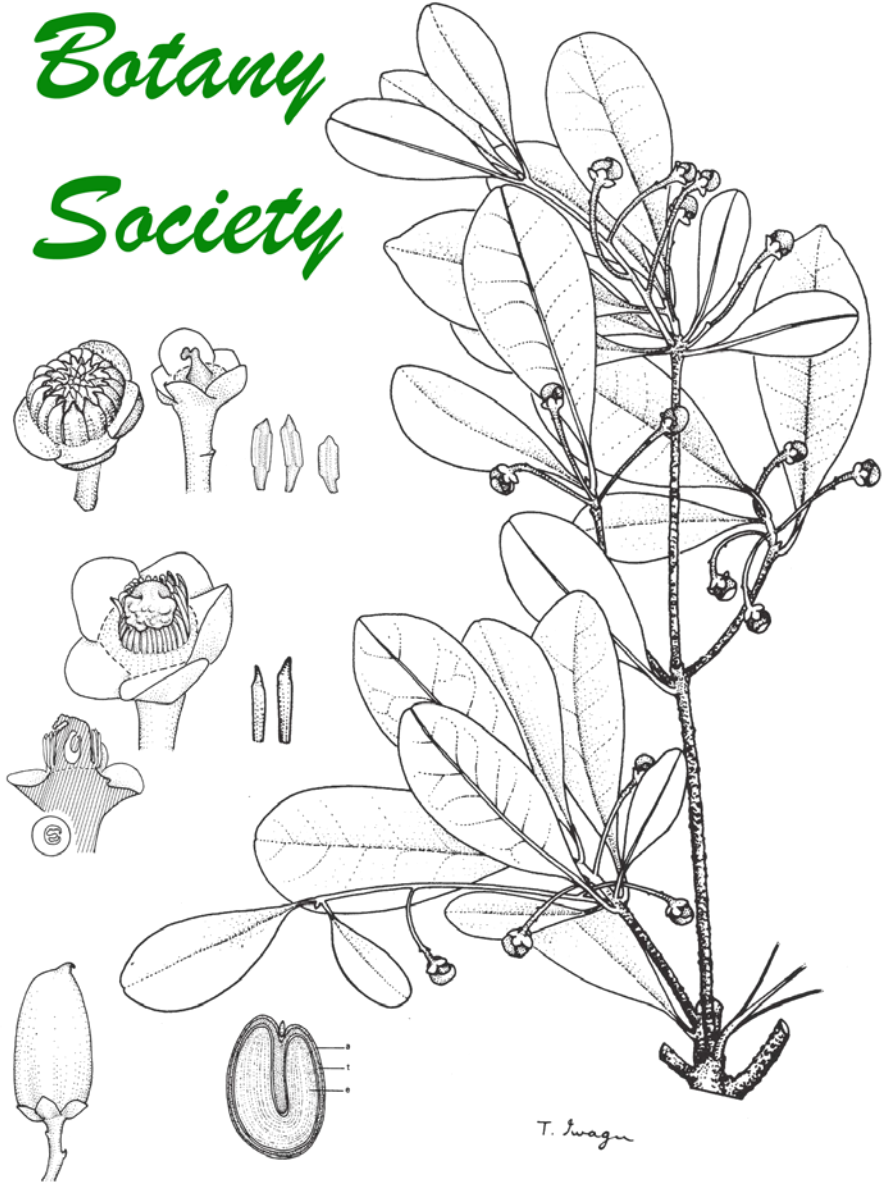


ASBS

*Australasian
Systematic
Botany
Society*



Newsletter

No. 161 December 2014

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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ASBS Facebook Group

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

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Hansjörg Eichler Research Committee

Philip Garnock-Jones
David Glenny
Greg Leach
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:
on 22nd May 2015, 2016

Cover image: *Ternstroemia monostigma* W.R.Barker (Pentaphragmaceae), 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.

An *On-line Addendum* to this issue was placed on the ASBS website:
on 20th February 2015 (see p. 57).

Publication dates of previous issue

Australas. Syst. Bot. Soc. Newslett. 160 (September 2014):

ASBS Web site: 14th November 2014; Printed version: 17th December 2014

From the President

Our 2014 conference

I have heard many glowing reports of another wonderful meeting of our members during and after the ASBS conference at Massey University. It had an interesting programme of presentations including key-note addresses. These smaller conferences are ideal for the close interaction between participants at the conference and associated functions and there were clearly lots of friendships and fun to be experienced.

In normal circumstances I would have been one of the enthusiastic participants (see Fig. pp. 26–27). Instead, I was confined an hour and a half away in Wellington by a serious infection that left me unable to travel any further. This also prevented Robyn from participating.

Every report back to me indicated that my role is not essential in the Society! In the also unavoidable absence of our Vice President Mike Bayly, our Secretary Frank Zich chaired the Council meeting on the Monday preceding the conference, while John Clarkson took over my presiding role at the Annual General Meeting and in the formalities of the Nancy Burbidge Lecture and Medal presentation. The rest of Council also ably interacted with Jen Tate and her organising committee to ensure the whole event went well. My thanks to them all.

I would particularly like to thank Ilse Breitwieser and Katharina Schulte who, with just a couple of days notice, gave the plant systematics White Paper presentation and workshop without my help. Ilse had to pick up on my inadequately developed presentation.

Thanks to everyone who helped out and more generally for all those who made the conference a successful one. It was clear in the long period before the conference that Jen Tate was taking a lead role in organisation. I gather that her organising committee colleagues,

Council and the membership generally gave her the thanks she deserved. Finally, thanks to those who extended best wishes for my recovery which is now effectively complete.

The passing of taxonomists

Few issues of the Newsletter go by without the unwelcome news of the passing of another systematist.

David Galloway was recognised by his peers for his global contribution to lichen taxonomy, much centred on our region.

Lionel Gilbert is described by Barbara Briggs as a singular figure in New South Wales and Australian systematics, having contributed greatly in researching our botanical history and inspiring others.

Bryan Simon was passionate about his systematics, and contributed much to knowledge and infrastructure of grass systematics, while engaging in many wider pursuits with the gentle enthusiasm invariably mentioned in tributes. He was a regular contributor to this Newsletter. An early member of the Society, he attended most conferences. Shortly before his death he reminded me that he was among the half a dozen young taxonomists who in 1980 stayed with us in Adelaide for the “arid evolution symposium”, our first thematic conference,



Fig. Treasurer and Life Member John Clarkson and Conference Organiser in Chief Jen Tate at the Palmerston North conference.

Ph. Prashant Joshi

breaking a restrictive nexus with ANZAAS.

Peter Martensz was one of the essential contributors to the assembly of collections and data that underpin advancement and projection of knowledge in systematics. We have fond memories from our younger days in 1971 when he took us on an invaluable trip to Mt Jagungal in Kosciuszko National Park in pursuit of *Euphrasia*.

Peter Weston's Burbidge Lecture

Peter has done a great service in expertly tracing the transformation of taxonomy and systematics over the last half century from its traditional classical approach to a phyletic one enhanced by advances in methodology and accessible evidence.

For the baby boomer and earlier generations he will bring memories of a series of debates within and outside our taxonomic community. My own career began in 1970 with my decision on a doctorate centred on taxonomic revision at serious risk of being denied because it was considered inappropriate for a higher degree. My quest to develop expertise as new research methodologies arose was complicated by the steadfast views of decision makers and budget masters – as were early moves to use computers for personal work and to capture data institutionally and mobilise it to global standards in a coordinated decentralised way.

For more recent generations the struggles are different and still include the perennial dearth of much-needed positions.

Call for Nancy Burbidge Medal nominations

Council is responsible for nominations for this Medal. It has been considering placing nominations for outstanding contributions to Australasian systematics on a more formal and structured footing as part of discussion on the Society's award system and processes generally.

To date the selection of a Medallist has entailed discussion within and outside Council. Because of the associated Nancy Burbidge Lecture, a factor in the decision has been canvassing the views of the organising committee of the next annual conference.

One suggestion that is appropriate to act on immediately is making an annual call to the broader membership for proposals of suitable candidates. We don't expect a flood of nominations or enquiries on appropriateness – it is a prestigious medal – but we want to ensure a clear avenue for suggestions from the membership.

A deadline of March 22nd this year for a member's proposal of a candidate for the Medal allows for a decision by Council well in advance of the coming Canberra meeting.

Bill Barker

From the Editors

Errata for issue 160

An unfortunate typographic error and some important corrections of submitted copy were not dealt with owing to a rushed production of the last issue of the Newsletter. The fortnight or more taken to develop final copy enables us to avoid or do our very best to avoid errors or omissions. However, a fast looming date for departure to New Zealand meant that we cut corners checking the manuscript and failed to read some critical emails. Our apologies to Alison, Alex and Tony for these oversights.

- p. 10. Amend 'Vaughn' in the authorship to 'Vaughan'.
- p. 29. Alex George had forwarded an updated review of Tony and Tessa Orchard's book on Allan Cunningham and Barron Field. You will find the main correction

under New Books on p. 57 of the current issue with reference to publication on the Society's web site of the corrected review.

Delayed mailing of issue 160

While printing of the last issue of the Newsletter was performed a few days after posting of the final version on the Society's web page, the printing of personalised envelopes was felt to be too complex to encumber a third party with the job. As a result we've to apologise for the three week delay in delivery of hard copy to the membership who prefer this medium for their news.

Thanks to Juergen Kellermann for vetting proofs while we were in New Zealand to ensure we had the 100 copies awaiting our return for the mailout. Please note that it was not his job to proof read the issue.

ASBS Inc. business

36th Annual General Meeting of the Australasian Systematic Botany Society Inc. Minutes

AgHort lecture block, Massey campus, Palmerston North, NZ
26th November 2014

Meeting opened at 4:26 p.m.

Present: John Clarkson (Treasurer), Frank Zich (Secretary), Ilse Breitwieser (Councillor), Leon Perrie (Councillor), Dan Murphy (Councillor elect) and 22 members were in attendance.

1. Opening remarks and welcome

In the absence of both the President and Vice-President, John Clarkson chaired the meeting.

2. Apologies

Bill Barker (President), Robyn Barker, Mike Bayly (Vice President), Matthew Baker, Kelly Shepherd.

3. Minutes of the 2013 Annual General Meeting

It was proposed that the minutes of the 35th Annual General Meeting (as published in the *Australian Systematic Botany Society Newsletter* Number 157) be accepted.

Moved: John Clarkson. **Seconded:** Peter Weston. Motion carried.

4. Business arising from minutes

No business.

5. Correspondence

No correspondence.

6. Business arising from the Correspondence

None

7. Reports

President's Report

The President provided a series of dot points intended to form the basis of his report to the AGM. John Clarkson read through these for the meeting and expanded on them where appropriate. He indicated that these would be adjusted in the report published in the coming Newsletter which was the formal annual report of Society activities.

John Clarkson tabled the President's submitted report. The updated report forms Attachment 1 to these published minutes (p. 5).

Treasurer's Report

The Treasurer tabled the financial report for the 2013–14 financial year (Attachment 2: p. 6), then briefly discussed the Society's strong financial position and major items of income and expenditure.

The Treasurer moved that the financial report be accepted.

Moved: John Clarkson. **Seconded:** Austin Brown. Motion carried.

Newsletter Report

Editor Bill Barker's absence meant that no report was available. The report is provided as Attachment 4 (p. 17).

Web Page Report

The Society is indebted to Murray Fagg and Anna Monro who continue to maintain the ASBS web page, which has been moved to a new domain <http://asbs.org.au>.

Facebook Page Report

Todd McLay presented his report on the ASBS Facebook Group co-authored by Mike Bayly (Attachment 5: p. 17)

Research Committee Report

Frank Zich presented the report of the Vice-president, ex officio Chair of the Research Committee, on the Eichler grants awarded since the last AGM (Attachment 3: p. 16) and briefly discussed the Nature Conservancy's Australian Conservation Taxonomy (ACT) Award.

- The Nature Conservancy has funded an additional three years of grants in both botany and zoology (through the Society for Australian Systematic Biologists). In 2014 only the zoology award was awarded, and The Nature Conservancy has agreed to allow three botany awards over the next two years.

- Students and supervisors were called on to support these grants by submitting well prepared applications.
- The Vice President thanked members of the Research Committee, Phil Garnock-Jones, Betsy Jackes, Greg Leach, Nathalie Nagalingum, Chris Quinn and David Glenny. Betsy Jackes and Nathalie Nagalingum are stepping down and were thanked for their contributions to the group. The Vice President announced that additional people would be invited to join the Research Committee.

In the ensuing discussion, Peter Weston suggested that the ASBS should offer a top up grant to increase the ACT Award from \$5000 to \$7000 as previously offered as he considered that \$5000 was an inadequate amount to fund the work required.

Lalita Simpson commented that the new amount of \$5000 offered by the ACT Award might not be adequate to cover the startup costs for Next Generation Sequencing.

8. Future grant opportunities from Marlies Eichler bequest

The meeting was advised that the suggestions offered at the Sydney conference had been noted and that Council would appreciate hearing further from any member who might have other ideas.

The Chair outlined plans for consideration of ways these funds could be used to further the object of the Society to promote the study of plant systematics.

9. General Business

Members were invited to ask any questions.

- Peter Weston asked whether the money in the General Fund could be used to support the work of the White Paper, for instance getting an experienced and skilled person to wordsmith the document for the right audience.

John Clarkson and Ilse Breitwieser both answered that it would be possible for money from the General Fund to go towards paying someone to write up the White Paper, or other options depending on what was required.

10. Presentation of student cheques and Bob Anderson Award

John Clarkson announced that the student travel reimbursement cheques and the Bob Anderson Memorial Student Award would be presented the next day at lunch time.

11. Election of Officers

John Clarkson 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 2014–15 is:

- President: Bill Barker. (Nominated: Laurie Haegi, seconded: Robyn Barker)
- Vice-president: Mike Bayly. (Nominated: Dan Murphy, seconded: Todd McLay)
- Secretary: Leon Perrie. (Nominated: Pat Brownsey, seconded: Frank Zich)
- Treasurer: John Clarkson. (Nominated: Stuart Worboys, seconded: Katharina Schulte)
- Councillor: Daniel Murphy. (Nominated: Frank Udovicic, seconded: Pina Milne)
- Councillor: Kelly Shepherd. (Nominated: Juliet Wege, seconded: Ryonen Butcher)

Australasian Systematic Botany Society Inc. **2015 Membership Fees**

These are due on January 1st each year.

You should have received an email from the Treasurer regarding current fees 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.

John Clarkson called for a vote of thanks to Ilse Breitwieser and Frank Zich for their contributions on council.

Carried with acclamation.

12. Next Meeting

As usual the next Annual General Meeting will be held in association with the 2015 conference to be held in Canberra. Date, time and venue will be announced in due course.

Meeting closed at 5:15 p.m.

Attachment 1: President's Report

My report was presented with some comment of clarification by the Chair John Clarkson in its drafted form at the Annual General Meeting. John indicated at the meeting that I would edit this report to correct any errors or misrepresentations for publication in this next issue of the Newsletter.

The Society has experienced a good year of progress and achievement.

- The 2014 Sydney conference *Systematics without Borders* was highly successful as reported in the *ASBS Newsletter* (issue 157) with thanks to the Organising Committee and participants. It was one of our periodic larger conferences in collaboration with the Society of Systematic Biologists and Invertebrate Biodiversity and Conservation.
- Our venture into an ASBS Facebook presence has been received well with its membership including a significant portion of our members and involvement of a similar number of interested non-members. The efforts of Todd McLay and Mike Bayly in establishing and administering the facility are greatly appreciated. We are providing a full report to our AGM for the first time.
- In continuation of our efforts to revitalise or expand our local chapters a new convener is now in place in Canberra. Hopefully we can extend this to more New Zealand centres as ASBS grows in relevance there.
- I believe the membership would benefit from better publicity of activities across our region. Thanks to the contributors of newsworthy items to the Newsletter and Facebook Group, which have had strong support.

Marlies Eichler legacy

The last of a series of payments have been forwarded to the Society only recently. The final summary of the division of Marlies's assets has been checked by a *pro bono* accountant

in regard to the provision of the will and the advertised level of charges by the Executor. ASBS received two thirds of the major monies, with the Lutheran Home where Marlies lived in her final years receiving one third. We are greatly indebted to Peter Weston for seeing this issue through to finality long after relinquishing his role as ASBS President.

How to optimally apply the money across the membership does need to be addressed this coming financial year. The issue has not been progressed as much as had been hoped because of John's heavy involvement in family matters, my own in the development of the White Paper on systematics and a further deferral with my absence from the recent Council meeting.

Eichler and Australian Conservation Taxonomy awards

We are grateful to retiring research committee members Betsy Jackes and Nathalie Nagalingum for their service to the Society. Betsy, with continuing Chris Quinn, has served behind the scenes in this role since July 2003.

Mike Bayly is thanked for his lead in negotiating with the Nature Conservancy the provision of Australian Conservation Taxonomy Awards for a further two years. We are greatly indebted to the Nature Conservancy for its investment in basic taxonomic work, so essential to well-directed environmental conservation. The Society now plays a role in assisting the Conservancy to make similar awards for systematics of other organismic groups via the Society for Australian Systematic Biologists.

We are concerned at the low level of quality applications in the latter half of this year. It is hoped that this is a unique aberration. Council and the Research Committee Chair Mike Bayly are keen to encourage and facilitate the usual level of applications in both our award schemes. Mike has discussed this in his Research Funds report.

