were awarded to the value of \$13,899. Awards were made to:

- Jessie Prebble, Massey University, \$2000
- Charles Foster, The University of Sydney, \$1950
- Megan Hirst, The University of Melbourne, \$2000
- Emma Lewis, The University of Melbourne, \$2000
- Todd McLay, The University of Melbourne, \$2000
- Margaret Stimpson, University of New England, \$1,949
- Elizabeth Joyce, University of Western Australia, \$2000

Australian Conservation Taxonomy Award

These awards, supported by The Nature Conservancy and the Thomas Foundation,

provide \$6,000 for research expenses, and \$3,000 for attendance at two ASBS conferences to present progress with the project.

The award for 2012-13, chosen by the Research Committee, was made to: Lalita Simpson, James Cook University for her project: *What is at risk? Phylogeography and taxonomy of orchids endemic to Queensland's mountain top biodiversity hotspots.*

We are seeking support from The Nature Conservancy to continue the scheme beyond the initial two years and to broaden selection criteria to encourage wider relevance to ASBS student research.

Hansjörg Eichler Research Committee

We are indebted to members of the research committee for their ongoing commitment to our grants programme.

Mike Bayly
Vice President,
ex officio Chair of Research Committee

Attachment 4

Newsletter report

A task of the new Council elected in October 2012 was to address issues of regularity, content and distribution of the *Newsletter*.

A number of members had been missed in mailouts going back several issues of the *Newsletter* and our Book Sales Officer also lacked stock of some issues. We were fortunate to have a number of blank covers ("shells") for these missing issues and, more so, a team of workers who were willing to give their time to saving the Society considerable outlay by laser printing small numbers of past issues in their own time. We are extremely grateful therefore to staff of ABRs, notably our Book Sales Officer, Helen Thompson, and workmates Annette Wilson and Brigitte Kuchlmayr, for this, as well as Juliet Wege in Perth for chasing up undistributed copies and other needs.

In getting the Newsletter back on track we would like to thank Russell Barrett for his persevering with helping in the editing of a further issue at a difficult time for him.

We are now effectively back on track to four

issues annually, although invariably each comes out a month later than the cover date.

The December 2012 issue set out a number of ways in which the *Newsletter* potentially informed members. We have attempted to cover these and included

- A new series on tertiary centres of plant systematics. Thanks to Jeremy Bruhl, Tanya Scharaschkin and Jen Tate for so readily providing this copy
- A number of Eichler reports. The mandatory requirement to provide a *Newsletter* report on each project had fallen by the wayside. Mike Bayly is thanked for encouraging previous awardees to redress this and those contributing are thanked and readily forgiven – we know how easy it is to forget.

I thank John Clarkson for his usual vigour directed at assembling book reviews – as well as the many willing contributors to this valuable section of each issue – and to Robyn Barker whose return has brought back to the Newsletter her valuable summaries of items

of interest from the web and for her wide involvement in editing.

Unable to coopt a new editorial team after a number of approaches and in view of the ready support from those above and others, I am happy to continue in my editorial role.

We do call for continued contributions of

articles and ideas.

The welcome venture into a Society Facebook presence appears complementary to rather than competing with the Newsletter at this time. It will be interesting to see how things develop in the future.

Bill Barker
for Co-Editors Robyn Barker and John Clarkson

Student awards at Sydney conference

At the recent *Systematics without Borders* conference ASBS again provided encouragement and support for students through financial assistance and awards by key sponsors.

Australian Conservation Taxonomy Award

The second year's grantee was announced earlier in the year, but Michael Looker of the Nature Conservancy attended to present a certificate to Lalita Simpson of the Australian Tropical Herbarium, James Cook University. Lalita's project is: *What is at risk? Phylogeography and taxonomy of orchids endemic to Queensland's mountain top biodiversity hotspots*.

Prizes for best presentations

CSIRO has generously donated a book prize and an *Australian Systematic Botany* subscription for the best spoken and poster presentations at each conference for many years. This year we were fortunate to have additional books from a conference sponsor, the Sydney bookshop Florilegium (Web ref.), which Council decided to present to the runners up in each category. The selection committee comprised: Mike Bayly, Ilse Breitwieser, Leon Perrie and Peter Wilson. Prizes were given for:

- Best spoken presentation (Pauline Ladiges Prize): Kaylene Bransgrove, Australian Tropical Herbarium, James Cook University, for *Mountain-top fungal endophytes of the wet tropics, Queensland: biodiversity, host specificity, biogeography and systematics*; with runner up Todd McLay, University of Melbourne, for *A RAD analysis of the Australian grass trees*.
- Best poster presentation: Sook Ngoh Phoon, Australian Tropical Herbarium, James Cook University, for *Phylogenetics of the rainforest tree genus Elaeocarpus (Elaeocarpaceae): insights from four-locus molecular sequences*. Runner up was

Charles Foster, University of Sydney, for *Gone with the wind? A systematic revision and biogeographic treatment of Logania R.Br. (Loganiaceae)*

Travel assistance to students

All student members who gave spoken or poster presentations and registered this with the ASBS prior to the conference were provided with a cheque for \$200 to assist in their expenses.

A new and important award made as a component of this support is the *Bob Anderson Memorial Student Award*, which was presented for the first time to Joshua Buru of Queensland University of Technology. These annual awards commemorate Dr Bob Anderson who, while engaged for most of his working life as a scientist with the major engineering consulting company Kinhill, was passionate about plant systematics. Our short announcement of his passing last year (*ASBS Newsletter* 153, p. 48) refers to his work on the chemotaxonomy of *Correa* (Rutaceae) under the supervision of Trevor Whiffin (ASBS's first President) at LaTrobe University. He collected many specimens during and outside of his survey work with the company. His colleagues have acknowledged appreciation of his skill in mentoring good science and documentation

Council thanks Bob's sister, Rosemary Baxter, for her generosity in making the bequest in Bob's name.

In consultation with Rosemary and a close friend of Bob's, Greg Leach, Council considered it appropriate to provide the award to a student from overseas who has shown special promise (see *ASBS Newsletter* 155, p. 21). Joshua is very deserving of that support.

Web ref. www.florilegium.com.au/.

Bill Barker



Fig. 2. Recognizing student excellence at the ASBS conference. *Top*: Best presentations presented by *Australian Systematic Botany* Editor-in-Chief Dan Murphy, left the best spoken to Kaylene Bransgrove, right the best poster, to Sook Ngoh Phoon. *Midline*: Runners-up, left the spoken to Todd McLay, right the poster to Charles Foster. *Bottom*: left, Michael Looker presenting a certificate to Lalita Simpson marking her receipt of the 2013 *Australian Conservation Taxonomy Award*; right, Joshua Buru receiving a certificate marking his *Bob Anderson Memorial Student Award* from ASBS President Bill Barker.
Ph. Mike Bayly & Michael Looker

Developing evidence-based white papers on Australasian plant systematics

Bill Barker, Ilse Breitwieser and Kevin Thiele

March 2014 is the date for establishing working groups for a concerted effort by the Australasian plant systematics community to develop a series of white papers aimed at decision makers in Government to seek sustainable long-term support for our science and services. We are approaching people to lead these working groups, which will provide a broader panel for consolidating the approach to the review and its time-lines, and choosing the working group members. A summary of a recent forum, which endorsed our progress with this collaborative task, is provided below.

Forum at Systematics without Borders conference

The forum was held at Sydney University on 4th December 2013. Kevin Thiele chaired the meeting and gave the introductory talk. There were changes to the audience between the end of the talk and start of the forum, coinciding with the conference schedules of simultaneous presentations in three lecture theatres.

The conference abstract is reproduced here.

Abstract

Plant systematics in Australasia – is it time (again) for a good, hard look?

Barker, W.R.⁽¹⁾, Breitwieser, I.⁽²⁾ and Thiele, K.R.⁽³⁾

⁽¹⁾ State Herbarium of South Australia, PO Box 2732, Kent Town SA 5071; ⁽²⁾ Allan Herbarium, Maanaki Whenua – Landcare Research, PO Box 40, Lincoln 7640, New Zealand; ⁽³⁾ Western Australian Herbarium, Department of Parks & Wildlife, Locked Bag 104, Bentley Delivery Centre WA 6983

Chronic and cyclical patterns of boom and bust have plagued the endeavours of biosystematics institutions in countries, states and territories across the Australasian region since their establishment. Following concerns expressed at the Perth ASBS conference in September last year, we have embarked on initial planning for a review aimed at analysing historic, current and

future activities in plant taxonomy and systematics across the region. The review will compile evidence “in-house”, possibly including engagement of external evaluation as a later phase. To achieve a result, we have limited its scope to our area of experience, plant groups in the broad sense (those plants, algae and fungi worked on in herbaria), though this is extensible or able to be a model for other groups. To draw on the wide expertise available we plan to establish working groups to cover broad facets of biosystematic activities: from training to research, including assembly, access, and maintenance of our knowledge base, sustaining physical and human infrastructure, and coordination and resourcing. In a second stage we plan to undertake a cost-benefit analysis and seek comparative assessment by peers elsewhere in the world. The review will draw on our increasingly more accessible data sources and may create new databases (e.g. in staffing and resourcing) for ongoing use, draw on case studies, highlight achievements and address misconceptions, which too often influence decision making. The review is aimed at bureaucrats and decision-makers, but also seeks to inform our own community and user groups.

Introduction (as minuted)

Kevin indicated that the exercise was one of building the case, a sector white paper for Australasian plant taxonomy, with a scope constrained by what was do-able. The audience was Government, the Community; it will also inform those working with and interested in plants. The result would be a document or set of documents which could be used for seeking funding or engaging with user communities, on both sides of the Tasman. It will also give plant taxonomists a better perspective on where we are.

Partners in the exercise are all of us, the biosystematics community. We’re looking at input in discussion and participation in development of the white paper documentation.

Timing: doing it now is important. We are proposing to start in March 2014 and to develop over the ensuing 12 months.

What: We envisage two documents: one slim and well presented, able to be read by ministerial advisers, for example; the other a larger document providing background and supporting data.

How: We are looking at a steering &/ or management team, with (6-)8-10(-12) working groups each with a specific task to provide one aspect of overall documentation, the data and words. We envisage the working groups covering:

- Knowledge acquisition
- Teaching and training
- Knowledge access, trends, research
- Knowledge use: are we meeting needs of user community?
- Knowledge extension: leadership into region, opportunities, e.g. in Asia and Pacific
- Physical infrastructure
- Digital infrastructure
- Citizen science – links to user groups
- Cost-benefit analysis

Our aim is for a clear message, in the right language. We need a strong value proposition. We would hope to be patting ourselves on the back with our undoubted achievements. Our needs are modest and achievable with demonstrable value and returns on investment. We seek to be inclusive, practical, and efficient (achieving our documentation in a short time frame).

The forum

Following Kevin Thiele's initial presentation he was joined at front of audience by a panel comprising Ilse Breitwieser, Bill Barker and Peter Weston. An audience of approximately 50 were present for the forum.

Minutes of the forum

Bob Mesibov: In terms of an executive summary: what exactly do you want? If I was a Vice Chancellor for example, what does this have to do with my University? *Kevin Thiele*: that's what we're working on. *Peter Weston*: We'd like to know what a Vice-Chancellor needs to know. Different universities have

different priorities. *Darren Crayn*. This started off [when first proposed at the last AGM in Perth] as a peer review. We've come a long way. There are aspects of a review.

Karen Wilson: We addressed the issue in the last few years at a workshop in the Australian Museum [the Taxonomy Forum, held in October 2007. Organised by ABRS and FASTS, now Science and Technology Australia, out of which a document was produced (FASTS 2008) and the high level TaxA committee was constituted (Summerell 2008)].

Ian Naumann [Ian had earlier given a talk on Agricultural biosecurity in Asia, and the setting up of a collaborative network to identify arthropods, nematodes and pathogens associated with plants]: Engaging with a ministerial advisor is not good enough on its own. We need a champion such as a Chief Scientist. *Kevin Thiele*: This is one of our challenges. We are dealing with different jurisdictions, Commonwealth, State, Country. *Ilse Breitwieser*: From an NZ perspective it is hard to find a champion. We need to get a white paper first.

Darren Crayn: What happened to the Taxonomy Forum? *Bob Mesibov*: TaxA provided supporting documentation of \$40 million for training and institutional support but this was channelled ultimately to the *Atlas of Living Australia*. It became tied to a specific task and so failed... Maybe it's a lesson.

Ian Naumann: If the objective is a funding proposal, then a New Funding Proposal which is given in October would make this good timing. But it needs a champion. *Karen Wilson*: It is important that what we do isn't just a general statement, e.g. *Systematics Agenda 2000*, which had no specific proposal (see Daly et al. 2012; 'Systematics Agenda 2000' 1994).

Bill Barker: I had a vision of gaining inter-governmental agreements on commitments, providing a way of locking things in on a long-term basis. It would be difficult for a jurisdiction to unilaterally change its support base. A hard ask to be sure, but achieved in health, education, policing, and we saw it with the short-term agreement on the *Australia's Virtual Herbarium* specimen data capture

program. *Ian Naumann*: This would have to go to a Ministerial Council.

Peter Olde: Do we know why the decline in support for systematics in our region?

Bill Barker: Individual herbaria know why in each case. In ours, science was deemed unnecessary for decision-making. It's not just herbaria, it's science generally (it's been suggesting we're entering a new Dark Age in Australasia) and public services generally are losing appreciation and support. [*Unrecorded person*]: We need to know how we're tracking against science generally, the public service, etc.

Darren Crayn: The tone of the document is vital.

Paul Forster: Opinion pieces in the Murdoch Press would be very useful.

There was a call from Kevin Thiele for endorsement to proceed with moving the process to the next working group stage.

Lalita Simpson: We should have a go. *Ilse Breitwieser*: We in our generation owe it to the next generation of up-and-coming

taxonomists and systematists to do this, otherwise they're facing a pretty bleak future. A strong show of hands indicated support for progressing on the lines indicated.

References

- Daly, M., Patrick S. Herendeen P.S., Guralnick R.P., Westneat M.W. and McDade L. (2012). *Systematics Agenda 2020: the mission evolves*. *Syst Biol.* 61(4): 549–552. www.ncbi.nlm.nih.gov/pmc/articles/PMC3376376/
- FASTS (2008). Proceedings of the National Taxonomy Forum, 4–5 October 2007, Australian Museum, Sydney, NSW. Viewed at www.environment.gov.au/system/files/pages/9ed0bbbf-713c-4959-8d76-6fafaeb18d8/files/ntf-proceedings.pdf
- Summerell B. (2008) *Taxonomy Australia: a new lobby group for systematics*. *Austral. Syst. Bot. Soc. Newsletter* 134: 5–6.
- Systematics Agenda 2000 (1994). *Systematics Agenda 2000: charting the biosphere. Technical Report*. New York: Systematics Agenda: pp. 1–34.

Please contact me re any amendments to the minutes
Bill Barker, Minutes-taker

Eichler Research Grants, September 2013 Round

This round we had four applications. Grants were awarded to the following two students.

- Margaret Stimpson, University of New England: Fieldwork and phenetic analysis resolve species limits in the *Banksia spinulosa* complex (Proteaceae) from central Queensland. \$1,949.
- Elizabeth Joyce, University of Western Australia: Resolution of taxonomic boundaries within the *Tetratheca hirsuta* complex. \$2,000.

Unsuccessful applicants were provided with feedback on their applications and we have encouraged them to resubmit in future rounds.

The next round of applications will close on March 14th 2014.

Mike Bayly
Chair, Research Committee

24th–28th November, 2014, the dates for the ASBS annual conference at Massey University, Palmerston North

We have finalised the dates for our meeting later this year. It will run between weekends. The broad programme is:

- Monday 24th November. A registration and evening social.
- Tuesday to Thursday, 25th to 27th November. Talks and posters; conference dinner one evening.
- Friday 28th. Field trip.

The venue (on Massey campus) and student residences (includes bed & breakfast) are booked and registration details and transportation options are currently being devised. More information will be available soon via a conference website.

Jennifer A. Tate, Ph.D.
Massey University
www.massey.ac.nz/~jtate/index.htm
j.tate@massey.ac.nz
ASBS2014NZ@gmail.com

The Nancy Burbidge Medal

Nomination of Emeritus Professor Philip John Garnock-Jones for the Nancy Burbidge Medal

Modified version of the nomination document made to and endorsed by ASBS Council read by the President W.R. Barker at the presentation of the Medal at the ASBS Conference in Sydney in December 2013.

The Nancy T. Burbidge Medal is awarded to a person who has made a longstanding and significant contribution to Australasian systematic botany and is the foremost award that can be conferred by the Society. Phil Garnock-Jones has made appropriately significant contributions to Australasian systematic botany, and is a deserving recipient of the Medal. Phil Garnock-Jones was awarded his Bachelor of Science degree with First Class Honours in 1972 from Victoria University of Wellington, New Zealand. He then moved to Christchurch, where he enrolled at the University of Canterbury for his Ph.D. in plant systematics, with the research project “A systematic study of *Parahebe* in New Zealand”. On completing his Ph.D., Phil was appointed in 1975 as a Scientist (plant Taxonomist) by the New Zealand Department of Scientific and Industrial Research (DSIR), Botany Division, in Lincoln, where he worked through a couple of institutional name changes, the tumultuous corporatization of DSIR and the establishment of Manaaki Whenua Landcare Research New Zealand Ltd., as a Crown Research Institute. Having progressed to the position of Team and Programme Leader, Phil left Manaaki Whenua in 1994, to take up the Chair in Plant Science at his alma mater, Victoria University of Wellington. Phil taught, researched and administered at VUW until he retired in 2009 having served 12 months as acting Head, three years as deputy Head of the School of Biological Sciences and several years on the University’s Research Degrees Committee. In

2010 he was appointed an Emeritus Professor by the university.

Professor David G. Lloyd, an internationally renowned theoretician specialising in sexual reproduction in plants, was Phil’s Ph.D. supervisor. Lloyd had a strong and enduring influence on Phil’s scientific outlook, demonstrated, for example, by the title of his Nancy Burbidge Memorial Lecture, “Sex and the Land Plant Life-cycle”. Phil subsequently published nine research papers on plant reproductive biology, mostly empirical studies of New Zealand plant taxa but including a theoretically important, recent review of functional gender classifications in land plants (Jesson & Garnock-Jones 2011).

Another enduring influence from Phil’s days as a postgraduate student was his interest in the southern hemisphere representatives of what has become the genus *Veronica* in the family Plantaginaceae. In 1975, when Phil graduated with his Ph.D., *Parahebe* was one of several Australasian genera regarded as being generically distinct but closely related to *Veronica*, the others being *Chionohebe*, *Hebe* and *Detzneria*. The following 32 years

Fig. 1. The Burbidge Medal presented: recipient Phil Garnock-Jones with the ASBS President.

