

ASBS

*Australasian
Systematic
Botany
Society*



*Marking 150 issues of
the Newsletter*



Newsletter

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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Affiliate Society

Papua New Guinea Botanical Society

Grant application closing dates:

Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Australian Conservation Taxonomy Award:
on March 14th 2012 and March 14th 2013

ASBS Website

www.anbg.gov.au/asbs
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ASBS Web site: 9th February 2012

From the President

It is time to welcome most members back from summer holidays and in some cases to say “well done” for recently finishing and submitting applications to granting bodies. This message is especially aimed at those research students who submitted applications to the Hansjoerg Eichler Scientific Research Fund and/or for the Australian Conservation Taxonomy Award on or before 14 March.

A landmark for the ASBS Newsletter

This issue of the Newsletter marks a special anniversary, being issue number 150, a nice round number. Our newsletter has come a long way since publication of the first issue back in March 1974, following foundation of the society in August 1973. ASBS Newsletter number 1 was a mimeographed document of 14 foolscap pages that were held together by a staple in the upper left hand corner. It looks quaint and old-fashioned compared to issue 150 but it makes fascinating reading for anyone familiar with the personalities and questions that dominated Australian plant systematics at the time. Selwyn Everist, then Director of the Queensland Herbarium, wrote the first article, setting out the kind of material he thought the newsletter ought to publish. He saw it as

A medium for expressing ideas and opinions: on such matters as disciplines involved in making taxonomic judgements and for notification of and comments on published work.

Everist went on to pointedly note that:

Unlike fairy godmothers, editors are unable to conjure up articles out of thin air, although sometimes they are forced to try. The value of this Newsletter will depend on whether

those who have something to say (and most of us have) will take the trouble to put their thoughts on paper and send them to the Society or the Editor.

I think that Australian plant systematists subsequently supported the newsletter handsomely by submitting articles much more enthusiastically than Everist had foreseen. However, his comments got me thinking about the role the newsletter now plays as a forum for the critical evaluation of publications in our field. It does fulfil this function well through the book reviews section, a part of the Newsletter that is really flourishing thanks to John Clarkson’s enthusiastic pursuit of both publishers and willing reviewers. However, it seems to me that Australasian plant systematists disagree with each other’s opinions and conclusions to a much greater extent than an innocent reader would gather from reading the ASBS Newsletter. It would be great if the newsletter hosted an opinion page even half as vigorous as the “points of view” section that made *Systematic Zoology* such compelling reading back in the 1970’s.

Our next conference in Perth

Members who visit the ASBS website often will have noticed the announcement there of the next ASBS conference, to be held in Perth, at the University Club of Western Australia and Western Australian Conservation Science Centre from 23 to 26 September 2012 (see www.anbg.gov.au/asbs/conferences.html). The conference has its own web site (www.asbs2012perth.com), which will have been linked to the ASBS conference page by the time you read this. The theme of the conference,

Australasian Systematic Botany Society Inc.

Council Elections

In accordance with the Society’s Rules, nominations are hereby called for positions on the Council for the 2012–13 term of office. Council consists of the following positions: President, Vice-President, Secretary, Treasurer and two (2) Councillors.

Note: Nominations must be received by the Secretary, John Clarkson, PO Box 156, Mareeba, Qld before 5 pm Tuesday 31st July.

Nomination forms are on the ASBS Website www.anbg.gov.au/asbs.

“Local knowledge, global delivery”, was prompted by the radical changes that were made to the nomenclatural code (including its name) at last year’s International Botanical Congress in Melbourne. The organisers see these innovations as heralding a new era in which systematists will increasingly become immersed in biodiversity informatics, web-based collaborations, electronic publishing and eFloras. Presentations and posters dealing with these areas as well as any other current work in Australasian plant systematics, particularly local endemism, pollination and biodiversity threats, are welcomed. The conference will be followed by a two day guided field trip to Lesueur National Park, a significant centre of endemism within one of the world’s most spectacular biodiversity hotspots. It is time to start organising ourselves to participate in this important meeting at a botanically exciting venue.

Our next AGM

On the afternoon of Tuesday 25 September, the society’s Annual General Meeting will be held at the University Club of Western Australia. This meeting will deal with several important matters. One of these will be the determination of special resolutions to change the society’s rules. This vote will follow an earlier General

Meeting to be held at the National Herbarium of New South Wales in Sydney on Tuesday 3 July, at which the proposed rule changes will be discussed, and if the meeting so decides, modified. Please read my article elsewhere in this newsletter discussing these proposals and arguing why such changes to our rules are necessary.

Another important matter on the AGM agenda is of course the election of members of ASBS Council. I will be retiring as president at this meeting, having served the maximum three year term allowed by our constitution. Vice President Dale Dixon will be ineligible to step into my shoes because he will have served the maximum six year term allowed as a Council member. So, we need at least two ASBS members who are interested in nominating for the leadership positions of President and Vice President. I strongly encourage aspiring nominees to discuss these roles with me or other members of Council. We are particularly interested in receiving nominations for the position of President from members who have previous experience on Council. Nominations for positions on ASBS Council are due by 25 May 2012.

Peter Weston

ASBS Inc. business

Proposed ASBS Rule Changes 2012

I am in receipt of a letter dated 29 February 2012, signed by 4 financial members of the Australasian Systematic Botany Society Inc., in which a number of changes to the Rules of the Society are proposed.

Special General Meeting on 3rd July in Sydney

Pursuant to Rule 34 of the Society, I am directed by Council to advise you that a general meeting of the Society will be held on Tuesday 3rd July 2012 in the Caley Room, National Herbarium of New South Wales, Mrs Macquaries Road, Sydney, NSW beginning at 12:00 pm (EST). At this meeting the proposals, which are attached, will be placed on the agenda to be dealt with as a special resolution.

Voting mail out, then determination at AGM in Perth on 25th September

The proposals, unless withdrawn, with any modifications, will be sent to all members by 1st August 2012 together with appropriate voting papers. These voting papers should be returned to the Secretary by midnight (EST) on 5th September 2012 or presented with unchanged particulars to the Secretary at the annual general meeting of the Society to be held on Tuesday 25th September 2012 at the University Club of Western Australia, Hackett Drive, Crawley, WA beginning at 4:00 pm (WST). The special resolution will be determined at this meeting.

A full explanation follows in this Newsletter.

John Clarkson, Secretary



Australasian Systematic Botany Society Conference 2012

Local knowledge, global delivery

Perth, Western Australia, 23–28 September

<http://www.asbs2012perth.com/>

Preparations are now well under way for the 2012 Australasian Systematic Botany Society conference, to be held in Perth in Spring.

The conference will open with a registration mixer at the Biodiversity Conservation Centre, Kings Park and Botanic Garden (23 September), and will be held at The University Club of Western Australia (24–25 September) and the Department of Environment and Conservation's Western Australian Conservation Science Centre (26 September). A two-day field trip to the remarkable Lesueur National Park will follow (27–28 September).

This year's theme is *Local knowledge, global delivery*, inspired by the landmark decision at the 2011 International Botanical Congress to allow electronic publication of new taxa.

In keeping with this theme, presentations are invited on biodiversity informatics, web-based collaborations, electronic publication and eFloras. We will also showcase the broad array of systematic botany research being conducted across Australia and New Zealand. We hope to put together sessions on local endemism, pollination, and biodiversity threats such as climate change and plant pathogens. Please contact the organising committee if you wish to organise a themed session.

To ensure that researchers at all stages of their career and current project are catered for, we will be offering 15–20 minute oral presentations, five minute research snapshots and poster presentations.

As it is a long hike to Perth, we encourage visitors to add value to their conference experience by maximising their time in Western Australia. The late-September time-slot is ideal for those wishing

to take advantage of the south-west's famed Spring wildflowers, either for research or for pleasure. The new Western Australian Herbarium, within the Western Australian Conservation Science Centre, will also be open to researchers. Please contact the Curator

(Kevin.Thiele@dec.wa.gov.au) or Collections Manager (Karina.Knight@dec.wa.gov.au) to organise your visit.

Please visit the conference website (<http://www.asbs2012perth.com/>) for details on registration, submission of abstracts, visiting Perth and the WA Herbarium, and conducting field work in Western Australia. We will also be communicating via Twitter and Facebook so you are invited to follow us in the lead up to Perth 2012.

The conference committee can be contacted on asbs2012perth@gmail.com if you have any enquiries.

ASBS 2012 Conference Committee



New proposals to change ASBS rules

Peter Weston, President

On 29 February 2012, I and three other financial members of ASBS wrote to Secretary John Clarkson, proposing a number of changes to the ASBS constitution. Consequently, John wrote to all members, announcing a General Meeting at which members will discuss these proposals and, if the meeting so decides, to modify the proposed rule changes. If approved by that meeting, the proposals would be put to a vote of all members as a set of special resolutions, to be determined at this year's Annual General Meeting. In this article I list these proposals, as recently sent to members, and discuss their wording and argue why I think they (or changes like them) are necessary.

1. That additional words are added to Rule 32(1) changing it from:

Subject to any resolution passed by the Society in general meeting, the funds of the Society shall be used in pursuance of the object of the Society in such a manner as Council determines.

to:

The Society is a non-profit organisation. Subject to any resolution passed by the Society in general meeting, the funds of the Society shall be used solely in pursuance of the object of the Society in such a manner as Council determines and no portion shall be distributed directly or indirectly to the members of the Society except as bona fide compensation for services rendered or expenses incurred on behalf of the Society.

Discussion: The first of the suggested changes, to state explicitly that ASBS is a non-profit organisation, was drafted in response to an instruction from the Australian Taxation Office. Last year, when then Secretary Gillian Brown corresponded with the ATO to update our society's details on the register of deductible gift recipients, the ATO insisted that we insert such a statement in our rules. It is very important for us to maintain our society's status as a deductible gift recipient because this has allowed donors to claim their donations as tax deductions, making the research fund a much more attractive target for potential donors than it was before it achieved this status.

The additional text in this statement was copied, word-for-word, from an example clause given on the page of ATO web site devoted to non-profit organisations (including scholarship funds). However, one member has inquired, in correspondence, whether the proposed new rule might, as an unintended consequence, proscribe the payment of awards from the Eichler Research Fund to members. I have sought an informal opinion on this question from the ATO and been told that so long as awards paid from the fund are to be used solely in pursuance of the objects of the society (i.e. to support research in plant systematics) then the fact that they may be awarded to particular members does not compromise the society's non-profit status.

2. That additional words are added to Rule 19(5) changing it from:

Any four (4) members of Council present at the Council meeting constitute a quorum for the transaction of the business of a meeting of Council.

to:

Any four (4) members of Council, present at the meeting either in person or in electronic voice communication with the other Councillors at the meeting place, constitute a quorum for the transaction of the business of a meeting of Council.

Discussion: The purpose of the second suggested change is to enable ASBS Council to meet formally by electronic means. In the absence of a broad definition of the word "present", the existing rule requires that at least four Council members be physically present in the same room for a Council meeting to make decisions on behalf of the society. While in the past it might have been reasonable to require members of the governing body of our society to meet in person in order to discuss and make decisions about society business, modern communications technology has made this requirement redundant. Meetings of small groups like ASBS Council by telephone or video conferencing are now commonplace and it is time that our rules recognised and allowed this. This change would have the added benefit that it would enable us to hold more frequent

Australasian Systematic Botany Society Inc.

Notice of Annual General Meeting

In accordance with Section 25 of the Society's Rules, notice is hereby given that the annual general meeting of the Australasian Systematic Botany Society Inc. will be held on Tuesday 25th September 2012 at the University Club of Western Australia, Hackett Drive, Crawley, WA beginning at 4:00 pm (WST).

The purpose of this meeting is to:

- confirm the minutes of the annual general meeting held on Friday 25th November 2011,
- confirm the minutes of the special general meeting held on Tuesday 3rd July 2012,
- receive reports from Council on activities of the Society during the preceding financial year,
- determine the special resolution put to members at the special general meeting of the Society held on Tuesday 3rd July, and
- declare the results of the vote for membership of Council.

Nomination for membership of Council

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

- Peter Weston has served 3 consecutive full terms as President and is ineligible to nominate for this position. However, having served only 4 consecutive terms on Council, he is eligible to nominate for any other position.
- Dale Dixon has served the maximum 6 consecutive full terms allowed by the Rules and is ineligible to nominate for any position this year.
- All other Councillors are eligible for re-election.

Nomination forms are included with this Newsletter (hard copy) or can be obtained from the Secretary (john.clarkson@qld.gov.au) or from the ASBS web site <http://www.anbg.gov.au/asbs/>

Note: A member may be nominated simultaneously for any number of positions on Council but is ineligible to hold more than one position at one time.

Reminder on payment of annual membership fees

Your membership fees for 2012 were due on the 1st January. Under the Rules of the Society, you cannot hold office, nor do you have the right to vote, if you are unfinancial. If you are unsure of your financial position, check with Pina Milne (Pina.Milne@rbg.vic.gov.au).

Council meetings without having to go to the expense of flying Council members around Australasia. The phrase "electronic voice communication" has a sufficiently broad scope to include communication by telephone, video conferencing or perhaps other techniques yet to be invented.

Proposals 3-5 would also allow Council members to participate in General Meetings of the society, other than Annual General

Meetings, by electronic voice communication.

3. That additional words are added to Rule 26(2) changing it from:

Thirteen (13) members including a minimum of four (4) incumbent Council members or Council members elect present in person (being members entitled under these rules to vote at a general meeting) constitute a quorum for the transaction of the business of a general meeting.



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to:

Thirteen (13) members (being members entitled under these rules to vote at a general meeting) including a minimum of four (4) incumbent Council members constitute a quorum for the transaction of the business of a general meeting. At a general meeting, other than an annual general meeting where subrule 23(5) applies, members must be present in person with the exception of incumbent Council members who may be either present in person or in electronic voice communication with the other members at the meeting place.