Investment strategies

The Treasurer has continued to invest wisely and conservatively. We have made some progress in seeking pro bono advice and ideas but again John and Bill's preoccupation with other matters this year has meant this is still to be progressed.

New Zealand representation in ASBS

When considering expectations of membership numbers it might be worth equating New Zealand to an Australian state of moderate size. As I've suggested in the *ASBS Newsletter*, it will take some time for the society to become as embedded innately in New Zealand taxonomy as it is in Australia. In order to grow the New Zealand membership we need to ensure that the benefits of joining the Society are clear to students and supervisors.

Aware that New Zealand representation on our Council is important to ensuring the relevance of the Society to New Zealand systematists, Council has encouraged nominations from that side of the Tasman. Is the current method of electing councillors adequate to cover New Zealand participation? Is the risk of having a Council without representation from each side of the Tasman under the present Rules a realistic one?

Student assistance to conferences

For this conference Council has followed established practice dating from the late 1990s of providing the equivalent of an early bird student registration to all of those presenting a paper at the conference. This is currently being reviewed by Council. Is this the fairest

approach? It is important that supervisors (and students) are canvassed as to their views. At least one biological society has a different formula for support for conference participation.

White Paper on Australasian Systematics

Continued reports of reductions in support for science, and herbarium and taxonomic positions and activities in particular, confirm the need for a well-argued, clearly presented case for plant systematics and its services. After a measured gestation we now seem to be making significant progress, as has been reported at the conference by Ilse Breitwieser and Katharina Schulte¹. It is hoped to complete useful high level documentation of the case during 2015. I must acknowledge the strong support of our herbarium heads via CHAH. We owe our thanks to those who have participated in the monthly meetings progressing this vital project.

Thanks

On behalf of Council and the membership I thank our outgoing Council members, Frank Zich and Ilse Breitwieser, for their valuable contribution to the Society. Frank has served in the offices of Treasurer and Secretary, while we owe Ilse much for championing ASBS involvement in New Zealand plant systematics possibly the most notable being her lead in organising our 2010 Christchurch conference prior to her country joining forces with ASBS, and her current commitment to the systematics White Paper.

Bill Barker

¹ See report on p. 23. Eds.

Attachment 2: ASBS Treasurer's Report, 2013/14

Presented at the Society's Annual General Meeting in Palmerston North New Zealand, 26th November 2014

1. Introduction

I am pleased to present the financial statements of the Australasian Systematic Botany Society

Australasian Systematic Botany Society Inc.

Hansjörg Eichler Research Grants

Applications close on March 14th 2015

We invite applications from members.

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

(ASBS) for the year ended 30 June 2014. The finances of the Society are run on a financial year basis.

2. Membership

At 30 June 2014 the membership of ASBS numbered 312 (Table 1), virtually unchanged since the same time last year. Losses for various reasons have been compensated by new members. There has been a small rise in the proportion of members eligible for the concessional subscription rate. 38% of fee paying members now qualify for the discounted concessional rate and half of these are retired or unemployed. With subscriptions due in January each year, it is disappointing to note that 19% of fee paying members remained unfinancial at the end of the financial year. Some of these members may have chosen not to continue their membership and not notified the Society, but experience has shown that most have simply forgotten to pay.

Fourteen new members joined ASBS between July 2013 and 30 June 2014 (see list below). Nine are students.

The following new members for 2013 and 2014 are welcomed to the Society:

Monika Baird, Armidale, NSW
 Matt Buys, Rotorua, NZ
 Robert Davis, Parkwood, WA
 Miguel de Salas, Sandy Bay, TAS
 Bethany de Villiers, Petrie Terrace, Qld
 Demi Gamble, Briar Hill, Vic.
 Timothy Hammer, Virginia Beach, USA
 Yu Ito, Christchurch, NZ
 Jasmine Liew, Christchurch, NZ
 Steven Pratt, Hamilton, NZ
 Rowan Schley, Newark, UK
 Cecilia Wang, Dunedin, NZ
 Scott Werner, Leederville, WA
 Sarah Wright, Christchurch, NZ

3. General Fund

Brian Woods of DFK Kidsons audited the

accounts in November 2014 for the fourth consecutive year.

3.1 Income

Members will note a significant difference in the total income for the General Fund for this reporting period. The figure includes a very generous donation of \$488,194 from the estate of the late Marlies Eichler, a former Life Member of the Society, and income derived from the investment of these funds. Marlies did not specify in her will that her bequest should be directed to the Research Fund so, by retaining them in the General Fund, the normal restrictions on how money from the Research Fund are avoided pending a decision on how best these funds might be used in promoting the objects of the Society, Council resolved to retain the money in the General Fund. They are invested in a term deposit that earned \$8,110 this financial year. The financial report for the 2014-15 financial year will show an additional final settlement of \$31,054 from Marlies's estate received by the Society in October 2014.

Removing the effect of Marlies's bequest reveals an operating profit for the year of \$15,582. This is slightly better than last year due mostly to slightly higher conference profits and lower conference and newsletter expenses.

Leaving the uncertain profits from conferences aside, subscription fees from members remain the primary source of income to the General Fund. The significantly higher figure for 2013 can be attributed to the concerted effort made by Council to follow up unfinancial members in that reporting period. There was a great deal of work involved in this. Unpaid subscriptions at the end of the 2013-14 financial year total \$2,065. If fees are to remain at their current level (they were last increased in 2003) we need the support of members to pay in a timely manner. To this end Council plans to trial bank to bank transfer of funds for the 2015

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

Fee	Full	Concessional	Gratis	Total
Ordinary	178 (30)	n/a	0	178 (30)
Student	n/a	57 (18)	0	57 (18)
Retiree	n/a	50 (5)	0	50 (5)
Unemployed	n/a	5 (2)	0	5 (2)
Institutional	5(2)	n/a	14	19 (2)
Life	n/a	n/a	3	3
Total	183 (32)	112 (25)	17	312 (57)

membership year.

3.2 Expenditure

There was no unusual expenditure for the financial year. Eleven students who gave oral presentations or posters at the Sydney conference received financial support to attend. Finances permitting, this support is tied to the early bird student registration fee.

Members of Council are encouraged to attend the Annual General Meeting. To effect a quorum for the meeting at least 4 Council members or Council members elect must be in attendance. This is a good opportunity to hear what members think about the direction the Society is headed. It has been a long standing policy of the Society to provide some financial support to Councillors if support is not forthcoming from their parent organisation. The figure in this year's report includes support provided for the conference in Sydney and some of the costs associated with the conference in Palmerston North.

With no significant expenditure foreshadowed and with ample cash reserves in hand, it should not be necessary to increase the subscription fee for the 2015 membership year. However, if the current exceptionally low membership fees are to be sustained, steps will have to be taken to address late payment of subscriptions.

3.3 Current Assets in the General Fund

At the end of June 2014 the Society held assets of \$628,888 in the General Fund. These are partitioned as \$496,304 in a term deposit (bequests) and \$132,584 as cash at call. The bequest term deposit will mature in October 2015 giving Council ample time to determine how best to use these funds and develop an investment strategy to match.

4. The Hansjörg Eichler Research Fund

Research Fund investments had another year of reasonable growth. In a market of steady or falling interest rates, the diverse and conservative investment strategy has yielded a total investment income of \$39,027. Two percent of assets in this fund is maintained as cash at call, 42% is invested as cash on the short term market and the remaining 56% in well-established funds managed by the Commonwealth Bank Financial Services and Colonial First State. Income has been more than sufficient to protect the fund's assets from

inflation and allow continuation of the Hansjörg Eichler Grant scheme.

Sixty members made donations to the Hansjörg Eichler Research Fund totalling \$2,695. All donors, including the following members who agreed to being publicised, are acknowledged for their generous support:

Linda Broadhurst	Dirk McNicoll
Jeremy Bruhl	Peter Michael
Christine Cargill	Andrew Mitchell
John Clarkson	Chris Quinn
Barry Conn	Kelly Shepherd
Margaret Corrick	John Thomson
Darren Crayn	Stephen
Mike Crisp	van Leeuwen
Rogier Dekok	Helen Vonow
Laurie Haegi	Juliet Wege
Clare Herscovitch	Judy West
Gareth Holmes	Peter Weston
John Hosking	Molly Whalen
Laurie Jessup	Karen Wilson
Nunzio Knerr	Peter Wilson
Pauline Ladiges	Nicholas Yee

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 very strong financial position. With assets in the Research Fund, plus the bequest from the Marlies Eichler estate, the Society now has in excess of \$1,000,000 to progress its objective of promoting the study of plant systematics. This is a position that would be the envy of many professional societies of the size of ASBS. The challenge facing Council is to determine with the help of the membership how best to use these funds and to develop an investment strategy to bring this to effect.

John Clarkson
Treasurer
November 2014

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
(An incorporated association)
FINANCIAL REPORT
FOR THE YEAR ENDED 30 JUNE 2014

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 2014.

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	Frank Zich	Appointed December 2013
Treasurer	John Clarkson	Appointed December 2013
Councillor	Ilse Breitwieser	Appointed July 2011
Councillor	Leon Perrie	Appointed December 2013

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 2014	Year ended June 2013
	\$	\$
Research Fund	35,041	19,416
General Fund	511,886	10,714
Total	546,927	30,130

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

William Barker (President)

John Clarkson (Treasurer)

November 2014

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED
INCOME STATEMENT
FOR THE YEAR ENDED 30 JUNE 2014

	Note	2014 \$	2013 \$
RESEARCH FUND			
<i>Income</i>			
Donations to Research Fund		-	-
Investment Income		39,027	29,396
Total Income	2	39,027	29,396
<i>Expenditure</i>			
Research Grants		3,949	9,980
Registrar General returns		37	
Total Expenditure		3,986	9,980
Surplus	3	35,041	19,416
GENERAL FUND			
<i>Income</i>			
Advertising in Newsletter			100
Conference		9,985	7,500
Australian Conservation Taxonomy Award		-	10,000
Investment Income	2	11,414	4,002
Subscriptions to ASBS Inc.		9,925	13,075
Donations to Eichler Fund		2,695	2,370
Bequests		490,214	
Sale of miscellaneous items		17	30
Sundry income			210
Total Income		524,250	37,287
<i>Expenditure</i>			
Australian Conservation Taxonomy Award			7,930
Auditors' remuneration		3,630	3,630
Bank fees, Credit card charge facility		502	665
Conference expenses including Student Grants		2,100	9,300
Newsletter expenses (printing, postage)		2,621	3,353
Registrar General returns		-	72
ASBS Council Travel (AGM, Special GM)		3,042	1,123
Miscellaneous expenses (e.g. postage)		470	500
Total Expenditure		12,364	26,572
Surplus	3	511,886	10,714

The accompanying notes form part of these financial statements.

AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

**BALANCE SHEET
AS AT 30 JUNE 2014**

	Note	2014 \$	2013 \$
ASSETS			
<i>CURRENT ASSETS</i>			
RESEARCH FUND			
Cash at Bank		11,157	9,949
Investments			
Colonial Managed Investment		93,795	82,794
Commonwealth Term Deposit		223,502	218,004
Australian Bond & Growth Funds		199,606	177,081
Total Current Assets Research Fund		528,060	487,827
GENERAL FUND			
Cheque Account		21,481	14,387
Savings Account		111,104	107,805
Term Deposit (Bequests)		496,304	
Total Current Assets General Fund		628,888	122,192
Total Current Assets		1,156,948	610,020
<i>NET ASSETS</i>		1,156,948	610,020
MEMBERS' FUNDS			
Accumulated surplus – opening		610,020	579,890
Surplus for the period		546,927	30,130
Total Members' Funds		1,156,947	610,020

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 2014**

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.

	2014	2013
	\$	\$
Note 2: Investment Income		
RESEARCH FUND		
Interest Received		
Cheque Account	4	7
Distributions		
Term Deposit	5,498	8,004
Colonial First State (Diversified Fund)	11,001	12,149
Australian Bond and Growth Fund	22,525	9,237
Total Investment Income	39,027	29,396
GENERAL FUND		
Interest Received		
Cheque Account	6	3
Savings Account	3,299	3,999
Term Deposit (Bequests)	8,110	
Total Investment Income	11,414	4,002
Note 3: Accumulated Funds		
RESEARCH FUND		
Accumulated Surplus – Opening	487,857	468,441
Surplus for the period	35,041	19,416
Accumulated Surplus – Closing	522,898	487,857
GENERAL FUND		
Accumulated Surplus – Opening	122,163	111,449
Surplus for the period	511,886	10,714
Accumulated Surplus – Closing	634,049	122,163
Total Surplus for the period	546,927	30,130
Total Accumulated Surplus	1,156,947	610,020

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 2014 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

John Clarkson – Treasurer

Dated this day of NOVEMBER 2014



DIRECTOR
Brian Woods FCPA

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 2014, 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 2014.

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.

We make it happen!



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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 2014, 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.

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

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1 to the financial statement, the financial position of the Australasian Systematic Botany Society Inc. as of 30 June 2014, and the results of its operations (and its cash flows) for the year then ended.

Signed on 19 November 2014

DFK Kidsons

DFK Kidsons
Certified Practising Accountants

B Woods

Brian Woods FCPA
Director

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Attachment 3: Research grants report

Eichler research grants

There were two rounds of Eichler research grants since the last Annual General meeting, closing in March and September 2014. Overall 13 applications were received and four grants were awarded to the value of \$6,884. An additional grant was offered but was declined when the student withdrew from study. Awards were made to:

- Janet Gagul, James Cook University, \$2000
- John Thompson, Queensland University of Technology, \$1850
- Ben Anderson, University of Western Australia, \$2000
- Melodina Fabillo, Queensland University of Technology, \$1034

Australian Conservation Taxonomy Award.

The Australian Conservation Award aims to support student research in systematics that contributes to biological conservation. It is supported by The Nature Conservancy and the Thomas Foundation. In the past year we negotiated an agreement to continue this award for a further three years.

The September 2014 round sought applications for separate awards in both plant and animal systematics.

In the animal category we received six applications, and these were assessed by representatives of the Society of Australian Systematic Biologists and James Fitzsimons from The Nature Conservancy. One award of \$5000 was offered to James Shelley, The University of Melbourne, for a project on freshwater fish of the Kimberley.

In the plant category we received just one application, which was also assessed by James Fitzsimons in conjunction with the ASBS Research Committee. Our decision was to not make an award to the single applicant in this round. An outcome of this decision is that we will have funding to offer three awards, in total, across the next two rounds of ACT Awards (May 2015 and May 2016). These botany awards provide valuable research support, including \$5000 toward research costs and up to \$2000 toward attendance of two ASBS conferences. As such we strongly encourage supervisors to promote these awards to their

research students, and we will advertise the awards again in the lead up to the next closing date [22 May 2015].

Hansjörg Eichler Research Committee

We are indebted to members of the research

committee for their ongoing commitment to our grants program.

Mike Bayly Vice President
ex officio Chair of Research Committee

Attachment 4: Newsletter report

Four issues of the *ASBS Newsletter* with plenty of content have been produced.

We have tried to keep content topical and interesting and it has been good to see some well-argued articles under the banner *Points of View* promoting an improvement in our approach to systematics. The increased participation by our members, much unsolicited, has been especially gratifying.

We appreciate those who provide us with the essential core of a newsletter: News! We encourage our membership for even more. All too often we hear about interesting happenings across our two countries long after they have been reported on local blogs or Facebook pages. If considered worthy of exposure to these more immediate readers, they may well be items of interest to all our members. We as editors

are willing to summarise or rejjig a timely newsworthy item for broader consumption with reference to our source.

The printed form of the Newsletter clearly services the desires of about 90 of our members as well as providing copy to libraries around the region and the globe.

During the year we doubled our charges for advertising by non-members. CSIRO Publishing provided advertisements for its botanical publications this year. This income substantially reduces the printing and postage costs of the relevant issue

Thank you everyone for your participation in the success of the *ASBS Newsletter*.

Bill & Robyn Barker, John Clarkson, Editors

Attachment 5: ASBS Facebook Group report

In its second year of life the ASBS Facebook group reached over 200 members on the 30th of October. There are regular posts every 2-3 days or so on a variety of topics. These include grants to apply for, conferences to attend, help with species identification, and general stories of plants in the news.

The group is currently deemed “public”, which means any Facebook member can see the group, members and posts, but only people in the group can post to the page. Requests to join are vetted by one of us as administrator. Apologies if you have been denied, as we receive requests from people not suitable for the page and we try to keep it as on topic as possible. If we don't know you and do end up denying you, apply again and let us know who you are. Any current member can add someone new (e.g., a new student in the lab or similar), but will have to be approved by the page administrators.

It is hard to be accurate on the proportion of ASBS members to non-members in the group,

but in the group information there is a link to joining ASBS. We could be more active in this area with more regular posts suggesting joining ASBS.

Although only a small percentage of group members actively post content to the group (notably Phil Garnock-Jones, Leon Perrie, Chrissen Gemmill, Mike Bayly, Jim Croft, Todd McLay, Jen Tate, Heidi Meudt, Nathalie Nagalingum), there is a good level of engagement in terms of members “liking” or responding to posts with comments. The site displays details of how many members have “seen” each post, which also gives an indication of the level of engagement.

As it is, this is a great resource for keeping up to date with everything that can slip through the cracks on a day-to-day basis, but we are keen to hear of any insight others have in how to generate more discussion.