Ph. Jeremy Bruhl (per B. Barker)



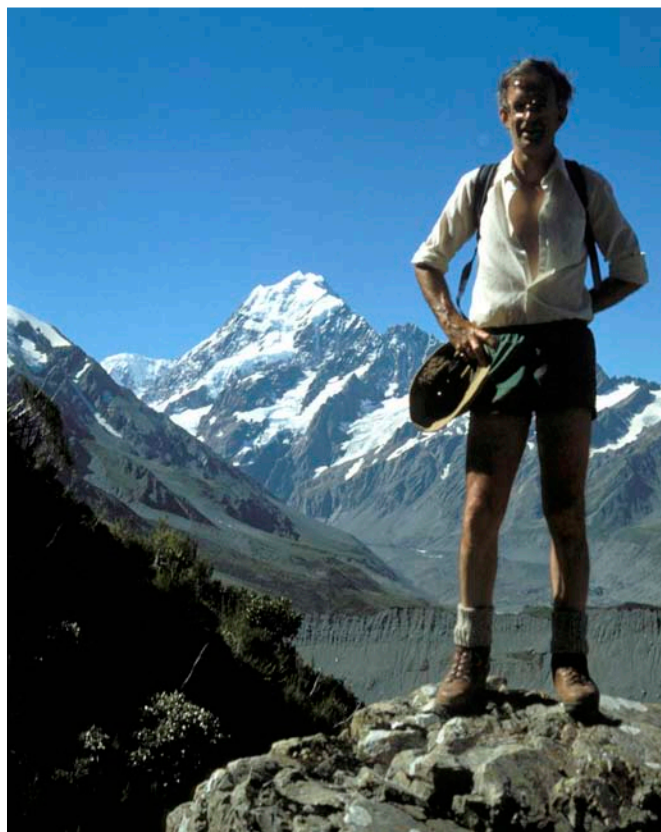


Fig. 2. Standing before great names of botanical and exploratory history: Phil Garnock-Jones in 1989 below Sealey Tarns with the moraine wall of the Mueller Glacier cutting across the Hooker Valley leading to Aoraki-Mount Cook in the background. Ph. Bill Barker

saw a proliferation of new and resurrected generic names in the *Hebe* group until Phil and a group of international colleagues (including Nancy Burbidge medallist Barbara Briggs) (Garnock-Jones et al. 2007) transferred all of the Southern Hemisphere species to an enlarged *Veronica*, on the basis of phylogenetic analyses that Phil had played an important role in planning and conducting (Garnock-Jones 1993, 2001, Wagstaff & Garnock-Jones 1998, 2000, Wagstaff et al. 2002). Altogether, Phil has authored or co-authored 30 research papers on the taxonomy and phylogeny of *Veronica* s.l., involving the publication of numerous new taxa and new combinations.

Phil's other research interests have been wide ranging, including alpha taxonomy, botanical nomenclature, chemosystematics, molecular systematics, historical biogeography, naturalised plants and phylogenetic methodology. In addition to his taxonomic

work on Plantaginaceae, Phil's contributions to alpha taxonomy and nomenclature have appeared in 25 publications, encompassing New Zealand members of the plant families Brassicaceae, Onagraceae, Ranunculaceae, Asteraceae, Myrtaceae and Campanulaceae, and the ascomycete family Ectolechiaceae. His co-authored volume 4 of *Flora of New Zealand* (Webb et al., 1988) is also the most comprehensive account of the naturalised flora of New Zealand. In historical biogeography, Phil has made an important contribution to falsifying the hypothesis that the New Zealand flora is predominantly a relic of a pan-Gondwanic ancestral flora, by helping to show that New Zealand species in the families Caryophyllaceae, Onagraceae, Plantaginaceae, Gesneriaceae and Campanulaceae, are most likely to have dispersed to New Zealand across large ocean gaps long after Zealandia rifted from the remains of Gondwana in the Late Cretaceous Period.

In total, Phil has so far published over 100 research papers in refereed scientific journals and scholarly books, the great majority of which have made novel contributions to Australasian plant systematics.

Involvement in university teaching also represents a major contribution that Phil has made to the development of Australasian plant systematics. He revised the curriculum in first and second year botany and introduced new courses in biosystematics (300 and 400 level) and evolution (300 level). He has supervised three post-doctoral fellows, ten Ph.D. students, five M.Sc. students and seven honours students, several of whom have become leading lights in the New Zealand plant systematics community.

In summary, Emeritus Professor Philip Garnock-Jones has made a longstanding and significant contribution to the development of systematic botany in Australasia through his sustained and extensive research on the systematics of New Zealand members of the

family Plantaginaceae, as well as work on the systematics of a diverse range of other plant taxa, through his research papers on the reproductive biology of a range of native New Zealand plants, through his application of the results of phylogenetic analysis to the resolution of theoretically significant problems in Australasian biogeography, through exemplary scientific leadership and through development of the next generation of highly skilled Australasian plant systematists. These contributions qualify him as an eminently suitable recipient of the Nancy T. Burbidge Medal of the Australasian Systematic Botany Society.

References

- Garnock-Jones, P. J. 1993: Phylogeny of the *Hebe* complex (Scrophulariaceae: Veroniceae). *Australian Systematic Botany* 6: 457–479.
- Garnock-Jones, P.J.; Albach, D.; Briggs, B.G. 2007: Botanical names in Southern Hemisphere *Veronica* (Plantaginaceae): sect. *Detzneria*, sect. *Hebe*, and sect. *Labiatoidea*. *Taxon* 56: 571–582.2011
- Jesson, L.K.; Garnock-Jones, P.J. 2011: Can classifications of functional gender be extended to all land plants? *Perspectives in Plant Ecology, Evolution and Systematics* 14: 153–160.
- Wagstaff, S.J.; Garnock-Jones, P. J. 1998: Evolution and biogeography of the *Hebe* complex (Scrophulariaceae) inferred from ITS sequences. *New Zealand Journal of Botany* 36: 425–437.
- Wagstaff, S.J.; Garnock-Jones, P. J. 2000: Patterns of diversification in *Chionohebe* and *Parahebe* (Scrophulariaceae) inferred from ITS sequences. *New Zealand Journal of Botany* 38: 389–407.
- Wagstaff, S.J.; Bayly, M.J.; Garnock-Jones, P. J.; Albach, D.C. 2002: Classification, origin, and diversification of the New Zealand hebes (Scrophulariaceae). *Annals of the Missouri Botanical Garden* 89: 38–63.
- Webb, C.J.; Sykes, W.R.; Garnock-Jones, P.J. 1988: *Flora of New Zealand Vol. 4 Pteridophytes, Gymnosperms, Dicotyledons*. Botany Division, DSIR, lxviii + 1365 pp.

Sex and the land plant life cycle: extended abstract of Nancy Burbidge Lecture 2013

Phil Garnock-Jones
Museum of New Zealand Te Papa Tongarewa
& Victoria University of Wellington, New Zealand

Sexual reproduction doesn't require copulation, or even sexes. Specialisation of sexes is a consequence of anisogamy, where male gametes are small, numerous, and cheap and female gametes are large, few, and expensive. New Zealand botanist David Lloyd (1937–2006) showed, among other things, that plant gender is variable and labile and can be quantified (Lloyd 1979) and that when male and female functions are combined in individuals they can be presented together (synoecy) or separated in space (herkogamy—Webb & Lloyd 1986) and/or time (dichogamy—Lloyd & Webb 1986). Linley Jesson and I have been trying to extend these ideas beyond seed plants (e.g., Jesson & Garnock-Jones 2012).

In this lecture, I examine how sexual specialisations have shaped the land plant life cycle, how the constraints of the life cycle have affected sexual system functions, and considered the extent to which gender dimorphism at different life cycle stages is equivalent.

Sexual specialisation related to life cycles

Sexual specialisation in green plants has involved five key changes:

- Sexual specialisation of gametes, anisogamy. This happened among green algal ancestors of the land plants, for example *Spirogyra* is isogamous whereas Charophyceae have specialised male and female gametes and gametangia. In the simplest, but probably not ancestral, land plant life cycles, gametes and gametangia are the only life cycle stages that are separated into sexes. Also, in all land plants a second multicellular stage—the diploid sporophyte—is found in the life cycle, providing further possibilities for sexual specialisation.
- Sexual specialisation of gametophytes, gametophyte dioecy. About half of all bryophytes have this specialisation and it is likely to be ancestral in land plants because it is also found among Charophyceae. McDaniel et al. (2012) have shown that in



Fig. 1. The Burbidge Lecturer 2014
Ph. Mike Bayly

vascular plants, spore gender is controlled through expression of genes in the sporophyte at the time the unisexual sporangia are initiated. This class of herkogamy was previously unrecognised because it is universal in seed plants.

- Sexual specialisation of whole sporophytes, sporophyte dioecy. Gender dimorphic sporophytes have evolved in many lineages of seed plants, and in some, gender is determined by sex chromosomes.

mosses the transition between cosexual and dioecious gametophytes has occurred often and in both directions, but gametophyte dioecy is fixed in seed plants because it's essential to production of seeds.

- Dimorphism in unisexual spores, anisospory. When gametophytes are unisexual, their spores also have predetermined gender, but in many bryophytes such male and female spores are morphologically identical. In a few mosses and several vascular plant lineages, sexual selection has resulted in a size difference.
- Sexual specialisation of sporangia, intersporangial herkogamy. In bryophytes, where gametophyte gender is controlled by sex chromosomes, gender segregates at meiosis and male and female spores are produced in the same sporangium. But in

These five stages necessarily evolve in this order, giving a false impression that evolution is deterministic in this case.

Comparison of dioecy at gametophyte and sporophyte stages

Sporophyte and gametophyte dioecy (some bryologists prefer the term dioicy to refer to gametophyte dioecy) are functionally similar, but have different genetic consequences, and are not homologous.

Our previous work (Eppley et al., 2007; Taylor et al. 2007) has shown that cosexual mosses can be highly homozygous, and at least some don't suffer inbreeding depression, whereas dioecious mosses may have higher levels of heterozygosity, which can mask deleterious alleles, leading to inbreeding depression in sporophytes.

Table 1. Comparison of gametophyte and sporophyte dioecy.

	Gametophyte dioecy (dioicy) in bryophytes	Sporophyte dioecy in seed plants
Definition	gametophytes express one gender	sporophytes (and gametophytes) express one gender
Male function	male gametophytes produce only sperm	male sporophytes produce only pollen (each with one functional sperm in Angiosperms)
Female function	female gametophytes produce only eggs	female sporophytes produce only ovules (each with one egg in Angiosperms)
Genetic consequences	Allows some selfing (autogamy but not automixis)	Prevents all selfing

Similarly, monoecy at the gametophyte stage is functionally equivalent to monoecy at the sporophyte stage, and in bryophytes we recognise that a large number of conditions (e.g., cladautoicy, gonioautoicy, paroicy) can be considered classes of intergametangial or intergametoecial herkogamy (Garnock-Jones & Jesson in prep.)

A thought experiment

Shaw & Gaughan (1993) postulated that dioecious sporophytes were not possible in mosses because male and female spores are produced in a single sporangium. However, because the spores have sexes in gametophyte dioecious bryophytes, then it is possible for sporophytes to be unisexual, by producing just one kind of spore. It's possible too that inbreeding depression in moss sporophytes might select for sporophyte unisexuality. However, with chromosomally determined gametophyte gender, this could be achieved only through abortion of one or other gender after they segregate at meiosis. This might explain some instances of "false anisospory" (Mørgensen 1978, see Jesson & Garnock-Jones 2012), e.g., in some *Macromitrium* species (Ramsay 1979). It is worth noting that abortion of sporangia or spores is how unisexuality is achieved in seed plants also.

Acknowledgements

I thank the ASBS Council for the Award of the Nancy Burbidge Medal and the opportunity to deliver this lecture and publish this extended abstract. The work described here is a collaboration funded by the New Zealand Marsden Fund, and I am grateful for the input of Linley Jesson and Sarah Eppley, former students Monique Crawford and Phil Taylor, and bryologists Bill Malcolm, Peter Beveridge, and Barbara Polly.

References

- Eppley, S.M., Taylor, P.J., Jesson, L.K. (2007). Self-fertilization in mosses: a comparison of heterozygote deficiency between species with combined versus separate sexes. *Heredity* 98: 38–44.

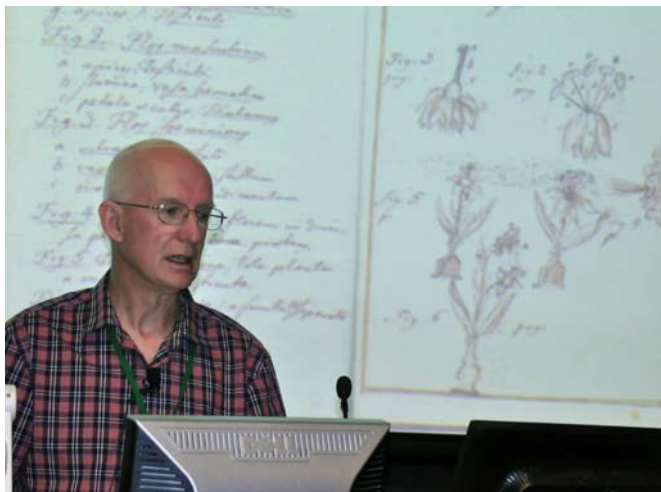


Fig. 2. Phil presenting a historical context.

Ph. Bill Barker

- Jesson, L.K., Garnock-Jones, P.J. (2012). Can classifications of functional gender be extended to all land plants? *Perspectives in plant ecology, evolution and systematics* 14: 153–160.
- Lloyd, D.G. (1979). Parental strategies of angiosperms. *New Zealand Journal of Botany* 17: 595–606.
- Lloyd, D.G., Webb, C.J. (1986). The avoidance of interference between the presentation of pollen and stigmas in angiosperms. I. Dichogamy. *New Zealand Journal of Botany* 24: 135–162.
- McDaniel, S.F., Atwood, J., Burleigh, J.G. (2012). Recurrent evolution of dioecy in bryophytes. *Evolution* 67: 567–572.
- Mørgensen, G.S. (1978). Spore development and germination in *Cinclidium* (Mniaceae, Bryophyta), with special reference to spore mortality and false anisospory. *Canadian Journal of Botany* 56: 1032–1060.
- Ramsay, H. (1979). Anisospory and sexual dimorphism in the Musci. In: Clarke, G.C.S., Duckett, J.G. (Eds.), *Bryophyte Systematics*. Academic Press, London, pp. 281–316.
- Shaw, A.J., Gaughan, J.F. (1993). Control of sex-ratios in haploid populations of the moss, *Ceratodon purpureus*. *American Journal of Botany* 80: 584–591.
- Taylor, P.J., Eppley, S.M., Jesson, L.K. (2007). Sporophytic inbreeding depression in mosses occurs in a species with separate sexes but not in a species with combined sexes. *American Journal of Botany* 94: 1853–1859.
- Webb, C.J., Lloyd, D.G. (1986). The avoidance of interference between the presentation of pollen and stigmas in angiosperms II. Herkogamy. *New Zealand Journal of Botany* 24: 163–178.

The annual ASBS conference

Systematics Without Borders, Sydney University,
1-5 December 2013: report on the proceedings

Todd McLay and Lalita Simpson
University of Melbourne; James Cook University, Cairns

Last December, systematists from all over Australasia and further came together to attend *Systematics Without Borders*, a combined Australasian Systematic Botany Society, Society of Systematic Biologists and Invertebrate Biodiversity and Conservation conference held at the University of Sydney. The conference eroded boundaries among disciplines allowing ideas to flow freely between normally disjunct fields. Presenters hailed from all fields of systematics with botanists, zoologists and mycologists alike discussing a broad range of topics from barcoding to biogeography and Next Generation sequencing to the next great fossil source. The conference venue was the recently built New Law Building Annex, which featured an impressive main lecture room and lots of space for mingling between sessions. With the conference attendees made up of ASBS, SASB and IBC members the diverse array of talks included plants of course, but also a range of animals and the interactions between them.

The quality of presentations throughout the conferences was exemplary, providing a wealth of information for everyone in attendance. Highlights included the keynote presentations by Craig Moritz discussing challenges in species discovery and delimitation when faced with fractal diversity,

Phil Garnock-Jones presenting an overview of land plant life cycles (also Nancy Burbidge memorial lecture and recipient of the Nancy Burbidge medal) and Lyn Cook reviewing Australian insect fauna through the Cenozoic through a molecular phylogenetic perspective. Concurrent sessions in the afternoon had people moving between three lectures theatres in order to get the most out of the various talks going on. It is a credit to everyone who chaired a session that most ran on or ahead of time, given every scientist's predilection for talking to a captive audience (Fig. 1).

Several talks revealed the questionable character of botanists. Phil's keynote presentation of Plant reproductive cycles captivated an audience of 'sex-obsessed' botanists while Alexander Schmidt-Lebuhn exposed field collectors as prejudiced wimps through his study of biases in plant biodiversity collections. Through his research he showed that botanists avoid anything spiny, foreign or bearing less than impressive flowers and don't like to get too uncomfortable whilst out collecting, avoiding tropical plants flowering in the heat of summer or temperate species flowering in the coldest winter months. Ashley Field also ruined fond childhood memories with his revelation that

Fig. 1. Left, Murray Henwood of the organising committee telling us the score. Right, The audience and chair Bill Barker considering Andrés Moreira-Muñoz's request for more speaking time. Ph. Jeremy Bruhl (per B. Barker)





Fig. 2. At the Conference Dinner. Clockwise from above: a, Peter Olde (left) sharing a joke with Helen and Barry Conn; b, Comic Dieter Hochuli speaking at the dinner before the immense mural, "Mankind"; c, Mike Bayly tucking in to a great meal.

Ph. B. Barker



the Hungry Caterpillar (from a book by Eric Carle) was a lie and butterflies are typically very selective when it comes to food. Impressively, Joe Miller managed to excite the audience with his real-time expansion of an *Acacia* phylogeny without even being at the conference; his talk was given as a presentation through powerpoint. Matt Renner managed to make liverworts interesting using a very technical morphometric analysis and an exuberant presentation style. The diversity of talks across a range of disciplines was both entertaining and educational, highlighting recent developments in systematics, experimental techniques and data analysis methodology.

The conference also featured entertainment of the non-academic variety. The poster session was highlighted with a speech by Robin Williams from ABC Science titled "Take your Pith - how I survived botany practical and turned to broadcasting", referring to the importance of ensuring the public hears about all the wonderful science that is being done. The conference dinner was held in

the regal Refectory of the Holme building, whose courtyard was as impressive as the inside (Fig. 2). Most of the conversation seemed to be directed towards interpreting the impressive mural on the dining room wall. A quick Google reveals the painting to be "Mankind" by Vergil Lo Schiavo and represents a tribute to Shakespeare and Dickens (the full explanation can be found at Web ref. 1). Entertainment was provided by an entomologist/comedian. We learnt such a combination exists in Dieter Hochuli, Associate Professor in the School of Biological Sciences. Learning about traumatic insemination was both hilarious and terrifying.