4. That the heading of Rule 23 be changed from:

23. Annual general meetings – calling and business

to:

23. Annual general meetings – calling, business and quorum

5. That a new rule numbered 23(5) be inserted:

Thirteen (13) members (being members entitled under these rules to vote at a general meeting) present in person including a minimum of four (4) incumbent Council members or Council members elect present in person constitute a quorum for the transaction of the business of an annual general meeting.

Discussion: General Meetings other than the Annual General Meeting have mostly been called to deal with Special Resolutions to change ASBS rules. Rule 34 of our constitution requires that two General Meetings be held to pass a Special Resolution. At the first such meeting the proposals are discussed, and if the meeting so votes, modified before being put to a postal vote by members. At the second General Meeting, the proposals are determined by counting postal votes as well as any additional votes cast from the floor of the meeting. Usually, one of these General Meetings has been an Annual General Meeting but the other has been a small General Meeting, held in one of the larger capital cities, usually with fewer than twenty members present. The quorum for a general meeting is 13 members, 4 of whom must be Council members. We have had no problem

getting at least 9 ordinary members to attend such a meeting but the quorum requirement for four Council members being personally present has obliged ASBS to spend the society's funds flying some Council members interstate. Allowing Council members to attend General Meetings other than Annual General Meetings electronically would eliminate this unnecessary waste of ASBS funds, without weakening the process of changing the society's rules. Since these meetings are invariably small, allowing some Council members to participate by electronic voice communication is feasible.

We did consider the idea of proposing to allow the membership at large to attend General Meetings electronically but we concluded that present video-conferencing technology is inadequate as a means for allowing large numbers of members to participate effectively in a formal meeting. Technically this probably could be done but the logistics of organising this would be beyond the ability of most current and potential Council members. This is not an attempt to exclude ordinary members or to make changing the rules less rigorous. The process of changing the rules would still be subject to all the current checks and balances.

We also considered the idea of extending this provision to Annual General Meetings but concluded that this would not only be impractical but that it is important for Council members to interact, face-to-face, with a large gathering of ASBS members annually. A good way to ensure this is to maintain the requirement for at least four Council members to attend each AGM personally because Annual General Meetings are usually held in association with a conference at which large numbers of members are present. Proposals 4 and 5 need to accompany proposal 3 in order to complete the separation of rules governing Annual General Meetings from those governing other kinds of General Meetings.

The purpose of **proposals 6-13** is to clarify the rules governing the way that members may cast their votes at General Meetings and in the determination of Special Resolutions.

6. That additional words are added to Subrule 30(2) changing it from:

All votes shall be given personally.
to:

All votes shall be given personally. Members cannot delegate a proxy to vote on their behalf at any meeting of the Society.

7. That additional words are added to Rule 11. Powers of Council changing it from:

The Council, subject to the Act, the Regulations, these rules, and any resolution passed by the Society in general meeting or by postal vote –

to:

The Council, subject to the Act, the Regulations, these rules, and any resolution passed by the Society in general meeting or by postal or electronic vote –

8. That the wording of Rule 25(2)(c) be changed from:

a procedure for proxy voting (as set out under subrule 30(5).

to:

a procedure for postal or electronic voting (as set out under subrule 30(5).

9. That the wording of Rule 30(5)(b) be changed from:

it is approved by the vote of at least 75% of those members of the Society who, being entitled to vote, vote in person or by proxy at the meeting.

to:

it is approved by the vote of at least 75% of those members of the Society who, being entitled to vote, vote in person or by post or electronically prior to the meeting.

10. That the wording of Rule 30(5)(c)(ii) be changed from:

absent members who have voted by proxy on forms made available to all members

to:

absent members who have voted by post or electronically on forms made available to all members

11. That the wording of Rule 30(5)(e) be changed from:

proxy voting details shall-

to:

postal or electronic voting details shall-

12. That the wording of Rule 34(2)(c)(ii) be changed from:

a venue and time of a second general meeting at which the special resolution will be determined to take place after the return of the proxy voting slips under subrule 34(e).

to:

a venue and time of a second general meeting at which the special resolution will be determined to take place after the return of the postal or electronic voting papers under subrule 34(2)(e).

13. That the wording of Rule 34(2)(e) be changed from:

Proxy voting papers shall be returned for inclusion in the ballot at the second general meeting either –

to:

Postal or electronic voting papers shall be returned for inclusion in the ballot at the second general meeting either –

Discussion: existing ASBS rules are potentially confusing in that they use the term “proxy vote” to refer to a postal vote. In conventional terminology, “proxy vote” refers to the process by which a society member (or company shareholder) may transfer his or her right to vote at a General Meeting to another individual member (or shareholder). Although some scientific societies do allow proxy voting of this kind, ASBS rules have never allowed it and we do not believe that it would be in the best interests of the society to introduce it now. Postal voting is allowed for the determination of special resolutions because this is the best way to allow as large a percentage of the membership as possible to participate in the process of deciding whether or not to change the society’s rules. This is the only kind of “Proxy vote” presently defined by our rules. We believe it is appropriate now to change the rules to refer to this process accurately as postal voting, not proxy voting. At the same time we have proposed to broaden explicitly the means by which postal voting may be undertaken, to include electronic voting (voting through

internet communication such as email). Many societies now conduct elections and ballots exclusively by email and have found this to be an effective, efficient, inexpensive and secure way to administer voting. We are not proposing to eliminate postal voting by mail but seeking to allow electronic voting as an alternative.

Proposals 14-25 are corrections of typographical errors that have accumulated in our rules over time. Some of these are the result of simple mistyping but most seem to be the result of changes that have been made to the rules that have not taken into account all of the logical consequences of cross-referencing between rules. Correcting these mistakes is a necessary exercise in constitutional housekeeping.

14. That the wording in the interpretation of “vote” in Rule 1(1) be changed from:

a “vote” shall be taken to mean a vote, as defined in subrule 30(4) of these rules, of an individual who is a financial member of the Society or who is a member accorded this right under subrule 2(4);

to:

a “vote” shall be taken to mean a vote, as defined in rule 30 of these rules, of an individual who is a financial member of the Society or who is a member accorded this right under subrule 2(4);

15. That the wording of Rule 2(4) be changed from:

The right to cast votes on any Society matter and stand for election and be elected to Council is accorded only to individuals who are financial members and any other class of personal membership given this right under these rules, as accorded under subrules 2(7) (c) and 7(3)(a);

to:

The right to cast votes on any Society matter and stand for election and be elected to Council is accorded only to individuals who are financial members and any other class of personal membership given this right under these rules, as accorded under subrules 2(7) (c) and 7(3);

16. That the wording of Subrule 3(1)(c) be changed from:

shall be accompanied by monies due for the current year as determined by subrules 7(3) and 7(4) and any further monies due prior to cessation of a previous term of membership under subrule 5(2).

to:

shall be accompanied by monies due for the current year as determined by subrules 7(2), 7(3) and 7(4) and any further monies due prior to cessation of a previous term of membership under subrule 5(2).

17. That the wording of Subrule 3(2) be changed from:

As soon as is practicable after receiving a nomination for membership in accordance with subrule 7(1), the Treasurer shall refer the nomination to Council which shall determine whether to approve or to reject the nomination.

to:

As soon as is practicable after receiving a nomination for membership in accordance with subrule 3(1), the Treasurer shall refer the nomination to Council which shall determine whether to approve or to reject the nomination.

18. That the wording of Subrule 3(4) be changed from:

The Treasurer shall, on payment by the nominee of the monies referred to in subrule 3(1)(c) and on Council approval according to subrule 3(3), enter the nominee's name in the register of members.

to:

The Treasurer shall, on payment by the nominee of the monies referred to in subrule 3(1)(c) and on Council approval according to subrule 3(2), enter the nominee's name in the register of members.

19. That the wording of Subrule 13(5) be changed from:

If a vacancy for any position remains, nominations shall be called for at the annual

general meeting following the requirement in subrule 13(1)(a) and, where there are more nominations than the number required to fill a position, decided by ballot at the meeting following subrule 30(3) –

to:

If a vacancy for any position remains, nominations shall be called for at the annual general meeting following the requirement in subrule 13(1)(a) and, where there are more nominations than the number required to fill a position, decided by ballot at the meeting following subrules 30(1)-(4).

20. That the wording of Subrule 15(1)(f) be changed from:

ensure that the Public Officer has an up-to-date copy of the register of members annually or at more frequent times resolved by the Council, pursuant to section 67 of the Act and subrule 40(d) of these rules.

to:

ensure that the Public Officer has an up-to-date copy of the register of members annually or at more frequent times resolved by the Council, pursuant to section 67 of the Act and subrule 40(1)(d) of these rules.

21. That the wording of Subrule 16(1) be changed from:

Members of Council shall notify the Secretary of a change in address within one (1) month of the occurrence of the change, pursuant to section 63 of the Act.

to:

Members of Council shall notify the Secretary of a change in address within one (1) month of the occurrence of the change, pursuant to section 62(2) of the Act.

22. That additional words are added to Subrule 24(2) changing it from:

Council shall, on the requisition in writing of not less than five (5) per cent of the total number of members, convene a general meeting of the Society.

to:

Council shall, on the requisition in writing of not less than five (5) per cent of the total number of members entitled to cast votes as defined in subrule 2(4) on any Society matter, convene a general meeting of the Society.

23. That the wording of Subrule 29(5) be changed from:

Where the ballot is demanded at a general meeting or required under subrule 28(3), the ballot shall, subject to rules on voting in rule 30, be taken –

to:

Where the ballot is demanded at a general meeting or required under subrule 28(1), the ballot shall, subject to rules on voting in rule 30, be taken –

24. That the wording of Subrule 30(4) be changed from:

Only members of the Society who are financial under subrule 2(3) and those accorded the status of a financial member under subrules 2(6)(b) and 7(4)(a) are

entitled to vote at any general meeting of the Society.

to:

Only members of the Society who are financial under subrule 2(2) and those accorded the status of a financial member under subrules 2(7)(c) and 7(4)(a) are entitled to vote at any general meeting of the Society.

25. That the wording of Subrule 34(1) be changed from:

Neither the object of the Society nor these rules shall be altered except in accordance with sections 30 to 35 of the Act which requires determination by special resolution.

to:

Neither the object of the Society nor these rules shall be altered except in accordance with sections 30 and 35 of the Act which requires determination by special resolution.

Articles

A misinterpreted specimen of Drummond

Alex George

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At the Royal Botanic Gardens, Kew, in 2004–05, while selecting specimens of *Scaevola* (Goodeniaceae) for scanning for the GBIF project, I came across a collection determined by George Bentham as *Scaevola spinescens* R.Br., and cited by him in *Flora Australiensis* 4: 87, 88 (1869). Bentham specifically mentioned that his description of the fruit ('drupe ovoid, rather large, with a bony endocarp, and thick, succulent mesocarp') was based on this collection, which is without flowers. It was gathered in south-western Australia by James Drummond, being his no. 54, cited in error by Bentham as no. 51. It is probably from his First Collection since in each later Collection number 54 is a species in unrelated families. The specimens, the only ones at K in mature fruit in the folder for *S. spinescens*, did not

look 'right' for the species, and I suddenly realised that they were *Nitraria* (formerly *Zygophyllaceae*, now in *Nitrariaceae*). A quick check under that genus confirmed that they are *Nitraria billardierei* DC.

The fruit of *Scaevola spinescens* is an ovoid drupe, 5–8 mm long, with a fleshy mesocarp (R.C. Carolin, *Flora of Australia* 35: 4, 92, 99, 1992). *Nitraria billardierei* has an ovoid-oblong fruit 10–20 mm long (e.g. Hj. Eichler, *Flora of South Australia* 4th edn 725, 1986). The fruit sectioned by Bentham is still on the sheet, in a capsule. He mentioned that on other specimens [of *S. spinescens*] the fruit 'appears to be ovoid, rather small, dry, and rugose, but evidently not arrived at perfection, and without any seed'.

Native *Hypericum* species in Australia

John Hosking

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Are you aware that there are a number of taxa currently under the name *Hypericum gramineum* and *Hypericum japonicum* in Australia? Why should one even care if there are a number of native *Hypericum* spp.? One possible reason is that a number of biological control agents have been introduced for control of *Hypericum perforatum*, St John's wort. These agents were initially introduced when there was no particular concern with regard to damage to native plant species (although damage was not permitted to commercially important plant species at that time). Now there is concern with regard to damage to native species. There has been some Australian work carried out to see if some of the biological control agents released in the past damage native species. The agents studied to varying degrees are *Chrysolina quadrigemina* (Coleoptera: Chrysomelidae), *Aphis chloris* (Hemiptera: Aphididae) and *Aculus hyperici* (Acarina: Eriophyidae) (Willis *et al.* 1993, 1995, 1998, 2003a, 2003b). Research on the mite, *Aculus hyperici*, indicated that there was little damage in the field (there was some damage in laboratory studies) to *H. gramineum* (Willis *et al.* 2003a). Other studies indicated that damage could be caused by *Chrysolina quadrigemina* and *Aphis chloris* to *H. gramineum* and *H. japonicum* and that spill over attack from *H. perforatum* heavily attacked by *C. quadrigemina* to *H. gramineum* has been noted (Willis *et al.* 2003b). In most cases damage in the field was minor in areas monitored. Conclusions with regard to damage to *H. gramineum* and *H. japonicum* were based on the belief that there was only one species under each name. However, I now wonder what damage is being done by these agents to native *Hypericum* spp. other than the ones tested.

Some recent studies in New Zealand (NZ) have covered damage to NZ native *Hypericum* spp. by *Chrysolina* beetles in laboratory studies (Groenteman *et al.* 2010, 2011). This work showed feeding on *Hypericum involutum* (as *H. gramineum*) and *Hypericum pusillum* but little

feeding on *Hypericum rubicundum*. However, in the field little damage appears to have occurred to native NZ *Hypericum* spp. (Groenteman *et al.* 2011).