Todd McLay and Mike Bayly
ASBS Facebook administrators

The annual ASBS conference

Report on the ASBS conference at Massey University, Palmerston North, in November 2014

Trevor Wilson and Jessie Prebble
National Herbarium of New South Wales; Massey University

The 2014 ASBS conference, *Next-Generation Systematics*, began at the lovely Wharerata venue, where delegates gathered for a delicious BBQ on a 'typically' sunny Palmerston North evening of November 24th (see, we told you it was always sunny here - Jessie). Wharerata is a lovely old homestead with a garden originally built in 1901, and the best place for a botanical get together at Massey given carousing is frowned upon in the delightful and newly housed Dame Ella Campbell Herbarium. The council meeting had, in fact, been going on all day, but who knows what they get up to at these top-secret meetings? Old friends and colleagues had a chance to meet again, providing a template of camaraderie for the newly integrating faces to botany. The postgrads and postdocs kept the flame of botanical fervour alive that evening. It was carried in a very packed taxi cab to the bright lights of Palmerston North proper. A good local brew or that classic lemon lime

and bitters were all found at the Brewer's Apprentice. It makes a good story to say they were kicked out at closing time; but as locals have it, Palmerston North closes several hours before midnight on a Monday night, and that explains why everyone was feeling surprisingly chipper and ready for the official start of the conference the next day.

The conference officially opened on Tuesday November the 25th. Heidi Meudt (Te Papa), plenary speaker, and botanical champion, spearheaded the conference with an enthusiastic and insightful view titled "Next-generation, integrative, collaborative systematics". Although every botanist is a dynamo, each is smothered with a pile of modesty (well, relatively speaking). Heidi's metaphor, the 'decathlon athlete', suggested the modern day botanist is a solo entrant to the science race, who is required to understand and master every single component of this race (which represents

an endless array of techniques, everywhere between grant-writing, computer programming, field work, and writing research papers). It was well put by Heidi, especially at this international conference, that fostering collaborative systematics, be it through workshops, co-supervision, collaborative research grants, or an Australasian collaborative scheme, is what we need to do to change to a 'mixed medley' race, whereby multiple members focus on specific tasks; this is the next generation for systematics.

Following Heidi, the conference developed an appreciation for coal deposits and maar lakes, which



Fig. 1. Postgraduates and postdocs integrating on the pub crawl.
Ph. Todd McLay

have provided evidence to piece together such things as palaeoclimate and ancestral pollination. “Out with the old, and in with the new”, the conference turned its focus to advances in our understanding of hybridization and polyploidy, such as techniques for allopolyploid identification, and the investigation of the effects of polyploidy on the floral transcriptome. Over lunch, Dan Murphy generously led the first workshop (of hopefully many) for early career scientists on publishing successfully. Afterwards the taxonomy session was as heated, as per usual, and even resorted to ‘name-calling’ by Jim Croft near the end of the day. Will there be an Australasian Flora system? And if so, when?

The first day finished up with a breakout discussion on the White paper on Systematics. With the unfortunate illness of Bill Barker, Katharina Schulte and Ilse Breitwieser took over and we had an intense session on how we can better influence the importance of systematics. One general sentiment by the end was that educating a next-generation was primarily important for the future of systematics. A lack of opportunities and financial pressures seem to be an all-too common factor for blocking new candidates down this career path. The mood was brightened for many as a large core of old and new generation coincidentally ended up jovially eating a beautiful gourmet dinner at the Elm (*Ulmus procera*) café. In good botanical tradition, the walk for many shared

a New Zealand road-side botanical foray along the way.

In a different direction than opening day, Wednesday November 26th leapt back to the past, examining the “Problems and progress in plant systematics since Nancy Burbidge”, led by our second plenary speaker, and very deserving 2014 Nancy Burbidge Medal recipient, Peter Weston. Peter took us from approaches of classification starting from an understanding without being informed by genealogy, to the mire of integrating hybridisation into the concepts of species classifications. After this, the day was heavily-dominated by student talks, focussing on so much hard work that has gone into understanding species limits, biogeography and phylogeny. A generous mix of traditional and current research techniques were used to understand a wide range of topics from Angiosperm evolution through to how climate shift is disrupting biodiversity. The cozy poster session was at lunch, though even more lively was the conference dinner that evening at Halikarnas Turkish restaurant. This was an enjoyable, laid-back affair, and we didn’t go in for speeches or formal entertainment but instead let good food and good company (and a few good drinks) be the order of the evening.

Thursday November 27th was the final day of talks, and was kicked off by our 3rd plenary

Fig. 2. Different approaches in presentation. From left: a, Alexander Schimdt-Lebuhn; b, Jessie Prebble; c, Todd McLay. Ph. Prashant Joshi



speaker, Phil Novis, who cycled all the way from a concurrent meeting being held in Wellington (and apparently the South Island before that!). He took us back to where all plants began (yes, we mean algae!) and forward again with “Next-generation systematics and the algae: the importance of character evolution”. Following this, the day was coloured with biogeography and phylogenies. Phil Garnock-Jones brought us one step closer towards how insects see with his photographic methodology of superimposing UV light and shifting the colour spectrum in his images. The afternoon was many demonstrations of botanical science power becoming easier to obtain, such as new e-floras and how to harness the identification powers from the internet.

The beginning of the end for the conference was the highly anticipated announcement of the student prizes, since the conference was saturated with high-calibre student work this year. Sarah Wright provided the best student poster, based on a genetic study of *Pittosporum obcordatum*. Jessie Prebble gave the best student talk, which focused on using multiple lines of evidence to assess species limits in endemic New Zealand *Myosotis*.

To say thank you for all her hard work organising this delightful conference, Jen Tate was the recipient of a day spa voucher. Although this is a mere ‘drop in the bucket’ for the appreciation for her time and effort, it has hopefully aided her way to recovery. We owe an enormous thank you and appreciation to her, as well as the organising committee, for having put together a very successful, and convivial conference

this year. And if that wasn’t relief enough for the committee, what followed was one of the most important jobs that is anticipated by all organising committees: the ceremonial hand-over to the next year’s organising committee. The most delightful thing of this now well-held ASBS tradition is the baton: not traditional in its tangible form, but rather in its embodiment of botanical creativity and cleverness (and perhaps sometimes size). The presentation of a frond of hen-and-chicken fern, a hybrid between an Australian and a New Zealand *Asplenium*, was particularly apt on three levels. Firstly being a hybrid between the New Zealand endemic *Asplenium bulbiferum*, and the Norfolk Island endemic *Asplenium dimorphum*, it represents a fairly extreme form of the cross-country collaboration these conferences are intended to foster. Secondly the type locality for this hybrid is Bledisloe Park, on the grounds at Massey University. And thirdly we believed it would be especially appreciated by the representative of the organising committee of next year’s conference, the baton receiver Jim Croft, who has a special penchant for ferns of all kinds (see Fig. on p. 24).

Friday November 27th, the final day of the conference, was an absolutely unforgettable trip to Mt Tongariro National Park, an hour north of Palmerston North. Any botanist educator’s dream, yet a botanist tour guide’s worst nightmare, is a botanical foray with a bus load of botanists in ‘off duty’ mode. This was the fate of Leon Perrie, trip leader, as well

Fig. 3. From left: a, Miguel de Salas; b, Rob Smissen; c, Lalita Simpson.

Ph. Prashant Joshi



as other veterans such as Phil Garnock-Jones (strangely keeping a low profile). To properly survive a barrage of questions and handfuls of unidentified plant samples is a heavy-handed exercise. As is usual for New Zealand weather (well, Palmerston North excepted), there was imminent threat to the trip's duration and designation. The bus of botanists headed

towards the peaks of the north, which were hugged by fiercely black clouds, while leaders of this foray were likely thinking "YES! Snow please SNOW!". Yet no matter how wet anyone got that day, there was satisfaction derived from a great conference. We look forward to renewing the same experiences and connections in December next year at Canberra.

ASBS 2014 field trip report

Myall Tarran & Austin Brown
University of Adelaide; Royal Botanic Gardens, Melbourne

Our intrepid band of botanists set forth early from Palmy with eyes set to Tongariro National Park, and high hopes for the botanizing that the day would bring. Their quest was simple, to see the alpine zone, and to spend the day fossicking and frolicking amongst the alpine vegetation. However, as they drew closer to the mountain, inclement weather threatened to cut the alpine mission short. A new plan was hatched to see the alpine zone only briefly, but then to descend the mountain once again and appreciate the changing vegetation and ecology as we traversed the altitudinal gradient.

Turoa Ski Area, Mt Ruapehu

The first stop, as high up the mountain as they would dare venture that day, was at Turoa ski field of Mount Ruapehu. This was, for some, the first experience of the alpine zone. While not much was in flower, and it was terribly cold, our dauntless botanists encountered many iconic alpine species. As soon as we stepped off the bus, we encountered the alpine *Ranunculus* species we had been acquainted with during Mathias Becker's talk earlier in the week, on their hybridization and adaptation to climate change (Fig. 1a). Miguel pointed out that

Fig 1. Anticlockwise from top left: a, Some of our botanists admiring alpine *Ranunculus*; b, Todd brags to Mohamed about his Christmas tree; c, Phil Garnock-Jones retiring in the field. Ph. M. Tarran





Fig. 2. At stop 2, the Australian naturalised Canadian Bare-kneed Stork ('*Trevoria wilsonii*') discussing the finer points of morphology with the New Zealand endemic Flame-headed Kiwi ('*Sara wrightiae*').

Ph. M. Tarran

Drosera arcturi was one species that grows in both the alpine regions of Tasmania and New Zealand. A classic mystery of dispersal! Todd found a tree to take home for Christmas (he had a collecting permit, of course! Fig. 1b). For the remainder of the stay at this point, many of our botanists were seen with their noses practically in the dirt (Fig. 1c).

Mangawhero Falls Walk

With their appetites for wonder whetted, our plucky party of phytologists were back on the bus, and descended back down the mountain into the sub-alpine zone. They had entered *Nothofagus* country (or should we say *Fucospora* and *Lophozonia* country?). There was some confusion about the differences between *Leptospermum* and *Kunzea*. Todd tricked Myall into chewing on a Winteraceae leaf. It began to rain as they headed

Fig. 3. Leon Perrie, enlightening us on the local ferns. Ph. M. Tarran



back to the bus after only a brief foray down the path. (Fig. 2).

Mangawhero River, Ohakune - Rimu Walk

The final stop took our tiring botanists to true cool temperate rainforest. Though it was still raining and the day was running short, they made time to appreciate the rainforest vegetation. Leon explained the finer points of differentiating *Cyathea* from *Dicksonia*. Katarina had to run back to the bus to grab her camera when the group encountered an epiphytic orchid, *Earina mucronata*, Peka-a-waka, in full flower. Myall, who had only ever seen *Dacrydium* as a fossil from the Eocene of central South Australia, was overjoyed to see a giant Rimu tree, a reminder of past times and climates. Our botanists were sodden and tired as they boarded the bus for home, but it was the kind of deeply satisfying tiredness you feel after a day of adventure and learning. At the end of the long, cold, wet but illuminating day, some compared their notes and experiences of the day over dinner. The following list represents our favourite phytological finds (we were only allowed one each) of the day:

- Frank - *Phyllocladus alpinus* (Mountain Toatoa)
- Miguel - *Kelleria dieffenbachia* (Dieffenbach's Kelleria)
- Alison - *Lycopodium fastigiatum* (Mountain Clubmoss)
- Trevor - *Libocedrus bidwillii* (Pahuatea)
- Austin - *Earina mucronata* (Common Tree-orchid or Peka-a-waka)
- George - *Metrosideros diffusa* (White Climbing Rata or Raataa)
- Myall - *Dacrydium cupressinum* (Red Pine or Rimu)

John - *Cyathea dealbata* (Silver Fern or Ponga)

What a delightful cross-section of the many species we observed throughout the day. Between us we chose (unsolicited) as our favourite, three Angiosperms (Asparagales, Malvales, Myrtales), three Gymnosperms (Pinales), one Fern (Cyatheales) and one Clubmoss (Lycopodiales); three trees, one vine, one tree-fern, one epiphyte, one herb and the clubmoss.

The ASBS conference workshop on the white paper on plant systematics and taxonomy in Australasia

On the first day of the ASBS conference in Palmerston North, the 25th of November 2014, a forum and a workshop were held to inform the conference participants about the progress of the White Paper project, and to further discuss the project with the ASBS members. The White Paper project on plant systematics and taxonomy aims to provide a well-argued, rigorous and persuasive case, with supporting documentation, for continued and increased funding and other support for plant taxonomy and systematics in Australia and New Zealand. The project is supported and endorsed by the ASBS and the Council of Heads of Australasian Herbaria (CHAH).

At the White Paper forum, which was organised by Bill Barker and Ilse Breitwieser, Ilse reported on the White paper activities in 2014. These consisted of regular phone conferences of the project participants across Australia and New Zealand, and the creation of a White Paper wiki to collaboratively draft the White Paper and to collate the data for its evidentiary foundation. Ilse explained that a particular challenge of the White Paper was that it is intended for multiple audiences, including our own community, government at all jurisdictional levels in both countries, and other sectors of community and government where increased support for taxonomy and systematics would be beneficial for our discipline. Ilse provided several examples of differences between

Leon Perrie (Fig. 3) was a most excellent field guide for the party, and we would like to again extend our warmest thanks to him, and of course, Jennifer Tate, for organising and orchestrating not only the wonderful field trip, but the entire conference at Massey University. The 2015 Canberra organising committee is going to have to pull off something quite spectacular to top this field trip!

Australia and New Zealand relevant for the White Paper project, e.g. at the jurisdictional level.

Another challenge Ilse addressed was to obtain a good understanding of the issues important to the systematics community and how these could be best addressed. Here, Ilse emphasised how important it is that the systematics community, including the ASBS members, actively engage in the process of scoping and shaping the White Paper. At the end of the session Ilse invited members to participate in the break-out discussion session which followed directly after.

The break-out discussion session was



Fig. Katharina giving guidance.
Ph. Jessie Prebble

facilitated by Katharina Schulte who recently was appointed as coordinator for the White Paper project. Participants discussed questions regarding the state of plant systematics and taxonomy, their issues, and possible strategies to demonstrate the value and benefit of our work to our countries, and how to make a strong case for continued support and funding for our discipline.

Among the issues discussed were an unfavorable funding environment for plant systematics and taxonomy, the uncertainty about ongoing investment in our sector, the decreasing taxonomic capability and capacity in both countries, and the threat that these pose for our countries and economies. Examples were provided for cases in which decision-makers were ill-informed, e.g. regarding biosecurity issues and the resulting negative consequences. Further, concerns were voiced about a decreased understanding of the importance of biodiversity and biosystematics in our countries.

Members agreed that short- and long-term strategies are needed to better promote our discipline and the value of our work.

Examples were collated: those showing the value of providing authoritative names for our biodiversity and of our well curated collections; those highlighting the advancements that have been made in our field, e.g. in the discovery of new species; and those demonstrating the unbroken demand of our biosystematics services, like the high number of visitors to the Atlas of Living Australia, both nationally and internationally.

Finally, the ASBS members discussed whether the White Paper should include all biota or be focused on plant systematics. The consensus view was to concentrate our efforts on plant systematics first and to broaden the White Paper out to all biota subsequently.

The work on the White Paper will continue in 2015 considering the issues discussed with the ASBS members at this meeting. Thanks to everybody for their valuable contributions to the discussions around the White Paper, as this project is about ensuring and shaping the future of plant systematics and taxonomy in Australasia.

Katharina Schulte
White paper project coordinator

ASBS 2014 conference postscript

I want to send a final word of thanks to all of you who attended the ASBS meeting last November in Palmerston North. It's hard to

believe that two months have now passed since we gathered!

Fig. Jim Croft, surely these days a lapsed "pteridude", receiving the ASBS conference baton from Jen Tate representing the ASBS 2014 organising committee; Leon Perrie looks on. Ph. Prashant Joshi





Fig. Jen amongst objets d'art .

Ph. Prashant Joshi

Special thanks are due to my team who helped make the week such a success: Heidi Meudt, Phil Garnock-Jones, Peter Lockhart, Leon Perrie, Todd McLay and Jessie Prebble. Lis Carroll from the Massey conference office helped make the registration and abstract submission process run smoothly and also organized the welcome BBQ at Wharerata. Heartful thanks to the ASBS council members for their support prior, during, and after the meeting.

It was wonderful to see old friends chatting and new connections being made during tea breaks and lunch. There is something special about botanists and these meetings always make me so appreciative of the wonderful people I have the privilege to work with.

All the best to the Canberra team...we look forward to another great ASBS meeting later this year!

Jen Tate
Massey University, Palmerston North

Australasian Systematic Botany Society Inc.
Nancy T. Burbidge Medal

This prestigious award is presented to individuals who have made an outstanding contribution to plant systematics in Australasia.

Council will shortly be considering any awards for 2015 and invites members to make formal nominations or provide names of suggested recipients with evidence, via correspondence to reach the Secretary by 22nd March 2015.

Please contact Leon Perrie at leonp@tepapa.govt.nz



Fig. We are the Botanists! ASBS 2015, Massey University, Palmerston North. (See Jen Tate's background to the *I am a Botanist* campaign in *ASBS Newsletter* 160, p. 21).