This year's conference marked the 40th anniversary of both the ABRS and the ASBS. After 40 years dedicated to biodiversity research both the ABRS and ASBS remain active demonstrating the longstanding and ongoing commitment to increasing knowledge of Australasia's biota. The 40th year anniversary of the ASBS was celebrated with quite an impressively sized cake



Fig. 3. A successful trip south for James Cook University and the Australian Tropical Herbarium. Pictured are some of the contingent from there: from left, Cairns Chapter convener Katharina Schulte, best student poster winner Sook Ngoh Phoon, recipient of the Australian Conservation Taxonomy Award Lalita Simpson, best student talk winner Kaylene Bransgrove, and ASBS Treasurer Frank Zich.
Ph. Mike Bayly

emblazoned with the Society logo sliced into by Bill Barker, who seems to have an odd way of holding a cake knife¹.

The student conference awards were separated loosely into plants and animals representing members of ASBS or SASB. For ASBS, the prizes went to great talks and projects² (Fig. 3). The respective poster and spoken presentation

awards going to Sook Ngoh Phoon and Kaylene Bransgrove (both of James Cook University, Australian Tropical Herbarium). Runners up were Charles Foster (University of Sydney) and Todd McLay (Melbourne University). Also presented was a certificate to Lalita Simpson, recipient of the Australian Conservation Taxonomy Award, ASBS's most lucrative grant. Michael Looker of the

¹ See p. 36. ² See p. 22 for more detail.

Fig. 4. ASBS President Bill Barker, left, and Sydney conference co-chair Peter Weston passing the gymea lily baton to Jessie Prebble, representing the Organising Committee of the 2014 ASBS Conference in Palmerston North, New Zealand.
Ph. Mike Bayly





Fig. 5. Participants on the field trip: from left, Andrés Moreira-Muñoz, Renska Onstein, Ben Anderson, Ilse Breitwieser, Peter Olde, Simon Grove, Matt Barrett, Margaret Stimpson, Tanja Schuster, Peter Wilson, Trevor Wilson, Chris Green.
Ph. Karen Wilson

Nature Conservancy attended the conference to present the award.

An invitation to the 2014 ASBS in Palmerston North featured a video presentation by Jen Tate of many of New Zealand's iconic species, as well as the now traditional passing of the torch (Fig. 4). Peter Weston somehow managed to find a giant inflorescence of *Doryanthes excelsa* which dwarfed recipient Jessie Prebble representing Massey University.

A small contingent of botanists and zoologists also attended the conference field trip to Royal National Park, a short drive out of Sydney (Fig. 5). Pushing through early morning rain and some high winds, the group was treated to a range of habitats, from rainforests to woodland and heathland on sandstone.

Despite it being late in the season, there were still a large number of species flowering and plenty of pollinators to facilitate discussion. As usual with field trips, there was more than enough to observe at any one site, making it difficult to move on to the next.

A huge thanks goes out to the many sponsors of the conference and prizes, and the conference organising committee from Sydney University's School of Biological Sciences, the Royal Botanic Gardens and Domain Trust and the Australian Museum, for the delivery of a fantastic conference.

Web ref. 1. www.thevenuecollection.com/Holme_Building_Mural_Information.pdf.

Let's eat cake: marking the 40th year of the Australasian Systematic Botany Society

The year 2013 marked the 40th anniversary of the formation of ASBS. This was celebrated on the second day of proceedings of our annual conference with a special cake and a short ceremony at morning tea.

Barbara Briggs, an inaugural member and former President of the Society, former head of the National Herbarium of New South Wales, and celebrated plant systematist, gave

a marvelous off-the-cuff speech to mark the milestone. A cake specially prepared for the occasion, large enough to give everyone multiple helpings and adorned with a perfect rendition of our logo, was cut by a group of inaugural members and early office bearers of the Society.

It is a pity that we had no members of our first Council present: still alive are President,



Fig. 1. ASBS's 40th birthday celebration at the *Systematics without Borders* conference in Sydney. Clockwise from above: a, Preparing to cut the cake, inaugural members and office bearers from early Councils: from left Judy West, Barry Conn, Barbara Briggs, John Clarkson (partly), Robyn Barker, Peter Wilson, Karen Wilson and Mike Crisp, with Bill Barker, knife in hand; b, Barbara Briggs giving her impromptu speech; c, Peter Weston's cake topped by our perfectly rendered logo.

Ph. Jeremy Bruhl (per B. Barker)

Trevor Whiffin, and Councillors, Des Boyland and Alex George, as are Carrick Chambers, who chaired the first meeting in Melbourne in April 1973, and Roger Carolin and Don Blaxell who played a major role in developing the first constitution,

A special thanks is due to Peter Weston. He went to much trouble to organise the delicious birthday present.

Bill Barker

Articles

Plant and algal systematics at The University of Melbourne

Mike Bayly

The School of Botany at The University of Melbourne has a long history in the field of botanical systematics. This dates to the appointment of the first Professor, Alfred Ewart, author of the first *Flora of Victoria* (1931), and includes substantial contributors to plant and algal systematics including Isobel Cookson, Carrick Chambers, George Scott, Ilma Stone, Sophie Ducker and Gerry Kraft.

The current plant systematics research group (Fig. 1) was headed for many years by Prof. Pauline Ladiges, recipient in 2011 of ASBS's highest honour, the Nancy Burbidge Medal. Pauline is an enthusiastic teacher and mentor and was responsible for training many botanists now in key positions in Australian herbaria and universities, including Kevin Thiele (PERTH), the late Jenny Chappill (UWA), Frank Udovicic and Dan Murphy (MEL), Jürgen Kellermann (AD) and Marco Duretto (NSW, formerly MEL and HO). Other prominent PhD graduates of the School, in the fields of plant systematics

and evolution, include David Cantrill (MEL), Andrew Doust (Oklahoma State University), Andrew Rozefelds (Queensland Museum, formerly HO), and Nathalie Nagalingum (NSW).

Pauline, now retired, continues as a Professorial Research Associate, and the other academics in the plant systematics research group are: Assoc. Prof. Andrew Drinnan, whose interests include plant evolution, palaeobotany, and plant morphology and development; Dr Michael Bayly, whose research is focussed on taxonomy, phylogeny and biogeography of the Australasian flora (especially Rutaceae, Scrophulariaceae *sens. lat.*, eucalypts and ferns); and Dr Gillian Brown, who manages the School's herbarium, and whose research has focussed on molecular phylogenetics of Ericaceae and mimosoid legumes. Another recent addition to the School is Dr Heroen Verbruggen, an algal systematist, essentially filling the position left vacant by the retirement

Fig. 1. Some members of the plant systematics research group, outside the Botany building. Left to right: Andrew Drinnan, Emma Lewis, Stephanie Conway, Ruby Wilson, Mike Bayly, Rose Barrett, Gill Brown, Tanja Schuster, Rachael Fowler, Todd McLay, Daniel Ohlsen, Karen Muscat, Erin Batty, Cat Clowes.



of Gerry Kraft.

The school provides a great environment for research in systematics and evolution, having good molecular and microscopy (SEM, TEM, confocal) facilities and the MELU herbarium. MELU is primarily a teaching herbarium, but also supports the research of staff and students. It has an active volunteer program (especially training students in aspects of specimen curation) and is actively databasing and imaging collections. In recent years, the herbarium has been particularly successful in attracting internal and external funding to advance documentation and curation of the collection.

Research students

Details of current students in plant and algal systematics are available on the lab websites, respectively (Web refs. 1, 2). Current and recent students (Fig. 2a) include:

- Karen Muscat (PhD): taxonomy and phylogeny of *Dianella* (Xanthorrhoeaceae)
- Todd McLay (PhD): taxonomy and phylogeny of *Xanthorrhoea* (Fig. 2a)
- Daniel Ohlesn (PhD): systematics of *Asplenium* ferns
- Rose Barret (PhD): phylogeny of *Zieria* (Rutaceae)
- Cat Clowes (PhD): morphological and molecular variation in *Spyridium parvifolium* (Rhamnaceae) (Fig. 2b)
- Rachael Fowler (PhD): systematics of *Eremophila* (Myoporaceae) (Fig. 2b)
- Alice Crowe (MSc): introgression and species concepts in ash eucalypts (Fig. 2c)
- Emma Lewis (PhD): phylogeny of Solanaceae tribe Anthocercideae
- David Meagher (PhD): bryophytes of Lord Howe Island
- Stephanie Conway (PhD): evolution and development of shoot apical meristems in conifers (Fig. 2d)
- Mitch Anderson (MSc): bark anatomy in

eucalypts. (Fig. 2e)

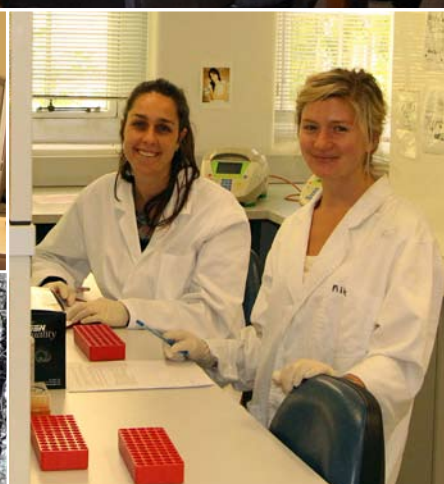
- Will Neal (Hons): phylogeography of *Zieria veronicea* and *Philotheca verrucosa* (Rutaceae)
- Pippa French (Hons): phylogeny of *Correa* (Rutaceae)
- Ruby Wilson (Hons): systematics of *Blechnaceae* ferns (Fig. 2f)
- Joana Costa (PhD): evolution of ecological niches in seaweeds
- Vanessa Marcelino (PhD): biodiversity and evolution of limestone-boring algae
- Lambros Stavrias (MSc): biodiversity of boring red algae in coral skeletons
- Seraphya Berrin (MSc): photobiology of algae in coral skeletons.

Collaboration with RBG Melbourne

The plant systematics group has a strong history of collaboration with the Royal Botanic Gardens Melbourne, forming a local hub for systematic research. Collaboration has included joint grant applications, e.g. through the ARC Linkage program, and co-supervision of students. Recent co-supervision has included RBG staff David Cantrill, Frank Udovicic, Dan Murphy, Liz James, Neville Walsh, Pina Milne and Teresa Lebel. Staff from the RBG also regularly contribute guest lectures/classes in our undergraduate subjects “Flora of Victoria”, “Plant Evolution” and “Plant Biodiversity”. In particular, Tom May and Teresa Lebel regularly teach two full weeks each year (lectures and practicals) on fungal systematics.

With a view to maintaining collaborative links and strengthening the future of plant systematic research in Melbourne, the School of Botany and the RBG Melbourne have created a joint position for a research fellow in plant systematics. This fellowship, named (not, I might add, by Pauline herself!!) the Pauline Ladiges Research Fellowship in Plant Systematics, has involved an ambitious fundraising campaign. The goal is to raise \$2 million (\$1 million by each institution)

Fig. 2. Research students and staff. Clockwise from top: a, Lunchtime meeting in the systematics lab, with Todd McLay presenting some of his research on *Xanthorrhoea*; b, PhD students Catherine Clowes (left) and Rachael Fowler in the molecular lab; c, Alice Crowe and Mike Bayly yanking branches from eucalypts; d, Andrew Drinnan and Stephanie Conway discussing confocal images of conifer shoot apices; e, Mitch Anderson sectioning eucalypt bark; f, Erin Batty (left) and Ruby Wilson imaging and databasing specimens in the MELU herbarium. Erin is a research assistant who divides her time between the herbarium and the molecular lab where she works on eucalypts and ferns, and generally keeps the molecular lab running.



such that the annual interest can permanently support a postdoctoral research fellow in systematics. The fundraising has been running for four years now and we are approaching, but have not yet reached, the final target. With optimism that we will soon reach the target we appointed the first fellow this year (see below). Donations in support of this fellowship would be very welcome and can be made online (Web ref. 3).

Tanja Schuster: inaugural Pauline Ladiges Research Fellow in Plant Systematics

Dr Tanja Schuster commenced the position of Research Fellow in Plant Systematics in September 2013. Tanja did her undergraduate and master's degrees at The City University of New York and a PhD on the family Polygonaceae with Dr Kathy Kron at Wake Forest University, North Carolina. More recently, she was herbarium curator at the University of Maryland. In Melbourne she is continuing her research on Polygonaceae, especially *Muehlenbeckia*, and collaborates on other projects, including phylogenetic analyses of eucalypts.

Publications by plant systematics group members in 2013

Bayly MJ, Holmes GD, Forster PI, Cantrill DJ, Ladiges PY (2013). Major Clades of Australasian Rutoideae (Rutaceae) based on *rbcL* and *atpB* sequences. *PLoS One* 8(8): e72493. doi:10.1371/journal.pone.0072493

Bayly MJ, Rigault P, Spokevicius A, Ladiges PY,

Ades PK, Anderson C, Bossinger G, Merchant A, Udovicic F, Woodrow I, Tibbits J (2013). Chloroplast genome analysis of Australian eucalypts – *Eucalyptus*, *Corymbia*, *Angophora*, *Allosyncarpia* and *Stockwellia* (Myrtaceae). *Molecular Phylogenetics and Evolution* 69, 704–716.

Burke JM, Ladiges PY, Batty EL, Adams PB, Bayly MJ (2013). Divergent lineages in two species of *Dendrobium* orchids (*D. speciosum* and *D. tetragonum*) correspond to major geographic breaks in eastern Australia. *Journal of Biogeography* 40, 2071–2081.

Ohlsen DJ, Field AR (2013). A new fern species for Queensland: *Diplazium squamuligerum* (Rosenst.) Parris (Woodsiaceae). *Austrobaileya* 9, 114–126.

Perrie LR, Shepherd LD, de Lange PJ, Batty EL, Ohlsen, DJ, Bayly MJ, Brownsey PJ (2013). *Hymenophyllum pluviatile*, a new and uncommon fern from New Zealand. *New Zealand Journal of Botany* 51, 308–320.

Pollock LJ, Bayly MJ, Nevill PG, Vesk PA (2013). Chloroplast DNA diversity associated with protected slopes and valleys for hybridizing *Eucalyptus* species on isolated ranges in south-eastern Australia. *Journal of Biogeography* 40, 155–167.

Schuster TM, Setaro SD, Kron KA (2013). Age estimates for the buckwheat family Polygonaceae based on sequence data calibrated by fossils and with a focus on the amphi-Pacific *Muehlenbeckia*. *PLoS One* 8(4): e61261. doi: 10.1371/journal.pone.0061261.

Web references

1. www.botany.unimelb.edu.au/systematics/People.html
2. www.phycoweb.net/people/people.html
3. www.botany.unimelb.edu.au/giving-science

Teaching taxonomy online

Betsy Jackes
James Cook University, Townsville

Having designed and written a new on-line taxonomic course, *Australian Land Plants*, being offered by James Cook University I could well be asked: why put on an online subject? I have done it to fill a niche: botany courses around the country and overseas seem to be being squeezed out or amalgamated, in the name of progress, and basic taxonomy is suffering at the expense of molecular approaches when both approaches are necessary. As an online subject it is available to a wider range of students in different fields, on campus and off campus, even out of the country. It is proving to be particularly useful for those who are in employment.

When I first suggested developing such a subject I was constantly met with “But what about lab work?” I thought that, if University of the Third Age (U3A) Online members can collect, dissect and identify plants without the carrot of credit being held over their heads, then surely the technological generation could handle this. Incidentally, there are two U3A online subjects already running, the first is *Botany, the study of plants for enjoyment* (Web ref. 1), initially written in 1998 by George Chippendale but since revamped by me, and the second one written by me, *Australian Flora* (Web ref. 2). So I had some idea of what might work and what problems I could expect.

I certainly didn't expect to have the problems I initially encountered with participants who were semi-computer-literate or only had an ancient computer.

So being unable to resist a challenge I set about designing such a subject. My aim was to introduce students to identification techniques as soon as possible before they could start to groan about terms and theory. The subject opens with an introduction to Australian plant communities and their relationship to the environment followed by the evolution of the flora. I then introduce identification techniques, including the floral formula, although floral diagrams are omitted as I have an aversion to them. Why the floral formula you may well ask? Because I consider this a way of making people really look at the specimen before they start the identification process, saving time as there is no need to constantly refer to the specimen, and reducing guesswork. Students are encouraged to work through the tutorials on the Charles Sturt University "Virtual Herbarium" site (Web ref. 3).

The main section of the course involves the evolution of the flower and breeding systems before taking a phylogenetically arranged stroll through the characteristics of many plant groups. As some will know I like to emphasise spotting characters of families wherever possible. Only then do I introduce some theoretical aspects.

The subject is aimed at senior undergraduates and postgraduates, who have at least first-year biology, as well as miscellaneous students. Currently there are 25 lectures or units, each consisting of a comprehensive word document and a powerpoint accompanied by audio. The subject material and particularly the podcasts have been very well received by students. As one student commented:

The entire subject was excellent, particularly the podcasts which provide interesting content that does not bore.

Another:

It has been a challenging and fantastic subject, I found the structure to be very good.

The only complaint (from one student so far) was the amount of time they were expected to spend doing the fieldwork collecting specimens. I didn't consider that too serious a comment.

A question by a non-Townsville student and

several other enquiries has concerned where they could do their fieldwork. Did they have to do it around Townsville? The answer is no. However, they should choose some area that is convenient and that does not require a collecting permit. An overseas student made a collection from an area near where she was working, material was identified and mounted, specimens were then scanned and sent to me via "Dropbox" (Web ref. 4). Details of identification also had to be submitted so that I could check it easily. Modern technology is certainly making this easier! Although the herbarium is supposed to be of non-cultivated flowering plants, if a student wishes to vary this then they must submit a proposal for approval.

Initially the plan was to have this subject available only in first semester but, by request, it is now available in second semester and several have enrolled for the summer period. All material is now available at the commencement of the study period so students can plan their workload to suit other commitments.

Students who have enrolled this year come from a variety of backgrounds. Most are either postgraduate or senior undergraduates students. Many wish to add some Botany to their degree to balance their Zoological or Environmental Science subjects, while others are working full time and have found they need a knowledge of plants.

This subject is complementary to the Intensive subject offered on James Cook University's Cairns campus which is focussed on rainforest plants. Whilst the content is suitable for both northern and southern Australian students the emphasis is on families of the tropics, but the techniques are the same.