The type specimen of *H. gramineum* comes from New Caledonia and the type for *H. japonicum* comes from Japan and I wonder if either name will be used for Australian native *Hypericum* spp. in the future. Interestingly descriptions of *Hypericum japonicum* give numbers of stamens for New South Wales that do not seem to match those found in the field. For New South Wales Millar (1990) and PlantNET (1999+) gives the stamen number as 20-30 whereas all plants that I have seen that would come under this name in New South Wales have 6-12 stamens. For *H. japonicum* in other states, Stove (1986) gives the number for South Australia as 10-30, while the number given for Victoria is 5-30 (Walsh 1996).

Part of my interest in native *Hypericum* spp. is based on my being involved with releases of *A. hyperici* for control of *H. perforatum* in New South Wales and part on work carried out by Peter Heenan (CHR) in New Zealand (Heenan 2008, 2011). As a result of Peter's work NZ no longer considers *H. japonicum* to be present in NZ and there are now three native species that cover what was under the name *H. japonicum* (Heenan 2008). According to APNI (1993+) one of the names that he recognised is currently being applied in Tasmania, *H. pusillum* (the type of this species is from Tasmania), although Tasmania is still recognising *H. japonicum* as a native Tasmanian species (Baker and Duretto 2011). Peter's work (Heenan 2011) also means that what was known as *H. gramineum* in NZ is now largely *H. involutum*, the type of which comes from Tasmania (although the name *H. involutum* is not in use in Australia to date). *Hypericum gramineum* is still considered to be present in NZ but there are very few specimens under that name. Peter also carried out some DNA studies on Australian native *Hypericum* spp. but ended up with a confusing number

of different DNA signatures. Peter has plenty to work on in NZ so did not take this any further. For an excellent summary of the native *Hypericum* species in NZ see the online Flora of New Zealand (2010+) treatment.

Native *Hypericum* spp. in Australia appear to be similar to native species in NZ and have flowers and capsules with three styles, lack any black gland dots and are herbaceous.

This short article is a plea for more careful collection of native *Hypericum* spp. in Australia. Over the last couple of years I have been collecting a number of native *Hypericum* spp. They appear to be separated by habit (wet areas, ephemeral wet areas and relatively dry areas), petal shape (longitudinally symmetric (Fig. 1a) and longitudinally asymmetric (Fig. 1b), seed length, root system (rhizomatous (Fig. 1d) and non rhizomatous (Fig. 1c)) and branching of stems. In most locations taxa seem to be relatively stable with regard to these characters (although branching will

vary from plant to plant at a given location). Unfortunately petal shape is not always obvious on dried specimens and the root system is often not present as collectors have not bothered to extract rhizomes when these are difficult to dig out. Digital images of flowers and the habitat are also useful. My *Hypericum* collections also include silica gel material that is currently lodged at Armidale University herbarium (NE) should this be required to resolve current taxonomic problems.

A few images follow to show petal shape and the root system of species that would currently be under the name *H. gramineum*.

In New South Wales various native *Hypericum* spp. may grow close together. In Warrabah National Park (about 90 km north of Tamworth) there appear to be three native taxa. A low growing swamp taxon that is in the *H. japonicum* complex and two taller *Hypericum* spp. that grow elsewhere. One of these grows in ephemeral wet areas and has a rhizomatous



Fig. 1. Clockwise from top left: a, Symmetric petals. b, Asymmetric petals. c, Non rhizomatous root system for *H. gramineum s.lat.* d, Rhizomatous root system for *H. gramineum s.lat.* Ph. John Hosking

root systems (although the rhizomes are easily broken), longitudinally symmetric petals and was recorded growing to 23 cm high. The other grows in drier areas, is not rhizomatous and has longitudinally asymmetric petals.

An AVH map for *H. gramineum* (Fig. 2) shows the species growing in many different climatic areas and to many this would suggest that a number of taxa are involved. Using APNI (1993+) there appear to have been a few *Hypericum* names that have become synonyms of *H. gramineum* and *H. japonicum* so it will take some work to sort out what names should be applied to native taxa in Australia. There are possibly also names for some of the species that extend into Asia. I suspect that a lot of field work will be needed to determine the number and range of native *Hypericum* taxa present in Australia.

An AVH map for the distribution of *H. japonicum*, not shown here, shows a species growing in an equally perplexing range of climatic areas.

In future, instead of saying that it is only *H.*

gramineum, *H. japonicum* or *H. pusillum*, make a collection with decent notes, and preferably associate the collection with some images, and someone may thank you in the future for helping to sort out native *Hypericum* taxa.

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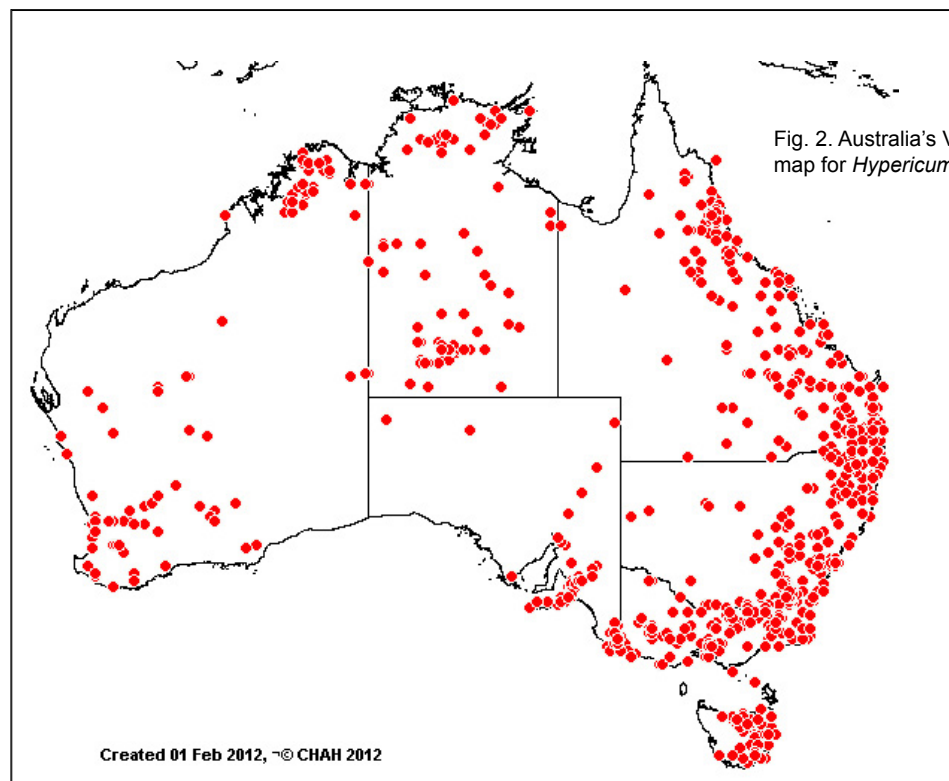


Fig. 2. Australia's Virtual Herbarium map for *Hypericum gramineum*.

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Jessie L. Hussey — a South Australian treasure

Lisa Waters

State Herbarium of South Australia

Jessie L. Hussey was born in 1862 and died suddenly in 1899 at the young age of 36. In the six years before her death she made a significant contribution to the knowledge of the terrestrial and marine flora of her local Port Elliot, Encounter Bay region.

Jessie's passion for botany, her thorough collecting, and the quality of her specimens created an important botanical legacy. This was achieved just prior to rapid clearing for agriculture and thirty years before Professor J.B. Cleland made his botanical surveys of the area.

The invitation in 1893 to collect for Ferdinand von Mueller was the catalyst for Jessie's achievements. She developed an extensive national and international collaborative network with botanists, phycologists and enthusiasts, which resulted in her specimens residing in numerous herbaria and private collections around the world. Despite this both the nature and extent of Jessie's work has remained largely unknown.

Lisa Waters of the State Herbarium of South Australia is researching the life and work of Jessie L. Hussey and has made some important archival discoveries including Jessie's 'Register' of her own algal herbarium and her "lost" paper, the 'Catalogue of land flora collected in the vicinity of Port Elliot'.

Many of Jessie's specimens are held in Melbourne and Adelaide. These are mostly of vascular plants and include a smaller number of algal specimens. Jessie had a particular collaboration with the eminent Swedish phycologist Jacob Agardh and some 1000 algal specimens have been located in Lund. Lisa has also been able to trace vascular and algal specimens in other European herbaria.

In 2011 Lisa was awarded a Churchill Fellowship sponsored by the Churchill Fellows Association of South Australia to document the significant work of this pioneering naturalist. Lisa will be taking her Fellowship trip from May-July 2012 and will be visiting herbaria in London, Dublin, Lund and Munich. Whilst it is known that Jessie

sent algal specimens to Norway, Denmark, U.S.A, Netherlands and France, so far Lisa has been unable to trace these.

Lisa hopes to find and document as many of Jessie's specimens as possible. Full knowledge of the species Jessie collected may provide a unique historical picture of the terrestrial and

marine flora of a region before dramatic loss of native bushland and prior to pollution and climate change.

Lisa would be glad to hear from anyone who has any further information about Jessie's specimens. She can be contacted at waters.lisa@hotmail.com.

The view from Kew

Tim Entwisle

The Review is dead, long live the Review! One down, another starting... As the expert panel's report on Kew's Science is digested (I will elaborate further on this in my next update) I am preparing for Kew's first Review of Horticulture. The cynics among you will be thinking that those that can't do, review. While there is an element of truth in this – reviews often tell us things we know anyway – from time to time we should ask others how we are going. That's what I'm going to do for the horticultural duchy of my subkingdom at Kew.

The Royal tone is appropriate in this Diamond Jubilee Year. Your Queen is now the second monarch of the Empire or Country to reach her (and both are hers) 60th year in power. Kew will celebrate the occasion with a newly renovated and dedicated Gate, and a tree planting. The Kingdom of Britain will celebrate, as always, with an extra bank holiday – on the 6th of June. We'll need this day to recover after 1,000 boats, "the largest flotilla of on the Thames for 350 years", is watched by over one million Londoners on 3 June.

The obvious question is: what happened in 1662? Not a lot that I can find. Sure in a couple of years the plague would visit for the third and last time, followed closely by the Great Fire of London in 1666. But in 1662? Diarist Samuel Pepys had a personally stressful day on the 3 June. His mind was 'troubled about the charge of money [£6,000] that is in my house' and he 'made the maids to rise and light a candle, and set it in the dining room, to scare away thieves'. No evidence of giant flotilla, although I'm sure all will become clear as we approach the Bank Holiday.

Applications have now closed for the Ruler of Royal Botanic Gardens Kew, and a decision is expected before the Royal Thames extravaganza. Apart from an interlude involving three generations of the Hooker extended family, Kew isn't a hereditary monarchy, so the modern traditional of an international search is under way.

Large pieces of carved wood will be appearing across Kew Gardens soon as local sculptor David Nash becomes Kew's artist-in-residence for 2012. As the publicity blurb says:

Nash will work at Kew on a 'wood quarry' from April 2012, creating new pieces for the exhibition using trees from the Gardens that have come to the end of their natural life. This ongoing work will form part of the exhibition, with the fruits of his labour on display from October 2012.

David Nash has been carving wood with a chainsaw and axe for 40 years, creating more than 2,000 sculptures. Maybe a hundred or so will be on show in and out of doors at Kew Gardens. It's sure to bring back memories of Henry Moore and Chihuly.

Right now the Tropical Extravaganza is flourishing in the Princess of Wales Conservatory. It's all about Earth, Wind, Fire and Water. My blog post (talkingplants.blogspot.com) on this topic drew some negative feedback about Kew spray painting some *Anthurium* spathes and spadices blue. I explained it was all in the pursuit of fun and creativity, and that the exhibition was a mix of living-flower arrangement, sculptures and other arty bits and pieces. To be

fair this comes close to crossing a line of some kind for me as well, despite my enthusiasm for anything advocated by Lewis Carroll. The giant toadstools of course are absolutely fine. You can see some pictures of these and more on my blog (which also includes a post on the Joseph Hooker conference held at Kew back in December).

Still indoors, but away from living plants, there are lots of Kew publications in production: the final volume of *Flora of Tropical East Africa*, *Flora of Cayman Islands*, *Restoring Tropical Rainforests*, *Checklist of Trees of Uganda*, *Guide to Littoral Trees of South Madagascar*, *Field Guide to Trees of Burkina Faso*, a monograph of the genus *Lachenalia* and the next issue of *Kew Bulletin* (where a concerted effort is being made to clear the backlog of accepted papers, with publication now online as soon as editorial process is completed).

Look out in May for the premiere of a three-part 3D television series filmed at Kew by Sky Atlantic and presented by Sir David Attenborough. I've seen shorts already and although you may think 3D is now a little ho hum, it works a treat for time-lapse photography of flowers opening and just about anything

plants do. If you miss the series on TV, there will also be a book. The book will be in all three dimensions as well but in a different kind of way.

Alan Paton and Dave Simpson journeyed to St Louis, USA, in January to begin planning the *World Flora Online* with Missouri Botanical Garden, Royal Botanic Gardens Edinburgh and New York Botanical Garden. If you want to know more about this rather large and ambitious task, talk to Alan or Dave. Dave, I understand has just become an Adjunct Professor at the University of New England so you may find him in an Armidale coffee shop.

Let me finish with some scintillating statistics. More than 100,000 people visited the art galleries of Kew Gardens last year, 20,000 more than 2010 (and twice as many as the year before). Meanwhile, 42,000 specimens were added to the 7 million already in the Kew Herbarium collection (alongside the 1.2 million or so in the Fungarium). And over the last 60 years, Queen Elizabeth II has sent something like 280,000 telegrams to couples who, like Her Majesty and the Duke of Edinburgh did in 2007, have reached their diamond wedding anniversary; no other English monarch has done either.