1, Sarah Wright; 2, Yu Ito; 3, Tina Sehrish; 4, Sophie Pearson; 5, Frank Zich; 6, Alison Vaughan; 7, John Hosking; 8, Charles Foster; 9, Joanne Birch; 10, Jeremy Rolfe; 11, Jasmine Liew; 12, Brian Quinn; 13, Peter de Lange; 14, Miguel de Salas; 15, Leon Perrie; 16, Austin Brown; 17, John Clarkson; 18, Mohamed Badry; 19, Lalita Simpson; 20, Phil Garnock-Jones; 21, Hernan Retamales; 22, Peter Weston; 23, Patrick Brownsey; 24, Cristina LaTorre; 25, Peter Heenan; 26, Alison Hewitt; 27, Heidi Meudt; 28, Jim Croft; 29, Ilse Breitwieser; 30, Sarah Matthews; 31, Alexander Schmidt-Lebuhn; 32, Tanja Schuster; 33, Myall Tarran; 34, Jen Tate; 35, Nanette Thomas; 36, Ben Anderson; 37, George Plunkett; 38, Trevor Wilson; 39, Katharina Schulte; 40, Rob Smissen; 41, Todd McLay; 42, Abdul Ghafoor; 43, Vaughan Symonds; 44, Phil Novis; 45, Matthias Becker.

Ph. Prashant Joshi



Student prizes at our annual conference



An important role for our Society at our annual conference is providing encouragement to our developing systematists.

The judging committee for our main conference awards, the best student poster and best student talk, comprised: Ilse Breitwieser, Joanne Birch, Trevor Wilson and Leon Perrie.

Leon Perrie from the judging panel made three presentations at the closure of the conference.

- The best student poster, sponsored by CSIRO Publishing, was won by Sarah Wright (University of Canterbury).
- The best student talk, which is the Pauline Ladiges award, sponsored by CSIRO Publishing, was won by Jessie Prebble (Massey University).

We are indebted to the members of the judging committee and to CSIRO Publishing for its long-standing support.

ASBS also provides support for attendance at our conference to those students who make a presentation.

The family of long-time ASBS member Dr Bob Anderson has provided a bequest from his estate which supports this travel fund. The travel award deemed to be the Bob Anderson Memorial Student Award was presented to Hernan Retamales (Queensland University of Technology).

Ten other student travel awards were presented by the Treasurer.

Bill Barker

Fig. Presentations by our new Secretary Leon Perrie. From top: a, to Sarah Wright for the best student poster; b, to Jessie Prebble for the best spoken presentation; and c, to Hernan Retamales with the Bob Anderson Memorial Student Award.

Ph. Prashant Joshi

The Nancy Burbidge Medal

Peter Weston: a tribute to his outstanding contribution to plant systematics

Mike Crisp

I will never forget the day I met Peter Weston. The occasion was the 1980 ASBS conference on “Evolution of the flora and fauna of arid Australia”, held in Adelaide jointly with three other societies. One of the principal organisers of this landmark meeting was our very own President, Bill Barker. Anyway, I had just completed a presentation of my very first cladistic and biogeographic analysis – of *Leptosema*, a group of weird leafless peas that are pollinated by birds standing on the ground. I was terrified because cladistic methods were new, at least in Australia, and highly controversial – phenetics was still the paradigm and fiercely defended by its longstanding adherents. There was even debate about the validity of constructing evolutionary trees using characters of extant organisms. The molecular revolution was yet to come. However, far from fire and brimstone, there was little reaction from the audience. Afterwards, two fellows came bowling up to me. I recognised Chris Humphries but the other was unfamiliar – a lanky, curly-haired young student. A few months earlier, Chris had introduced me to cladistics in an inspirational lecture. When I had asked him where I could learn more, he said “read Willi Hennig’s book”. Well, the book wasn’t easy to get, let alone read, but I persisted and found my way haltingly through the labyrinth of Hennigian jargon, and then

tried my own analysis by hand. Far from saying that I had got it all wrong, Chris was smiling and congratulatory. But he was outdone by the bubbling enthusiasm of the young bloke standing next to him. This was, of course, Peter Weston. Anyone who has worked with Peter knows his infectious enthusiasm for science, which has inspired many others along the way. Our collaboration began virtually immediately and led soon after to a review of cladistic theory and methods, exemplified by an analysis of the Australian egg-and-bacon peas. I felt that I had the better part of the deal because the theoretical part was straight out of Peter’s PhD thesis and showed extraordinary insights for one so early in his career.

Those were the early days of Peter’s brilliant career. He has grown to become an outstanding research scientist and an internationally renowned expert in his field. His research has been characterised by the highest quality.

This is evidenced by all the usual indicators: high-quality, high-impact peer-reviewed publications; invitations to apply for leading posts overseas; invitations to organise international meetings; invitations to serve on the boards of leading international societies and journals; invitations to collaborate with top scientists; and significant funding from highly competitive sources, notably the ARC and NSF. He has upwards of 200 publications, many of which are in international peer-reviewed journals. These include papers in *Nature*, *Proceedings of the National Academy of Sciences (USA)*, and *Systematic Biology*. He has greatly advanced knowledge of the



Fig. Peter Weston (right) receiving the Nancy Burbidge Medal from John Clarkson. Ph. Prashant Joshi

¹ A “depersonalised” version of this was read in the award ceremony by John Clarkson on behalf of Council who are grateful to Mike, himself a Burbidge Medallist in 2011, for assembling this tribute.

groups on which he has worked, especially the Proteaceae, Orchidaceae and Fabaceae. In his main specialty, the family Proteaceae, an icon of the 'Gondwanan' flora, he is, without any doubt, the world expert. Accordingly, he was invited to write the treatment on Proteaceae for Kubitzki's celebrated world flora. Peter's collaborators read like an international Who's Who of systematists: Gary Nelson, Vincent Savolainen, David Cantrill, Peter Endress, Peter Bernhardt, Peter Linder, Austin Mast and Rolf Sattler. The International Society of Systematic Biologists, on whose editorial board he has served, and in whose journal he has published, is the leading international society and highest impact peer-reviewed journal in the field.

One of the main reasons for Peter's high international impact is that he is an innovative thinker. He has made several influential contributions to the theory and methods in his research field. These include a new method for finding the evolutionary root (origin) of phylogenetic trees; new insight into the homology (structural and evolutionary similarity) of plants; a re-evaluation of the 'panbiogeography' method; and more recently with David Cantrill and Hervé Sauquet, a new synthesis between the methods of palaeontology and phylogenetics, on a sound scientific basis, that will advance both these related, but hitherto, largely separate fields of research. This last example highlights the great breadth of Peter's research expertise, which is unusual and a hallmark of the most outstanding scientists. He has published not only in systematics but also in pollination biology, ecophysiology, speciation, coevolution, biogeography, palaeontology, and ontogeny and development.

Peter is seen as a leader among his peers. I have already mentioned his international role as an organiser of meetings and board member of leading societies. He is very widely read and informs his close colleagues of the newest developments in international research. He has received multiple awards, honours and scholarships, beginning as a lad with the Bronze Medal of the Orchid Society of New South Wales for the Champion Orchid of the Australasian Native Orchid Society's Annual Show. I daresay this shows where his real love of plants lies. He topped his Honours year in the School of Biological Sciences at the University of Sydney. He was posted to Kew as Australian Botanical Liaison Officer in 1992-3. He led the submission on scientific research for

the review of his institution, the Royal Botanic Gardens, Sydney, several years ago.

Peter has also taken a leading role involving the RBG in tertiary teaching, although this was not a requirement of his job. He was formerly an adjunct Associate Professor at the University of New England and is currently an adjunct Associate Professor at the University of New South Wales and at La Trobe University. As one of five members of a teaching team at the University of New England, he was cited for Outstanding Contributions to Student Learning in the Carrick Awards for Australian University Teaching from the Australian Learning and Teaching Council. This award recognised an innovative trans-institutional undergraduate course in plant systematics. By invitation, Peter has also taught a tertiary course in Rhodes University, South Africa. He has made an outstanding contribution to postgraduate teaching, more than that of many university-based academics. He has supervised (or is currently doing so) more than ten Honours, Masters and PhD students through three universities. Some of his former students have made significant impacts in their own right: Siegy Krauss now leads a large team at Kings Park in Perth; Jim Mant has several high impact publications and was awarded postdoctoral fellowships at leading European universities.

Notwithstanding his significant contributions to systematics theory and methods, Peter has always understood that basic taxonomy underpins the broader fields of systematics and evolutionary biology. And he has put this appreciation into practice. His taxonomic revisions and treatments include *Persoonia* (his PhD thesis topic) and, for the *Flora of New South Wales*, most of Orchidaceae and large chunks of the Proteaceae, Rutaceae and Fabaceae. He has described and named more than 100 new taxa at various ranks within these families. And, of course, I don't need to remind this audience of his major contribution to his own profession through ASBS, most notably as the immediate past President of the society.

Peter has done a huge (and unusual, for high-level researchers) service to his colleagues and his institution by presenting his science in a form that is accessible to non-specialists and the general public. His contributions include communicating the implications of research results as well as more general scientific and botanical information to colleagues in the NSW

government, other scientists, other government departments, the Friends of the Botanic Gardens, businesses and the general public through face-to-face discussions, correspondence, seminars, articles in magazines, public lectures and debates, exhibitions, botanical tours and interviews with documentary makers and television and print journalists. He is to be congratulated for his enthusiastic, excellent and many-faceted contribution to his profession, and he thoroughly deserves this award as a result.

Last but certainly not least, Peter is a very likeable, approachable and well-rounded person. He has always found time to spend with his family, including taking them on holidays and overseas trips. He is fit and physically active, loves bushwalking, plays competitive soccer, and cycles to work a long distance through Sydney traffic – he is braver than me! And he and Sue have raised three great kids who are making names for themselves in their own right.

Nancy Burbidge Lecture. Problems and progress in plant systematics since Nancy Burbidge

Peter H. Weston

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This is a summary of the Nancy Burbidge Memorial Lecture that I delivered on 26 November 2014 at “Next Generation Systematics”, the ASBS conference held at Massey University, Palmerston North, New Zealand. I plan to expand this into a longer manuscript on the recent history of plant systematics, for submission to a scientific journal and this article represents the first step in that task.

More than 50 years have passed since Nancy Burbidge published her “Dictionary of Australian Plant Genera” (Burbidge 1963). For me, the most fascinating feature of this book is that Burbidge did not write anything about the kind of entities that she thought genera were. Indeed, I have been unable to find a general statement in any of her publications that tells us of her ontology of genera, or taxa at any other rank. Burbidge was not alone in keeping her philosophical opinions to herself. Very few plant systematists active in the 1930s to 1950s wrote about such subjects (her first paper was published in 1936). So far, the only Australian taxonomic paper published in this period that I have been able to find containing an explicit declaration of taxon concepts and methodology is Johnson (1959: 76–77).

This dearth of conceptual (and methodological) discussion is also mirrored in the pattern of publication of books on these matters during Burbidge’s career. Between 1936 and 1961 only two books were published on principles

of systematics, “Methods and Principles of Systematic Zoology” by Ernst Mayr *et al.* (1953) and John Heslop-Harrison’s (1953) “New Concepts in Flowering Plant Taxonomy”. I found Heslop-Harrison’s book particularly interesting because it clearly shows the low level of respect in which plant taxonomy had come to be held by experimental biologists by 1953. Heslop-Harrison is contemptuous of what he called “classical taxonomy”, contrasting this “intuitive” tradition, with “experimental taxonomy”, the approach that he favoured, focussing on statistical analysis of observed variation and experimental study of the reproductive biology of closely related populations.

Some recent authors (e.g. Zander 2013) argue that the results of “classical taxonomy” should be resurrected and put in a privileged position, immune from refutation by discoveries obtained from explicit analyses of data sets, especially molecular data. One of the many flaws in this argument is the presumption that “classical taxonomy” is a methodologically and conceptually coherent research program. This presumption is delusional. As Stevens (1984, 1994) has shown at length, “classical taxonomy” is a patchwork of mutually incompatible concepts, theories, “principles” and rules of thumb, based on a diverse array of influences. These include medieval myths such as the Great Chain of Being (Lovejoy 1936), the pre-evolutionary ideas of Carl

Linnaeus, Antoine-Laurent de Jussieu and Robert Brown, Lamarckian evolutionary models, post-Darwinian concepts such as the “adaptive zone” (Simpson 1944) and elements that are agnostic with respect to evolution (e.g. Gilmour 1940). The only shared characteristics of “classical taxonomy” are the goal of recognising “natural taxa” (however defined), a lack of explicit methods, the use of untested intuition as a supposedly legitimate tool and appeal to personal authority.

This is not to say that taxonomic groups recognised by inexplicit means are of no value, only that their worth is indeterminate until their existence as some kind of real entity has been empirically tested. Numerous taxa circumscribed before 1960 have subsequently come through rigorous tests unscathed as well corroborated clades, for instance. A good example of the use of such groups is Nancy Burbidge’s greatest scientific contribution and the paper that rightly made her famous, “The Phytogeography of the Australian Region” (Burbidge 1960). In that paper Burbidge implicitly treated genera, as circumscribed in common usage in the late 1950s, as though they were clades. In her analyses, genera acted simultaneously as parts of general biogeographic patterns that were inferred to represent ancestral floras and as placeholders for ancestral species that dispersed, vicariated, diversified and adapted in response to environmental change. A number of her most significant conclusions have been corroborated by more scientifically rigorous subsequent research (Ladiges 1998, Crisp & Cook 2007).

1960 represents an important time of transition for systematics as a whole. The “long silence” of the 1930s to 1950s was followed by a “long debate”, from 1960 to 1990, in the mainstream systematics community on the goals, concepts and methods of systematics above the species level. This was sparked by the publication, in quick succession in the 1960s, of several influential books on the principles of systematics. These included Simpson’s (1961) “Principles of Animal Taxonomy”, Sokal and Sneath’s (1963) “Principles of Numerical Taxonomy”, Davis and Heywood’s (1963) “Principles of Angiosperm Taxonomy”, Hennig’s (1966) “Phylogenetic Systematics” and Mayr’s (1969) “Principles of Systematic Zoology”. These books resulted in the

crystallisation of three competing “schools” of systematics: gradism, cladism and phenetics, all of which asserted that their approach to biological classification would provide the best general reference system for biological science and the general public.

Sokal & Sneath and Davis & Heywood argued, following Gilmour (1940), that taxonomy should have no logical connection with evolutionary history and instead advocated phenetic taxonomy, in which organisms would be grouped on the basis of explicit analyses of large numbers of unweighted characters sampled from as many organs, life history stages and character classes as possible. Hennig (1966) on the other hand, advocated cladistic taxonomy, in which organisms would be grouped on the basis of explicit reconstructions of evolutionary genealogy, derived by grouping organisms by their shared synapomorphies (unique evolutionary novelties). The approach of Simpson (1961) and Mayr (1969), which they labelled “evolutionary taxonomy” (but is more informatively called “gradism”) sought to take the predominant traditional practices of zoological taxonomy as Simpson and Mayr saw them, and render them as explicitly as they could in an evolutionary context. Some critics (e.g. Birch & Ehrlich 1967) saw it simply as intuitive phenetics with evolutionary window-dressing. The main problem with gradism was its compromised concept of monophyly, which included paraphyly as a special case. Since a group can simultaneously be both paraphyletic and polyphyletic (Platnick 1977) Simpson and Mayr’s concept of a taxon was so loose as to effectively allow any conceivable assemblage of organisms, so long as it could plausibly be characterised as forming an adaptive zone or evolutionary grade. The same criticism applies to arguments that have been published more recently in attempts to restart the “long debate” in defending the recognition of paraphyletic taxa (e.g. Brummitt 2002, Zander 2013).

A blow-by-blow account of the “long debate” is well beyond the scope of this summary. Suffice to say for now that it resulted in the mainstream of systematics embracing Hennig’s recommendations and progressing from a reliance on inexplicit “methods” for recognising “natural groups” in 1960 to a broad (although not universal) agreement by the mid 1990s on the main goals of higher level

systematics (phylogeny reconstruction and cladistic classification) and the best methods for achieving those goals (phylogenetic analysis). Revision of the higher level classification of the angiosperms along cladistic principles followed, resulting in the publication of a series of papers by the “Angiosperm Phylogeny Group”, in which only postulated clades were recognised as families, orders and other higher taxa (see Angiosperm Phylogeny Group 2009). Similar revisions have been conducted within many families and genera.

Significant conceptual and methodological advances in systematics since 1960 include recognition:

- that clades are characterised by synapomorphies (Hennig 1966);
- that parsimony is a necessary and debatably sufficient optimality criterion for reconstructing phylogeny (e.g. Farris 1983, Penny *et al.* 1996);
- that incorporation of explicit evolutionary models can improve the accuracy of methods of phylogenetic reconstruction (e.g. Felsenstein 1973, Penny *et al.* 1996);
- that precision of our knowledge of phylogenetic relationships can be estimated using probabilistic methods such as bootstrapping (e.g. Felsenstein 1985);
- that rooting phylogenetic trees does not lead to an infinite regress (e.g. Weston 1994);
- that gene trees are not necessarily congruent with the species trees within which they evolved and may need to be reconciled to produce accurate reconstructions of phylogeny (e.g. Maddison 1997);
- that the relative ages of clades can be estimated if we are prepared to assume a relaxed molecular clock (e.g. Drummond *et al.* 2006).

Technological advances since 1960 have enabled many of the methodological advances that have so enriched our field. The development of phylogenetic computer programs and computer systems on which these software packages could be run have allowed the implementation of quantitative criteria such as parsimony, maximum likelihood and Bayesian posterior probability, for which manual calculation is not feasible. The invention of an array of molecular genetic techniques, such as the polymerase chain reaction and Sanger sequencing, has

brought DNA sequencing capabilities into even the smallest laboratories. These have provided the quantity and quality of data that new methods of phylogenetic analysis demanded in order to test morphology-based hypotheses of relationships. Next generation sequencing technology promises to expand our horizons much further.