The only problems I have encountered are:

- A need to be flexible with due dates for assignments as students may be away on field trips or have urgent work commitments.
- To have a number of options available for several of the assignments, chiefly to accommodate students who have a disability, or to handle a safety factor that may be involved. One student together with her friend had to change the location of her fieldwork because they were being hassled by several people and didn't feel safe.
- I had to learn to use "Dropbox". A student in Canada submitted her "Herbarium" by

“Dropbox”, whereas others within Australia are expected to post them. Because of posting costs the size of mounting paper has been reduced to A4 rather than the traditional size. I am proposing to recommend that details of specimens be submitted electronically for ease of returning comments. Specimens will be returned if requested.

Several staff members have asked me, “Isn’t it a lot of extra work?” Initially yes, because you have to consider that you are no longer face-to-face and therefore have to decide on the most effective way of arriving at the desired outcome. Once the course is written additional work may merely entail updating the Word document or maybe redoing a podcast. There is of course the marking! But overall I find running the course far less time consuming than “normal teaching”.

I have found an iPad invaluable for answering

queries. Incidentally the more challenging questions have come from my U3A Online participants. One of my U3A Online graduates is now a very involved volunteer at the Gold Coast Herbarium. So plant taxonomy can be taught online to all age groups and a laboratory is not required although access to a microscope can be useful.

More information on the subject is available from the following JCU site (Web ref. 5).

I provide some sample pages from two podcasts (minus voice!) (Fig. 1)

Web references

1. <https://www.u3aonline.org.au/u3a/courses/summary.php?id=95>
2. www.u3aonline.org.au/course/summary.php?id=145
3. www.csu.edu.au/herbarium
4. [http://en.wikipedia.org/wiki/Dropbox_\(service\)](http://en.wikipedia.org/wiki/Dropbox_(service))
5. <https://secure.jcu.edu.au/app/studyfinder/index.cfm?subject=BZ5650&year=2014&transform=subjectwebview.xslt>

Lecture 7 – Identification - 1


IDENTIFICATION TECHNIQUES

- How to identify a flowering plant
- Firstly, carefully observe the features, habitat, habit, anything else “undress” your plant
- Secondly, familiarise yourself with the appropriate terms, make a list of the obvious features – sketch out a floral formula – see next lecture
- Thirdly find some resources to use for identification

ID - 12


WATTLE Features

- **A. *Acacia flavescens*** with flowers in balls and phyllode with black arrows marking the position of the extra-floral nectaries



Red arrow indicates the position of the nectary at the base of the phyllode, the normal position

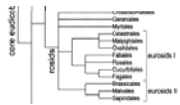
- **B. *Vachellia bidwillii*** (syn. *Acacia*)
leaf is bipinnate i.e. twice divided



Lecture 14 – MS - 1

ROSIDS – Malpighiales and Sapindales

- These two orders are both in the Rosids but in different clades.




- The **Malpighiales** represent 7.8% of eudicot diversity
- The order is monophyletic with 36 families
- We will look only at the Euphorbiaceae s. lat.
- The **Sapindales** has only 4 families of interest in Australia
- Representatives of the families chosen are widespread throughout the tropics and are found in a number of different vegetation communities

MS – 6 – euph - 5

PICRODENDRACEAE - 1

- Name derived from Greek words referring to the bitter taste of the fruits
- 24 genera, most widespread in Australia is ***Petalostigma*** or Quinine Bush
- Trees or shrubs
- Leaves usually spiral, venation reticulate, margins initially toothed
- Apex of marginal teeth glandular but soon deciduous



MS – 8 – euph - 7

PICRODENDRACEAE - 3

Dispersal – study by Clifford and Monteith 1987, Biotropica

Two or three strategies

- If emus around possibly scrub turkeys will oblige, then seeds eaten and disperse in scats
- Capsule explodes after drying, seeds flung up to 2.5 m away from parent
- Dispersal then by ants because of protein rich bodies on the surface
- **Note: Does the absence of emus in many areas account for the plants often being found in small patches today?**

Fig. 1. Five sample pages from the two podcasts

The value of herbaria to diverse collections-based research

Greg R. Guerin

School of Earth and Environmental Sciences, the Environment Institute,
University of Adelaide, North Terrace, Adelaide, South Australia 5005

greg.guerin@adelaide.edu.au

Herbaria should promote the broader scientific relevance of biological collections instead of focusing on collections as exclusive infrastructure for taxonomy. Globally, funding cuts to herbaria and their impact on collections management and collections-based research have been highlighted (Dalton 2003; Barker 2012). The financial problems of herbaria have largely been seen through the lens of systematics, for which under-resourced herbaria have become a widely recognised impediment (Suarez and Tsutsui 2004; Barker 2012). Plant taxonomy has suffered from the loss of taxonomic research positions in herbaria and a lack of access to adequate research grants for pure systematics (Barker et al. 2012). Herbaria are traditionally 'taxonomic institutions' sensu Barker et al. (2012), and therefore the under-funding of herbarium operations such as databasing and maintaining up to date specimen determinations has also been discussed mainly in terms of the impact on taxonomy.

From the perspective of collections management, adequate, up to date taxonomy is essential to ensuring individual specimens and their associated data can be appropriately archived, retrieved and used. The value of collections is therefore increased by taxonomic work. Taxonomy, as is often said, also fundamentally underpins biological sciences directly via species concepts (Tautz et al. 2003; Bebbier et al. 2010).

Notwithstanding the important links between collections and taxonomy, collections support a wider range of biological disciplines, not only indirectly as infrastructure for nomenclature and species concepts, but directly as sources of data themselves. The critical importance of scientific collections as infrastructure for diverse fields of science led to the formation of SciColl ("Scientific Collections International"; see www.scicoll.org). Applications of data from biological collections include tracking disease

and pest vectors, biological invasions and species distributions through time and space (Suarez and Tsutsui 2004; Aikio et al. 2010). Herbaria enable convenient sampling sweeps across geographically separated collections to detect species that may be useful bioindicators (e.g. species that hyperaccumulate nickel; Brooks et al. 1977), or that have antibacterial properties (Eloff 1999). A significant advantage of herbarium collections as data sources is spatial and temporal (historical) coverage that cannot be replicated by *de novo* field collections (Dalton 2003; Guerin et al. 2012). For this reason, they have been used to assess changes in plant size, leaf morphology and flowering phenology through time in response to global change (McGraw 2001; Gallagher et al. 2009; MacGillivray et al. 2010; Guerin et al. 2012; Leger 2013) and for continental-scale analyses of biodiversity (Crisp et al. 2001). Herbarium specimens can be used to supplement field-based studies of population genetics and to provide historical records of species occurrences prior to habitat fragmentation (Suarez and Tsutsui 2004; McCallum et al. 2013).

From a pragmatic perspective, the financial value of herbarium specimens can be seen as the cost of re-collecting them for new studies, which would undoubtedly be high. By circumventing new field costs for research, specimens serve as longterm research infrastructure, for taxonomy and therefore the nomenclatural basis of biology, but also for research on functional morphology, phenology, elemental and isotopic tissue composition, species distributions, biogeography, phylogeography, community phylogeny, phytochemistry and biogeochemistry. The real value of collections to future research is even higher as a material record of remote locations, extinct populations or past environments that cannot be replicated.

Viewing herbaria principally as collection-based research infrastructure rather than

the exclusive institutions of taxonomists immediately broadens the range of relevant scientific disciplines and can only expand the value and reach of collections. Arguing that herbaria should be funded to support taxonomy risks offsetting the cost of maintaining base operations only against the research outputs of a few taxonomists employed mainly within herbaria. Perhaps we would be better off spruiking the benefits of collections-based research infrastructure that enables diverse research outputs by internal and external researchers. Just as databasing, species concepts, nomenclature and up to date determinations enrich collections, so do genomic, chemical and phenotypic data generated from collections-based ecological research.

Herbaria and their funders should of course continue to support taxonomy and adequate funding for taxonomy is an important issue. The question is whether the core purpose of herbaria should remain to exclusively undertake taxonomic research or whether it should be to support any relevant collections-based research. Given that government support for funding in-house taxonomic research positions is low (Barker 2012), generating new interest in maintaining collections might be better achieved by highlighting their diverse benefits.

To conclude, while taxonomy is under-funded and remains critical to biology and collections-management, herbaria have more intrinsic value than as the basis for a single field. For this reason the argument for better herbarium funding should be the importance of specimen curation and diverse specimen-based research, not just the demise of support for taxonomy.

References

- Aikio, S., Duncan, R.P., & Hulme, P.E. 2010. Herbarium records identify the role of long-distance spread in the spatial distribution of alien plants in New Zealand. *Journal of Biogeography* 37(9): 1740-1751.
- Barker, B. 2012. From the President. *Australasian Systematic Botany Society Newsletter* 153: 1-4.
- Barker, B., Thiele, K., Breitwieser, I. 2012. Sustaining Australasian plant systematics at a time of major achievements. *Australasian Systematic Botany Society Newsletter* 153: 31-32.
- Bebber, D.P., Carine, M.A., Wood, J. R., Wortley, A. H., Harris, D. J., Prance, G.T., Davidsef, G., Paige, J., Pennington, T.D., Robson, N.K.B & Scotland, R.W. 2010. Herbaria are a major frontier for species discovery. *Proceedings of the National Academy of Sciences* 107(51): 22169-22171.
- Brooks, R.R., Lee, J., Reeves, R.D. & Jaffre, T. 1977. Detection of nickeliferous rocks by analysis of herbarium specimens of indicator plants. *Journal of Geochemical Exploration*, 7: 49-57.
- Crisp, M.D., Laffan, S., Linder, H.P. & Monro, A. 2001. Endemism in the Australian flora. *Journal of Biogeography* 28(2): 183-198.
- Dalton, R. 2003. Natural history collections in crisis as funding is slashed. *Nature* 423(6940): 575-575.
- Eloff, J. N. 1999. It is possible to use herbarium specimens to screen for antibacterial components in some plants. *Journal of Ethnopharmacology*, 67(3): 355-360.
- Gallagher, R.V., Hughes, L., & Leishman, M.R. 2009. Phenological trends among Australian alpine species: using herbarium records to identify climate-change indicators. *Australian Journal of Botany* 57(1): 1-9.
- Guerin, GR, Wen, H, Lowe, AJ 2012. Leaf morphology shift linked to climate change. *Biology Letters* 8: 882-886.
- Leger, E. A. 2013. Annual plants change in size over a century of observations. *Global Change Biology* 19(7): 2229-2239.
- MacGillivray, F., Hudson, I. & Lowe, A.J. 2010. Herbarium collections and photographic images: alternative data sources for phenological research. In *Phenological Research* (eds Hudson, I.L. & Keatley, M.R.), pp. 425-461. Springer Netherlands
- McCallum K, Guerin G.R., Breed M.F. & Lowe A.J. 2013. Combining population genetics, species distribution modelling and field assessments to understand a species vulnerability to climate change. *Austral Ecology*. doi:10.1111/aec.12041
- McGraw, J. B. 2001. Evidence for decline in stature of American ginseng plants from herbarium specimens. *Biological Conservation*, 98(1): 25-32.
- Suarez, A.V. & Tsutsui, N.D. 2004. The value of museum collections for research and society. *BioScience* 54(1): 66-74.
- Tautz, D., Arctander, P., Minelli, A., Thomas, R. H. & Vogler, A.P. 2003. A plea for DNA taxonomy. *Trends in Ecology & Evolution*, 18(2): 70-74.

In search of grass types in USA and European herbaria

Bryan Simon, Queensland Herbarium

In June to September this year I undertook a three month trip with my wife Pam to the USA and Europe. It included a mixture of botanical research activities, a conference in New York and general tourism. In the USA it started with a visit to the states of Utah and Montana (including Salt Lake City, Logan, the Grand Tetons and Yellowstone National Parks), Tennessee (Nashville), Maryland (Baltimore) and the 5th Monocot Symposium in New York, where I presented a talk on my grass Scratchpads. This was followed by visits to Switzerland (Zurich, Mt Säntis - the highest mountain in the Alpstein massif of northeastern Switzerland), Germany (Bechtersgarten and the Königssee, Bavaria, Munich, Berlin), France (Paris, Brunoy), Austria (alpine village of Krimml near Slovenia), Russia (Moscow, Vetluga, St Petersburg), England (Berkshire, Surrey, London, Wiltshire, Cornwall and West Sussex) and Singapore. In total I visited 12 herbaria with a view to examining their grass collections, and where relevant, taking digital photos of type specimens. These were of panicoid grasses that I had not seen previously, in relation to my *Flora of Australia* accounts and of *Oryza* specimens in relation to work I am doing on species of Australian wild rice at the University of Queensland. Although I knew that most types are being placed online (JSTOR-Mellon project), I nevertheless captured my own images of as many specimens that I could examine with a small hand-held Canon camera. The botanical institutions I visited were the Intermountain Herbarium, Logan (UTC), the New York Botanical Garden (NY), Botanische Staatssammlung München (M), Universität Zürich (Z), Muséum National d'Histoire Naturelle (P), Nationaal Herbarium Nederland (L), Botanischer Garten und Botanisches Museum Berlin-Dahlem (B), V.L. Komarov Botanical Institute (LE), N.I. Vavilov Institute (WIR), Royal Botanic Gardens (K), the Natural History Museum (BM) and the Singapore

Botanic Gardens (SING). These included the four largest herbaria in the world – P, NY, LE and K, as well as the 7th (BM) 12th (L) and 18th (B).

A summary of the grass type specimens sought, found and photographed is shown in Table 1.

Each of the herbaria listed is covered in this article by a separate entry, with my reason for visiting them and some facts about them. The figures after each heading are the ones extracted from the current *Index Herbariorum* maintained at the New York Botanical Gardens (Web ref. 1) and may even now be out of date. In terms of staff numbers my assessment is that the number of professional taxonomists and graduate students at the institutions I visited is declining.

Intermountain Herbarium (UTC).

(257,250 specimens; 6 staff). Fig. 1.

<http://herbarium.usu.edu>

This was the only herbarium where no material of type material of panicoid grasses or rice species was sought. However, I decided to visit there because of it being a major centre for the study of grasses in the US and the institute from which the magnificent volumes of the grasses for the *Flora of North America* (FNA, Vols 24 and 25), under the very skilful editorship of herbarium director Mary Barkworth (Fig. 1), were produced. The herbarium is the main repository of the flora of the intermountain region of the US Rocky Mountains and is a primary source of information on the flora and fungi of the Intermountain region.

As well as the two grass volumes for the FNA, in which Mary edited the contributions of many authors (64 in Vol. 24, 55 in Vol. 25), she also subsequently co-produced separate single volumes *Manual of the Grasses of North America* and the *Grasses of the Intermountain region*, based on the same base data and format. In addition she has overseen the online edition

Table 1. Grass types located in Europe and Asia from which images were obtained by B.K. Simon in 2013.

Project	P	L	B	LE	K	BM	SING
<i>Flora of Australia</i>	26	44	14	51	9	9	0
<i>Oryza</i>	9	9	0	0	30	0	3



Fig. 1. Mary Barkworth at entrance to Logan Herbarium. Ph. B. Simon

of the *Grass Manual* Web ref. 2), in which maps, illustrations, descriptions and synonymy are provided for most species.

Mary very kindly accommodated us at her house in Logan as well as laying on a splendid meal.

New York Botanical Garden (NY)

7.3 million specimens, 37 staff. Fig. 2 a, b. www.nybg.org/science/

This is the second largest herbarium in the world and adjacent to the Fordham University campus where the *Monocot V* conference was held. I made a short visit to the collection to see what rice material was there. I had previously discerned there were no type specimens of *Oryza* in the collection, but I did photograph a selection (27 sheets) of their general collections of that genus. The herbarium is named the William and Lynda Steer Herbarium and adjacent to the herbarium is the Pfizer Plant Research Laboratory where a program for molecular systematics is centred. During the Monocot conference the latter was the venue of the *Scratchpad* workshops run by the Natural History Museum and Kew, which I attended.

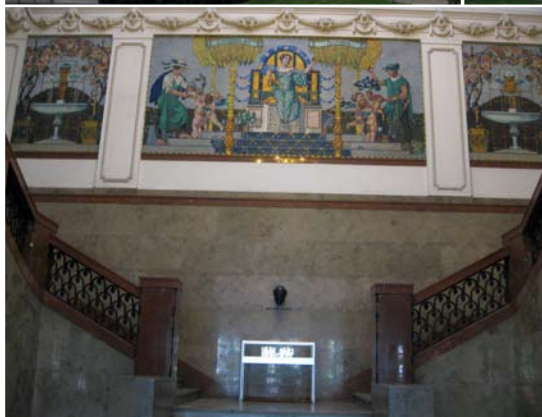
Botanische Staatssammlung München (M)

3 million specimens, 9 staff. Fig. 2 c, d. www.botanischestaatssammlung.de/

The visit to M was not previously planned on our itinerary, but as we were visiting family in a farming area of Bavaria near Munich, we took the opportunity of visiting this institution, last visited in 1970 during an AETFAT conference



Fig. 2. Clockwise from top left: a, New York Botanical Garden Herbarium with new building on left; b, entrance to Plant Science Centre; c, Botanische Staatssammlung München – herbarium and botanic garden; d, stairwell of herbarium, München. Ph. B. Simon



when I was still based in Zimbabwe. The institute was founded by the King of Bavaria, Maximilian I, in 1813 to preserve and curate the Royal herbarium. The most famous collector associated with M is C.F.P. von Martius, who, in 1817–1820 in Brazil, collected 25,000–30,000 specimens belonging to 7,300 species. These collections were the basis for the *Flora Brasiliensis* (1840–1906), a collaborative effort of 65 authors, in which von Martius contributed 46 of the 130 fascicles. Of the three types of panicoid grasses thought to be in M, only one was found, one was not found, and one, in the Martius collection, was not searched for.

The herbarium is an imposing building, presumably dating back 200 years, with a very grand central staircase, more in the style of an art gallery, and is situated adjacent to an associated botanic garden. We were hosted at short notice by the director, Prof. Dr. Pauline Renner.

Zurich herbaria (Z + ZT)

3,500,000 specimens, 12 staff. Fig. 3.
www.herbarien.uzh.ch/index_en.html

I had met up with Peter Linder, a curator of Z and Professor of Systematic Botany at the University of Zurich, in New York and mentioned then that I would like to visit his herbarium in the Botanical Garden of the University of Zurich during our stay with our son and his family near Zurich. The herbarium is a combined collection of Z (University of Zurich) and ZT (Eidgenössische Technische Hochschule Zürich) and the collections are mainly European focussed. However, as a result of my visit, two grass types of interest to me were located there, *Eriochloa australiensis* and *Panicum schinzii*, with both being found in the general collection. They were extracted for transfer to the type collection, situated in a basement room.