21 February 2012

ABRS report

ABRS National Taxonomy Research Grant Program

Capacity and non-salaried researcher grants have been awarded for 2012-13 and the results can be found here: <http://www.environment.gov.au/biodiversity/abrs/funding-and-research/capacity-grants/awarded-cbg.html>

The ABRS Advisory Committee will meet on 26 and 27 March to assess the applications for the Research Grants.

Applications for the 2012 ABRS Churchill Fellowships have closed.

Bush Blitz

The Bush Blitz team completed a "blitz" in February at Skullbone Plains in Tasmania. Botanists from HO and CANB and horticultural

staff from the Australian National Botanic Gardens took part. You can see pictures of the spectacular landscape, and more information about Bush Blitz surveys at: <http://www.bushblitz.org.au/>

The next survey will be at Fish River in the Northern Territory, starting in late April.

Flora of Australia

The next volume of the Flora to be published will be Volume 26 (Meliaceae, Rutaceae and Zygophyllaceae). Editing is also under way on volume 23 (Euphorbiaceae) and Volume 38B (Asteraceae).

Annette Wilson
Editor, *Flora of Australia*
March 2012

The 150th issue of the ASBS Newsletter

Marking a Newsletter's 150th issue

Robyn and Bill Barker

The first issue of the Newsletter appeared in March 1974 under the editorship of Des Boyland of the Queensland Herbarium. It followed the first general meeting of the Society in Perth on the 17th August 1973, a meeting which had itself resulted from an earlier Easter meeting in Melbourne of the same year when a gathering of systematic botanists resolved to form the society. Strangely there doesn't seem to be any account of this Melbourne meeting and it would be good to see something of it when the Society marks its 40th birthday next year.

The first issue of the newsletter had an introduction by Selwyn Everist, then director of the Queensland Herbarium and we had thought that some of the words were worth reproducing here since the issue is not freely available unless you are attached to a library. However we later found in reviewing the list of editors for the newsletter that when David Morrison and Barbara Wiecek took over the editing at issue 66 in March 1991 David Morrison had the same thought and reproduced the whole of Everist's original opening remarks. And then when we received the President's report from Peter Weston for this issue there was Everist's timeless preface again.

What strikes the reader of these old newsletters almost immediately are a number of differences in the way that affairs were conducted. In these early days each of the states had their own local chapters (although as early as the second newsletter it was suggested that these chapters should be named after the city rather than the state) and each of these chapters had a convenor, and sometimes also a secretary, and most ran monthly or bimonthly meetings with a guest speaker and for a time, many of them also ran day excursions into the field. The earliest newsletters were predominantly made up of reports from these chapters. At this stage the newsletter was produced three times a year, moving to 4 issues in a year in 1977. But there is no need for us to go on here about the

production of those early newsletters since David Morrison provided a comprehensive review of the history and production of the first 65 issues in Newsletter 66 and then in Newsletter 78 of March 1994, 20 years of newsletter production were marked by articles by then president, Mike Crisp, inaugural president Trevor Whiffin and 4th President, Trevor Clifford.

We had hoped to be able to find time to do something of an analysis of the later newsletters (in the style of Morrison), but unfortunately time has run out. Thanks to three past editors who have provided items to mark the occasion. Our contribution will instead have to be a more accurate accounting of the editors for each issue than presently projected on the web (Table 1).

Table 1. Editors of the *ASBS Newsletter*.

1-3	Des Boyland (Brisbane)
4-14	Rod Henderson (Brisbane)
15-25	Alex George (Perth)
26-30	Barry Conn (Adelaide)
31-45	Gordon Guymer (Brisbane)
46-53	Helen Hewson (Canberra)
54	Barbara Barnsley & Alex George (Canberra)
55-65	Barbara Barnsley & Mike Crisp (Canberra)
66-79	Barbara Wiecek & David Morrison (Sydney)
80	David Morrison (ed.), Greg Leach, Ian Cowie & Clyde Dunlop (formatting and printing)
81-87	Greg Leach, Ian Cowie & Clyde Dunlop (Darwin)
88	Greg Leach, Ian Cowie, Clyde Dunlop & Philip Short (Darwin)
89-93	Philip Short, Greg Leach, Ian Cowie & Clyde Dunlop (Darwin)
94-107	Bob Hill (Adelaide)
108-134	Robyn & Bill Barker (Adelaide)
134-136	Robyn, Bill & Jenny Barker (Adelaide)
137-141	Russell Barrett (Perth), Gael Campbell-Young (Adelaide) & Peter Jobson (Perth)
142-148	Russell Barrett & Peter Jobson (Perth)
149-150	Robyn & Bill Barker (Adelaide)

Numbers 15 to 25, May 1978 to December 1980

Alex George (then at the Western Australian Herbarium)

The formation of the Society in 1973 reflected a surge in taxonomic activity in the 1970s. In its first five years it succeeded very well in contributing to improved communication and co-operation among Australian systematic botanists, and the Newsletter played a big role in this.

In taking on the task I was extending a growing interest in editing. Previously I had edited the *Journal of the Royal Society of Western Australia*, and I was editor of *Nuytsia*, the taxonomic journal of the Western Australian Herbarium. At the time there was an editorial committee for the Newsletter—Karen Wilson (NSW) was the other member. She handled the printing and despatch until number 18.

On the whole my term was enjoyable. There were times when contributions were few and I put out pleas for articles (see e.g. 15: 15, 18: 2, 23: 3) but members responded to these well. Articles came in by mail. I checked these and edited them where necessary. There were no illustrations. Initially, production continued to be in Sydney but I found a good organisation in Perth, Beehive Industries, who employed mainly handicapped people and offered a good price. From no. 19, I delivered typed copy to them, they re-typed and formatted it and sent me a proof for checking, then printed (duplicated) and mailed it. The Newsletter was simply stapled to a stiff paper cover in the top left corner, folded once, and addressed. Looking through ‘my’ numbers I’m embarrassed to see typos that got through!

One article that required editing was a report from David Frodin on a fire in the herbarium of the University of Papua New Guinea. David wrote bluntly who he considered responsible but I suggested that such explicitness might

lead to legal issues and he toned it down (24: 5–7)!

A good series was ‘Know the herbaria’, which, over several years, featured all the major Australian herbaria. It would be nice to see this repeated from time to time so that we know who is doing what. Chapter news was included in most numbers. We also published a membership list—again a feature that would be useful to include occasionally.

I liked to have a little humour, e.g. the Guide to botanists’ performance appraisal (22: 13).

My editorial term corresponded with the period when the move for a new Australian Flora was gathering momentum, with various articles commenting on possible format and scope. The decision to proceed with it was taken in 1979, together with the establishment of the Australian Biological Resources Study as a unit to administer the program (initially called the Bureau of Flora and Fauna). The Society’s own flora project, the Flora of Central Australia, was produced during these years, with regular reports on progress from the editor, John Jessop. I felt that it was a useful training run for ‘the big one’.

The Newsletters reported planning for the XIII IBC in Sydney in August 1981. At that time ANZAAS was alive and well. CHAH, established just a few years earlier, reported regularly in the Newsletter.

I handed over the position when I took on the rather larger editorship of the *Flora of Australia*, since I knew that this would need my full attention, especially as we had just eight months to finish and print volume 1 in time to be launched at the IBC (the first copies were delivered to Sydney with two days to spare!).

Turning 150: a goodly number

David Morrison
David.Morrison@slu.se

So, the Newsletter is turning 150, which is a goodly number, and which seems to be about twice what any of us can expect, on average. It is cheating, of course, since it uses different units to us, but we should ignore that, especially as the

Newsletter has been around longer than many of the Society’s members. To write something about its history is not easy, since that involves digging into the fast-diminishing recesses of my memory, but I can at least put down on paper

those things that I do remember.

Barbara Wiecek and I took over the editorship from the first issue of 1991. I remember thinking very hard about what it meant to be an Editor. We quickly decided that it would work best if I did the actual editing and Barbara did the production part, our main collaboration occurring during the overlap between when I produced the first draft and when we agreed on the final draft. This certainly seemed to work out well. We wanted the Newsletter to be posted in the month that it was officially dated, and we achieved that every time, although we pushed the limit on occasions.

One of the first things I did was to borrow Barry Conn's collection of every issue of the Newsletter and go through them in detail. I did this partly out of interest, but mostly because I wanted to know where the Newsletter had come from, so to speak, so that Barbara and I could make an informed decision about where it might go next. This turned out to be a useful exercise, and I wrote some of it down as my first Newsletter contribution under my own editorship. Indeed, I had re-read this article only one week before the current Editors wrote to me and asked for a contribution for this celebratory issue. Coincidence is a wonderful thing, isn't it?

Barbara and I followed on from Barbara Barnsley and Mike Crisp, who had "upped the ante" by using a word processor to produce the camera-ready copy, which has obvious benefits. However, it also has limitations, for those of you who have never tried it, since a word-processor is very poor at page layout. So, I decided to use the word processor solely for text input and editing, and to use a specialist page-layout program for producing the camera-ready copy. This was "Ready, Set, Go!", a very simple program for Macintosh computers, which still exists today (www.divan.com/ready/prsg.htm).

The advantage of proper page layout is precisely what it says — it makes straightforward the laying out on a page the elements of text and graphics. Switching between single columns (for headings) and double columns (for text), for example, is a pain in the butt using a word processor but trivial for a layout program. Looking at the issues produced since my day,

I would say that everyone else has used a word processor, because headings rarely span the full page width when passing from one article to the next.

I had to learn to use this new program, of course, which was the only down-side. It had its quirks, but trial and error turned out to be a reasonable way to proceed. I quickly realized that TIFF files worked best for graphics, and that while sometimes a block of text would disappear it could be brought back by simply re-linking its layout box. After that, things went smoothly from my end, because once I had decided on a layout template for the first issue I could stick to it thereafter.

As far as presentation was concerned, we decided that graphics was an important element. For example, all of the reports (ABLO, ABRS, Chapters, etc) were flagged by relevant logos, which the people concerned readily provided. I was a bit surprised that the RBG Kew allowed their logo to be used for the ABLO report, but to me it had a big impact on a set of pages that is otherwise visually often rather dull (unless you can find some photos).

We also decided to fill in all of the small left-over page spaces with text and pictures, which is what professional publications seem to do. To this end we rummaged in our collections of biological humour and copyright-free botanical illustrations, and came up with a suitable selection, from which I subsequently made choices as needed. Working out which of these extra bits fitted into which page space often took longer than formatting the rest of the Newsletter, which may explain why most other editors seem to have downplayed this feature (the limitations of word processors for page layout play a large role here, I guess).

Most of the written contributions arrived on floppy disks, including those from the ABLO, this being the days when the internet was still an academic pursuit only. This was a good way to accumulate a nice collection of spare disks, if nothing else. I remember working out that the ABLO needed to wrap the disk in aluminium foil in order to get it past all of the inter-continental postal services' x-ray scanners with the contents unharmed. Some contributions still came in on paper (type-written, fortunately),

although I think this practice had ceased by the end of our stint as Editors. These were re-typed for the computer, for which ASBS kindly paid.

All Editors politely but insistently note that the number of voluntary written contributions can only be described as erratic — it varies all the way from none to a few. The only time when it reaches above these levels is when the Newsletter reports on the previous General Meeting (not always annual, back in our day), at which point there is a flurry of input one week after the deadline. The main editorial question, then, is how to increase the “few” to something acceptable. I did that by simply writing the stuff myself, which has been my main claim to fame within the Society. (I do not need to be reminded of any other possible claims to fame, thankyou.) My other strategy was to reprint articles from elsewhere, mostly humour that I thought would be relevant to the membership.

There was, however, one time when I literally had no material at all by the due date. So, I decided instead to print the membership list, on the grounds that a previous Newsletter issue had pointed out that Council wanted it done, and I knew that it never had been. My historical reading thus paid off handsomely. One has to be wily to be an editor!

As Editor, I showed no mercy if I thought that things were badly written. I simply re-wrote them (as little as possible) without consulting the original author. None of these authors has

ever commented on this, so I can safely claim to have gotten away with it so far.

In order to get things posted to the members on time, I assigned the Newsletter as my main task for the first two weeks of the relevant month. This included getting the typing done, followed by the layout, proof-reading, and then handing the draft to Barbara. She provided her feedback, and I then fixed things up, returning the camera-ready copy to her by the end of the second week. That provided her with two weeks to get the printing done, followed by the posting, which was the only part that required a group of helpers. This schedule was not necessarily easy to keep, as we both had other things to do and our immediate supervisors were not always cooperative. However, we simply set ourselves a deadline and actively tried to keep it. In the end, we stopped being Editors when it started to become harder for us to achieve the right timing.

Well, that seems to be about it. All other memories have faded into those infamous mists that seem to thrive by consuming such things. I feel that I should offer some parting advice along the lines of “would I do it again?” That is easily answered by asking yourself just how many Newsletter editors have ever done it twice (and then looking at who those couple of people are). One thing I know: being an editor is more fun than being a bureaucrat but less fun than being a scientist.

Editing from Darwin

Philip Short
Northern Territory Herbarium

Looking at the newsletters of the time I see that I must have taken over the editorial responsibilities in late 1996. In issue number 88 (September 1996) I was listed 4th in the list of editors at DNA. However, in the December issue my name had moved to the top and a check of my correspondence at the time indeed indicates that is what me who was fielding the letters and manuscripts concerned with its production and I continued in this role until we ceased producing it at DNA. It is perhaps worth noting that we paid someone else (Darryl Heatherley) to handle the final layout and liaise with the local printer. So it could have been a more time-consuming job than it was.

Just flipping through the correspondence for 1996/1997 I note that there were times when I expressed my annoyance at the lack of articles submitted – something partly responsible for my inclusion of an article entitled “Are plants intelligent?” by George Chippendale’s in the December 1996 issue (it was decided that we should generally publish what members wish to submit) and longish articles from FASTS (Federation of Australian Scientific and Technological Societies) in subsequent issues.