Spectacular progress has been made in plant systematics since 1960, in the development of concepts, methods and our knowledge of plant phylogeny, but unsolved empirical, conceptual and methodological problems in both phylogeny reconstruction and taxonomy remain. For instance, unresolved parts of the green tree of life remain at all levels. Making progress on some of these, such as sorting out the relationships between different major clades of seed plants (Mathews 2009), will be very difficult because the stem lineages of those clades apparently diversified relatively quickly several hundred million years ago. A potentially knotty taxonomic problem concerns the conventions by which we convert reticulate evolutionary histories into hierarchical classifications. Nelson and Platnick (1981) suggested workable conventions for representing simple reticulate histories as hierarchies. However, it is difficult to see how a complex reticulating phylogeny, in which speciation by hybridization is a recurrent process (e.g. Smitsen *et al.* 2011), can be represented as a taxonomic hierarchy.

I think the biggest challenges for plant systematics in the near future will revolve around the species level. Sustained debate on the ontology of species since the 1930s has so far failed to provide a pre-eminent species concept, although the various lineage-based concepts seem to show the most promise for further progress. Reconstructing phylogenetic relationships between species within recent radiations, in the face of both incomplete lineage sorting and hybridization, looms as our most challenging methodological problem. Work has only recently started in developing methods of analysis for resolving such problems but a parsimony-based method for handling real data sets has already been developed (Yu *et al.* 2011). However, Yu *et al.* (2011: 148) end their paper ominously:

The bottom line is that developing methods for larger data sets (more species, more

hybrids, or more alleles) would require major extensions of the model that is considered here, as well as the models considered for other methods available in the literature.

Acknowledgments

I am most grateful to: the organising committee of “Next Generation Systematics” for inviting me to deliver the Nancy Burbidge Memorial Lecture at the ASBS conference at Massey University in November 2014; ASBS Council for awarding me the Nancy Burbidge Medal and for substantially funding my travel to New Zealand; Bill Barker, Barbara Briggs and Karen Wilson for making helpful suggestions on earlier drafts of this article.

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Coming meetings

ASBS Conference, Canberra 2015



The hip and happening ASBS conference for 2015, “Building Our Botanical Capital”, is going down in Canberra from 29 November to 4 December.

The nascent conference website at <http://www.asbs.org.au/cbr2015/> provides details on how to get to Canberra, and—perhaps more important—how to get away again. Eventually it will be a comprehensive guide for potential attendees on what to expect, where to stay, what to see and do, and how to behave in the Australia’s national capital. A separate conference Facebook group, ASBS Canberra 2015 (<https://www.facebook.com/groups/478943752234237/>), provides a place for conference-related chatter, rather than us hogging the main ASBS Facebook page.

The main conference venue will be the CSIRO Discovery Centre in Acton. Discovery is an easy 10–15 minute walk from the Australian National Herbarium, the Australian National Botanic Gardens, and the Australian National University and a moderate 30 minute stagger from strategic watering-holes and restaurants in the Canberra city centre. (Locals stubbornly persist in calling the central city area “Civic”, but you won’t find that name on most maps or signs.)

Being Canberra, we have not one but two (count ‘em, 2) organising committees and a governance structure that no-one from outside can hope to understand. The logistics and communications committee members are Brendan Lepschi, Anna Monro, Christine Cargill, Cath Reed and Jim Croft; their role is to ensure that the conference actually happens and that the mess is cleaned up afterwards. The scientific committee members are Alexander Schmidt-Lebuhn, Sarah Mathews and Lydia Guja; their is role to ensure that we get to enjoy an exciting program of systematics and botany from Australasia, wherever that might be.

Our draft programme includes all the usual welcome receptions, conference dinners, morning and afternoon teas, lunches, a couple of field trip options, Council and Society meetings, plenary speakers, themed symposia, poster sessions, panel discussions and if there is enough interest, one or more technical workshops. If we can find any entertaining botanists, there may even be some entertainment.

We are now calling for expressions of interest in organising symposia, workshops, or other

activities. The science program committee has identified a number of symposium themes, including genomic data in microevolution and species delimitation, new methods in phylogenetics, and electronic floras and botanical information systems. If you would like to organise or participate in a particular symposium, or organise or participate in a workshop on a particular topic, please contact your favourite committee member. If you like

(or dislike) the committee members equally you can use the conference email address, asbs.cbr@gmail.com, to reach them all.

Start planning to come to Canberra in December. It is going to be fun. And we need you there, or it won't be.

Canberra conference Logistics & Communication subcommittee (LOGICOM)

Publicising the April 2015 *Fifty Years of Botany in Papua New Guinea* symposium

An email was circulated on 28th November 2014 by Barry Conn on behalf of the organising committee of this prospective symposium of interest to many botanists who have worked in Papua New Guinea or on botanical projects in the country. The establishment of the Papua New Guinea National Herbarium (LAE) half a century ago provided a vital focal point on botanical discovery, research and expertise for a young nation.

I have just returned from Papua New Guinea for field work in the Star Mountains, but I also spent some time at LAE where I had discussions with Robert Kiapranis (Head of Biology Program, hence PNG National Herbarium LAE), Kipiro Damas (LAE) and Simon Saulei (Director PNG Forest Research Institute, Lae) about celebrating the 50th anniversary of the LAE Herbarium.

On the 12 April 2015 it is the 50th anniversary of the official opening of the LAE herbarium. Although we have so little time to organise anything, it was suggested that we should acknowledge the occasion in some appropriate way. It was decided that a small meeting/symposium would be most appropriate. It would be an opportunity to bring together people who have worked as botanists in Papua New Guinea, especially those who had direct links with LAE. I have added as many people as I can think of to this email, but I know that many more will be missing from this list. Please forward this message to anyone else who you think might be interested in this symposium. We are preparing a list for other Papua New Guineans not included in this email.

This email is being sent to you to ask if you

would be interested in coming to Lae for a 2-day (at this stage) symposium?

We are exploring two potential themes that we think would be most relevant:

1. *The last 50 years of botany in Papua New Guinea – an historical over-view*
2. *Accelerating the pace of taxonomy in Papua New Guinea* – a major concern of all of us, especially with the loss of taxonomic capacity and the continuing loss of biodiversity around the world

It would be good if this symposium could be used to get some leverage for the larger Flora Malesiana program, as well as for efforts to document the flora of Papua New Guinea.

Naturally, *contributed papers* would also be accepted.

We will continue with the organisation of the symposium, but in the meantime:

1. *Are you interested in attending this proposed symposium?*
2. *Would you be prepared to make a 15 or 20 minute presentation?*
 - a. *Title of presentation*
 - b. *Abstract*

We hope that you will be able to join us in Lae, Papua New Guinea

With Best Wishes
from the Organising Committee:
Simon Saulei; Robert Kiapranis;
Kipiro Damas; Barry Conn

There is already interest in travelling to Lae for the event, despite the shortness of notice. Barry would be glad to receive and respond to enquiries on behalf of the Organising Committee at barry.conn@rbgsyd.nsw.gov.au.

News

New leadership and vacancy at ABRS

Joanne Nathan has joined the Australian Biological Resources Study (ABRS) as Acting Director for 6 months until July 2015. Joanne joined the Commonwealth Department of the Environment in 1997. Since then she has worked on a wide range of biodiversity conservation and natural resource management policy including the Natural Heritage Trust, coastal policy, and water reform in the Murray-Darling Basin. Joanne worked on the Basin Plan at the Murray-Darling Basin Authority from 2008–2010, after which she returned to the Department to lead the Environmental Biosecurity section. In this role she developed a new Threat Abatement Plan for *Phytophthora cinnamomi*, and was part of the national response to the impact of myrtle rust on the natural environment.

With Helen Thompson retiring from ABRS on 27th February, the recruitment process is underway for the new Flora of Australia Online position at the APS6 level. In line with Government policy this position has been advertised initially within the Department.

Helen Thompson
ABRS

New algal honoraries at the Tasmanian Herbarium

Recently the Tasmanian Museum and Art Gallery Trustees appointed Professor Gerry Kraft and Dr Fiona Scott as Honorary Research Associates at the Tasmanian Herbarium. Gerry and Fiona bring a wealth of knowledge and expertise to TMAG in the field of marine botany (Fig. 1).

Fiona has 35 years of experience in marine botany and has specific interests in southern hemisphere macroalgae and phytoplankton. Over the years she has contributed more than 4500 specimens of algae to the Tasmanian Herbarium, including many rare species, as well as type material of a new order of red algae endemic to the Derwent Estuary, Entwisleiales.

Gerry has been a member of the teaching and research staff at the School of Botany, University of Melbourne for 34 years. He has published results of his taxonomic research from Hawaii, the Philippines and Australia. A major focus has been the marine floras of the World Heritage-designated Lord Howe Island and the Capricornia section of the southern Great Barrier Reef, as well as the floras of Western Australia, South Australia, Victoria and

Fig. 1. Gerry and Fiona at work in the Tasmanian Herbarium collection.



Tasmania. In the course of his studies, he has authored/co-authored five orders, 11 families, 40 genera and 144 species of green, brown and red algae. Gerry's decision to relocate to Tasmania has been heavily influenced by the richness of Tasmania's flora and the number of new discoveries waiting to be described. He is very keen to make use of and contribute to the algal holdings of the Tasmanian Herbarium.

The algae collection of the Tasmanian Herbarium is one of the most significant in Australia, with a wealth of historical material as well as recent collections. The lack of phylogenetic expertise on staff means that the collection has been unstudied for most of its existence, and all curatorial maintenance ceased with the death of John Parham in 2002.

Gerry and Fiona with their skills, experience and links to marine institutions and museums throughout the world are able to bring the collection up-to-date and make it more widely accessible to researchers. They have become a familiar sight at the Herbarium and have been warmly welcomed as part of the Herbarium family.

Matt Baker

Talking plants on ABC Radio National

If you missed Tim Entwisle's weekly series "Talking Plants" on Radio National over the summer break, then you can still download the six programmes. Topics covered include vertical gardening, what constitutes an Australian garden, garden shows and their uses, bonsai as art or cruelty, climate change in the garden and botanical inspirations of contemporary artists.

<http://www.abc.net.au/radionational/programs/talkingplants/>

New Royal Horticultural Society herbarium for cultivated plants

An article in *The Telegraph* (Web ref. 1) in the middle of last year announced that the Royal Horticultural Society (RHS) was to invest £100 million in horticulture over the next ten years. They are already looking for suitable sites to set up at least three more gardens outside London as well as improving the RHS Wisley in Surrey with a new centre for science, learning and events. Of more interest to systematists is the

news that they will build some modern science laboratories, a new herbarium and library at a site yet to be decided.

Presently the herbarium, claimed to be the largest collection of ornamental plants in the world, is housed in the black and white building close to the main entrance at Wisley. Collections are predominantly since 1917 as the original herbarium of the Society was sold in 1856 in order to repay debts. Many of the specimens come from the trial plantings undertaken at Wisley but there are also a few old collections from the herbarium donated by Rev. George Henslow, the RHS Professor of Botany from 1880 to 1919.

Specimens are presently being databased and scanned and eventually will be available online.

Web ref. 1: www.telegraph.co.uk/gardening/plants/10956154/The-worlds-largest-plant-collection-online.html

Web ref. 2: <https://www.rhs.org.uk/science/conservation-biodiversity/conserving-garden-plants/rhs-herbarium/>

From the Territory

Latzy's yarns

Botanist Peter Latz has had a series of recollections of his working life published in the *Alice Springs News online* recently. The last published one accessed was on February 9th 2015 (Web ref. 1) and it contains hyperlinked references to the previous eight articles, with more promised in future issues.

Web ref. 1: <http://www.alicespringsnews.com.au/2015/02/09/the-adventure-of-my-life/>

Des Nelson (OAM), new species and gidgee poisoning

Further browsing in the *Alice Springs News online* revealed a couple of other items of interest. Firstly there is Alex Nelson's description of how his father, Des, came to have a hypothetical species of *Gossypium* named after him by Paul Fryxell (Web ref. 1) and then Des's own recollections (Web ref. 2) of having species named after him on the occasion of his receiving an OAM in the Australia Day Honours list of 2013.

In 2007 Des completed an account for the archives of the Historical Society of the Northern Territory of his time working for the

botanical section of the NT Animal Industry Branch in Alice Springs (Web ref. 3). The account centres particularly on the technical aspects of the gidgee poison research carried out in the 1950s and 60s (Web ref. 3). His manuscript (Nelson 2007) can be accessed either through your local library or through the Historical Society of the Northern Territory. Des also provided background to his working life in the Territory in his tribute to John Maconochie (Nelson 2012) in this newsletter.

And if you want further background to the gidgee poisoning story there is a summary by Greg O'Reilly in the January, February and March 2003 electronic back-issues of the *Alice Springs Rural Review* (Web ref. 4).

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- Nelson, D. (2007). *A Fire of Gidgee Coals* (manuscript: November 2007): 31 pp.
- Nelson, D. (2012). Working with John Maconochie (1941-1984). *ASBS Newsletter* 150: 36-41.
- Web ref. 1: www.alicespringsnews.com.au/1716.html
- Web ref. 2: www.abc.net.au/local/stories/2013/01/29/3678764.htm
- Web ref. 3: www.nt.gov.au/d/Content/File/p/NL/ASRR/asrr2008_0809.pdf
- Web ref. 4: www.nt.gov.au/d/publications/?fj=Alice%20Springs%20Rural%20Review%20Newsletter

Mystery plant on NT beach

The report of a mysterious plant which looked like a severed finger found at Lee Point, Darwin, earlier this year (Web ref. 1) prompted all sorts of speculation in the media with guesses as to its identity ranging from algae, fungi, sponge and coral.

For those of you interested in seeing the sort of reaction such a report brings take a look at the facebook page at Web ref. 2.

Somewhat deflating then, that when the experts at the Museum & Art Gallery of the Northern Territory were finally consulted (on lodging of the specimen there by the police), Richard Willan, the Curator of Molluscs, identified it as a dead sea squirt!

Thanks to Philip Short and Glen Wightmann for relaying the final identity of this "plant".

- Web ref. 1: http://www.abc.net.au/news/2015-01-06/mysterious-plant-resembling-severed-finger-baffles-nt-police/6002056?WT.mc_id=news-mail
- Web ref. 2: <https://www.facebook.com/abcnews.au/posts/10153616125624988>

Australian native as a new species in Jordan

A new species described as *Atriplex asphaltitis* Kasapliligil from "south of Jericho and at the north end of the Dead Sea" in 1966 in the *Journal of the Arnold Arboretum* has now been found to be conspecific with the Australian *A. nummularia* Lindl., a species which is apparently spreading in the deserts of the Eastern Mediterranean and North Africa (Sukhorukov 2012). Russell Barrett drew this to my attention and made reference to the "bitumen saltbush", clearly based on the epithet. But in this case the epithet is not a reference to asphalt as it initially appears, but according to the author in his citation of the holotype it refers to the Dead Sea "(= Lacus Asphaltites, hence the specific epithet)".

- Kasapliligil, B. (1966). Additamenta ad Floram Jordanicae. *J. Arnold Arboretum* 47: 160-170.
- Sukhorukov, A.P. (2012). Taxonomic notes on *Dysphania* and *Atriplex* (Chenopodiaceae). *Willdenowia* 42: 169 – 180.

Acacia name recognising helpers

Acacia adjutrices Maslin (2014) is an elegant recognition of those who have helped him considerably in his life-time in wattle systematics.

The species epithet is derived from the Latin *adjutrix* (a female helper) ... I name this species for Susan (Sue) Carroll, Meriel Falconer, Evelyn McGough and Kaye Veryard, past and present members of the Western Australian Herbarium 'database team'... Parenthetically it is noted that the word *adjutrix* was used by Lewis and Short (1879: 38) [i.e. *A Latin Dictionary* founded on Andrew's edition of Freund's *Latin dictionary*] in an example from the Histories of Tacitus, legiones adjutrices for 'legions raised by the proconsul in the provinces for the purpose of strengthening the veteran army', could be loosely adapted here for staff appointed by a Curator in a State for supporting an aged botanist such as myself.

Reference

- Maslin, B.R. (2014). Miscellaneous new species of *Acacia* from south-west Western Australia. *Nuytsia* 24: 139-142.

Eichler Research Fund reports

Elucidating taxon boundaries in the *Tetralthea hirsuta* complex using an integrative approach

Elizabeth Joyce
University of Western Australia

Tetralthea Sm. is an Australian-endemic genus of short-lived perennial, dry-adapted shrubs within Elaeocarpaceae (Savolainen & al., 2000; Soltis & al., 2000). The genus was first described by Smith (1793) and was last revised in 1976 by Thomson based on morphological examination of herbarium specimens. The total number of described species currently recognised in *Tetralthea* is 51, c. 70% of which are endemic to Western Australia (Butcher, 2009; Department of Parks & Wildlife, 2014). The *T. hirsuta* Lindl. species complex from south-west Western Australia is one of the last remaining unresolved complexes in the genus.