Muséum National d'Histoire Naturelle (P)

8 million specimens, 31 staff. Fig. 4a.
www.mnhn.fr/le-museum/en/home

This is the largest herbarium in the world and, in conjunction with the renovation of the building, all specimens have been digitised at low resolution (300 dpi) at a cost of 24.5 million Euro (Web ref. 3). However, the types have been digitized at 600 dpi as part of the Mellon type specimen project.



Fig. 3. Zurich Herbaria Ph. B. Simon

The herbarium is now arranged in compactus shelving with retractable work surfaces at waist height (Fig. 4a). The aim of visiting P was to locate types of both Australian panicoid grasses, not seen previously, and global species of *Oryza*. Of all the types that I had prior knowledge of being there, I was able to locate them all except three *Oryza* type specimens of Chevalier from Africa. Of these two had been photographed years before at Kew, but apparently were not photographed for the JSTOR project and the third may never have been at P.

I was hosted by Sovanmuly Hul while at the herbarium, and we stayed at the conveniently placed Tim Hotel near the Botanic Gardens.

While in the Paris area we also stayed with Philippe and Tove Morat in Brunoy (Fig. 4b), a small town on the south eastern outskirts of Paris. Philippe, Director of P during 1986–2003, has been translating the DELTA characters of the *GrassWorld* database into French for the last few years and the purpose of our visit was to check the most recent version of the character set with Philippe. We had a wonderful stay with the Morats, with Tove's preparation and serving of gourmand food; the cheese platter consisted of nine of the best quality French cheeses. Philippe entertained us with a fund of knowledge about Nicolas Baudin and the French voyage of botanical discovery to Australia and we also had a very enjoyable walk in the large forest near their home.

Naturalis Biodiversity Centre, Leiden (L)

4 million specimens, 31 staff. Fig. 5 a-d.
www.naturalis.nl/nl/zakelijk/expertcentrum/

This constitutes the former National Herbarium of the Netherlands (which combined the



Fig. 4. From left: a Compactus units in refurbished Paris herbarium; b, lunch with Philippe and Tove Morat in Brunoy.
Ph. B. Simon

herbaria of Leiden, Utrecht, Wageningen and Amsterdam) and presently occupies the van Steenis Building on the campus of the University of Leiden. As reported in the last *ASBS Newsletter*, all herbarium collections are to be relocated to another building within Leiden in the near future, and this is a cause for concern for the botanists, plant specimens and books. Compared with former times, student numbers at L are presently very low and botanical research is mostly done these days by the retired botanists. One of these, JeF Veldkamp, hosted me during my visit and I played bridge at lunch breaks with JeF and other retirees including Pieter Baas, former director, and Fritz Adema, at the special bridge

table in the corner of the lunch room, used for this purpose for many years.

Included in the work I did at Leiden was to photograph the types of panicoid grasses and *Oryza* and to examine the microfiche of the Trinius herbarium from St Petersburg (LE) in preparation for my later visit to that herbarium. In addition we were given a personal examination of the many rare books in the Leiden herbarium library, of which there are many dating back to pre-Linnean gems. The institute is also in the process of digitizing the whole herbarium and I was lucky during my visit in that the grass collection was just being returned to the shelves.

Botanischer Garten und Botanisches Museum Berlin-Dahlem (B)

3.5 million specimens, 28 staff.
www.bgbm.org/. Fig. 6.

As well as investigating how many grass types in B had not been lost during the bombing of World War 2, two



Fig. 5. The Leiden Herbarium. Clockwise from top left: a, Van Steenis Building, Leiden incorporating the Naturalis Biodiversity Centre; b, Herbarium shelves; c, Examining Linnaeus's *Hortus Cliffortianus* with JeF Veldkamp; d, Retired botanists playing bridge.

Ph. B. Simon

other aims of visiting B were to consult with staff there in connection with classical German grass literature by Robert Pilger and Carl Mez, and the feasibility of embedding these within my *GrassWorld* scratchpad. Three colleagues were of great assistance in regard to my work there, the curator Robert Vogt with assistance searching for grass types on both the general and the Willdenow



Fig. 6. Left, Grass Herbarium of the Botanisches Museum Berlin-Dahlem; right, Willdenow's gravestone, outside the Willdenow herbarium. Ph. B. Simon

herbaria, and Nick Turland and Norbert Killian regarding the bibliographic issues related to Pilger and Mez. In addition I had the privilege of having a short conversation with Walter Lack, well known for his publications on botanical history and art. In addition Norbert showed me the huge botanical library of the institute, an amazing achievement since the loss and destruction inflicted on it in World War 2.

The Mez manuscript on panicoid grasses was written between 1926 and 1935 for publication in Engler's *Das Pflanzenreich* but after the war the focus was changed, due to limited resources, into completion of the *Gramineae* treatment for the second edition of the *Natürliche Pflanzenfamilien* by Robert Pilger. In 1990–1991 Hildemar Scholz, the grass botanist at B, who died last year, sent out the A3 pages (comprising five fascicles and 2,277 pages) to a number of institutions, in exchange for 250 extra-European grass duplicates. A set was sent to BRI (Simon 1991) and was scanned by Yucely Alfonso in 2009 and sent to B earlier this year.

Since getting back to Australia I have been informed by Norbert Killian that the Mez manuscript is now online (Web ref. 4). It could be of taxonomic and nomenclatural significance with reference to species that were selected as new by Mez, whose specimens were subsequently destroyed in the bombing of B. It also has lists of B exsiccatae that were destroyed but may be duplicated in other herbaria.

The publications of Robert Pilger of panicoid

and chloridoid grasses for *Die Natürlichen Pflanzenfamilien* have both been scanned from the original publications and translated into English by Philip Sharpe (ex BRI and now living at Coolum and still undertaking translation of German botanical text at the age of 98), and negotiations are continuing regarding permission to place these on the *GrassWorld* scratchpad.

Russia

Our visit to Russia had been carefully planned beforehand in terms of dates in relation to Russian visa applications. We invited Maria Vorontsova (Fig. 7d), the grass botanist at Kew and Russian born and raised, to accompany us to the large centres of Moscow and St Petersburg but she suggested us also going to Vetluga, a small town 13 hours by train NE of Moscow, where her father had a holiday house. Maria was a tireless guide and translator with family, friends and botanical colleagues. The Russian itinerary consisted of three days in Moscow, four days in Vetluga, and four days in St Petersburg. It involved three overnight train trips in sleeper carriages, all of which were very comfortable and streamlined. In Moscow we stayed in a family flat and visited the Cosmonaut Museum as well as obligatory visits to the Kremlin and St Basil's cathedral. Maria's father Sergei shared time with us at Vetluga, where we also met other relatives, who showed us around the district. Sergei is an astro-physicist with positions at the Russian Academy of Science and Queen Mary College, University of London, but originates from the Vetluga and has plans to retire there. During

our visit we had an extremely interesting time with a neighbour of Sergei's, a very colourful character whose talents included bee-keeping, forest conservation, mushroom collecting, taxi driving, smaller scale farmer, former train driver and soldier.

Two memorable highlights of Russia were the most efficient underground rail systems in the world in both Moscow and St Petersburg, where some stations are so far underground it takes three minutes on the escalator to reach the platform and, second, a meal with a family in St Petersburg in a two roomed unit on the sixth floor of an apartment building without a lift, where three generations have lived for 30 years and with bicycles and kayaks in the hallway of the unit.

In St Petersburg two botanical institutions were visited – the Komarov Institute (LE) and the Vavilov Institute (WI).

V.L. Komarov Botanical Institute (LE)

7.2 million specimens, 71 staff. Fig. 7.
www.binran.ru/botmus/index.htm

My main reason for visiting this institute, the world's third largest herbarium after P and NY, was to track down and obtain digital images of Australian grasses from the Trinius grass herbarium (Fig. 7d), which contain many types of the world's most widely distributed grass weeds. The whole Trinius collection had been photographed and documented for IDC in 1994 by Rob Soreng, Paul Peterson, and Carole Annable of the Smithsonian Institution and placed on microfiche (Web ref. 5). The quality of the images was not satisfactory in many cases; so it was nice to be able to upgrade these for the species I was interested in.

While in the library Maria and I tried to research some information about Trinius and the circumstances of his connection to the Komarov. Surprisingly not too much seems to be known about this, other than what was

conveyed to us by Dr N.N Tzvelev, the Russian grass authority, who still comes in almost daily at the age of 88 (Fig. 7b). According to him Trinius arrived in St Petersburg from Germany in 1830s and found the herbarium collection mostly

Fig. 7. Komarov Institute, St Petersburg. Clockwise from top: a, Front of the Institute building; b, meeting N.N.Tzvelev, legendary Russian agrostologist; c, Library; d, Maria Vorontsova examining grass specimens in Trinius Herbarium. Ph. M. Vorontsova (b); B. Simon (a, c, d)



insect destroyed, except for the grasses. He then started focussing on the study of this family, and the rest, as they say, is history!

The fascination and challenging aspect of working at LE is that all herbarium cupboards are permanently locked and one has to get the co-operation of the curator for that family to unlock the particular group one is working on. This works well, unless of course the curator is away on leave without having left the key with someone else. Fortunately for us no such problems existed and we had excellent help from curator Vladimir Ivanovich. Among the general collection of *Panicum* that Maria was working on, were a few collections from Australia, that were Robert Brown types that had not been placed in the type collection, some of them being duplicates from E.

N.I. Vavilov Institute (WIR)

524,500 specimens, 5 staff. Fig. 8.

The history of Nikolai Vavilov has had a fascination for me since learning about his eight centres of agricultural diversity of crop plants while a student at Reading, and his defence of Mendelian genetics against the following of Lysenkoism by Soviet leaders. He collected seed from every corner of the globe to establish at the time the world's largest seed bank. It was protected by staff during the 28-month siege of Leningrad, when it has been revealed that Hitler had plans to control the world's seed. It is recorded that one staff member starved to death surrounded by edible seed. The collection is still one of the largest seed banks and has a herbarium of vouchers of more than half a million specimens. My intention of the visit was to discover what rice material was there

and we were hosted by the curator Tamara Smekalova.

The collection had mostly specimens of *Oryza sativa* and very few specimens of wild rice – one of the latter was a duplicate of *O. punctata* from Zambia that I had identified in 1967 and had sent to Kew from the Zimbabwe National Herbarium.

Royal Botanic Gardens (K)

7 million specimens, 88 staff. Fig. 9.

www.kew.org/collections/herbcol.html

Since 1968 I have had a long connection with the Kew grass systematics team (with botanists Charles Hubbard, Norman Bor, Derek Clayton, Steve Renvoize, Sylvia Philips, Tom Cope and currently Maria Vorontsova) and this was my 8th visit to this world centre for grass taxonomic research. As already mentioned Maria accompanied us to Russia and I have had a close collaboration with her since the IBC in Melbourne in 2011 in attempting to unify the information contained within the global systems of *GrassBase* (Web ref. 6) and *GrassWorld* (Web ref. 7) (Vorontsova & Simon 2012).

As I had obtained most of the images of type specimens of panicoid grasses on previous visits, I channelled most of my energy into obtaining type photos of the species of *Oryza*, of which Kew has the best representation (30 species images of type specimens – Table 1). The second day at Kew was spent working with Maria and Derek Clayton in relation to updates of *GrassBase* and *Synon* (the Kew Access grass synonymy database). Maria then assisted me working out the process of generating generic descriptions for the genera of *GrassWorld*

Fig. 8. Left, Vavilov Institute, St Petersburg; right, Vavilov Herbarium. Ph. B. Simon





Fig. 9. At Kew: left, the new Kew library; right, lunch with Kew grass botanists, Derek Clayton, Martin Xanthos, Maria Vorontsova, David Simpson (Keeper and Head of Monocots), Sylvia Phillips, Tom Cope, Bryan Simon. Ph. B. Simon

using the DELTA Gesumm program of Mike Dallwitz, as had been done for generating on-line generic descriptions in *GrassBase*. This has yet to be resolved and hopefully the first run of generic descriptions will be produced soon.

Lunch was shared with all the grass botanists and acting keeper David Simpson at the refurbished 'Rose and Crown' pub, now known as 'The Cricketers' and a good time was had by all (Fig. 9b). The 'Rose and Crown' had become very much a part of the whole Kew experience in my previous visits since 1968, well remembering the luncheon visits there with colleagues Dick Brummitt, Steve Renvoize, Ray Harley, Charles Jeffrey, Bernard Verdcourt and Keith Jones and the decision whether to split or lump a taxon was made much easier on returning to the herbarium after lunch! I regret that I did not meet up with Dick on this occasion but got to be informed he was very ill; indeed I only became aware of

his passing away after my return to Australia. I had also shared time with him, son Neil and Rod Henderson in 2001 on a botanical outing from Brisbane to friends of Dick near the Glass House Mountains (Fig. 10).

Natural History Museum, London (BM)

5.2 million specimens, 55 staff. Fig. 11 a, b.

www.nhm.ac.uk/

My one day at the BM, which I had also visited numerous times in the past, was taken up in discussions with Dimitris Koureas in connection with the update of both *GrassWorld* and *AusGrass2* (Web ref. 8) scratchpads to the *Scratchpads 2* platform (Smith, V.S. et al 2011) from *Scratchpads 1*. This has not yet been fully resolved but it has the potential of being easier for the user to operate as well as being faster. When all the data has been transferred satisfactorily the *Scratchpad 2*



Fig. 10. With Dick Brummitt (in yellow shirt) in the Glasshouse Mountains, Qld, in 2001. In the rear are Dick's friends, at the front are Rod Henderson, Dick, Neil Brummitt. Ph. B. Simon

platform will become the preferred option for both *Scratchpads*. The remainder of the time at the Museum was spent obtaining digital images of panicoid types I had not seen before and taking a stroll through the Cocoon of the Darwin Centre. The herbarium is now part of the Darwin Centre with modern compactus units, a great improvement from the days in the older part of the building where it was in old wooden cupboards and the higher ones were difficult and dangerous to access.

After three days in London we drove to Avebury near Marlborough to visit Avebury Manor, a country house that was renovated by the National Trust in 2011 as part of the BBC One programme *The Manor Reborn*. Each room of the house, dating back to 1500, had been renovated to replicate the style of a different century and the homestead is situated at the edge of the largest stone circle in the world. Our guide to the Avebury estate was retired Kew palynologist Madeline Harley, who lives near Avebury. From Wiltshire we drove down to Land's End before returning to visit friends in West Sussex. We then proceeded to Heathrow for our trip to Singapore, where we stayed a night with a niece and visited the herbarium of the Singapore Botanic Garden.

Singapore Botanic Garden (SING)

650,000 specimens, 5 staff. Fig. 11c.
www.sbg.org.sg/index.asp

This was my third visit to the Singapore Herbarium and each time the collection has been in a different building. The current building, known as the Botany Centre, incorporates the Singapore Herbarium, the Botany and Horticulture Library, the Orchid Breeding Centre and an education centre. In my brief visit to the herbarium I located 3 types of *Oryza* species.



Fig. 11. Clockwise from left: a, b, Compactus units in Darwin Centre of Natural History Museum, London; c, Botany Centre of Singapore Botanic Gardens, incorporating the Singapore Herbarium
 Ph. B. Simon

References

- Simon, Bryan (1991). Grass manuscript by C.C. Mez for Engler's Pflanzenreich. *Austral. Syst. Bot. Soc. Newsletter* 69: 3-4.
- Smith V.S., Rycroft S.D., Brake, I., Scott B., Baker E., Livermore L., Blagoderof, V. & Roberts D. (2011). Scratchpads 2.0: a virtual research environment infrastructure for biodiversity data. *Zookeys* 150: 53-70. (www.ncbi.nlm.nih.gov/pmc/articles/PMC3234431/)
- Vorontsova, Maria S. & Simon, Bryan K. (2012). Updating classifications to reflect monophyly: 10 to 20 percent of species names change in Poaceae. *Taxon* 61 (4): 735-746.
- Web ref. 1. <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>
- Web ref. 2. <http://herbarium.usu.edu/webmanual/>
- Web ref. 3. http://collections.mnhn.fr/wiki/attach/Visit_October2012/Paris-Herbarium-Digitization_2012-07-12.pdf
- Web ref. 4. www.bgbm.org/BGBM/library/archiv_BGBM/Mez_ms_en.htm
- Web ref. 5. <http://botany.si.edu/projects/trinius.html>
- Web ref. 6. GrassBase: www.kew.org/data/grassbase/
- Web ref. 7. GrassWorld: <http://grassworld.myspecies.info/>
- Web ref. 8. AusGrass2: <http://ausgrass2.myspecies.info/>

Eichler Research Fund report

A genetic study of *Trachyloma* (Bryophytina, Pterobryaceae)

David Meagher

School of Botany, The University of Melbourne

The 2011 Eichler Award provided funds to conduct DNA sequencing of the tropical moss genus *Trachyloma*. This work supported my PhD research on the bryophyte flora of Lord Howe Island, which includes the endemic *Trachyloma watsii*. This genetic study will help to understand how the bryophyte flora of the island has been assembled since the volcanic island became quiescent around 6 million years ago, and how it relates to the bryophyte floras of neighbouring regions. It will also help to determine whether the existing taxonomy of the genus is sound.

Trachyloma was thoroughly revised by Miller and Manuel (1982), who recognised five species based on morphological characters. They also recognised four varieties of *Trachyloma indicum*. The geographic range of the genus is fundamentally Australasian (Australia, New Guinea, New Zealand, New Caledonia), although *Trachyloma indicum* ranges from Taiwan through Indo-Malesia to Oceania, as far east as Hawaii.

Specimens of all species, and all varieties of

T. indicum except *T. pilosum* (no suitable specimen available), were obtained from a number of herbaria (CANB, COLO, H, MEL, MELU) and my own field collections. Three chloroplast loci (*trnL-F*, *rps4-trnS* and *rpl32*) and one nuclear locus (*ITS2*) were sequenced.

The results of this genetic investigation support the taxonomy of Miller and Manuel (1982) and indicate that *T. watsii* is most closely allied to *T. planifolium* and *T. diversinerve*, both of which occur on the eastern seaboard of Australia from Tasmania to northern Queensland and also in New Zealand. I expect that the results will be published in full in 2014.

Reference

Miller, N.G. & Manuel, M.G. (1982). *Trachyloma* (Bryophytina, Pterobryaceae): A taxonomic monograph. *Journal of the Hattori Botanical Laboratory* 51: 273–321.

Acknowledgements

I would like to thank the Australian Systematic Botany Society for supporting this work through the Eichler Foundation. I also thank Dr Mike Bayly for his support and advice in

conducting the study, and Dr Gillian Brown (MELU) for organising loans of critical specimens at very short notice.



Fig. 1.
Trachyloma indicum var.
novaeguineae,
Mount Lewis,
Far North
Queensland.