Of interest, perhaps, is the change to the cover of the newsletter. My taking over the editorship coincided with a change of ASBS president, Tim Entwisle taking the reins from Gordon

Guymer. With a change of president there was an informal (I assume) precedent that the cover would include an illustration to reflect the incumbent's taxonomic interests.

I see I wrote on this matter to Tim:

As to the cover I just talked to Clyde [Dunlop]. We don't think it is worth spending much time on designing a new cover and may simply drop illustrations altogether and change the font and positioning of 'Australian Systematic Botany Society Newsletter' and drop the logo to the bottom left-hand corner ... A plain and simple cover but it should be fine. [27 Nov. 1996]

He replied that

If you decide you would like a picture for the cover I can choose one from the *Flora of Victoria*. There are plenty of great drawings there of course. I did search around for a some pretty algal drawings (and they do exist believe it or not) but I decided it would be better to have a flower (or maybe a fern from vol. 1) on the front. Anyway, stick with your plain cover if it looks good. [28 Nov. 1996]

Number 89, the December issue, duly arrived on his doorstep without an illustration on the cover. Tim wrote to me:

Is this really what you wanted the cover to look like? Will you design a new cover for the next issue or do you want me to supply you with a drawing. Please let me know ASAP so I can choose one ... I can't wait for the comments about microscopic green algae on the cover or else what it says about my research (i.e. nothing!). [4 Jan. 1997]

The cover wasn't quite what we had asked for. Unfortunately, to meet the December deadline – I always tried to get the newsletter out in the month it was due to appear – the issue was rushed through, with both Darryl and the printer taking holidays later that month; our requested changes to the layout simply fell by the wayside. Thus, the new layout didn't eventuate until the March 1997 issue, one we continued with for all subsequent volumes edited at DNA. Incidentally, the colour of the cover was somewhat reflective of Tim's algal research, albeit not of the red inhabitants of freshwater; the printer referred to it as "seaweed green".

Eichler Research Fund reports

Is pollen morphology useful to define genera in the *Styphelia-Astroloma* clade (Styphelieae, Epacridoideae, Ericaceae)?

Caroline Puente-Lelièvre

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Styphelieae Bartl. is the largest tribe in the subfamily Epacridoideae Sweet (Ericaceae Juss.) and comprises 20 genera and over 320 species. They are usually perennial woody shrubs ranging in size and habit from prostrate to tree forms. Their habitat varies from heathlands and sandplains to montane forests (Kron et al., 2002). They are highly diverse and abundant in Australia but are also present in New Zealand, New Caledonia, New Guinea, with outliers in Hawaii and other Pacific islands. Given the high diversity of epacrids in Australia, they are regarded as an important component of the Australian flora.

Generic circumscription in Epacridoideae has been challenging since first described by

Brown (1810) as the family Epacridaceae. In order to resolve these taxonomic problems, molecular phylogenetic studies have been undertaken on Epacridoideae (Crayn et al., 1996) and have resulted in well-supported phylogenetic trees that outline the major clades of the subfamily and have led to more detailed revisionary work on a clade-by-clade basis. A phylogenetic framework of the subfamily has allowed the establishment of new, demonstrably monophyletic genera such as *Acrothamnus* Quinn, *Leptecophylla* C.M. Weiller and *Agiortia* Quinn among others (Crayn et al., 2003; Quinn et al., 2005).

However, non-monophyletic genera persist in Styphelieae. Within the tribe, a large, strongly

supported clade - the *Astroloma-Styphelia* clade - contains c. 280 species and includes *Croninia* J.M.Powell, *Coleanthera* Stscheegl., and most species of the non-monophyletic genera *Leucopogon* R.Br., *Astroloma* R.Br. and *Styphelia* Sm. (subsequently referred to as *Leucopogons.l.*, *Astrolomas.l.* and *Styphelias.l.*) The poor resolution inside this clade on published molecular trees and their incongruence with morphological patterns remain major barriers to developing a phylogenetic classification of Styphelieae. The lack of morphologically-based generic concepts is due to high homoplasy in floral and leaf morphological characters when mapped on the molecular phylograms (Taaffe et al, 2001). During my PhD I have generated phylogenetic trees based on four chloroplast markers (*rbcL*, *matK*, *atpB-rbcL*, *trnH-psbA*) and a nuclear one (ITS) that resolve the main lineages within the *Styphelia-Astroloma* clade. Although these clades are relatively congruent with the distribution of states of some traditional characters, the remaining challenge is to find new morphological attributes that support the circumscription of monophyletic genera. With this purpose I started to examine pollen characters.

Styphelieae are atypical with regard to pollen structure. Even though the pollen grains are shed in tetrads as in the majority of Ericaceae (with the exception of *Andersonia macranthera* F.Muell.; Lemson, 2011), they present patterns of variable sterility. These patterns were described by Smith-White (1955) as T-type: full tetrads, A-type: one to three microspores abort to produce triads, dyads, monads, or more rarely, nullads (all four meiotic products abort), or pseudomonads, which are permanent tetrads with only one large functional cell and three very reduced aborted cells. Pseudomonads may be formed through two processes: postmeiotic nuclear migration, unequal division of cytoplasm and subsequent nuclear abortion of three microspores (S-type) as reported in certain species of *Styphelia* and *Astroloma*, or from initially equally sized microspores of which only one fully develops while the remaining three become flattened against the functional one (S'-type) as described for some species of *Leucopogon* (Smith-White, 1955; Smith-White, 1959). In both cases the non-functional grains stay as a part of the tetrad

cryptically. Although the ontogeny of the pollen types has been well studied, their origin and evolution in the tribe remain unclear. The latest interpretation by Furness (2009) of pollen morphology and development in a phylogenetic framework suggests that pseudomonads are the derived character state from normal tetrads within the Styphelieae, and that tetrads with variable sterility are the intermediate state. Given the fact however that variable sterility may be underreported in the Epacridoideae and that the taxonomy within the tribe needs reconsideration, previous hypotheses may require reinterpretation (Lemson, 2011).

Moreover, given that previous investigations have been performed mainly with light microscopy and focused on pollen development, external morphological characters such as exine ornamentation (only visible with Scanning Electron Microscopy), shape and apertures have not been described and studied systematically.

Therefore, I conducted a comprehensive pollen survey using SEM within the *Styphelia-Astroloma* clade with the aims of characterizing the diversity of pollen morphology, and assessing its taxonomic utility and homology against the molecular phylogenetic trees.

Methods

Taxa were chosen to represent all of the main lineages within the *Styphelia-Astroloma* clade on the basis of the molecular phylogeny. Representatives of other genera within the Styphelieae were also sampled as the outgroup.

Pollen grains were extracted from dried herbarium specimens (NSW, PERTH, CNS), mounted directly on stubs using double-sided sticky tape, sputter-coated with gold and examined with a Scanning Electron Microscope (SEM). Images were obtained at the Australian Museum in Sydney and the Advanced Analytical Research Centre at James Cook University Cairns campus.

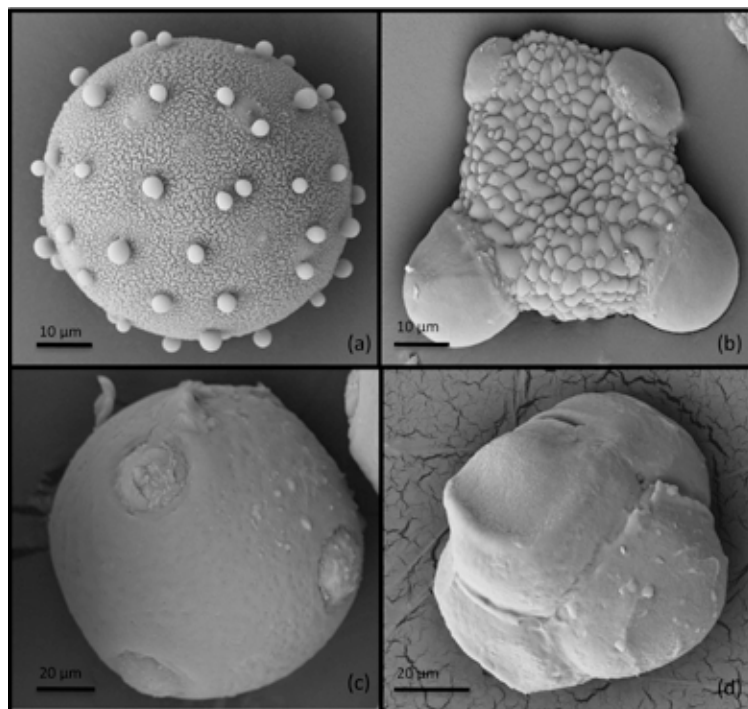
The terminology employed here to describe pollen morphological characters is that of Hesse et al. (2009).

Results

Pollen type

New SEM images of pollen grains were obtained for 55 species, including several

Fig. 1. SEM images of pollen grains. (a) *Styphelia longifolia*, (b) *Styphelia hainesii*, (c) *Astroloma epacridis*, (d) *Astroloma* sp. Grass Patch (A.J.G. Wilson 110).



undescribed species. Because some pollen grains were highly ornamented, the differentiation of pseudomonads from normal monads was not always evident. For these cases, the interpretation of pollen type was based on previous light microscopy studies. Pseudomonads were present in all the species sampled within the *Styphelia-Astroloma* clade. Variable sterility (dyads, triads and permanent tetrads) was not observed in any of them. It was present however in some species outside the clade, viz. *Leucopogon* s.s. (*L. capitellatus* DC), *Astroloma* s.l. (*A. conostephioides* (Sond.) F.Muell. ex Benth., *A. sp. Grass Patch* (A.J.G. Wilson 110) and *Conostephium* Benth. Permanent tetrads were observed in *Acrothamnus*, *Leptecophylla*, *Monotoca* R.Br. and *Trochocarpa* R.Br. (Figures 1 and 2).

Pollen morphology

The different character combinations of ornamentation, number of apertures, presence of an annulus around the apertures and grain size showed variation (Table 1) and congruence with the groups resolved in the molecular cladogram (Figure 3).

Discussion

As pseudomonads are widely distributed in the *Styphelia-Astroloma* clade, pollen type was not

considered to be useful for delimiting genera in the group. Nevertheless, the consistent and widespread presence of pseudomonads in the *Styphelia-Astroloma* clade could be the result of a particular evolutionary event in this lineage. Pseudomonads are a very rare pollen type in angiosperms (only reported in Cyperaceae; Furness 2009), but they appear to have originated independently several times within the Epacridoideae, in which tetrads seem to be the ancestral condition. The possible evolutionary transitions of pollen type and other pollen morphological characters are being explored in the context of the molecular phylogenetic trees developed during my PhD.

The discrepancies in pollen type and morphology within the species of *Astroloma*, *Styphelia* and *Leucopogon* are related to the polyphyletic nature of the genera as currently circumscribed. The ornamentation and number of apertures of *Styphelia* s.s. are readily recognizable and could be used to circumscribe the genus. Similarly, *Astroloma* s.s. pollen is quite distinctive in ornamentation, aperture number and size. However variability among the species of *Leucopogon* s.l. is less obvious. Psilate ornamentation is present in all the species sampled. Yet number of apertures, size and presence or absence of annulus varies. The

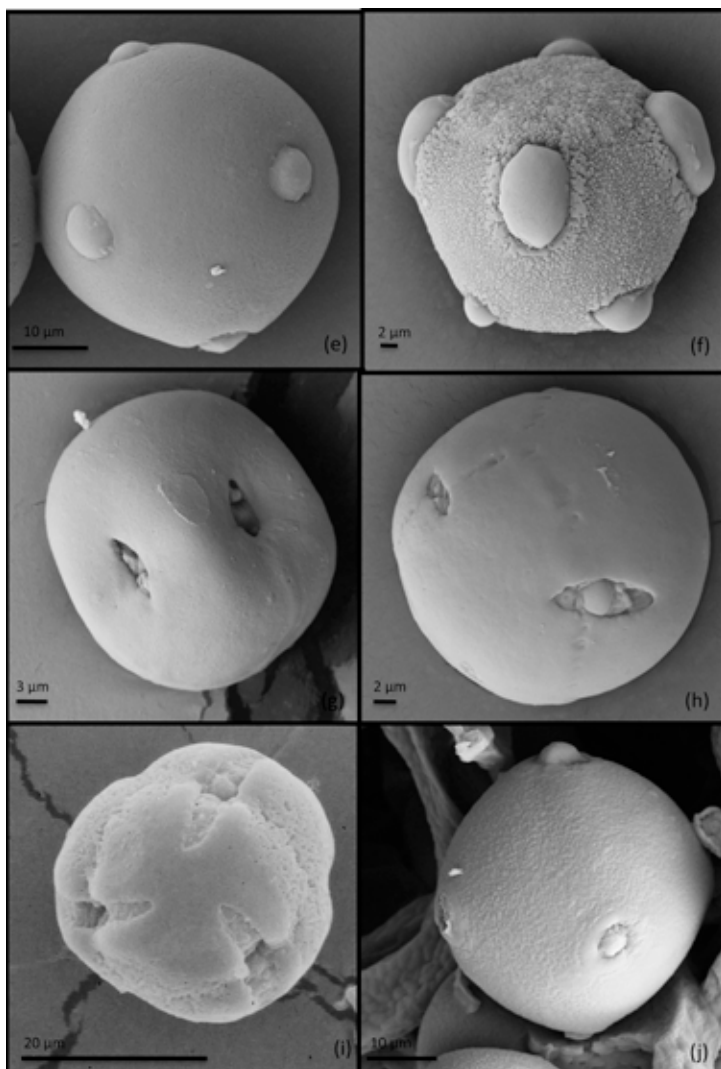


Fig. 2. SEM images of pollen grains. (e) *Leucopogon cordifolius*, (f) *Leucopogon fletcheri*, (g) *Leucopogon ruscifolius*, (h) *Leucopogon capitellatus*, (i) *Acrothamnus suaveolens* (Hook.f.) Quinn, (j) *Leucopogon neoanglicus*.

evolution in the group with an improved phylogenetic framework.