The *T. hirsuta* species complex comprises the variable species *T. hirsuta* (Fig. 1) and the phrase-named taxa *T. sp.* Boonanarring (F. Hort 1509) and *T. sp.* Granite (S. Patrick SP1224). *Tetralthea hirsuta* occurs between Gingin in the north, Augusta in the south and Beverley in the east; it has a complex taxonomic history and displays considerable morphological variation across its range (Thompson, 1976) as

well as substantial variation within individual specimens, especially in leaf size and shape. *Tetralthea sp.* Granite was segregated from *T. hirsuta* in 1996 on account of its robust habit, large leaves and prevalence of glandular hairs on its stems, pedicels and sepal margins. It is known from 31 specimens collected on granite outcrops of the Darling Scarp between the Perth suburbs of Helena Valley to the north and Gosnells to the south, and currently has a conservation listing of Priority Three in Western Australia (Department of Parks & Wildlife, 2014). *Tetralthea sp.* Boonanarring was segregated from *T. hirsuta* in 2007 on the basis of its more slender stems, narrowly oblong leaves and exceptionally long sepals. It occurs north of Gingin on the Dandaragan Plateau and is known from 22 specimens collected from Boonanarring Nature Reserve, Bartlett's Well Nature Reserve and immediate surrounds, and has a conservation listing of Priority Two in Western Australia (Department of Parks & Wildlife, 2014). Given the



Fig. 1. One of the many forms of the variable species *Tetralthea hirsuta*.

conservation status of these phrase-named taxa, resolution of their taxonomic status relative to *T. hirsuta* is important to determine whether they are truly distinct, thereby ensuring conservation resources are adequately directed, and to provide descriptive information for their accurate identification.

Tetralochea hispidissima Steetz is sister to the *T. hirsuta* complex based on morphological (Downing, 2005; Thompson, 1976) and molecular (McPherson, 2008) studies. The two species share a distinctive stamen morphology (Fig. 2), differing primarily in leaf size and in the combination of hair types on stems; *T. hirsuta sens. lat.* (including all putative taxa of the complex) is characterised by larger leaves and curled white stem hairs below setae (or almost glabrous stems), while *T. hispidissima* has smaller leaves and straight white stem hairs below more-prominent setae (Thompson, 1976). Interestingly, Thompson (1976) accepted some specimens with straight white stem hairs as belonging to *T. hirsuta* if they also had leaves mostly over 1 cm long. Most examples of these atypical *T. hirsuta* collections are from the Darling Range, approximately 200 km north of the range of *T. hispidissima* and well within the range of *T. hirsuta*. This inconsistency in morphological characterisation has caused considerable confusion for the taxonomy of the group, with these specimens variably classified as *T. aff. hispidissima* or *T. aff. hirsuta*.

Project aim

My Honours project sought to elucidate taxon boundaries in the *T. hirsuta* complex using an integrative approach incorporating traditional and novel morphometric methods, as well as phenetic and phylogenetic analyses of chloroplast and nuclear ribosomal DNA sequences. The molecular component of the project was significantly supported through the Hansjörg Eichler Scientific Research Fund.

The primary aim was to determine whether *T. sp.* Boonanarring and *T. sp.* Granite warranted formalisation as taxa distinct from *T. hirsuta*, and if so at what rank. I also aimed to test Thompson's (1976) assertion that individuals with leaves more than 1 cm long and straight white stem hairs are referable to *T. hirsuta* rather than *T. hispidissima*. Additionally, following the identification of six morphotypes across its range, I aimed to investigate the variation within *T. hirsuta* itself to establish whether the species warranted further subdivision.

Research

With the expertise and excellent company of Ryonen Butcher, I conducted field work across the Swan Coastal Plain, Jarrah Forest and Warren bioregions during September and November 2013 (Fig. 3) to collect specimens for morphological and molecular analysis. Four specimens from two populations each

Fig. 2. Characteristic stamens of *Tetralochea hispidissima* and taxa of the *T. hirsuta* complex; note the very slender, elongate, tuberculate anther tubes.



of *T. sp.* Boonanarring, *T. sp.* Granite, *T. aff. hirsuta* (leaves >1 cm; straight white stem hairs) and each of the *T. hirsuta* morphotypes were collected, representing the full spectrum of morphological variation from across their geographic range. Specimens from two populations each of *T. hispidissima* and the more distantly related *T. similis* Joy Thomps. (McPherson, 2008) were also collected for outgroup comparison. Three completely open flowers and five mature, undamaged leaves were also collected from each sampled plant and spirit-preserved in the field; this was to preserve their shape and malleability for accurate measurement and shape assessment. Leaf samples for molecular analysis were taken from the same plants and placed in silica gel prior to freeze-drying in the laboratory.

Patterns in morphology were explored using nonmetric multi-dimensional scaling (nMDS) ordination and group-average CLUSTER analysis in PRIMER v. 6.1 (Clarke and Gorley, 2006), and constrained Canonical Analysis of Principal Components (CAP) ordination (Anderson and Willis, 2003) implemented through the PRIMER v. 6.1 add-on PERMANOVA+ (Anderson & al., 2008; Clarke and Gorley, 2006). Leaf shape variation was investigated through Elliptic Fourier Analysis (EFA), which enabled the quantification of average leaf shape for each plant, through the package SHAPE v. 1.3 (Iwata and Ukai, 2002), for comparison in various multivariate analyses.

Support from the Eichler Fund, the Department of Parks and Wildlife and the University of Western Australia allowed me to generate sequence data for each individual sampled, providing a morphology-independent data set through which to investigate taxonomic boundaries in the *T. hirsuta* complex.

Seven chloroplast DNA (cpDNA) intergenic spacer regions (*ndhF-trnL*, *trnQ-rps16*, *trnV-ndhC*, *psbD-trnT*, *psbA-trnH*, *trnS-5'trnG2S*, *trnG-trnG5'2G*), five chloroplast D4-loop introns (*ndhA*, *atpF*, *petB*, *rpl16*, *petD*) and the nuclear ribosomal DNA (nrDNA) region ETS were selected as potentially useful regions for the study based on the relatively high variability found in a range of Australian taxa by Byrne and Hankinson (2012). A pilot study using one

individual from *T. hirsuta*, *T. sp.* Boonanarring, *T. sp.* Granite and *T. hispidissima* identified three of these cpDNA markers (*ndhF-trnL*, *trnS-5'trnG2S*, *rpl16*) and ETS as having suitable levels of variation for the sequencing all individuals.

The cpDNA regions were combined for analysis while ETS was analysed separately. Phenetic patterns were analysed using neighbour-joining and UPGMA methods in PAUP* 4.0b10 (Swofford, 2003). Phylogenetic relationships were inferred using Maximum Parsimony (MP) in PAUP* 4.0b10, Maximum Likelihood (ML) in RAxML v. 8 (Stamatakis, 2014), and Bayesian Inference (BI) using MrBayes v. 3.1.2 (Ronquist & al., 2005).

Results

The results of this project are currently being written up for publication. Of note is that there was a high degree of congruence between trees derived from morphological analyses and the phenetic and phylogenetic ETS gene trees. Congruence between these independent data sets indicates that an accurate representation of evolutionary relationships has been retrieved (Carstens & al., 2013; Schlick-Steiner & al., 2010). By comparison, all cpDNA analyses were incongruent with both morphological and ETS results. This is common in phylogenetic studies (e.g. Cronn & al., 2002; Hardig & al., 2000) as unlinked loci can have independent phylogenetic histories (Pamilo and Nei, 1988), with differences accentuated by disparate evolutionary rates and incomplete lineage sorting. In addition, any history of hybridisation within the complex could have led to a misrepresentation of phylogenetic relationships between taxa due to recent or historical tokogenetic processes (Linder and Rieseberg, 2004).

Overall, my study was successful in its aim of resolving the *T. hirsuta* complex. It found that *T. aff. hirsuta* specimens with straight white stem hairs and leaves >1cm belong in *T. hispidissima*, and that *T. sp.* Boonanarring and a morphologically expanded concept of *T. sp.* Granite were discrete taxa, best recognised as subspecies of *T. hirsuta*; no further subdivision of *T. hirsuta* was warranted. This project also highlighted the complexity of delimiting taxonomic boundaries at the phylogenetic-tokogenetic interface.

Fig. 3. Lizzy enjoying a tick-free patch of ground while sampling *Tetratheca* sp. Boonanarring.



Acknowledgements

I would like to thank the Australasian Systematic Botany Society (ASBS) for supporting this project through the Hansjörg Eichler Scientific Research Fund, without which the molecular study would not have been possible. Thank you also to my brilliant supervisors Ryonen Butcher, Kevin Thiele, Margaret Byrne and Pauline Grierson. I would also like to thank Maggie Hankinson, Bronwyn MacDonald, Ben Anderson and Andrew Perkins for their invaluable assistance with the molecular component of this project.

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For the love of *Banksia* – a field trip to central Queensland in search of *Banksia*

Margaret L. Stimpson

In May 2014 three intrepid systematists, Peter Weston (NSW), Jeremy Bruhl (NE) and Marg Stimpson (NE) set off for several central Queensland locations in search of taxa belonging to the *Banksia spinulosa* complex. We had particular locations in mind, these being, Isla Gorge National Park, Expedition National Park and Carnarvon Gorge National Park. Our first location was Isla Gorge National Park but this was a little tricky because the point data from AVH and BRI Mapper were well out of Isla Gorge National Park. Thanks to some detective work by Peter Bostock BRI, Jeremy Bruhl and me, we were able to get some clues as to where we might find the *Banksia* in Isla Gorge. Peter Bostock provided us with some pages from a book that described the original expedition into the Gorge in 1972, on which Philip Sharpe had collected *Banksia*. The book mentioned a property called “Karyina”, which bordered the Gorge. We subsequently were able to contact the current owner of Karyina (Melanie Simmons) and started asking questions. She did not know where the *Banksia* plants were in the Gorge but knew someone who had a photo of them, a very competent amateur botanist and explorer named Ann Hobson. Melanie then contacted Ann and it eventuated that it was her late husband and son who had been into the Gorge at one time and found the *Banksia* plants and photographed them. Ann in turn contacted her son to try and get an idea as to where we might find the *Banksia*. With a verbal description by her son over the phone, incredibly enough, Ann was able to work out a lat: long for the site. Ann and Melanie climbed in and out of the Gorge the day before we arrived to make sure they could

find my beloved *Banksia*. I might add Ann is 70 plus years old.

We arrived at the Isla Gorge camping ground about 8 pm and there to meet us with coffee, tea and cake were Melanie Simmons and Ann Hobson. So, after poring over maps, sipping hot coffee and tea we made a plan to set off early. In 2013 I had walked across the top of the ridge, looked down into the Gorge and thought that no sane person could get down there without the aid of ropes. Abseiling was what I had in mind. Alas it was not to be, with Ann being escorted down into the Gorge by Jeremy and Peter. (For those of you who wondered if Peter and Jeremy had any gentlemanly qualities I have proof: Fig. 1). Yes they are escorting our guide Ann down into the Gorge. It does not look very steep but believe me it is. As for me, I was left to my own devices and ended up sliding down behind them on my rear portion. It was a journey that will remain etched into my brain (and my backside); getting down into that gorge and back up is not for those with a faint heart (that would be me). As you can see we had success (Fig. 2). I must thank Peter for dragging me up the last 8 metres even though he lied and told me it was only 3 metres to go, I did call him several choice names, none of which can be repeated in this article and none were very complimentary as I recall. I might add he also dragged Ann all the way up the Gorge, several hundred metres. Where was Jeremy you might ask? He was off with the *Phebalium* and anything else he could set his sights on. My view of that adventure is that I will never climb into or out of that Gorge again. On the other hand, Ann has to be admired: she does it regularly with a little help – amazing!

Fig. 1. Nature's gentlemen: Jeremy Bruhl and Peter Weston with guide Ann Hobson, Isla Gorge, Queensland.
Ph. M.L. Stimpson



Next we headed to Expedition National Park and climbed down into Robinson Gorge – not as steep as Isla but a challenge, particularly trying to navigate the river bed, which has enormous boulders and huge trees that have been washed into the bed through flooding. We were heading for Spring Creek via Robinson Gorge; we eventually came to the conclusion that we were not going to get to Spring Creek in a day or even two days. We had a discussion and decided that we would go to Carnarvon Gorge, because we knew where the *Banksia* plants were most accessible there, and then

Fig. 2. *Banksia spinulosa*, Isla Gorge, Queensland.
Ph. M.L. Stimpson



return via Expedition National Park and have another look.

Off we went to Carnarvon Gorge National Park to Mickeys Gorge for a reconnoitre in preparation for the next morning. An early start the next morning after coffee, of course. Jeremy, Peter and I walked up Mickeys Gorge where Jeremy and Peter started to climb up the side of the Gorge, another very steep, glorious looking piece of country. Because Peter and Jeremy decided I was not sure footed enough, I was banned from climbing up. I could not see them but could hear constant slipping and sliding. I waited with bated breath for one of them to come plummeting down the side of the slope. Fortunately they both have the climbing ability of mountain goats so all was well. They duly arrived back down into the gorge with *Banksia* in hand; all was well. Peter captured in film Mr Cyperaceae headed for the dark side (Proteaceae) (Fig. 3) as, with secateurs in hand and a grin on his face, he perched precariously on the side of Mickeys Gorge at Carnarvon National Park to make the gathering.

Dinner that night was, as usual, delicious, especially when you do not have to do the cooking. For those of you who have not been fortunate enough to go on a field trip with a gourmet cook (Jeremy) it makes long hard days worthwhile. We then headed back to Expedition National Park; Paul Forster from BRI had made collections there some years previously.



Fig. 3. Jeremy perching precariously, Carnarvon National Park, Queensland.
Ph. P.H. Weston

So, with intermittent phone reception and numerous calls to both Paul and Nathen Wills of Queensland National Parks, and Peter's contour map as a guide we managed to get as close to Spring Creek in the car as we could. As usual it was dark when we set up camp via headlamp, (something I am very good at doing nowadays) another fabulous meal and off to bed for an early start. Peter made sure it was an early start – 5 am I believe (this from a man who does not usually do early mornings). We set off with a lat: long, GPS and good intentions. We climbed mountains, walked through mountain saddles, walked creek beds, and climbed the sides of hills. It was worth every bit of it. Again we had success and were able to get plenty of material. As you can see (Fig. 4) Peter and I are in the creek bed; I am inspecting the loot and Peter is busy with his camera.

There is nothing quite like the joy of a successful collecting trip. In total we travelled 2257 km, stayed in tents for 6 days, Jeremy cooked each and every night and I am quite sure we walked close to 100 km (Peter and Jeremy differ with me about the distance but they did not have to take

as many steps as I did given my short stature) over some extremely rugged country.

Funds from the Hansjörg Eichler Scientific Research Fund paid for fuel, food and accommodation. We arrived back at Armidale about 11.30 pm all very tired but happy and, yes you guessed it, we then processed our specimens until about 2 am in the morning. In my case it is all for the love of *Banksia*. In the case of Peter and Jeremy they have the fortune or misfortune to be my supervisors.

Fig. 4. Margaret surveying the loot and Peter at his camera.

Ph. J.J. Bruhl



Obituaries

Peter Nigel Martensz

Maggie Nightingale and Murray Fagg
Centre of Plant Biodiversity Research, Canberra

Peter (also known as ‘Pete’) (Figs. 1, 2) was born in Colombo on 10th October 1942, in what is now Sri Lanka (formerly Ceylon). He was one of the five children of Percival Stephen Martensz and Patricia De Saram.

His family moved to Scotland from Sri Lanka when Peter was very young, before relocating to Australia when he was between 7 and 10 years old.

He graduated from Canberra Boys Grammar School in 1959, and is remembered by the ‘old boys’ as a gentle person. He later worked as a jackaroo in western NSW where he gained considerable equestrian skills. His experiences as a jackaroo probably contributed to his abilities as a field worker, attributes that were valued during his time at CSIRO Wildlife and CSIRO Forestry.

Peter joined the CSIRO Division of Wildlife Research unit in 1963 and he began collecting plants for the herbarium in 1964. One of his collection associates of note during 1972 and 1973 was Dick Schodde. The pair collected at least 307 vouchers (the number now lodged at CANB) for a report on vegetation habitats in Kakadu National Park (Schodde *et al.* 1987). Peter was sole author of a very readable 1969 article, *Flora of the Pellew Islands* (Martensz 1969), giving a historical context and a listing of plants by ecological community. Such publications are useful for quickly familiarising the reader with the main plants of an area.

Tero Creek Station, one of the field sites for a major study on feeding habits of the red kangaroo in western New South Wales (Bailey *et al.* 1971), was Peter’s most collected locality. Plant epidermal fragments in the stomach and mouth of kangaroos were identified by comparison with botanical voucher specimens, and dietary preferences ascertained in this manner were compared with pasture compositions. The study found that kangaroo populations at Tero Creek and Mt Murchison Stations did not compete with sheep for the same food resources in drought conditions.



Fig. 1. Peter Martensz in 1978.

George Chippendale’s portrait collection, in the Australian National Botanic Gardens Photograph Collection: taken by G. Chippendale.

Peter also published on food sources of the red fox at Tero Creek and Gum Poplah (Gumpopla) Stations (Martensz 1971), reporting the finding that fox stomachs contained mostly fragments of kangaroo (presumably from carrion), with pieces of *Bassia* (now *Sclerolaena*) spp., and a large quantity of sand!