CHAH report

CHAH (the Council of Heads of Australasian Herbaria) has, as usual, been busy in recent months with the coordination and planning of herbarium-related activities, particularly the digital imaging of all type specimens in Australian and New Zealand herbaria. These images are being steadily uploaded to JSTOR Global Plants, an important global resource providing access to type specimen images from around the world and another resource that promises to make substantially easier our tasks in doing taxonomy.

We're currently in negotiation with JSTOR regarding access to these specimen images. Initially, the Global Plants initiative was funded by grants from the Andrew W. Mellon Foundation, and access to the images through JSTOR was free to all partners. However, Mellon funding was always regarded as start-up support only, with the expectation that the initiative would become self-funding and self-sustaining over time. JSTOR has been considering various models for equitable and sustainable access to Global Plants, and has opted for a not-for-profit subscription model to offset the substantial costs in storing and making available the large number of high-resolution images involved. The costs are not small – the type images in Global Plants are by far the largest component of the server storage burden for the entire JSTOR operation.

Annual subscription to Global Plants brings challenges to many herbaria. In the interests of equity, JSTOR's subscription model includes some cross-subsidisation from first-world to developing-world partners, something I think we would all agree with. It also includes differential charging for institutions based on size (number of specimens and number of staff as recorded in *Index Herbariorum*). Some Australian and New Zealand herbaria face a charge of several thousand US dollars per annum; in the face of constant budget pressures, this is a difficult extra charge on our operations (and may become more so if current exchange rates go back to long-term trend). Our negotiations are seeking to establish a country-wide subscription for all CHAH partners. This

would allow a single payment from CHAH which would provide access to Global Plants for all staff in CHAH herbaria (all state and university herbaria in both Australia and New Zealand). Various options for funding this are being considered, and the negotiations are not yet concluded.

At the recent annual CHAH meeting in Sydney, we considered also the many challenges facing herbaria at the moment and started planning the next round of major CHAH work now that the AVH is in maintenance mode and the ALA is operating well. A planning exercise came up with a clear winner – we plan to work hard in the next few years on coordinating e-Flora activities and working towards a completed e-Flora for both Australia and New Zealand. In this regard our New Zealand colleagues are going gang-busters, and it's time for Australia to play catch-up.

The last item to report is that, like ASBS and ABRIS, CHAH was 40 in 2013, a significant milestone. It's interesting to reflect on the set of conditions in 1973 that resulted in the formation of three significant and long-standing entities, each of which have contributed in a major way to Australian botanical taxonomy and systematics over this long period. All need to be congratulated not only on their achievements but also for the fact that they're still standing! 2014 then is a good year to be considering the future, particularly planning for and trying to reverse the budget pressures we all face and the decline in taxonomic capacity over that period. In this regard, the partnership between CHAH and ASBS in developing a White Paper on taxonomic and systematic capacity in Australia and New Zealand should be a good start over the next 12 months¹.

Please feel free to contact me, either directly or through your institutional head, if you have any issues that may be best dealt with at a CHAH level or any ideas that you believe CHAH should become involved with.

Kevin Thiele
WA Herbarium
December 2014

¹ See p. 24.

ABRS report

ABRS turned 40

We marked our 40th anniversary on 6th December with a November birthday celebration (Fig. 1). Our new Parliamentary Secretary to the Minister for Environment (Senator Simon Birmingham) attended and addressed the gathering, along with Judy West, Pam Green (ABRS Advisory Committee Chair) and a number of grantees who spoke about the benefits of the ABRS National Taxonomy Research Grant Program.

As Annette Wilson indicated in the previous newsletter, there was cake, and the picture is proof. The majority was eaten on the day!

As part of our anniversary celebration ABRS provided gold sponsorship at the December *Systematics without Borders* conference. The conference included a symposium highlighting ABRS' roles in Australian systematics over the last 40 years.

Flora of Australia

Annette Wilson is in the final stages of production of *Flora of Australia* volume 37 – *Asteraceae I*. This book will cover all the Australian Asteraceae except for the tribes



Gnaphalieae and Astereae, which will appear in volumes 38A and B respectively. Annette is currently on leave until April 2014 and will be living in Western Australia. Annette intends to finalise volume 37 and anticipates it may go to press in late 2014. Subject to Annette's plans beyond this time we will be reviewing her position. While Annette is on leave her position is not being backfilled.

Mike Preece
ABRS, December 2013



Fig. 2 Annette Wilson's feature cake with her fantastic fondant version of the ABRS logo (*Buchanania arborescens* and platypus). Ph. A. Tatnell © Department of the Environment

Fig. 1 (opposite). ABRS staff at the ABRS 40th anniversary celebrations. Top, Pam Green, the ABRS Advisory Committee Chairperson, addressing the audience (ABRS staff baked the 5 birthday cakes); bottom, ABRS and Bush Blitz group photo, from left: Christy Geromboux, Beth Tully, Robyn Lawrence, Kate Gillespie, Mim Jambrecina, Annette Wilson, Brigitte Kuchlmayr, Sam Cocks, Patrick McCarthy, Helen Thompson, Mike Preece, Alice Wells, Jo Harding, Annabel Wheeler. Ph. A. Tatnell © Department of the Environment

Deaths

Elizabeth Brown 1956 – 2013

Bryologist and flowering plant taxonomist Elizabeth Brown of the National Herbarium of New South Wales passed away on 17th November 2013 after a battle with cancer.

She was remembered with a minutes silence and with a dedication in the conference programme at the *Systematics without Borders* conference for which she had been active on the organising committee. She served ASBS as Treasurer for two terms between 1999 and 2001.

An obituary is being put together for a coming issue of the *Newsletter* and a celebratory volume in *Telopea* (Web ref.).

Web ref. www.rbgsyd.nsw.gov.au/about_us/our_people/Science_staff/elizabeth_brown

Colin Burrows 1932–2014

In an announcement in Christchurch's *The Press* Colin Burrows, former lecturer in ecology at University of Canterbury, was described as "Conservationist, Botanist, Ecologist, Mountaineer, Geographer, Author, Occasional Historian, and Poet" (Web ref.).

A background to his work up to his retirement in 1993 prefaces a special issue of the *New Zealand Journal of Botany* (Kelly 1994).

Some taxonomic works

Colin J. Burrows (2008). Genus *Pimelea* (Thymelaeaceae) in New Zealand 1. The

taxonomic treatment of seven endemic, glabrous-leaved species. *New Zealand Journal of Botany* 46: 127 – 176

Colin J. Burrows (2009). Genus *Pimelea* (Thymelaeaceae) in New Zealand 2. The endemic *Pimelea prostrata* and *Pimelea urvilliana* species complexes. *New Zealand Journal of Botany* 47: 163-229

Colin J. Burrows (2009). Genus *Pimelea* (Thymelaeaceae) in New Zealand 3. The taxonomic treatment of six endemic, hairy-leaved species. *New Zealand Journal of Botany* 47: 325-354

Colin J. Burrows (2011). Genus *Pimelea* (Thymelaeaceae) in New Zealand 4. The taxonomic treatment of ten endemic abaxially hairy-leaved species. *New Zealand Journal of Botany* 49: 41-106

Colin J. Burrows (2011). Genus *Pimelea* (Thymelaeaceae) in New Zealand 5. The taxonomic treatment of five endemic species with both adaxial and abaxial leaf hair. *New Zealand Journal of Botany* 49: 367-412.

References

Kelly D. (1994). Introduction. The Burrows Symposium: Papers presented at a symposium held at the University of Canterbury, Christchurch, 11th October 1993, to mark the retirement of Colin Burrows. *New Zealand Journal of Botany* 32: 345-347. www.tandfonline.com/doi/pdf/10.1080/0028825X.1994.10410477.

Web. ref. <http://deaths.press.co.nz/obituaries/the-press-nz/obituary.aspx?pid=169146699>. "Published in *The Press* Jan. 18 to Jan. 22, 2014"

News

Mike Crisp and Rod Seppelt retirements

Although it is well known that systematic botanists never actually retire because they still have too much work to finish, it does happen officially. At the Sydney conference we picked up on several significant ones in recent times, that of cryptogam taxonomist Rod Seppelt from the Australian Antarctic Division – he is now very active at the Tasmanian Herbarium – and Mike Crisp, appointed to the Australian National University in 1991, now Emeritus Professor.

Joe Miller moves to USA

Joe Miller has left Australia and the Australian National Herbarium to take up a job at the US National Science Foundation in Washington.

Australian National Herbarium
Facebook Page September 27

Gary Chapple leaves NSW

Gary Chapple leaves the National Herbarium of New South Wales after 35 years. His contribution to nswdata, ERIN, rapid database, HISCOM, NSW collections database, CANRI, PlantNET, PNGplants and many other data projects is greatly appreciated. A modest gentlemen who is very well liked and will be missed by all at NSW. We cannot believe that he has gone!

Barry Conn, ASBS Facebook Page, September 27

Adelaide phycologist Fred Gurgel returns to Brazil

Fred Gurgel took up an appointment in 2008 as an algal taxonomist based in the State Herbarium of South Australia funded by the South Australian Government through the Herbarium and SARDI Aquatic Sciences together with the University of Adelaide. He quickly built collaborations with phycologists in Australasia and supervised a number of postgraduate students. He is taking up an appointment in Sao Paulo but retains his links with the Herbarium and University through current students and honorary positions.

New Northern Territory *Solanum* gets publicity

Botanist Professor Chris Martine of Bucknell University has officially named a new species of *Solanum*, previously referred to as *Solanum* sp. *Litchfield* (I.D. Cowie 1428), after Ian Cowie (Martine et al., 2013). Chris had previously documented how he discovered that David Symon had already prepared to describe the species in 2004 but had presumably refrained for the lack of any female flowers in the collections (Web ref. 1). Both Chris and Ian featured in the ABC's NT News account of the discovery (Web ref. 2).

References

Martine, C.T., Symon, D.E. & Evans, E.C. (2013). A new cryptically dioecious species of bush tomato (*Solanum*) from the Northern Territory, Australia. *PhytoKeys* 30: 23–32, doi: 10.3897/phytokeys.30.6003. doi: 10.3897/phytokeys.30.6003. www.pensoft.net/journals/phytokeys/article/6003/a-new-cryptically-dioecious-species-of-bush-tomato-solanum-from-the-northern-territory-australia

Web ref. 1: www.huffingtonpost.com/dr-chris-martine/even-in-death-scientists-make-new-discoveries_b_3604185.html. Posted 17 Jul 2013.

Web ref. 2: www.abc.net.au/news/2013-12-29/botanists-hope-tomato-discovery-will-prove-edible/5177836?section=nt

Distinguished alumni awards

Congratulations to The Director and Chief Executive of the Royal Botanic Gardens in Melbourne, Professor Tim Entwistle and the Australian Program Director of The Nature Conservancy, Dr Michael Looker who received distinguished alumni awards from La Trobe University in September this year (Web ref. 1). While Tim needs no introduction to most members, Mike is the Nature Conservancy's Australian Program Director (Web ref. 2) and presented the latest award to Lalita Simpson at the recent Sydney conference in December (see p. 22–23).

Web ref. 1. www.latrobe.edu.au/news/articles/2013/release/la-trobes-alumni-awards-announced.

Web ref. 2. <http://blog.nature.org/conservancy/author/mlooker/>

Congratulations Jessie Prebble

Jessie Prebble has won the *New Zealand Journal of Botany* award for a significant paper by an early career researcher (Web ref.). The paper on *Wahlenbergia* resulted from her M.Sc. studies at Victoria University, Wellington (Prebble et al. 2012).

References

Prebble, JM, Meudt, HM, Garnock-Jones, PJ. (2012). Phylogenetic relationships and species delimitation of New Zealand bluebells (*Wahlenbergia*, Campanulaceae) based on analyses of AFLP data. *New Zealand Journal of Botany* 50: 365–378. www.tandfonline.com/doi/abs/10.1080/0028825X.2012.698624

Web ref. https://www.facebook.com/tandfplantsciences?hc_location=timeline&filter=3#!/photo.php?fbid=716537791698318&set=a.208637159155053.52500.162893123729457&type=1&theater

A Deadly for Gerry Turpin

It is great to see The Deadlys, Australia's national Aboriginal and Torres Strait Islander music, sport, entertainment and community awards introduce a new award this year for the Scientist or Science Project of the Year. Even better to see the inaugural award won by ethnobotanist, Gerry Turpin from the Australian Tropical Herbarium in Cairns. Well done, Gerry.

Web ref. www.deadlys.com.au/2013/09/science-award-a-solid-success/

John Clarkson, ASBS Facebook page, 13th September

Leichhardt diaries launch

The first printed translation of the Ludwig Leichhardt's diaries from 1841–44 was launched by the Queensland Museum on 22nd October, 2013, 200 years after Leichhardt's birth. The diaries cover the time from his arrival in Australia to the announcement of his first expedition to Port Essington. Having studied many of the branches of science in Europe in preparation for his Australian odyssey he was soon making his own observations as he walked about Australia's eastern coast from the Hunter Valley to the Darling Downs. Translated from the original German by retired palaeontologist Thomas Darragh of Museum Victoria, the diaries have been edited by Darragh and Rod Fensham, ecologist at the Queensland

Herbarium and the University of Queensland.

There are two ABC interviews with Rod Fensham which give further light on the diaries, housed in the Mitchell Library (Web refs 1, 2).

Web ref. 1. www.abc.net.au/radionational/programs/ockhamsrazor/ludwig-leichhardt2c-a-great-australian-scientist/5058528#transcript

Web ref. 2. www.abc.net.au/radionational/programs/scienceshow/leichhardt-diaries-describe-ne-australia-in-1840/2970778

Timetable for amendments to the ICN in 2017

Taxon is now open for the submission of proposals to amend the Code at the next Nomenclature Section of the XIX International Botanical Congress in Shenzhen, China in July 2017. Instructions are given in the October 2013 issue of *Taxon*

Turland, N. & Wiersema, J. (2013). Procedures and timetable for proposals to amend the *International Code of Nomenclature for algae, fungi, and plants*. *Taxon* 62: 1071–1072. www.ingentaconnect.com/content/iapt/tax/2013/00000062/00000005/art00037

Sign of the times: staff pressures in Australian museums

The Australian Museum loses staff

"In the past decade, the number of research scientists at the museum has almost halved from about 23 in 2003 to 13 this year."

Web ref. www.smh.com.au/nsw/australian-museum-left-with-a-skeleton-staff-as-tyrannosaurus-exhibition-opens-20131129-2yh6v.html

Strictly molecular mollusc services at the WA Museum

Due to changes to staffing arrangements the WA Museum Mollusc Section will no longer be able to provide morphological identifications and morphological reports on mollusc specimens from 1st February 2014.

Because of the conservative shell morphology observed in molluscs the only identification and reporting service offered by the WA Museum Mollusc Section will be strictly molecular. In 2014 we will be providing additional support and training resources to consultancies to assist them in conducting family-level morphological identifications.

Web ref. www.museum.wa.gov.au/consultation/node/174i

Coming workshops and exhibition

Entries open for 2014 Margaret Flockton Award

The first call has been made for entries for the Margaret Flockton Award and Exhibition of 2014. Changes within the Royal Botanic Gardens and Domain Trust have led to the closure of the Red Box Gallery, and in its 11th year the Margaret Flockton Award Exhibition will be open from Saturday May 24 – Sunday June 15, 2014 in its temporary home in the historic Joseph Maiden Theatre within the Royal Botanic Garden Sydney site.

Illustrators are invited to submit one or two original scientific botanical illustrations in black and white by close of business Monday 7th April 2014. (Note: The exhibition will be selected. The new exhibition space will be slightly smaller than previously, and so even if up to two works by each artist is judged, it may be that only one of these will be hung).

There are some changes to the entry conditions of 2013, the 10th anniversary, but most conditions will revert to those of the previous years and the web pages (Web ref.) should reflect the 2014 conditions by early February.

For all enquiries please email directly botanical.illustration@rbgsyd.nsw.gov.au.

Web ref. www.rbgsyd.nsw.gov.au/education/art_and_illustration/margaret_flockton_award

Plant anatomy for scientists

Plant anatomy for scientists will provide theory, practical and techniques at a far more advanced level than that currently offered in most undergraduate subjects. The target audience for this course is researchers (honours, postgrads, postdocs, technicians) whose research projects involve some aspect of understanding and investigating plant structure. This course will be of particular relevance to plant systematists using morpho-anatomical data and those interested in character evolution. Prior knowledge of plant anatomy is not required, as we will start with basics and rapidly advance to a higher level of detail.

Dates to be finalise: probably 3rd, 4th, 5th June.

Cost: \$400

Also on offer this year at QUT will be a one-day course on a weekend “Plant anatomy for artists and non-scientists”, dates to be confirmed.

Contact Tanya Scharaschkin, Queensland University of Technology, for further details : t.scharaschkin@qut.edu.au.

Registration details will appear soon on QUT’s website for Continuing Professional Education (CPE): www.qut.edu.au/about/continuing-professional-education

Miscellanea

Our link to the recent Philippines disaster

Many will remember Melody Fabillo at the recent Sydney conference. She gave a fine presentation on *Tripogon* phylogeny and taxonomy. See also an account of her QUT studies in *ASBS Newsletter* issue 155 (pp. 17–24).

Melody’s University of the Philippines campus in Tacloban suffered a lot of damage in the disastrous typhoon late last year (Web refs. 1, 2). The need for financial and other aid for the Philippines is going to be an on-going issue. Melody is an employee from the campus, on

leave to pursue her PhD in Australia. In effect she no longer has a Department as the entire university infrastructure is badly damaged with no more labs and the entire library wrecked. Melody agrees we could help the rebuild through one of their relief efforts.

Tanya has recently raised funds for a hospice in Pakistan. She provided *gratis* reproductions of her artwork (Web ref. 3) in return for contributions. In this case the appeal was run locally, exchanging cards or original works for a donation. She sent the total sum raised (\$2000, which will go a long way in Pakistan) via PayPal to the hospice.

Tanya is again keen to undertake a similar modest appeal to assist Tacloban in its efforts to rebuild. She is waiting on Melody to obtain details of an appropriate local organisation as a beneficiary. This could be weighed against Australasian charities active in the region, although they may not be so localised,

Tanya is again happy to donate cards with their full sale price to go to charity. She is also putting up some original artwork for sale, with 25% of proceeds to go to charity. If you're interested in helping with this endeavour, please email Tanya directly to obtain details of artwork and a price list and to organise delivery of cards or artwork and arranging payment. Some of Tanya's botanical artwork can be seen on-line (Web ref. 3).