Acknowledgements

This work could not have been undertaken without the Hansjörg Eichler Scientific Research Fund. I am very grateful to the Australasian Systematic Botany Society [and the Eichler committee] for making it possible. Thanks are also due to Sue Lindsay (Australian Museum) and Chris Quinn (Royal Botanic Gardens Sydney and James Cook University) for helping me to obtain the SEM images, to Annette Wilson and Kristina Lemson for discussion and advice, and to my supervisors Darren M. Crayn and Elizabeth A. Brown for advice and guidance.

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significance and utility of this variation for the systematics of the unassigned species remain to be confirmed by further study.

Conclusions

Preliminary results show that pollen morphology is variable within the *Styphelia-Astroloma* clade and so far congruent with the lineages revealed in the molecular cladograms. Accordingly, pollen morphological characters are potentially useful to support the diagnosis of monophyletic genera.

Future directions

Further work is orientated to systematically score and map these characters onto the molecular phylogeny and assess their level of homoplasy as well as to investigate their

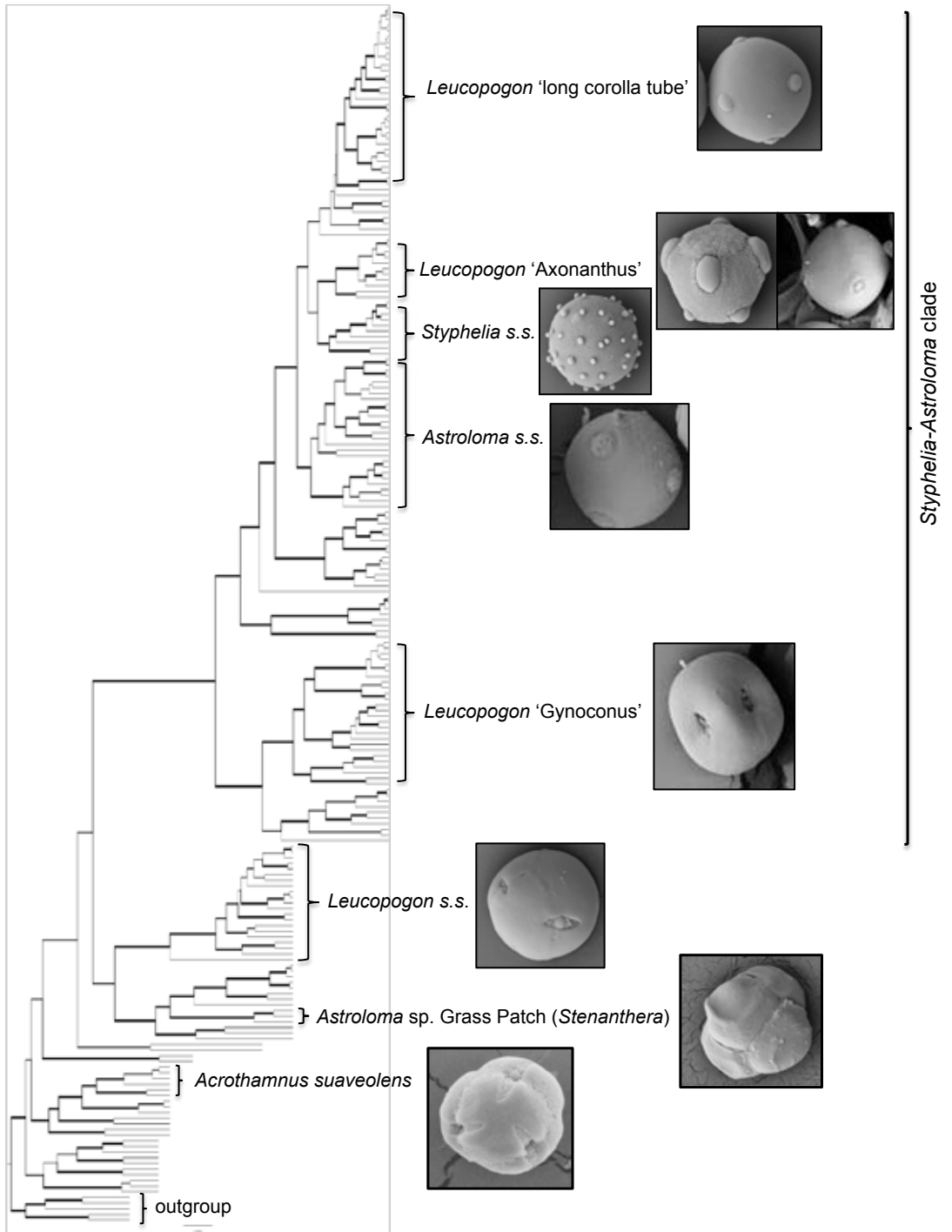


Fig. 3. Maximum clade credibility tree obtained by Bayesian Inference analysis of three chloroplast loci *atpB-rbcL*, *matK* and *rbcl*. Bold branches indicate posterior probability (PP) = 1.0. WA: Western Australia.

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Table 1. Pollen morphological characters and pollen type in the main lineages of the *Styphelia-Astroloma* clade and *Leucopogon* s.s.

Taxon	Ornamentation	Aperture	Shape	Size (µm)	Annulus	Pollen type
<i>Styphelia</i> ^a s.s.	Fossulate	Panto-aperturate	Spheroidal	Large (50-100)	Absent	Pseudomonad
<i>Astroloma</i> ^b s.s.	Psilate	6-porate	Spheroidal	Large (50-100)	Present	Pseudomonad
<i>Leucopogon</i> ^c s.s.	Psilate	4-aperturate	Spheroidal	Small (10-25)	Absent	Variable, pseudomonads common
<i>Leucopogon</i> 'Axonanthus'	Granulate ^d or psilate ^e	6-porate	Spheroidal	Medium (25-50)	Present	Pseudomonad
<i>Leucopogon</i> ^f 'Gynoconus'	Psilate	4-porate (stephano-aperturate)	Spheroidal	Medium (25-50)	Absent	Pseudomonad
<i>Leucopogon</i> 'long corolla tube'	Psilate ^g	6-porate	Spheroidal	Medium (~40)	Absent	Pseudomonad

^a*S. laeta* R.Br., *S. adscendens* R.Br., *S. longifolia* R.Br., *S. viridis* Andrews, *S. triflora* Andrews.

^b*A. recurvum* A.J.G.Wilson, *Astroloma* sp. *Nannup* (R.D. Royce 3978), *Astroloma* sp. *Catoby* (E.A. Griffin 1022), *A. prostratum* R.Br., *A. epacridis* (DC.) Druce, *A. pallidum* R.Br.

^c*L. capitellatus* DC., *L. virgatus* (Labill.) R.Br., *L. extremus* Hislop & Puente-Lelievre, *L. bossiaea* (F.Muell.) Benth.

^d*L. fletcheri* Maiden & Betche, *L. setiger* R.Br.

^e*L. fraseri* A.Cunn. ex DC., *L. juniperinus* R.Br., *L. neoanglicus* F.Muell.

^f*Leucopogon ruscifolius* R.Br., *L. muticus* R.Br., *L. ericoides* (Sm.) R.Br., *L. leptospermoides* R.Br., *L. margarodes* R.Br.

^g*L. cordifolius* Lindl., *L. allitii* F.Muell., *L. strictus* Benth., *L. oxycedrus* Sond.

News

Changes in the Territory

Hilary Coulson has now retired from the NT herbarium in Alice Springs and is planning to move to Cairns. She worked for the herbarium for 29 years and probably holds the record for the greatest number of specimens processed by any staff member. A replacement for Hilary will be working 2 days per week on a short term contract. It is hoped that the position will be made permanent.

Dave Albrecht is back in Alice Springs for the short term trying to finish a number of projects before he moves permanently to Tasmania. It is believed that a replacement will be sought for his full time position.

Ben Stuckey, manager at the Darwin Herbarium, has also moved on. Ben will train to be a primary school teacher with the aim of working in one of the remote communities in eastern Arnhem Land.

Obituaries

Michael (Mike) Lazarides

Maggie Nightingale, Judy West and Wayne Lazarides

Sadly, on 14 November 2011, we lost our internationally respected colleague Michael (Mike) Lazarides to cancer.

Mike was a quiet man and most of us knew little about his early life and are fortunate that he wrote and collated memoirs of his large family of origin, during the last 15 years. These give us an insight into what made him the man and the botanist that he was.

Michael Lazarides was born at Wyola Nursing Home in Townsville on 26 February 1928. He was one of a family of nine children, consisting of five boys and four girls: Anthony (Tony) the eldest, Lucianos (who died young), Helen, Veronica (Von), Mary, Constance (Con), Luke, Michael, and George. The siblings remained close for their entire lives.

His father was Lazarus Lazarides who was born in Makri in Greek Asia Minor (now part of Turkey) and his mother, Panayoita Manicaros, was born on the small island of Castellorizo, Greece. The Lazarides family were resettled in Greece and the Manicaros family migrated to Port Said, Egypt, where Lazarus eventually went to study and work as a pharmacist. He met and married Panayoita and Anthony was born.

Lazarus and Panayoita emigrated to Darwin in 1916 and were probably the first documented Greek settlers in the NT. In 1919 they went to the Philippines to join another family member and then to Queensland, living at various

times in Townsville, on a sugar cane farm at Bambaroo, for short periods in Ingham and Tully, and eventually in Brisbane.

Michael was born in Townsville but raised on a sugar cane farm in Bambaroo, 18 miles south of Ingham, from ages 3-12 during the Depression years of the 1930s.

Wayne has written:

Bambaroo was tiny, scarcely a village, situated on the Townsville-Ingham railway line, its chief purpose to provide a railway siding for loading sugar cane. It was a small community of mainly Europeans – Italian and Maltese, an English family, only two Australian families and one Greek family – the Lazarides. Apart from the siding, there was a row of houses where the railway fettlers lived, a school, and a store which doubled as the post office. There was no pub, no church and no public hall. The Lazarides home was a two storey galvanised iron farmhouse with a

concrete slab floor, no electricity, and plenty of snakes around.

In Ingham, the family had to contend with the bigotry of the time. World War II had broken out and having a non-British name in a time of war meant that Mike and his brothers were often in fights with the local bully boys. The experience was not wasted as he later earned his boxing colours at Gatton Agricultural College in Queensland which he attended from 1944-47 as a boarding Junior and Diploma student.

Prior to this Mike had left school at age 14 and worked for a dry cleaner and tailor in Townsville. Mike's recollections in his family history reveal a memory for detail from about



Fig. 1. Mike Lazarides, 1 Oct 2007

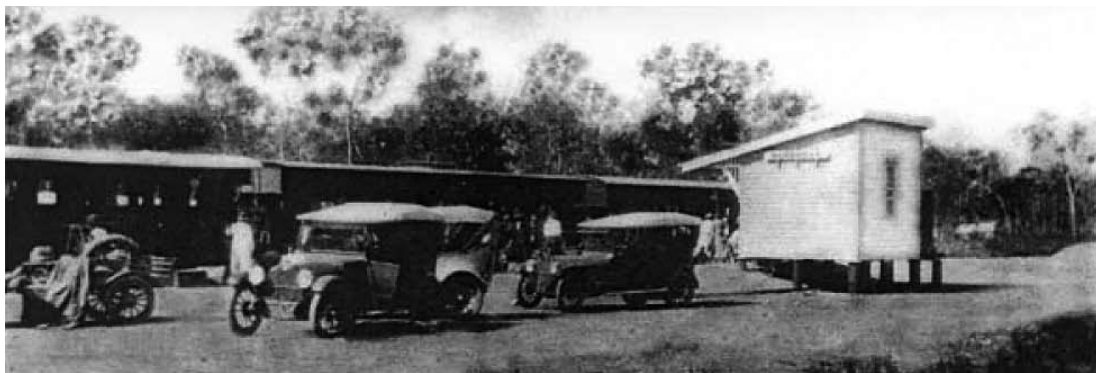


Fig. 2. Bambaroo railway station, where sugar cane was loaded, 1930s.

1942 and provide a revealing portrait of life in Townsville during the war years when the 'population tripled with the influx of white and black Americans, Australian Army and periodically, the British Navy'.

His four years at the Queensland Agricultural High School and College near Gatton in the Lockyer Valley were clearly some of the happiest times of his youth, for over a third of his memoirs in the family history are devoted to them, and he was a meticulous diarist from this time. Study subjects and work experience were diverse, in line with the college motto of 'Science with practice'. Mike first pressed and identified herbarium specimens of grasses for the Agriculture subject, and mentions occasionally 'bludging' some required work such as Bails (a 5.30 AM start to milk a large herd of dairy cows) in order to study for exams or to mount his insect and grass specimens. He did not enjoy the 'Sheep and Wool' subject, the 'dull uninspiring lecturer, his dumb environmentally destructive sheep, or their greasy, burr-infested fleece'. He also frequently avoided group lectures in wool classing, veterinary science, practical physiology, cattle and so on, but all plant- and horticulture-related activities appear to have been relished, as well as 'Engineering', driving a variety of different tractors and working with horses.

During breaks from Gatton and the farm work that followed, Mike enjoyed social activities when and where available, including dancing, attending the cinema and trips to the beach with friends and siblings. When away from home he corresponded regularly with the many members of his immediate and extended family and met up with them whenever possible. Travelling

mainly by train afforded many opportunities for short and long meetings and outings in Brisbane, Townsville and other towns and Mike's memoirs illustrate how different, and perhaps richer, life was as a result, compared to the socially isolating car travel of today. Later in life Mike had several considerable journeys by ship, sometimes with his wife and three children, and made loyal and life-long friends among the botanists of other countries including those of SE Asia and the Middle East.