The Australian National Herbarium (CANB) holds 455 collections from Tero Creek Station, covering around 267 taxa in 52 families, mostly Chenopodiaceae, Poaceae, Fabaceae, Asteraceae and Malvaceae. This reflects the Bailey *et al.* (1971) study’s focus on areas of herbage on this station. Several other localities on the map (Fig. 3) also have

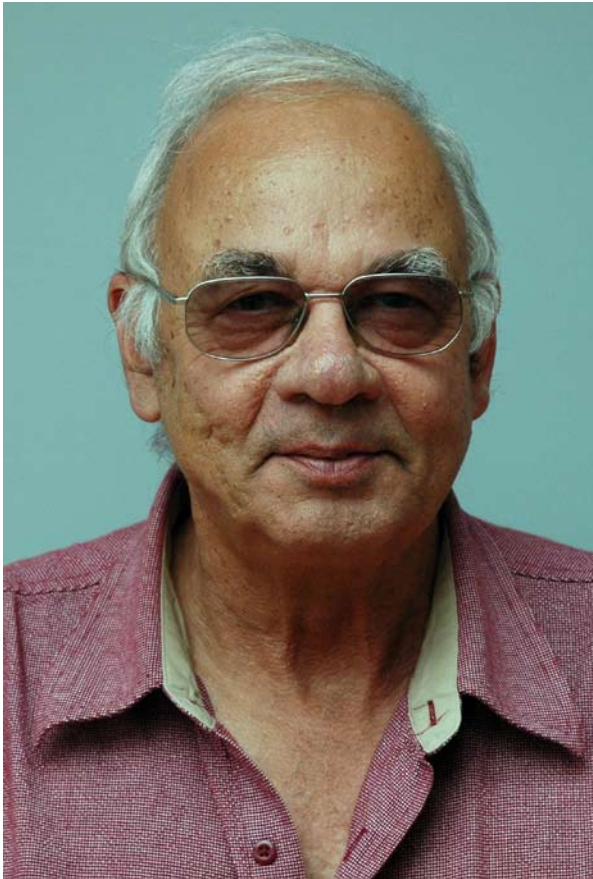


Fig. 2. Peter Martensz in 2008.
(From the Australian National Botanic Gardens
Photograph Collection: taken by M. Fagg)

multiple Martensz collections. These vouchers and the associated data from such sites, comprehensively collected over several years, may well provide base-line information for future studies of environmental change.

By 1976 Peter was attached to the Australian Tree Seed Centre located at CSIRO Forestry. He was known as a good field operator, and participated in range-wide seed collecting of species such as Coolabah (*Eucalyptus microtheca*), Gympie Messmate (*Eucalyptus cloeziana*), and the River and Desert Sheoaks (*Casuarina cunninghamiana* and *Allocasuarina decaisneana*), as well as undertaking further work on Casuarinaceae seed (Turnbull & Martensz 1982). Peter had an aptitude for using computing applications; later when working in the Forestry Genetics section, he designed a DBASE IV database for seed collections.

After being made redundant in a CSIRO restructure in 1992, Peter continued as a private contractor, and set up his own biological editing company called PNM Edit. In the 2000s he was contracted to work as an editor for the Australia's Virtual Herbarium (AVH) specimen data capture project based at the Australian National Herbarium in Canberra. He added around 25,000 records to the ANH specimen database (ANHSIR), including 189 for his own collections, and edited a further 15,000 records.

The Australia's Virtual Herbarium (<http://avh.chah.org.au/>) includes 5,055 individual or joint collecting records for P. Martensz (November 2014) (Fig. 3). There are 3,092 records in ANHSIR with Peter as primary collector, and 11 with him as co-collector (with N. Byrnes). These cover approximately 1640 taxa, in 163 families. Eleven of Peter's collections are type specimens and for ten of these the originally published name is still currently accepted according to the Australian Plant Census. Peter made hundreds of determinations of his own specimens and those of other collectors. At least a thousand of these determinations are still current, with many more having merely been updated to reflect current nomenclature.

In his final 7 years, Peter was a keen Scottish dancer, and was also dedicated to relieving the plight of Asian black bears kept in captivity for the harvesting of bear bile, through fundraising and related activities.

Peter died on 18th November 2014 at Clare Holland House, Canberra, and a memorial service was held for him at the Chapel of his old school, Canberra Boys Grammar, on 12 December 2014.

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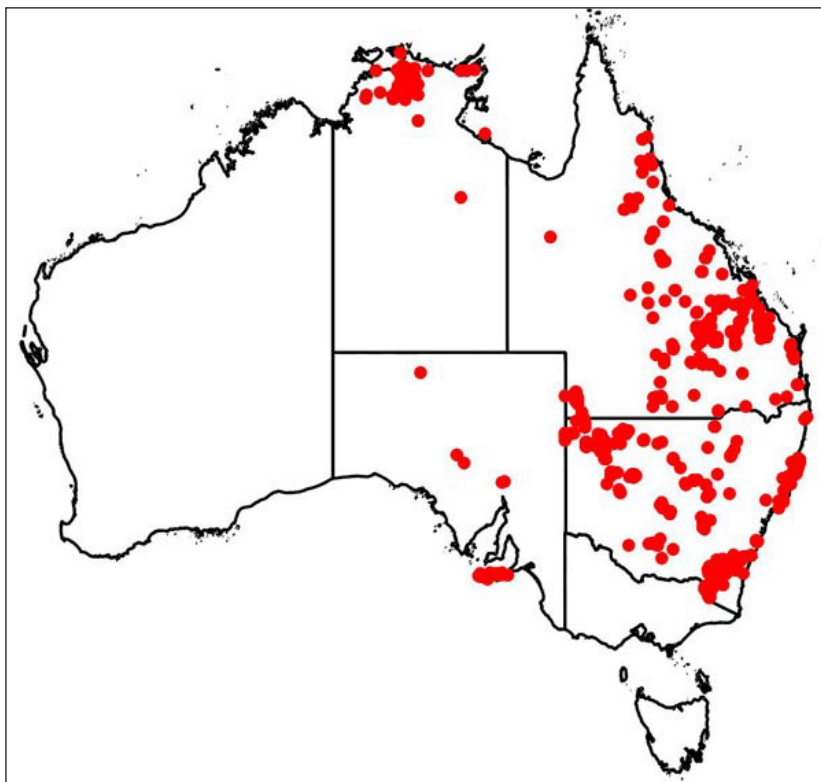
Extracted from: genealogy website for De Saram family: <http://www.rootsweb.ancestry.com/~lkawgw/gen3126.html>

Notes prepared by Maggie Nightingale from the Memorial Service at Canberra Boys Grammar School Chapel 12 Dec 2014, including pers. comm. by John Doran

Carmen Evans pers. comm. 15 Dec 2014

ANHSIR specimen database, Australian National Herbarium

Fig. 3. Australian herbarium specimen collection sites for Martensz, P., from the Australia's Virtual Herbarium, 24th Nov 2014



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- holotype of *Eragrostis triquetra* Lazarides (P. Martensz 1712)
- isotype of *Solanum lapidosum* A.R.Bean (P. Martensz AE667)
- holotype of *Grevillea formosa* McGill. (P. Martensz & R. Schodde AE 495)
- holotype and isotypes of *Micraira tenuis* Lazarides (Martensz & Schodde AE 595)
- isotype of *Eucalyptus ×urnularis* D.J.Carr & S.G.M.Carr (P.N. Martensz and R. Schodde AE 519) [but has been redet as a hybrid of known parents]
- holotype of *Vittadinia condyloides* N.T.Burb. (P. Martensz 137)
- holotype and isotype of *Vittadinia dissecta* var. *hirta* N.T.Burb. (P. Martensz, 7.xii.1968 (CANB 227330))
- holotype of *Amyema tridactyla* Barlow (Martensz & Schodde AE 584)
- isotype of *Pityrodia lanuginosa* Munir (Martensz & Schodde AE579)
- holotype of *Acanthus ebracteatus* subsp. *ebarbatus* R.M.Barker (Martensz & Schodde AE 743)
- isotype of *Eucalyptus grisea* L.A.S.Johnson & K.D.Hill (Martensz 1131 & Johnston)

Acknowledgement

Thank you to Anna Monro for editorial input.

In memory of Bryan K. Simon: friend and colleague

Neil Snow, Ph.D.

T.M. Sperry Herbarium, Pittsburg State University, Pittsburg, KS 66762 USA

Australia and the botanical world lost a dedicated servant with the passing of Bryan Kenneth Simon (1943–2015) on January 3rd at the age of 71.

Bryan's entire career was spent as a grass taxonomist. He remained active with his work well into December of 2014.

Bryan was born in Witbank, South Africa and discovered botany and plant collecting as a Boy Scout in Zimbabwe (then Rhodesia). He earned his B.Sc. in Botany and Zoology from University College of Rhodesia (now University of Zimbabwe) and M.Sc. from Reading in the UK.

After nine years as Systematic Botanist at the National Herbarium of Rhodesia in Bulawayo, he was hired in 1974 by the Queensland Herbarium, where he spent 39 years before being forced into retirement after political reshuffling. Counting years gainfully employed and two active years of research after official retirement, his career spanned over fifty years.

Among the genera Bryan focused on were *Sporobolus*, *Sacciolepis* and *Aristida*. He authored two editions of *Key to Australian Grasses* and authored or coauthored some 175 articles, chapters, or other peer-reviewed contributions.

Bryan stayed abreast of many new developments, including phylogenetics. A significant lag existed in the mid to late 1990s within many botanical institutions regarding an interest in, and adoption of, phylogenetic techniques. Bryan, however, was eager to understand the new methodology, perceived correctly that it had some thorny issues, and politely peppered many of us with questions concerning its application to grasses, which made us think more deeply.

In the mid 1990s Bryan teamed with Donovan Sharp to produce *AusGrass*, an interactive key to Australian grasses. I have used *AusGrass* for many years as one of my primary go-to sources of information. Bryan also was highly involved with the production of Volume 43 (Poaceae) of *Flora of Australia*.

An arena in which Bryan was a leader was in his production of *Grass World* (<http://grassworld.myspecies.info/>). This source of online information currently is the most comprehensive source of information on grasses and agrostologists worldwide. More broadly, Bryan was a wonderful global ambassador for the study of grasses.

While his botanical achievements did occasionally make the spotlight, Bryan's quiet and behind the scenes work on grasses, including making thousands of identifications for and assisting others in many ways, must be included among his botanical contributions.

Although unaware of it at the time, he

Fig. 1. Bryan at play in the jumper he loyally wore to ASBS conferences at the conference dinner in Adelaide in 2008. His humour about the picture: 'That is my awful "concentration" face.'

Bill Barker



and his wife Pam were able to experience a round-the-world “farewell” trip botanically for Bryan, when they travelled to New York for the Monocots V Conference in 2013. He summarized this trip, which included visits to important herbaria in the US, UK, France, the Netherlands, Germany, Switzerland, Russia and Singapore, in *Australian Systematic Botany Newsletter* 157: 45–53 (2013).

Bryan found balance in life. He was an avid runner and enjoyed other sports such as tennis and cricket. He played violin for many years in local orchestras in the Brisbane area (Fig. 1). Bryan also was highly active in his faith, which was deeply held, and applied it constantly in service to others.

Bryan was able to share my excitement in the discovery of a new species whilst doing fieldwork in 1996 (*Dinebra southwoodii*). Later, I named a new grass species in his

honour from northern Australia and southern New Guinea (*Dinebra simoniana*).

Upon learning of his leukemia, some of Bryan’s colleagues sent him a “Global Salute”, with written remembrances and digital images of times spent together in the field and in various collaborative projects. Bryan spearheaded a similar tribute for Surrey Jacobs (NSW) some years earlier after Surrey developed cancer.

Bryan’s most important legacy is his extensive family. He and his lovely wife Pam raised five wonderful children and now have several grandchildren.

We extend our sympathy to Bryan’s extended family and share their grief.

A fine obituary by John Thompson, Gordon Guymmer and Pam Simon appeared in Brisbane’s The Courier Mail on 23rd January under the heading “Scientist never lost his passion”. Ed.

Vale Dr Lionel Gilbert OAM

2 December 1924–28 January 2015

Barbara Briggs

Honorary Research Associate, Royal Botanic Garden Sydney

Lionel Gilbert was the outstanding historian of Australian botany of his time, and much more as well. He was an inspiring teacher and mentor of teachers, the author of numerous books and papers, and an eminent researcher and scholar. His wit and humour made him a delight to meet.

The Royal Botanic Gardens in Sydney owes him a tremendous debt. He wrote our history (*The Royal Botanic Gardens, Sydney, a History 1816–1985*) and biographies of our early Director Joseph Maiden as well as of ‘The Orchid man’ H.M.R. Rupp and William Woolls, who both had close associations with our herbarium. For many years he was an Honorary Research Associate of the Gardens and over decades our botanists were proud to know him as a valued friend.

Lionel grew up in the Sydney suburb of Burwood, was educated in Homebush and Sydney, before training at Sydney Teachers’ College. He served as a radar operator in the Royal Australian Air Force in northern Australia 1943–1946, followed by 15 years teaching in NSW primary state schools. One of the many rare and historic books he donated to the library of the Royal Botanic Garden Sydney was one

he sighted in a second-hand bookshop in 1944 while getting ready to “go north”; the young radar operator had very early developed an eye for an interesting old botanical book. There are specimens of his in the NSW herbarium from the Northern Territory and the NSW north coast from these times. Later he recounted how he would go by bicycle seeking fern specimens following requests from Mary Tindale of the Herbarium staff.

After studying at the University of New England, Lionel was appointed to Armidale Teachers’ College, and became chair of its Department of History. His PhD was awarded by UNE for a thesis, *Botanical investigation of New South Wales, 1811–1880*. During his career at the College, which became the Armidale College of Advanced Education, he established a museum, the Historic Resources Centre, and was also curator of the Armidale Folk Museum. He wrote and taught extensively on history, teacher education, adult education and the New England Region. His delight in the amusing and unexpected led to two books on graveyard epitaphs.

James Hoffmann, a former student and now volunteer at the NSW herbarium has written:

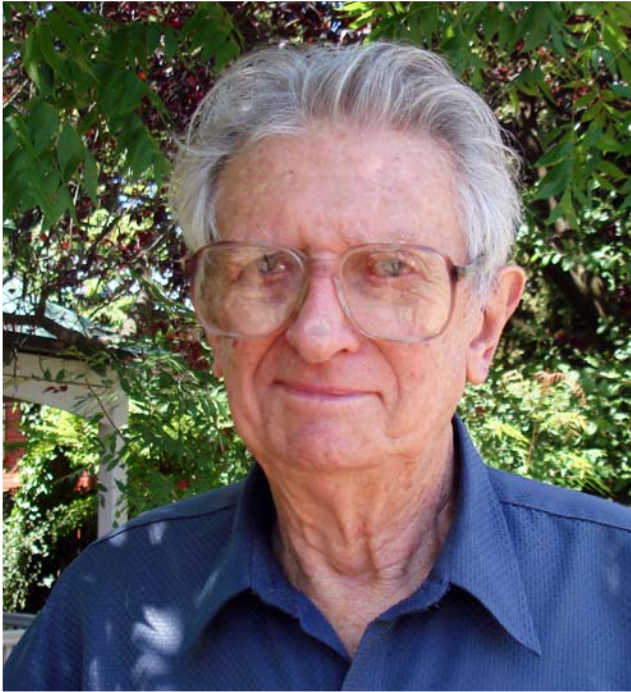


Fig. Lionel Gilbert outside his home in Armidale, 2009.
Ph. B. Briggs

Lionel Gilbert was my section advisor during orientation week at Armidale Teachers College almost exactly 50 years ago. He introduced us to the mysteries of tertiary education and taught how to use the library and how to write an essay with special emphasis on proper set-out of bibliography and footnotes. He was a great teacher and was able to present the routine and boring in a painless and amusing way. Things that he was interested in (not routine or boring) we quickly learned to love.

Later on I was lucky enough to do his 'Practical History' elective course. It was very hands-on and involved many excursions to old buildings, cemeteries, monuments and historic sites within reach of Armidale. I will never forget my first experience of the glint of gold in a pan at the Rocky River Gold Fields.

His classes were often about historic buildings and special places in the state and it was in Lionel's classroom in Armidale that I found a special interest in the Royal Botanic Gardens in Sydney. Reading his history of the Gardens and biography of Joseph Maiden prompted me to work there as a volunteer.

A good teacher can have an enormous influence on your life. Being a student of Lionel Gilbert has certainly enriched my life.

After retiring from the College in 1984, Lionel published a steady stream of books on personalities of Australian botany: naturalist William Woolls, orchid expert Herman Rupp and Director of the Sydney Botanic Gardens and eucalypt researcher (and much more) Joseph Maiden, as well as his history of the Royal Botanic Gardens Sydney. All of these involved extensive research and they are wonderful sources of information about our botanical past. Letters from Lionel, handwritten, scholarly, long and discursive, reflected his wide interests and gentle amusement at life's quirky twists.

Australian history and Australian botany have both gained greatly from

the life and achievements of Lionel Gilbert. Condolences posted on-line, after his death at age 90, show how he was greatly loved and respected by his former students and friends whose lives he enriched.

Selected publications

The following are some of Lionel Gilbert's many publications. For fuller bibliographies see *Wikipedia on-line* or Richard Aitken in *Australian Garden History*, 24: 17–19 (2013).

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Deaths

David Galloway, lichenologist and botanical historian

Dr David John Galloway (1942–2014), international lichenologist and Research Associate of Landcare Research, passed away in Dunedin on December 6th, 2014.

David was born in Invercargill and studied at the University of Otago, Dunedin where he graduated with a Ph.D. in biochemistry. From 1972 to 1982 he was a member of the staff of Botany Division, DSIR, at Lincoln. It was following the Sydney International Botanical Congress in 1981 that he led a very successful lichen excursion to New Zealand, the glowing report of which is available at Web ref. 1.

From Lincoln David moved to a position in the Department of Botany at the Natural History Museum in London. There in 1985 he completed and published the first edition of the *Flora of New Zealand. Lichens*, which covered 966 taxa, estimated at the time to represent only 60% of the actual lichen flora. In 1987 he was appointed as Head of the Lichen Division at the Natural History Museum, the same year in which he was also elected as the president of the International Association for Lichenology (IAL). He was to host a highly successful first IAL symposium on tropical lichens at the Museum in 1989.