Web ref. 1. www.universityworldnews.com/article.php?story=20140117140845399

Web ref. 2. www.staradvertiser.com/

news/20140204_Exodus_of_the_young_leaves_little_hope_of_rebuilding_city.html

Web ref. 3. www.botanicalartqld.com.au/artist/96

Bill Barker for Tanya Scharaschkin
(email: t.scharaschkin@qut.edu.au)

A serious message in song

Bill Long, a southern Australian agronomist, launched his *Wild radish song* parodying Gotye's *Somebody that I used to know* on Youtube in mid December (Web ref.). It concerns the frustrations caused by the spread of herbicide resistant wild radish (*Raphanus raphanistrum*) in southern cropping areas of Australia. It has a powerful message which had achieved more than 11,000 hits a fortnight after its posting.

Web ref. www.youtube.com/watch?v=J7Kv5tl2rK0

Websites of interest

Legume genera now online

www.kew.org/lowo

In July 2005, the Royal Botanic Gardens, Kew published *Legumes of the World*, a book containing an encyclopaedic overview of the current knowledge of the 727 genera then recognised in the family.

The content and images published in the book are now accessible as a web-based publication, *Legumes of the World On-Line* (LOWO), managed and updated initially by members of the legume research team at Kew with contributions from other international legume specialists. LOWO links to other Kew-based and external legume resources and the intention is to integrate with additional classes of legume data provided and curated by others.

LOWO currently contains information about the number of species, global distribution, ecology, habit and uses of each legume genus, as well as pointing to reliable references for further information and providing useful notes about taxonomy, including the etymology of the generic name.

A new classification for legumes

www.sciencedirect.com/science/journal/02546299/89

Note the publication of the symposium, Towards a New Classification System for Legumes, in volume 89 of the *South African Journal of Botany*. This volume represents the outcomes of the Sixth International Legume Conference in Johannesburg, South Africa in January 2013 where a new draft classification, based on current phylogenies, was circulated earlier and then discussed at the conference.

Species names published in 19th Century seed lists from Botanic Gardens

www.nationaalherbarium.nl/seedlists/

Guide to the plant species descriptions published in seed lists from Botanic Gardens for the period 1800 – 1900 is a website that has been available for some years now and is invaluable if you are looking for a plant name published in an obscure seed list in Europe in the 1800s. The guide has been put together by

Cees W.J. Lut (former Chief Librarian, National Herbarium of the Netherlands) with the help of JeF Veldkamp and the cooperation of a myriad of libraries who have provided copies of those seed lists they possessed. Links to the original description of the plant species, title page of the seed list and its date of publication are available on the site. Searches can be conducted on the database by plant name, by author name and by description of the place name.

For Monocot supporters

www.emonocot.org/

eMonocot, a collaborative project between Kew Gardens, the Natural History Museum (London) and Oxford University with funding from the UK Natural Environment Research

Council, is now available on line. When accessed in January it listed 276,438 taxa, 8,205 images, 22 identification keys and 43 phylogenetic trees.

Online cuticle database

<http://cuticledb.eesi.psu.edu/>

Researchers at Northwestern University, The Field Museum, the Florida Museum of Natural History, and Pennsylvania State University have just released a publicly available version of *The Cuticle Database*. This database is a collection of images (with metadata) of the epidermal surface of modern plants, prepared from vouchered herbarium specimens and represents a unique resource for palaeobotany.

Robyn Barker

From Taxacom

Accessible through the Taxacom Archives at
<http://mailman.nhm.ku.edu/mailman/listinfo/taxacom>

Now researchers need identifiers

<http://orcid.org/>; www.researcherid.com

A query on Taxacom about an *Open Research Contributor Identifier (ORCID)* number, cited by some researchers in their profile, prompted a response that also mentioned an alternative *ResearcherID* number. Both numbers are more or less the equivalent of the digital object identifier (*doi*) for an electronic document which we now often see cited in the bibliography of systematics papers, but now it is the researcher, rather than his paper, who is uniquely identified.

ORCID's aims are:

ORCID aims to solve the name ambiguity problem in research and scholarly communications by creating a central registry of unique identifiers for individual researchers and an open and transparent linking mechanism between ORCID and other current researcher ID schemes. These identifiers, and the relationships among them, can be linked to the researcher's output to enhance the scientific discovery process and to improve the efficiency of research funding and collaboration within the re-

search community.

The equivalent for ResearcherID are:

ResearcherID provides a solution to the author ambiguity problem within the scholarly research community. Each member is assigned a unique identifier to enable researchers to manage their publication lists, track their times cited counts and h-index, identify potential collaborators and avoid author misidentification. In addition, your ResearcherID information integrates with the Web of Knowledge and is ORCID compliant, allowing you to claim and showcase your publications from a single one [sic!] account. Search the registry to find collaborators, review publication lists and explore how research is used around the world!

Other web tools are more about listing, citation and management of publications. They include Google Scholar, Scopus, Mendeley, Academia.edu and ResearchGate. Having looked at some of these it becomes more obvious why you might need a unique researcher number.

A comparison of these researcher profile tools has been published by the Utrecht University Library (Web ref.). The site compares all of the tools mentioned above as well as providing links for the creation of accounts in any which

might take your fancy. They also include a list of suggestions which might increase the visibility of your research

- Analyse who is using your research through which channels
- Avoid journals that are not well-indexed
- Blog and tweet selectively on your research topics
- Deposit your publications in the university repository
- Produce a short video pitch on your main research topic
- Publish Open Access
- Share an early version of your paper as pre-print
- Share your data (see *re3data.org* for list of repositories)
- Upload full text of your papers to your researcher profiles or your own website
- Use a stable and full author name and affiliation
- Use research profiles to unambiguously link publications to you

Web ref. <http://libguides.library.uu.nl/profiles>

A single information resource for taxonomic collections now online

<http://grbio.org/>

The new *Global Registry of Biological Repositories* (GRBio) is now available online. GRBio is a merger of *Index Herbariorum* (IH), *Biodiversity Collections Index* (BCI) and *biorepositories.org* and contains more than 14,000 records for biorepository institutions, their collections, and staff members. The *Consortium for the Barcode of Life* (CBOL) has developed and will manage GRBio in collaboration with IH and BCI and in consultation with GBIF and NCBI.

GRBio will operate as a moderated community-curated resource. IH, BCI and *biorepositories.org* invite the community to visit their website to check and update their records and to register institutions, collections and staff members that have not already been registered. GRBio offers registration of institutional collections, ‘personal’ research collections that have not yet been accessioned

into an institutional repository, and privately owned collections.

Index Herbariorum, managed by Barbara Thiers at the New York Botanical Garden, remains online (Web ref.). New IH data entered through GRBio will be transferred to IH and vice versa. BCI was developed by Roger Hyam and hosted by the Royal Botanic Gardens, Edinburgh, and is now closed. *Biorepositories.org* was developed and managed by CBOL and is also now closed.

David E. Schindel, Executive Secretary
Consortium for the Barcode of Life
CBOL website: www.barcodeoflife.org/

Web ref. <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>

Note: A check on this new site indicated that while herbaria may be listed on it there is a lot of information that has not as yet been transferred from Index Herbariorum. And there is no facility for searching for botanists in the new repository. Ed.

Open access to *Bioscience* until end of February

<http://bioscience.oxfordjournals.org/>

BioScience, the monthly journal of the American Institute of Biological Sciences, is from the beginning of 2014, to be published by Oxford University Press. The archives and current contents of *Bioscience* are open access until the end of February 2014.

Montpellier specimens available online

www.collections.univ-montp2.fr/herbier-mpu-presentation/base-de-donnees-botanique-herbier-mpu (in French).

The herbarium at the University in Montpellier (France) is one of the world’s bigger herbaria and holds lots of historical collections. Since 2004 MPU has participated in the imaging projects that are the base of JSTOR plants science. Access to the plant specimen images is also available through their own website. You will need to register to gain access.

Robyn Barker

Book reviews

Banks Peninsula plants

Murray Dawson

Landcare Research, Lincoln, New Zealand

Plant Life on Banks Peninsula
by **Hugh Wilson**. *Manuka Press, Cromwell, New Zealand, 2013.*
412 pp. ISBN 978-0-9583299-6-5.
NZ \$90.00 (hardback)

www.manukapress.co.nz/Plant_Life_on_Banks_Peninsula.htm

The legendary Hugh Wilson needs little introduction to botanists, conservationists, ecologists and readers of his field guides. For more than 30 years, Hugh has been managing Hinewai Reserve on Banks Peninsula, Canterbury. Hinewai is a 1230 hectare reserve of regenerating native bush that is privately-owned and open to the public.

Following his precursory work, *Natural History of Banks Peninsula* (Wilson, 2009¹), Hugh is uniquely qualified to write

this more extensive offering, *Plant Life on Banks Peninsula*, which focusses on plants rather than overviews the flora and fauna in his earlier title.

As these books tell us, Banks Peninsula is a volcanic landform jutting into the Pacific on the doorstep of the South Island's largest city, Christchurch. Once forested, Banks Peninsula was stripped of nearly all its trees and much of its original wildlife by two consecutive waves of human colonisation, Polynesian and European. However, the Peninsula remains a unique, biodiverse landscape.

Publisher Manuka Press has a long association with Hugh Wilson. They have previously produced his popular field guides: *Small-leaved shrubs of New Zealand* (1993), *Field guide: Stewart Island plants* (1994), and *Wild plants of Mount Cook National Park* (1996). As stated on their website, Manuka Press is a small publishing company producing books primarily with a botanical theme from a home office in their spare time. In my view, the high

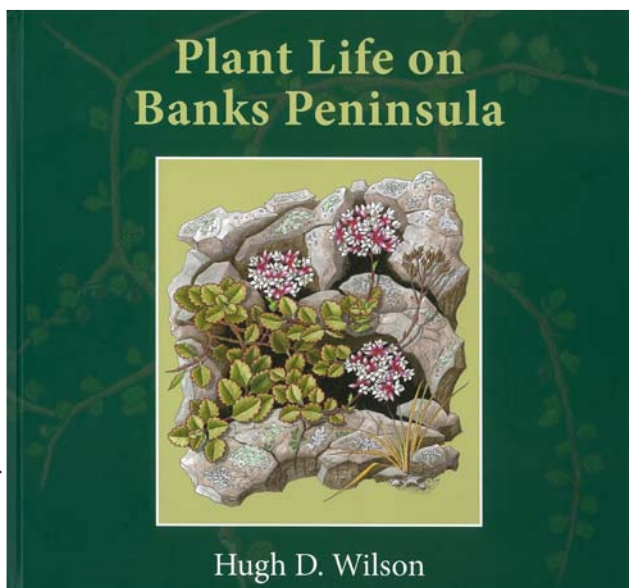
production values and lack of typographic errors in this latest offering puts the proofreading of some larger New Zealand natural history publishing companies to shame.

The layout of *Plant Life on Banks Peninsula* really is superb and the author and publishers have opted for a larger format (dare I say coffee-table style

book?) than Hugh's portable field guides. This was a great decision; each page is laid out mainly in two columns, with text on the left and drawings on the right, but with enough flexibility to display Hugh's fantastic artwork at its best. Richard Broadhead and Colin Webb of Manuka Press should be thoroughly congratulated for translating Hugh's clear (originally handwritten!) text and drawings into a near flawless work.

As opposed to a photographic account of a local flora, such as those displayed so nicely in *Plants of Pukeiti Forest* (MacKay, 2011²),

² Reviewed in the *New Zealand Garden Journal*, 2011, Vol. 14, No. 2, pp. 24–25 and the *New Zealand Botanical Society Newsletter*, March 2012,



¹ Reviewed in the *New Zealand Garden Journal*, 2009, Vol. 12, No. 2, pp. 29–30.

Hugh has prepared his own botanical drawings. Some black and white line drawings have been recycled from his earlier field guides, but the majority of his colour drawings are new. There are apparently more than 500 botanical drawings, of which more than 160 are in colour. To my admittedly untrained eye, the quality of Hugh's artwork seems at least as good as Audrey Eagle's (e.g., Eagle, 2006, 2013). Hugh displays a rare talent as an artist and botanical writer – it is an amazing achievement to have produced so much original artwork especially for this book, and to have written an extensive text for it, while also being fully committed to the management of Hinewai Reserve. More than 60 photographs are also included, taken by Hugh and those contributing images to the book.

I recognise some of the introductory chapters from *Natural history of Banks Peninsula*, expanded for this current work and entirely appropriate as a similar story needs to be told – the eyewitness accounts of fires and chronological figures (3.1–3.5) of deforestation are particularly sobering. Likewise, species distribution maps and checklists have been adapted from the earlier title and located towards the rear of *Plant Life on Banks Peninsula*. The addition of ticks in these checklists shows which species are illustrated compared to a total vascular flora of >1100 species, more or less equally divided between native and naturalised, to be found on Banks Peninsula.

After the first 47 introductory pages covering natural history (e.g., Banks Peninsula past and present, human influences, altitude, climate, rainfall and soils), the main body of the book profiles species groups arranged by chapter (pp. 48–338). This arrangement works well; there are the usual groupings you would expect (e.g., trees, shrubs, climbers, ferns, grasses, rushes and sedges, native orchids), and also some less orthodox groupings that nevertheless make sense for Banks Peninsula (e.g., chapters entitled “Gaudy succulents from Mediterranean climates”, “Plants on rock outcrops – bastions of biodiversity”, “Nowhere else – endemic to Banks Peninsula”). Cryptogams, the non-vascular plants including mosses, liverworts, lichens and fungi, are not overlooked and have

a chapter dedicated to them.

It's great to see inclusion (in a chapter entitled “Rare, going, gone”) the rediscovery in February 2012 of *Pittosporum obcordatum* on Banks Peninsula, after a gap of 170 years (p. 314). *Piptochaetium depressum* (Chilean rice grass), a new grass weed for New Zealand found at Camp Bay on Banks Peninsula, is also listed (p. 372). Discoveries and rediscoveries such as these on Banks Peninsula are documented by Hugh Wilson in a recent *New Zealand Botanical Society Newsletter* article (June 2013, No. 112, pp. 18–20).

Text at the beginning of each chapter makes for fascinating, and at times entertaining, introductions to the species entries that follow. Species are numbered according to their order of appearance, with naturalised species prefixed by asterisks. Species are followed by their family name in brackets. Meanings of the binomials are usefully provided underneath, first for the genus, and on the next line down for the species (and indented to line up with the species epithet). Common and Māori names are right justified. Underneath these names are concise botanical descriptions followed by a paragraph (in smaller font) on habitat and distribution notes of each species found on Banks Peninsula. This is much the same style as Hugh's field guides (Wilson, 1994, 1996).

Some botanical names used follow a conservative taxonomic approach (e.g., *Hebe* instead of *Veronica*, and some older generic names for the orchids), and the alternative names are provided in brackets.

I have always considered that descriptions are notoriously difficult to present in a popular work – they need to be technical enough to accurately describe a species, but simple enough to be understood by the majority of readers. Hugh achieves this balance brilliantly and seemingly effortlessly. Hugh's descriptions are never dry and his clear and easy writing style always presents the information needed.

Differences between similar species are explained clearly and concisely throughout and demonstrate Hugh's remarkable knowledge of the local (and wider) flora. For example, I took a recent photograph of a poroporo in flower at Hinewai. Hugh's book explains that the two very similar species to which this name applies

– *Solanum aviculare* and *S. laciniatum* – occur on Banks Peninsula. He clearly explains and illustrates the floral differences that distinguish them: *Solanum aviculare* has smaller flowers that are a paler blue, and star shaped, with pointed petals, whereas *S. laciniatum* has bright purple blue flowers that appear frilled and are notched at the top of each petal (p. 91).

Similarly, I photographed a *Parsonsia* (a native jasmine) growing at Orton Bradley Park on Banks Peninsula. Due to leaf variability and lack of flowers, I was not confident to assign it to a species. Hugh's book confirms that both *P. capsularis* and *P. heterophylla* grow on Banks Peninsula, and "Although highly variable in leaf shape nationwide" he reassures that "*Parsonsia capsularis* differs from *P. heterophylla* on Banks Peninsula in the very narrow ... wavy-edged adult foliage...". He then clearly illustrates these differences by colour drawings (p. 105).

Concluding chapters present plant distribution patterns and maps (pp. 339–348), checklists of plants (native and naturalised vascular plants, and hybrids; pp. 349–380), a reference list focussed on Banks Peninsula literature (pp. 381–382), glossary (pp. 383–388), and an index of botanical, Māori, and common names (pp. 389–411).

Hugh's previous field guides to Stewart Island and Mount Cook are regularly used by people

identifying native and naturalised plants from other regions in New Zealand, because the majority of species treated are not confined to the regions in the guides. The same is true for the Banks Peninsula flora, so this new book has wider utility.

This excellent book is a rare fusion of science, art, clear writing style, and flawless layout. Moreover, Plant life on Banks Peninsula provides an indispensable guide for appreciating the special plants of the peninsula adjacent to the "car infested swamp" of Christchurch that "invades the lower spurs of the Port Hills" – to use Hugh's sentiments – and the flora beyond.

References

- Eagle, A. (2006). *Eagle's complete trees and shrubs of New Zealand*. Te Papa Press, Wellington.
- Eagle, A. (2013). *The essential Audrey Eagle: Botanical art of New Zealand*. Te Papa Press, Wellington.
- MacKay, M. (2011). *Plants of Pukeiti Forest*. Fantails Publishing, Manawatu.
- Wilson, H.D. (1994). *Field guide: Stewart Island plants*. Manuka Press, Christchurch.
- Wilson, H.D. (1996). *Wild plants of Mount Cook National Park*. Manuka Press, Christchurch.
- Wilson, H.D. (2009). *Natural history of Banks Peninsula*. Canterbury University Press, Christchurch.
- Wilson, H.D. and Galloway, T. (1993). *Small-leaved shrubs of New Zealand*. Manuka Press, Christchurch.

An introductory layman's biology of inland Australian living waters

Michelle T. Casanova
Royal Botanic Gardens, Melbourne

Living Waters: Ecology of Animals in Swamps, Rivers, Lakes and Dams. By Nick Romanowski.