After Gatton, Mike worked on his elder brother's sugar cane farm in the Mackay district for 15 months, undertaking exhausting manual plant-cane preparation (giving him an extremely detailed knowledge of the morphology of this particular grass), cane cutting and loading, and helping to deal with 'mechanical breakages (which) occurred with regular monotony' in



Fig. 3. With Dr Emiliano Javier, Rice Breeder, University of Philippines College, Laguna, February 1970.

the truck, tractor and farm implements. No doubt the mechanical expertise thus gained, as well as his ability to work hard in hot, humid conditions, stood him in good stead later during remote area surveys undertaken with the CSIR/CSIRO from 1949.

Plant specimen collections

On 4 April 1949, he was appointed to CSIR as it was then known, the Commonwealth Council for Scientific and Industrial Research, working under Ray Perry as Botanical Assistant in the Northern Australian Regional Survey section (later the CSIRO Division of Land Use Research after the first 5 of its 8 name changes), at a nominal annual salary of 320 pounds. In

his memoirs, Mike wrote:

About five weeks later, I was driving a jeep in company with four other survey vehicles en route to the Northern Territory... There were ten of us in the survey party and field work lasted for 3 ½ months... The following years were characterised by ... similar ... lengthy field surveys in outback Western Australia, NT, Queensland and South Australia ... in the dry (winter) season, ... (as well as) shorter, specialist field work in the wet season, when we travelled alone or ... with a locally based colleague from other Departments ... I loved the field companionship of the survey team, the wealth of knowledge to be gained from working closely with other specialists, and the endless diversity of landscapes the country offered.



Fig.4. Clockwise from top left: a., Milo break, near Clarke River, Leichhardt - Gilbert Survey, June 1953; b., Turkey for dinner, with Rex Corby, Victoria River Downs, Ord-Victoria Survey, NT, 1949; c., Mike on traverse in Dodge Weapon Carrier, Ord - Victoria Survey, NT, 1952.

This was pioneering work and his memoirs, while concentrating more on family life in the text, include several photographs from these surveys which reveal the conditions under which the work was done. Mike collected many high quality herbarium specimens during the Land Research Surveys and later during field work for CSIRO Plant Industry Division, to which Mike and the Land Research herbarium were transferred in 1973.

Based on records of his specimens in the Australian National Herbarium (CANB) specimen database, Mike participated in 35 surveys and botanical collecting expeditions (Table 1, Fig. 5).

Mike soon became an efficient, highly skilled and enthusiastic collector, to the extent that he made 108 collections from the Percy Islands, SE of Mackay in Queensland, during two weeks of his honeymoon with Margaret, spent there in 1956. CANB has only 72 other (databased) collections from the area, including 12 by Robert Brown and 13 by Allan Cunningham collected in the 19th century, and 33 by G.N. Batianoff, collected in 1989 (duplicates from BRI).

Mike is highly respected for the quality and breadth of his plant specimen collections. His highest field number is 9267, but the total

number of collections is difficult to ascertain, as he shared Ray Perry's collecting number series until July 1954, also collected in teams with special number series, and some of his overseas collections are probably not yet databased. Over 6,200 collections are currently on the CANB specimen database with Mike as the main or with first-listed collector, and he also co-collected about 250 more with Ray Perry or Laurie Adams as first collector. This is a large but not a huge number compared to some other career botanists/collectors, but Mike wrote informative notes on habitat, habit and abundance for almost every collection, and the quality of the specimens is consistently high. Mike collected over 2,500 different taxa, and determined a large proportion of these himself, as well as thousands of other collectors' specimens.

Mike's specimens are of such high quality that there is scarcely a revision or flora treatment that covers species of arid zone or tropical (non-rainforest) plants which does not have a Lazarides specimen cited, and other botanists have nominated them as types of new species at least 97 times so far. This also reflects the combination of Mike's almost encyclopaedic knowledge of plant species of the arid regions and drier tropical regions and his botanist's

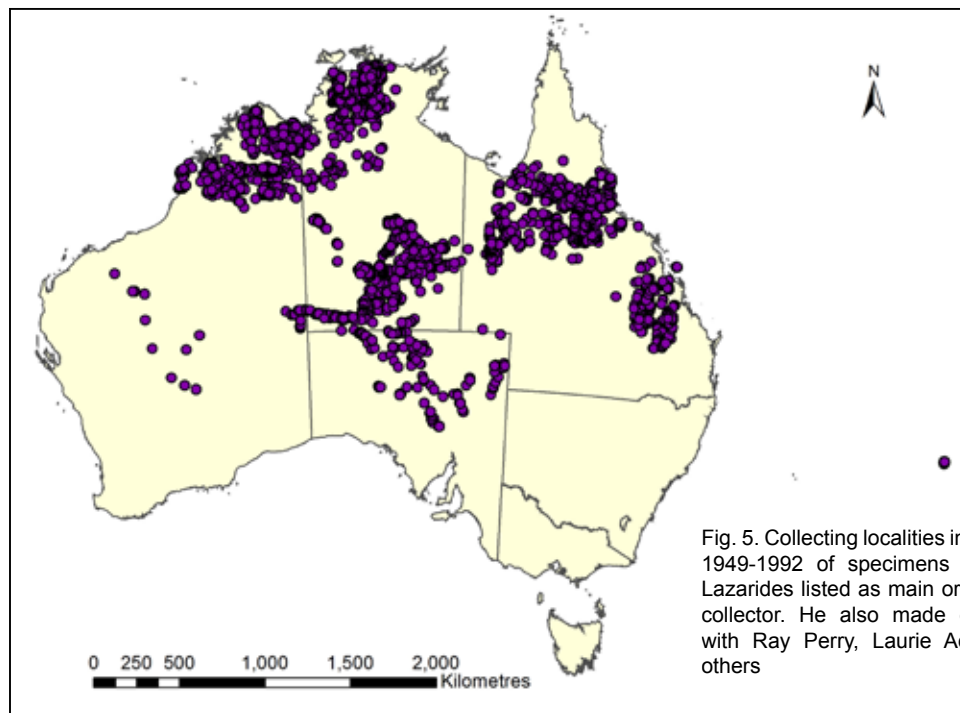


Fig. 5. Collecting localities in Australia, 1949-1992 of specimens with Mike Lazarides listed as main or first-listed collector. He also made collections with Ray Perry, Laurie Adams and others

Table 1. Surveys and botanical collecting expeditions undertaken by Mike Lazarides, based on records of his specimens in the Australian National Herbarium specimen database (Australian localities are represent on the map in Fig. 5).

Areas of collecting	Date of first collection	Date of last collection	Collections per trip	Types per trip
NT, WA: Katherine to Gordon Downs	3-Jun-49	28-Jul-49	9	-
NT, WA: Katherine to W Kimberley	5-May-52	9-Sep-52	222	-
Qld: N districts, Leichhardt to Gilbert	13-Jun-53	19-Sep-53	388	3
Qld: Atherton Tableland to NW	26-Feb-54	20-Mar-54	338	2
Qld: N districts, Leichhardt to Gilbert	19-Jun-54	17-Aug-54	204	3
WA: Kimberley	27-Aug-54	20-Sep-54	93	2
WA: Kimberley	14-Apr-55	22-Apr-55	149	3
NT: central south	5-May-55	19-May-55	182	2
Qld: Middle Percy Is. (on honeymoon)	24-Apr-56	4-May-56	108	1
NT: central south and central north	16-Aug-56	14-Oct-56	465	7
NT: central north	28-Mar-57	12-May-57	72	-
NT, WA: Victoria River, Kimberley	7-Jul-59	8-Oct-59	366	8
NT: Katherine, Daly River area	6-Jul-61	10-Aug-61	106	2
Qld: Leichhardt District, with R. (Bob) Story	27-Aug-61	19-Sep-61	129	5
WA, NT: E Kimberley to Darwin	3-Mar-63	15-Mar-63	153	8
Qld: Dawson Valley	28-Jun-63	12-Jul-63	108	-
NT: Darwin to Katherine	6-Dec-63	19-Dec-63	39	2
NT: Darwin to Mataranka	5-Mar-64	21-Mar-64	112	6
NT: NE of Maranboy, with Laurie Adams	1-Mar-65	30-Mar-65	331	8
Qld: Townsville area	2-Apr-65	6-Apr-65	68	2
Sri Lanka	3-Sep-70	25-Oct-70	124	-
Thailand	17-Nov-70	26-Nov-70	95	3
NT: Alligator River; Arnhem Land	3-Jul-72	21-Jul-72	197	-
NT: Alligator River; Arnhem Land	15-Feb-73	4-Mar-73	329	12
Norfolk Island	31-Jan-75	3-Feb-75	67	-
Qld: N districts, S of Cape York Pen.	31-Jul-76	15-Aug-76	82	-
SA: Eyre Basin to Birdsville, Qld	1-Dec-76	7-Dec-76	24	-
SA, NT: The Arid Border	30-Mar-77	5-Apr-77	57	-
SA, NT, WA: The Arid Border	3-May-77	18-May-77	146	-
SA: Woomera, Roxby Downs	7-Sep-77	16-Sep-77	13	-
WA: Kimberley	7-Mar-78	25-Mar-78	316	12
NT: Kakadu, Lyn Craven also on survey	14-May-80	9-Jun-80	521	6
NT: Uluru - Kata Tjuta, with Jo Palmer	12-May-88	22-May-88	321	-
NT: Uluru - Kata Tjuta, with Jo Palmer	11-Aug-88	21-Aug-88	266	-
WA: E Pilbara to S central	10-Apr-92	17-Apr-92	16	-
Other collections	-	-	11	-
Total databased collections			6227	97

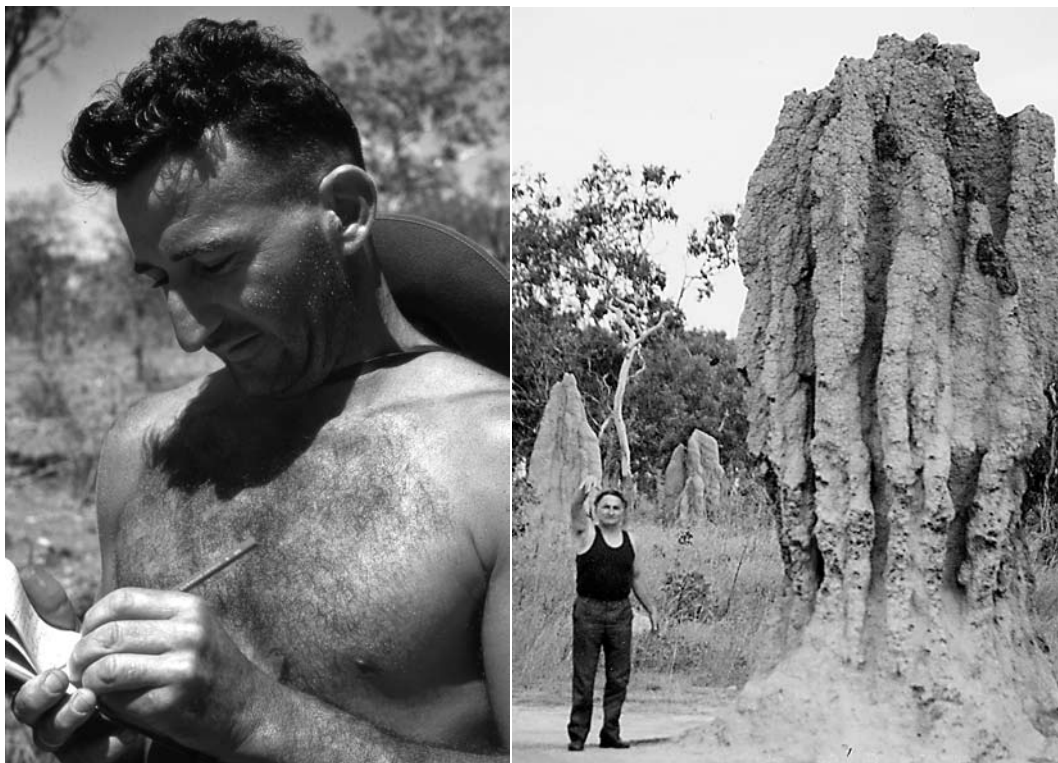


Fig. 6. a, Writing field notes, early 1950s; b, With termite mound, Kakadu National Park, NT, 1990.

eye for unusual plants. He was regarded as a leading authority on the taxonomy of the plants of these regions.

He has five species named in his honour, in a variety of families, a reflection of his wide collecting activities.

- *Acacia lazaridis* (Mimosaceae)
- *Aristida lazaridis* (Poaceae)
- *Melaleuca lazaridis* (Myrtaceae)
- *Micraira lazaridis* (Poaceae)
- *Ptilotus lazaridis* (Amaranthaceae)

Concerning *Acacia lazaridis* Pedley (1981), it was written: ‘The species is named for Mr M. Lazarides (CANB) who is well known for his work on Australian grasses and whose collections in northern Australia have been invaluable in studies in many groups including *Acacia*.’

In 1970, he made over 200 collections in Sri Lanka (then Ceylon) and Thailand, while on a SEATO Fellowship to help document SE Asian grasses and a Smithsonian Institution grant to work on the *Flora of Ceylon* project. The

work for both projects was undertaken using recreation leave and half-pay furlough from CSIRO.

On his last two major expeditions, commissioned by the Australian National Parks and Wildlife Service in 1988, he was accompanied by Jo Palmer. Together they documented the floristic composition and condition of Uluru - Kata Tjuta National Park at that time, providing sets of over 550 specimens covering 64 plant families and 379 taxa, one each for CANB and the Uluru reference herbarium, with labels including detailed habitat descriptions and lists of associated species, which Mike dictated liberally and Jo wrote in the field book.

Poaceae research

Transferring from the Land Research Division in 1973 was a wrench for Mike, as he was no longer able to work in the multi-disciplinary teams of colleagues who had become firm friends while coping with the difficulties of remote survey work in the 1950s. He turned his talents and energy to the (often) more solitary, detailed and meticulous work required for the study of grass taxonomy, with undeniable

success.