After 22 years in London where he published widely on lichenological matters and botanical history he returned to live in Dunedin and in 2007 published a revised second edition of the lichens of New Zealand (Galloway 2007), this time covering 1706 taxa and in two volumes. In the same year he turned 65 and in May

2007, 55 colleagues and friends contributed to a Festschrift with 36 lichen papers in his honour; this publication is a summary of his achievements to that time (Karnefelt & Thell, 2007).

There will be much more written on this remarkable man with such wide interests. Ilse Breitwieser informs us that a celebration of David's life will be held in Dunedin on February 28th (contact breitwieseri@landcareresearch.co.nz). His long-standing colleague and friend Gintaras Kantvilas has drafted a personal tribute for publication in the *British Lichen Society Bulletin*.

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Eds.

Australasian Systematic Botany Society Inc.

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Book reviews

Retracing some of the expeditions by Moore and Drummond in south-west Western Australia

Reviewed by Peter Olde

c/ Royal Botanic Gardens and Domain Trust, Mrs Macquaries Rd., Sydney.

**'Explorers routes revisited.
Moore Expeditions 1836.
Drummond Expeditions 1841–1842.
Compiled and edited by Lesley Brooker,
Hesperian Press, Carlisle, WA 2012
(first published as separate volumes in
2010) 137 pp.
ISBN 978-0-85905-516-1**

The book under review examines in a single two-part volume historic journeys in Western Australia conducted by George Fletcher Moore in 1836 and James Drummond between 1841–42.

Moore was an Irishman who, in 1820, had received his law degree at the age of 22. He travelled to Western Australia hoping to obtain a legal position in the newly established colony, arriving in the *Cleopatra* in 1830 with four servants. From 1832, he divided his time between acting as Commissioner of the Civil Court and farming, 'at first walking the 30 kilometres between his property Millendon and Perth, on each occasion that he was needed'. Between 1831 and 1835 he made several journeys around Perth with others but in 1836 he undertook three exploratory trips, two as leader. The two under his leadership are examined in this work. Moore had an excellent relationship with

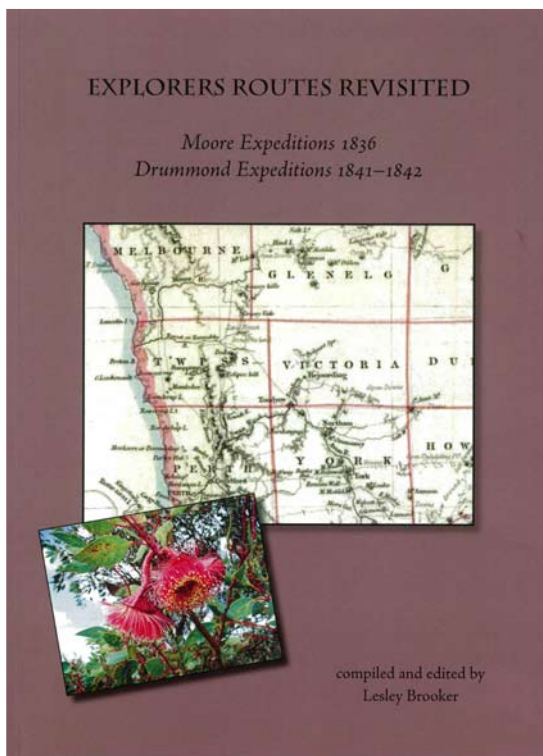
the local aborigines, several of whom guided his explorations and informed a descriptive vocabulary of the language in common use amongst the Aborigines of Western Australia which he published in 1842.

The two expeditions of discovery by Moore encompassed were: an excursion to a river to the north of Perth in April–May 1836 and a tour

to the east and north in May–June 1836. The first expedition had the dual purpose of seeking a river to the north and prospecting for new grazing land. The result of this exploration was the discovery of what would eventually be named the Moore River and the story of its discovery, its mysterious disappearance at the base of a high hill and its emergence as a second river running west some 24 km away makes fascinating reading. Moore's second trip aimed to find an inland sea ('Moleyeen' of the Aborigines) to the east

of Perth and to examine the Toodyay Valley which he had reached in 1831 with Ensign Robert Dale.

An informative introduction details the participants on the journeys and sets Moore in his historical context. The two Moore explorations themselves offer much by way of incidental botanical interest, recounting landmarks and general descriptions of the country prior to development. The author



¹ A review of a further title in this series on the WA Surveyor Septimus Roe by Tony Orchard appears in *Austral.Syst.Bot.Soc.Newsletter* 155 (2014) pp. 40–43.

successfully immerses the reader in the history to the extent that you almost wish you were there in an unchanged landscape with the flocks of birds still evident. The very first page of each journey's treatment stamps the scientific approach taken to the work. It lists in detail the primary sources used, the distances given by the explorer and error factors are recalculated. Even the estimated magnetic variation around Perth at the time is given.

Each day of the trip is then treated separately. The primary reference data are spelt out in detail e.g. the explorer's diary for the day, newspaper accounts, correspondence. All the evidence on which the examination has been made is placed before the reader. This is then followed by a fascinating author commentary. In many cases the explorer's tracks did not follow modern roads. The authors have traversed the ground, camped at the waterholes or followed their elusive trail, guided by the diaries. Important geographic precincts, waterholes and landmarks are often now out of view to the modern traveller. The explorer route is overlain on a modern map, which I found very helpful.

The author commentary is full of interesting background, some of it botanical, some Euro-history, some biography, some analysis, some aboriginal history or etymology but all of it fascinating. One element of the commentary I frequently found tedious was the unnecessary repetition of the diary data, as if we had not just read it in the preceding paragraph. However the added background more than compensates.

The following example is instructive:

Moore's diary on 29 April 1836: '... a piece of bread in one hand, a fire-stick in the other and he was ready'...

The author repeats the text, '... taking only a piece of bread and firestick with them', but follows it with background:

Although the Noongar were able to make fire with rubbing sticks, those at Swan River usually carried a fire stick with them... usually in wet weather. The firestick (kallamatta) was often the partially dried flower stalk of a banksia (mungytl or man-gyt) most commonly the Firestick Banksia, *Banksia menziesii*, or the Slender Banksia *Banksia attenuata* ... These will continue to burn, even in wet weather conditions, for four to five hours or longer.

This kind of background fills the commentaries. The text is accompanied by clear and informative colour pictures, a detailed map of the day's journey and any relevant historic map reproductions. I was particularly entranced by photos of places or collecting localities now off the beaten track, known only by the diarist's name, such as 'Bejoording Spring', 'Boyagerring Spring', 'Owl Rock' and the remarkable conical-shaped cliffs on the Moore River.

The Drummond expeditions are dealt with in the second part. Three are examined, and are of much greater interest to botanists. James Drummond, of course, needs no introduction but his interactions with the community of his day, especially John Gilbert, who by 1839 had collected 330 bird specimens within walking distance of Perth, are less well-known. A detailed introduction again informs and backgrounds the reader with biographies and discussion. Gilbert was desperate to collect a mallee fowl to which end he enlisted the help and friendship of James Drummond and this in part formed the intention of each expedition with Gilbert, though the search for 'good land' and water was always paramount. Apart from birds and animals, Gilbert was also an avid plant collector and his specimens are located in various herbaria around the world. On all three expeditions, Drummond was accompanied by one his sons, Johnston, an enthusiastic natural history collector in his own right.

The three Drummond expeditions examined in the second part include one to Moore River and the Victoria Plains between 7–12 February 1841; an expedition (with John Gilbert and others) to Lake Dalaroo 22 August–1 September 1842; and an expedition (with John Gilbert and others) to Wongan Hills, 26–30 September 1842.

The first account relies principally on the contents of a letter sent by Captain John Scully, Government Resident at Toodyay to the then Colonial Secretary, Peter Broun, and on cartographic material annotated by Drummond. Scully seems to have been the leader, and another grazier Samuel Pole Phillips was a participant. It was conducted in one week over summer and had, as its principal aim, the exploration of land around the Moore River with an eye to that suitable

for grazing. Drummond's few collections on this exploration are mentioned in a letter accompanying specimens sent to William Hooker dated 15 February 1841. One of these is thought to have been *Grevillea paradoxa* F. Muell., about which Drummond commented

... and a *Grevillea* ... with downy buds and trifoliate leaves, but I think I have seen the same species near the Salt River.

Evidence for the second journey to Lake Dalaroo relies on a Drummond account published in the *Enquirer* of 21 September 1842 and another letter to Hooker with more botanical detail. Corroboration comes from a letter sent by Gilbert to John Gould and a report by John Scully. The excursion was mainly conducted in search of water mentioned by natives, somewhere to the north of the Drummond station on Moore River. The expedition leader, again John Scully, and main party set off before Drummond and Gilbert arrived. They were late but, as far as Drummond and Gilbert were concerned, this was a collecting trip and they merely followed the main party. Horticulturists might be interested to learn that Drummond considered 'one of the most beautiful plants I have seen in Australia' was *Solanum oldfieldii* which he found at Murarine on 28 August 1842.

The final expedition to Wongan Hills saw Gilbert and Drummond collect separately. Drummond recounts his collection of *Grevillea petrophiloides* Meisn. in glowing terms to Hooker, referring to it as 'one of the most remarkable Proteaceous plants I have ever seen'. Gilbert's bird and animal collections are recounted in his letter to Gould and his excitement could scarcely be contained 'Two species of birds', 'two specimens of *Macropus*' and 'a fine series of many new plants.'

James Drummond was, in 1841–42, fully engaged in the collecting process and lists of the plants collected by him (and Gilbert) are contained in a useful, indeed, very valuable appendix, entitled 'Plants and animals either mentioned by, or thought to have been collected by Drummond and Gilbert at the dates and locations indicated ...'. The appendix in which the collections are analysed is a table of six headings. It runs to nine pages and cites around 90 specimens.

One example is the last on page 60: *Estimated*

date of collection: 1842. Estimated location: Toodyay. Estimated co-ordinates: 31°30'S, 116°27'E. From the literature or specimen label: labelled 'Toodyay 1842' Specimen number or relevant reference" Conospermum brachyphyllum Gilb. 70, K, NSW (A.S. George pers. comm.). *Current name: Conospermum brachyphyllum.*

Specimens are cited in ANSP, BM, K, LIVCM, MEL, NY, PERTH and W. Drummond's relationship with William Jackson Hooker, with whom he maintained a lifetime correspondence, is also explored briefly throughout.

The Noongar guide Cabbinger (Kabinger) accompanied the second expedition and during its course introduced the party to his future wife, a little girl 10 to 12 years old, who had been set aside for him by her parents. A moving epilogue (page 50) details her as a possible cause in the murder of Drummond's son, Johnston who, in 1845, aged 25, while asleep in his camp after a day's collecting, was speared to death by Cabbinger with two glass-tipped spears. James Drummond, of course, was devastated and considered giving up collecting. John Drummond, another son and then police constable, later stalked and executed Cabbinger who was accused of the crime by his own brother Konberring, who, with his wife, was with Johnston at the time of the crime. There was no trial and no reason for Cabbinger's treachery was ever firmly adduced, although a mysterious 'pay-back' killing is considered to be a possible reason by the author. On such occasions, the murderer would usually steal away to maintain anonymity. Cabbinger, though, slept at the campsite after the murder that night, and took his wife away the next morning. Johnston had been found, according to the natives, with Cabbinger's wife, but this was not usually a cause for murderous rage among the natives who, frequently 'lent' their wives, according to Erickson (1969), and 'valued them less than their dog'. This might be a generalisation too far. There is an interesting article on Johnston Drummond in *Wikipedia* that details more fully his collecting activities.

It has given me great pleasure as a botanist to review this scholarly, very thorough, fully referenced and indexed work and I commend it to both botanist and natural history enthusiasts alike. That is the good news. I contacted Lesley

Brooker about price and availability, using the email address LesMikeBrooker@bigpond.com and was informed that ‘unfortunately I am now sold out of all my books – the books were so expensive to print that I only had short runs done’. There might be some hard copies still available through the Royal WA Historical Society (49 Broadway, Nedlands WA 6009,

(08) 9386 3841). However I am informed that you can obtain digital copies on CD for \$25 plus postage direct from the author using the email address above.

Reference

Erickson, R. (1969). *The Drummonds of Hawthorndene*. (Lamb Paterson, Perth).

Amendment to review of *The Botanist and the Judge*

A revised version of my review of Tony and Tessa Orchard’s *The Botanist and the Judge: Allan Cunningham in Tasmania 1818–1819* arrived too late for inclusion in Newsletter 160. Most importantly, the book is, in fact, the fourth in a series of publications by these authors on one of Australia’s most significant early explorers and plant collectors, Allan Cunningham. The two that I omitted to cite are:

Orchard, A.E (2013), Allan Cunningham’s cryptic publications, *Teloepa* 15: 191–204.

Orchard, A.E (2014), The dispersal of Allan Cunningham’s botanical (and other) collections, *Teloepa* 17: 43–86.

Alex George, Kardinya, W.A

Alex’s revised version of his review appears on the ASBS website with this issue of the Newsletter: <http://asbs.org.au/newsletter/pdf/14-dec-161-addendum.pdf>.

Ed.

New books

Australian Cactaceae – prepublication notice

**Feral opuntoid cacti in Australia.
Part I. Cylindrical-stemmed genera:
Austrocylindropuntia, *Cylindropuntia*
and *Corynopuntia*.
*Journal of the Adelaide Botanic
Gardens Supplement 3 (2015)***

The State Herbarium of South Australia will soon publish the first part of Bob Chinnock’s revision of weedy cacti in Australia. The 60 page book will be illustrated with many colour photographs and line drawings; a “field identification” section will provide an easy means to identify the plants and the “taxonomic section” will contain detailed descriptions and notes on every species. Introductory chapters on opuntoid morphology, how to collect and prepare pressed specimens, dispersal and biological/chemical control, and a glossary complete the book. The price should be well within the pocket of everyone.

Please subscribe to the blog of the Friends of the State Herbarium to receive up-dates (know.ourplants.org), or email the Editor for further details (juergen.kellermann@sa.gov.au).

Juergen Kellermann

Flora of West Tropical Africa with updated nomenclature available as free ebook

Kew announced in May 2014 the release of the revised 2nd edition (1954–1972) of the original Hutchinson & Dalziel *Flora of West Tropical Africa* (1927–36) on-line as an e-book (Web refs. 1, 2) with additions from the African Plants Database (Web ref. 3) to give up to date nomenclature and hyperlinks within the keys. The eBook was prepared by George Gosline at Kew.

References

Hutchison, J. & Dalziel, J.M. (1927-36). *Flora of West Tropical Africa*. 2 vols.

Keay, R. & Hepper, F.N. (1954-1972). 2nd edn, revised of Hutchison, J. & Dalziel, J.M. (1927-36). *Flora of West Tropical Africa*. 3 vols.

Web ref. 1: <https://archive.org/details/FloraOfWestTropi00hutc> (Internet Archive)

Web ref. 2: https://openlibrary.org/books/OL25442466M/Flora_of_West_Tropical_Africa (Open Library - identification number OL25442466M)

Web ref. 3: <http://www.tropicos.org/Project/African%20Plants>

Australia's dynamic relationship between settlement, climate, and colonization.

Climate, Science, and Colonization. Histories from Australia and New Zealand. Edited by James Beattie, Emily O'Gorman and Matthew Henry. 304 pp. September (print) and October (online) 2014, Series: Palgrave Studies in the History of Science and Technology.

ISBNs: eBook: 9781137333933 PDF; 9781137333940 EPUB;

Print: 9781137333926 HB.

Cost (from publisher's web site) £60 (Hard cover); Amazon £57.97 (Hard cover), £55 (Kindle edition)

Offering important new historical understandings of human responses to climate and climate change, this cutting-edge volume explores the dynamic relationship between settlement, climate, and colonization. The contributions gathered here consider a wide range of interrelated topics, among them the use of scientific evidence in historical research, the physical impact of climate on agriculture and land development, and changing understandings of climate, including the development of "folk" and government meteorologies. They reveal Australasia to be a remarkably varied and fertile area for analyzing cultural responses to climate as well as the wider social ramifications of historical climatic events. [Publisher's blurb].

<http://www.palgrave.com/page/detail/?k=9781137333933>

Food for thought

Kaikai bilong PNG

I've wondered for some time what to do with this copy of a label from an early specimen in the National Herbarium of Papua New Guinea. I experienced wild pig and bush and western forms of mu mu, but cannot claim to have eaten *Homo sapiens*. (Figs. 1, 2).

Bill Barker

Leguminosae
Desmodium sp.
Hamilton 32.
Oropineia
Herb, grows wild in grass-land and forest. Leaf eaten with pig and human flesh, cooked in bamboo and mu mu. Fairly popular.



Fig. 1. Top, Specimen label in the PNG National Herbarium (LAE); right, Artis Vinas with wild pig, welcome fresh provisions on Lake Dakataua, Willaumez Peninsula, New Britain in 1974.



Fig. 2. Mu mu prepared for the farewell of John Womersley, Assistant Directory Forestry and head of the National Botanic Gardens and National Herbarium, Lae, in 1975. At front, Joe Wiakabu, Jim Croft, Greg Laravita, at rear, ?, ?, Artis Vinas, Manu.

Photos: Bill Barker

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ASBS publications

Australasian Systematic Botany Society Newsletter

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

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).

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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.

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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.*

Contributions

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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