**CSIRO Publishing, Melbourne, 2013.
304 pp. ISBN: 9780643107564. RRP
AU \$39.95 (paperback).**

www.publish.csiro.au/nid/20/pid/6961.htm

My first impression of this latest offering by Nick Romanowski was very favourable. Very nicely laid out, with excellent photographs that illustrate a lot of interesting features of wetland animals and ecosystems. It was only as I started to write this review that it occurred to me that it might be strange for a review on an essentially

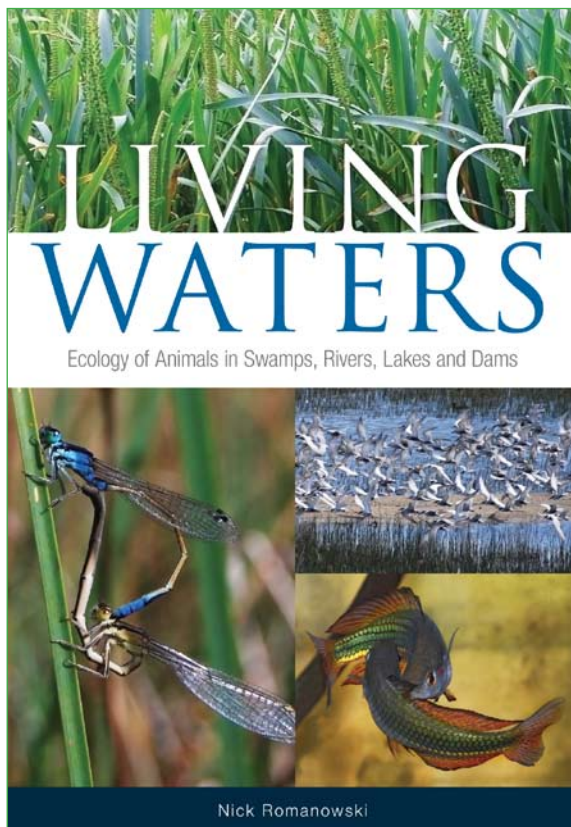
zoological book to appear in a systematic botany newsletter. However, I think it is an appropriate venue for a couple of reasons. Firstly, it's very much an introductory level text. The author assumes no prior knowledge of freshwater ecosystems or animals. Not that the readers of this newsletter have no knowledge of these things, but most of us have nieces and nephews, children or grandchildren, whose interests could be stimulated (when they are forced to stop playing computer games). Secondly, it might be good to get a few more of my peers into wetland ecosystems (because that's where all the water-plant collections

come from). The book flows through an introduction to the diversity of animals (invertebrate groups, fishes, reptiles, mammals and birds), introduces the idea of temporal variability in aquatic ecosystems (changing water availability, climate change, and management impacts) and describes the variety of habitats that allow aquatic animals to survive (from uplands and caves to rivers and swamps, even to estuaries and created wetlands). It's a decent book that I'd be happy to get for any of my nieces or nephews from about age 10 to 15. I'd actually recommend it to politicians and managers, too, to give them some insight into biodiversity and functioning of inland aquatic ecosystems.

So if you just read that far, you'd have a glowing impression of this book, but I'd be remiss if I didn't write a little more ... The book is essentially a personal account of a lifetime of discovery about aquatic ecosystems. The author appears to be self-taught, to a degree, with an independent approach to enquiry. There are personal accounts that make it a very appealing read. However, it's a little bit 'anti-scientific'. I get the feeling that as scientists, whose job is the naming of living things, we have not communicated well with this author. The book displays a preference for personal, (sometimes one-off) observation, untested hypotheses and intuitive interpretation. There is occasionally the implication (or even the statement) that since there are things that the author does not understand (fluctuations in animal abundance, for example), then 'no one understands'. There are a few of what I'd

call 'gratuitous' common names (I've never heard of 'sideswimmer' for amphipods, but I might be a bit behind the times). There is even a call to 'dispense with scientific names altogether' (for dragonflies). Although there is a list of scientific names in the back of the book, the author does not appear convinced about their general utility, and is also ready to criticize even unpleasant-sounding common names (e.g. the Barcoo Grunter; a fish). There

are better books on invertebrates, birds, reptiles and frogs if you want to know the names. There are more integrated and scientific books on wetland ecology. There are even better on-line resources for solid science about these things.



However, I'm being a bit of a pedantic scientist here. It really is a book written with passion and, as I wrote above, a life-time of observation. The author is on the right track, the biology of inland waters has been communicated in an easy-to-read way, with cautionary tales about introduced plants and animals and

water regulation in our most iconic systems. The account of the return of water to a lake (chapter 9) illustrates a passion and concern for aquatic systems, a depth of knowledge about their inhabitants and functioning that I wish was held by our politicians and managers. The children (niece and nephew) who have looked through it thought it was good, and wanted to read more (no comments about 'needs more dragons'; there are dragonflies aplenty). So, my first impressions are borne out, this is a book worth buying.

Growing [Western] Australian native plants: an experience shared

Juliet Wege
Western Australian Herbarium

***Australian native plants: the Kings Park experience.* Mark Webb (ed.).
CSIRO Publishing, Melbourne 2013.
129 pp. ISBN: 9780643103214. RRP
\$39.95. www.publish.csiro.au/pid/6711.htm**

As an avid gardener with a small but highly diverse native garden on Perth's coastal plain, I was delighted to finally see a publication centred on the horticulture of Western Australia's remarkable flora (although I must confess to my keener interest in reviewing *The Drunken Botanist*; see Tim Entwistle's review in the September 2013 newsletter). *Australian native plants: the Kings Park experience* is a multi-authored volume with nine chapters covering a broad range of topics for which significant knowledge and expertise exists at Kings Park and Botanic Gardens in Perth.

The first chapter (by Mark Webb and Grady Brand) provides a range of reliable tips on planting, mulching, fertilising, watering and pruning Australian natives, as well as notes on potential weediness. More experienced gardeners and horticulturalists would be aware of most of this advice, but the information provided will be of great assistance to novices. A notable omission is information on maintaining kangaroo paws, particularly the larger varieties which benefit from a hard prune back to ground level in late summer to early autumn. It may also have been worth mentioning additional weedy natives, such as many of the native grasses, *Ficinia* and *Juncus*, some wattles, and *Dichondra* and *Rhagodia* ground covers, all of which can rapidly cause problems if not kept in check. Of note is the suggested 5cm mulch layer which, although terrific for suppressing weeds and conserving moisture over summer, does not allow for good displays of spring annuals or geophytes, both of which can be fantastic water-wise additions to a native garden.

The second and third chapters (also by Grady Brand) on ground covers/shrubs and small/medium trees respectively, highlight a range of Western Australian species and provide design tips, including suggestions for complementary plantings. Native landscape design is something

that the team at Kings Park have perfected and these two chapters certainly complement the spectacular plantings within the park. The featured ground covers and shrubs are all proven performers, the majority of which are readily available in native plant nurseries (note the photograph of *Banksia nivea* is incorrectly captioned as *B. blechnifolia*). It is disappointing that a broader selection of genera (e.g. *Acacia*, *Eremophila*, *Thomasia*, *Verticordia*) are not included amongst the illustrated examples (rather than, for example, three similar shrubby species of *Banksia*). The examples provided in the chapter on trees similarly centre on commonly available species but it is terrific to see some under-utilised gems featured. These include *Eucalyptus lane-poolei* (a species we have chosen to highlight within the courtyard at the Western Australian Herbarium on the basis of the lovely grove at Kings Park) and *E. pyriformis* and *E. kingmillii*, both of which have a more extended flowering season than indicated, with flowering commencing in late Autumn and, in the case of *E. kingmillii*, extending into early spring.

Chapter 4 (by Jeremy Thomas) provides a range of useful information on selecting, buying and growing trees, including care of seedlings, planting and monitoring. This well-rounded chapter emphasises the importance of careful selection of species (something that is all too often neglected). Replanting is also touched on, providing yet another opportunity for Kings Park to feature the remarkable relocation of the giant boab (*Adansonia gregorii*) from the Kimberley to Perth.

Research into plant propagation techniques has been a long-term activity at Kings Park and Botanic Garden and Chapter 5 (by Amanda Shade and Mark Webb) outlines techniques for germinating seed, taking cuttings and grafting. This insightful chapter includes several tables of propagation data, including a summary of the average number days taken for cuttings to strike (and associated words of wisdom) for more than 200 species. An overview of seed collection, cleaning and storage techniques is then provided in Chapter 6 (by Luke Sweedman

and David Merritt) and is based on experiences gleaned from working in the Western Australian Seed Technology Centre, one of two state government seed banks (the other being at the Department of Parks and Wildlife). Again, a wealth of useful information is presented, although the text would have benefited from heavier editing, including removal of the section containing information on seed germination, which is dealt with in the preceding chapter.

Tissue culture and cryopreservation are the subjects of Chapter 7 (by Eric Bunn) while Chapter 8 (by Alison Reid, Bill Woods, Kevin Seaton and Elaine Davison) deals with pests and diseases. The former provides a brief overview of these techniques and would have benefitted from the inclusion of specific case studies demonstrating how micropropagation techniques have been used in local conservation, restoration or landscaping projects. The chapter on pests and diseases has plenty of information which is mostly pitched at commercial growers, although there is information relevant to home gardeners including an assortment of useful photographs. It is worth noting that this chapter is not really a 'Kings Park experience' since the contributing authors are based at Western Australia's Department of Agriculture and Curtin University.

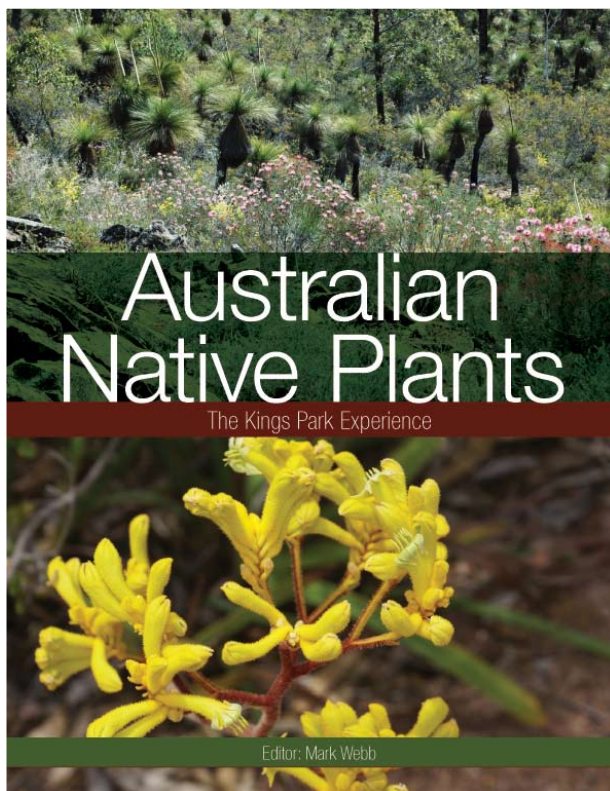
Rounding out the book is a chapter on plant selection and breeding (by Digby Grown and Mark Webb) that discusses the development of horticultural varieties suitable for use in home gardens and public landscapes. This chapter will be of general interest to a broad

readership (although is perhaps too technical in parts for some), and showcases a number of breeding success stories, including *Callistemon* 'Kings Park Special', *Scaevola aemula* 'Blue Print' and *Anigozanthos rufus* 'Kings Park Federation Flame' (although the blurred photograph provided on p. 107 does not do this magnificent kangaroo paw any justice!). A couple of additional minor quibbles are the rather meaningless mention of subgeneric

groups 14 and 35 in *Grevillea* (without reference to what classification this actually refers to), and the use of several *Chamelaucium* manuscript names which have not been recognised in Western Australia since 2010 when they were assigned to phrase names as a part of the *Australian Plant Census* process.

It is rather perplexing that the outstanding efforts of the *Friends of Kings Park* have not been showcased in this book since they have been at the coalface of growing and supplying native plants to members

of the Western Australian public for some 20 years. Their native plant sales are held four times a year and supply many endemic species not found in commercial nurseries, attracting a diverse array of people, including rather obsessive garden enthusiasts such as myself who are happy to queue in the early hours of the morning, rain, hail or shine, on a quest for the rare or unusual. There was certainly scope within this book for this remarkable group of (mostly) volunteers to outline their Kings Park experience, and to highlight some of the genera and species not otherwise emphasised in the book, but for which they are renowned for growing. These include species of shrubby



Acacia, *Hibbertia*, a number of Myrtaceae genera including *Pileanthus*, *Calothamnus* and *Hypocalymma*, and a suite of small herbs including *Stylidium*.

The claim on the back cover that this is ‘a comprehensive guide to the horticulture of Australian Native Plants’ is clearly an overstatement. Although much of the information in this book can be more broadly applied to the Australian flora, it is clearly a book about Western Australian plants. It is therefore disappointing that ‘Western Australia’ is missing from the book’s title. Clearly this is marketing ploy but to my mind an unnecessary one—Western Australia has an internationally renowned flora, one that is championed by Kings Park and Botanic Gardens, and one that is the envy of botanists and gardeners across the country and beyond. Not only does this book have an understandable bias toward the temperate flora of south-western Australia, there are additional horticultural gaps. For example, herbs (including annual daisies, grasses and geophytes) are largely overlooked despite their capacity to significantly contribute to garden biodiversity whilst adding a kaleidoscope of colour and attracting a broad range of native insects. At a minimum, a dedicated section on growing annual daisies, which are used to astonishing effect in Kings Park over the duration of their spring wildflower festival, would have been a welcome addition to this volume.

Australian native plants: the Kings Park experience is packed full of information and advice on growing and using [Western] Australian native plants and provides insight into some of the research performed at Kings Park and Botanic Gardens. Indeed this combined approach of advocating work conducted at Kings Park and providing practical horticultural advice results in a book that could perhaps be argued to suffer from a lack of focus. Nonetheless, it is clear that this volume, which is supplemented by 186 colour photographs, is a great addition to the Australian horticultural bookshelf and will be of great interest to a variety of users, although the stated target audience is the ‘more technically minded professional or enthusiast’.

In the book’s introduction, Mark Webb comments that native plant gardens were the tragic gardening story of the 1970s in Australia. Whilst this book illustrates what a long way we’ve come since this time, much research and education remains to increase the use of native plants in home and public landscapes. Native gardens are still a minority in Perth—a city with a depressing excess of green lawns, palms, roses and *Agapanthus*. I fervently hope that in these alarming times of changing climate and increased demand on our precious water supplies, this book achieves its stated aim of encouraging the wider use of [Western] Australian plants to create interesting, attractive and diverse private gardens and public landscapes in my home town and elsewhere.

New books

Naturalists at sea

Naturalists at Sea: Scientific Travellers from Dampier to Darwin. By *Glyn Williams*. ISBN: 9780300180732. Yale University Press. 28 pp. 22 Oct 2013; Cloth US\$38

The preview on Google books is sufficient to indicate the scope of this book which appears to be a good summary of the working life of many of the early naturalists with whom systematists are very familiar. Amongst others on the web, there is a review in *Nature* by Andrew Robinson (Web ref.).

Web ref. http://andrew-robinson.org/uploads/NATURE_REVIEW_OF_WILLIAMS.pdf

The Leichhardt diaries 1842–44

The Leichhardt Diaries: Early Travels In Australia during 1842–44. *Roderick Fensham and Thomas Darragh, eds., Queensland Museum, [2013], 540pp, \$40*

A comprehensive review was published in *The Australian* (Web ref.)

Web ref. www.theaustralian.com.au/arts/review/explorer-ludwig-leichhardts-adventures-into-the-great-unknown/story-fn9n8gph-1226741751520

Robyn Barker

Chapter conveners

Adelaide

Robyn Barker
State Herbarium of South Australia
Department for Environment, Water & Natural Resources
PO Box 2732, Kent Town, SA 5071
Tel: (+61)/(0)8 8222 9348
Email: robyn.barker@sa.gov.au

Armidale

Jeremy Bruhl
Department of Botany
Univ. of New England, Armidale, NSW 2351
Tel: (+61)/(0)2 6773 2429
Email: jbruhl@une.edu.au

Brisbane

Hernan Retamales
Earth, Environmental and Biological Sciences
Science and Engineering Faculty
Queensland University of Technology
GPO Box 2434, Brisbane Qld 4001
(+61)/(0)452 510 421
Email: hernanalfonso.retamales@student.qut.edu.au

Canberra

Alexander Schmidt-Lebuhn
Centre of Australian National Biodiversity Research
CSIRO Plant Industry
Canberra, ACT 2601
Tel: (+61)/(0)2 6246 5498
Email: Alexander.S-L@csiro.au

Cairns

Katharina Schulte
Australian Tropical Herbarium (CNS)
James Cook University Cairns Campus
PO Box 6811, Cairns Qld 4870
Tel: (+61)/(0)7 4042 1686
Email: katharina.schulte@jcu.edu.au

Christchurch

Ilse Breitwieser
Allan Herbarium, Landcare Research New Zealand Ltd
PO Box 69040, Lincoln 7640, New Zealand
Tel: (+64)/(0)3 321 9621; Fax: (+64)/(0)3 321 9998
Email: breitwieseri@landcareresearch.co.nz

Darwin

Ian Cowie
Northern Territory Herbarium
PO Box 496, Palmerston, NT 0831
Tel.: (+61)/(0)
Email: ian.cowie@nt.gov.au

Hobart

Matt Baker
Tasmanian Herbarium,
Tasmanian Museum and Art Gallery
PO Box 5058, UTAS LPO, Sandy Bay, Tas. 7005
Tel: (+61)/(0)3 6226 1029
Email: matthew.baker@tmag.tas.gov.au

Melbourne

Frank Udovicic
National Herbarium of Victoria
Private Bag 2000, South Yarra, Vic. 3141
Tel: (+61)/(0)3 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: (+61)/(0)8 9219 9145
Email: Juliet.Wege@dpaw.wa.gov.au

Sydney

Peter Weston
National Herbarium of NSW
Mrs Macquaries Road, Sydney, NSW 2000
Tel: (+61)/(0)2 9231 8111
Email: peter.weston@rbgsyd.nsw.gov.au

Contacting major Australasian herbaria and systematics institutions

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ASBS publications

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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*.

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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

For all those people interested in the 1988 ASBS symposium in Melbourne, here are the proceedings. It is a well presented volume, containing 36 papers on: the botanical exploration of our region; the role of horticulturalists, collectors and artists in the early documentation of the flora; the renowned (Mueller, Cunningham), and those whose contribution is sometimes overlooked (Buchanan, Wilhelmi).

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

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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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. Membership entitles the member to attend general meetings 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, 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 Assistant Treasurer. All changes of address should be sent directly to the Assistant Treasurer as well.

The Newsletter

The Newsletter is sent quarterly to members and appears simultaneously on the ASBS Website. It keeps 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. Citation: abbreviate as *Australas. Syst. Bot. Soc. Newslett.*

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Send copy to the Editor preferably by email attachment submitted as: (1) an MS-DOS file in the form of a text file (.txt extension), (2) an MS-Word.doc file, (3) a Rich-text-format or .rtf file in an email message or attachment or on an MS-DOS disk or CD-ROM. Non-preferred media such as handwritten or typescripts by letter or fax are acceptable, but may cause delay in publication in view of the extra workload involved.

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The deadline for contributions is the last day of February, May, August and November. All items incorporated in the Newsletter will be duly acknowledged. Authors alone are responsible for the views expressed, and statements made by the authors do not necessarily represent the views of the Australasian Systematic Botany Society Inc.

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Editors

Bill Barker State Herbarium of South Australia PO Box 2732 Kent Town SA 5079 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 2732 Kent Town SA 5079 Tel. (+61)/(0) 8 8222 9348 Email: robyn.barker@sa.gov.au
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