Achievements

Prior to his death, Mike had made some notes for the next volume of the family history and also a list of what he regarded as his achievements during his career:

- 1965/66 Australian Botanical Liaison Officer at the Royal Botanical Gardens, Kew, London
- 1966/67 CSIRO Divisional Postgraduate Traineeship to undertake a Master of Science program at Leicester University under Professor Tutin's supervision.
- 1967 Awarded Master of Science
- 1970 SEATO Fellowship
- 1970 Smithsonian Institution grant. This work of 82 species in 35 genera was subsequently published in volume viii (1994), *Flora of Ceylon*.

- 1978 ABRS grant for specialised wet season collecting with colleagues in north-eastern Kimberley, WA.
- 1980 ANPWS grant for a botanical survey of Kakadu National Park with L.A. (Lyn) Craven.
- 1981/82 ABRS grant for a nine months' study at Kew Herbarium, London, on taxonomy and relationships of the genus *Eragrostis*.

He continued to work in the Australian National Herbarium until his formal retirement in February 1993 at age 65, and beyond as an Honorary Research Fellow until 2002, completing authoritative revisions of *Eragrostis* and *Triodia* for the *Flora of Australia* project, and then worked as a volunteer until mid 2011.

Judy has written:

I have had the privilege of knowing Mike since I joined CSIRO and the herbarium in

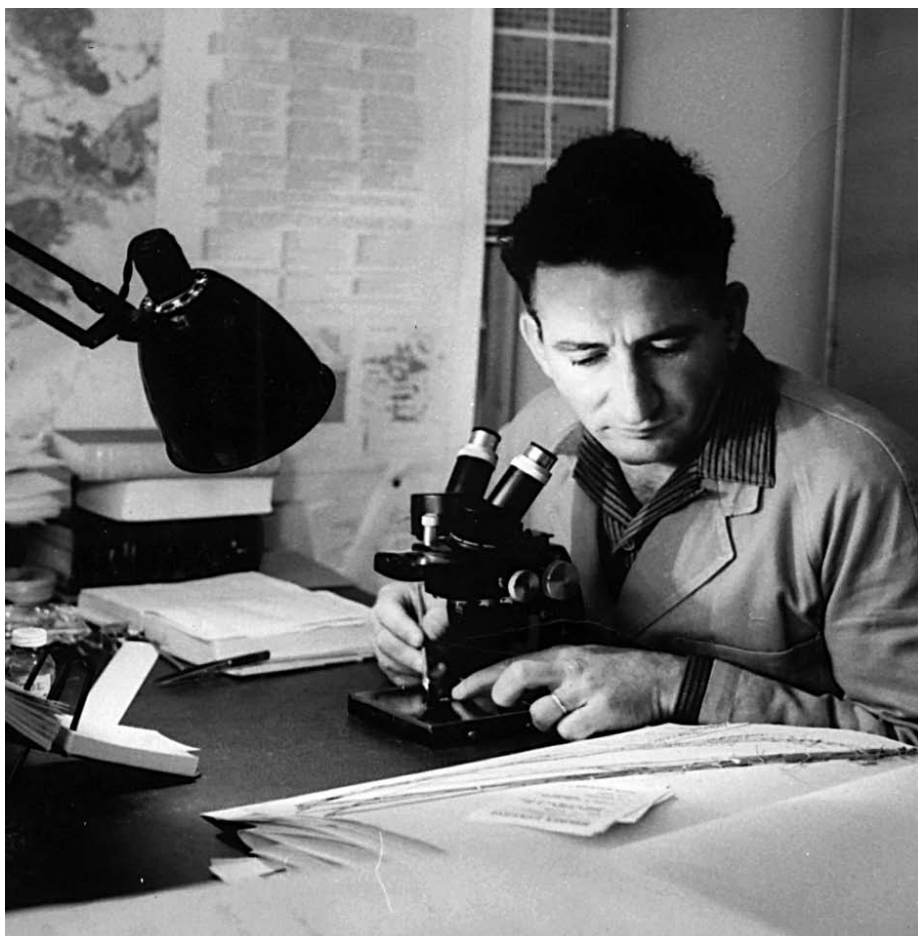


Fig. 7. Examining specimens, at the Herbarium, Canberra, 18 January 1970. (Photograph used for Pakistan Times article on SEATO Fellowship Project).

1980. During those 30+ years he has been an extremely valuable colleague who I greatly respect and whose company I have always enjoyed. I regard Mike as a true gentleman.

He had a work routine that fascinated me when I first arrived, with the day's work starting at 7 or 7.30 in the morning. He had probably done half a day's work by the time the rest of us got to the herbarium, and regularly drove home for morning tea, returning for another productive period before driving home for lunch, then returning to the office and knocking off a bit earlier than the rest of us. It was a very orderly process and everyone just accommodated his regular timetable. It was neat and probably helped him achieve so much.

After marriage to his beloved wife Margaret in 1956, Mike had acquired the lease of a block of land in O'Connor, less than 2 km from the herbarium, and arranged the building and later extensions of the family home. Not only his regular routine, but the nearby quiet respite away from the workplace would have helped Mike maintain the patience, manual dexterity and attention to minute details required for studies of the alpha taxonomy of Poaceae.

From a classification point of view grasses are not easy plants to love – they might look great and be good horticultural subjects but they have complex structures and are difficult to define. Mike's identification keys work well and are easy to use, as he knew the value of using a combination of different characters including those that can be interpreted unambiguously by the less experienced user. His species descriptions are so detailed and comprehensive that Maggie was recently able to identify a sterile grass specimen from Uluru, using Mike's first book, *Grasses of Central Australia*, published in 1970.

Over his career Mike identified and described as new to science 126 plant taxa, including 8 new genera. He published 6 books, including one on weeds, 20 scientific journal articles and 40 flora treatments, including many chapters of the grass volumes of the *Flora of Australia* and many generic treatments (with F. Quinn and J. Palmer) in *Flora of the Kimberley Region*, published in 1992.

As a colleague Mike was extremely helpful and cooperative and always willing to provide

information and names on grasses for all and sundry right up until mid 2011. He would readily drop whatever he was doing to assist with any enquiries.

Mike has always been generous with his knowledge and has educated others in grass taxonomy, and has mentored younger botanists and encouraged them to see the beauty of grasses.

Maggie has written:

I became acquainted with Mike in 1992 when employed to assist him with *Flora of Australia* work on the sub-family Chloridoideae. Expecting to be allocated a variety of technical assistance tasks, I was surprised when he handed over a wad of material he had assembled and asked me to go and prepare Flora treatments and keys for a number of smaller genera. In order to acquire the benefit of Mike's extensive knowledge, I first had to know the right questions to ask, and a multitude of these soon became apparent. At a later stage, after detailed and tedious examination of the closely related species of one genus, I asked him to be the final arbiter regarding the continued separation or lumping of 2 species, based on the evidence I had gathered. Mike just said "you did the study of them; you make the decision". Such it is with Poaceae – if you've spent a lot of time on one genus, you may well be the world expert as there are so many to study, and few workers retrace others' footsteps.

In recent times Mike corrected most of the suspect determinations found during incorporation of the large quantities of Poaceae exchange received at CANB, as well as identifying undetermined exchange and checking or providing determinations of Poaceae specimens of CANB and Australian National Botanic Gardens collectors and others sent in from all around Australia and overseas. With his expertise in SE Asian grasses he was able to deal with the constant trickle of new accidental introductions to Australia, especially in the genus *Eragrostis*, which has about 73 species in Australia covered by his comprehensive revision, but 350 worldwide. Often I apologised for leaving so many specimens on his bench rather than tackling them myself, but he would merely say "I enjoy it". In his final year he also made detailed annotations on many specimens cited in the *Flora of Ceylon*, a project upon which he worked in 1970.

Recently a PhD student from Indonesia who is working on grasses was visiting the herbarium and was very excited to meet face to face with

this hero that he had known only from the literature. This turned out to be one of Mike's last visits to the herbarium but will have lasting scientific influence, as Alex (the student) was very inspired by and appreciative of the time that Mike spent assisting him.

We are most proud and grateful to have been part of Mike's botanical career and we will deeply miss him, especially for his exceptional grass expertise and his cheerful and gentlemanly manner.

Mike is survived by his wife, Margaret, sons Wayne and Brett and daughter Gai, and nine granddaughters.

List of main publications

(excludes shorter journal articles/
protologues and chapters in floras)

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Fig. 8. Margaret, Michael and children at Golden Gate Bridge, San Francisco, USA, 30 November 1967.

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Acknowledgements

We would like to thank Margaret and Wayne Lazarides for providing a pdf copy of A Family Remembered, for allowing the use of photographs included therein and providing higher resolution images, for other anecdotal information on the life of Michael, including parts of the eulogy by Wayne which are reproduced above, and for checking the manuscript. Thanks also to Nunzio Knerr for producing the map of Australian collecting localities, and to Kirsten Cowley, Anna Monro and other staff of the Australian National Herbarium for information on taxa named by and for Mike and detail of publications.

Working with John Maconochie (1941–1984)

Des Nelson
PO Box 2376, Alice Springs, NT 0871

Sometime ago Des Nelson, an early staff member of the Northern Territory Herbarium visited us in Palmerston (DNA). Des mentioned that on his return to Alice Springs he was to give a talk to the Australian Plant Society about his friend and one-time colleague John Maconochie. John was employed, from 1967–1984, at the Alice Springs herbarium, sadly dying in a car accident while working with a United Nations agency in Somalia in 1984. Except for a short article in the ASBS Newsletter (38:14) I am unaware of any publication detailing John's work and asked Des whether he would mind sending us the text of his talk for publication in this newsletter. I recall that the article, dated Feb. 2011, came back within the week. As well as a tribute to John it also gives a wonderful glimpse of the work being carried out by herbarium staff at that time.

Philip Short

From the back of my mind I recall a day in 1959 or 1960. A lanky young student from South Australia called into the Herbarium of the Northern Territory for a chat with NT botanist, George Chippendale. I was George's assistant. Our visitor was notable for what we thought was an unusual surname, Maconochie. We were not to realise that in the future, John Maconochie would occupy George's place in the herbarium. Having established the herbarium in 1954, as time rolled along George felt the need of the help of another botanist, but his request was denied. After some years working with George I transferred to the government chemistry laboratory in 1965. George left for a position in Canberra in July 1966. I was asked to return to duties in the herbarium pending the arrival of a new botanist, and to complete some projects for George. Later that year Tony Nicholls arrive to work in the herbarium, then in April 1967 John Maconochie came to take the position of senior botanist. So, after George's departure, the herbarium now had two botanists. My duties were divided between chemistry and botany. I assisted John as much as possible.

John hit the ground running, full of enthusiasm and vigour. Within days of his arrival, he and

I went out on John's first NT bush trip. He was experienced in working in the arid zone, having been involved with recording the rates of foliage production on trees and shrubs in far north-west South Australia.

A project involving studies on gidgee trees was being conducted on Manners Creek Station on the Queensland border. It was my duty to travel to the site every two months or so to collect foliage samples from known toxic and non-toxic gidgees and make certain observations. A visit to the area was a good chance to take John for a run. In February that year I had taken botanist Norm Byrnes for his first NT trip to Manners Creek. Norm went to take his place in the Top End where he did much valuable botanical pioneering. John and I set off within days of his arrival in Alice Springs in the botany Land Rover station wagon, that was now six years old and getting a bit rattly from a life of hard bush work. Straight away John and I got on very well. I was happy to find that, on our first night camp, John enjoyed a rum to relax with at the end of the day. The trip occupied several days. In spite of minor repairs needing to be done to the vehicle, the trip was a success. So, in July when more work was to be done at the gidgee site John came along again. On this trip we were amused by comical signs hanging in trees along the narrow track. They were painted on the tops of 200 litre drums. There were instructions such as, *No U-turn: Public Convenience 200 miles*, and at Cockroach Waterhole was, *Municipality of Cockroach*. No fishing from jetty. The signs had been made by a grader camp cook in his spare time.

Also in July 1967 came a report of the deaths of horses on Alroy Station on the Barkly Tableland. Autopsies showed that the animals had suffered intestinal blockages due to the formation of solid vegetative fibre balls, known as phyto-trichobezoars that were up to 15 cm in diameter. John and I set off for Alroy where the area the horses had died was examined, and a comprehensive plant collection was made. John also took advantage of this trip to do specimen collecting in the *Acacia*-rich areas on the Barkly Tableland.

In the herbarium, by microscopic studies, John was able to determine the bezoars consisted almost entirely of surface hairs from the legume, *Crotalaria dissitiflora* var. *rugosa*. Results of the investigation were published in the *Australian Veterinary Journal*.

When eight years – more, in some places – of drought broke in 1966 with plenty of rain, pioneer plants revegetated areas that had been bare for some years. Some species were toxic, or unpalatable to livestock. Such was the case with the large, leafy, yellow-flowered *Senecio magnificus*. It had colonised a plain on the western part of Bond Springs Station. It was thought that the species may continue to overtake larger areas. To monitor the outbreak and the threat, John established a study site of 100m × 100m, internally divided into cells of 10m × 10m. Data sheets on which each *Senecio* plant or other perennial plants could be mapped were designed. Recordings began in July 1967 and were carried on several times a year until July 1972, by which time a single *Senecio* plant remained. The project exonerated *Senecio magnificus* as a troublesome weed, and much was learned of its phenology and taxonomy. Early in the *Senecio* trial it was considered necessary to have the plot photographed from the air. Paper towel were unrolled along the edges, held down by bands of earth, to act as aerial markers. Before the plane and camera were ready, hungry Bond Springs cattle ate the paper towelling. It was replaced by muslin strips. The photograph was done before the cattle tried to eat the muslin, which they scattered about.

It's common for botanists to have favourite categories to study. Among John's pets were

cycads, acacias and the genus *Hakea*. While searching through unidentified specimens left by George Chippendale he was interested in particular by a certain *Acacia* from the bottom of Todd River Station and a *Hakea* from the Standley Chasm area. The *Hakea* had been

collected by George, and Laurie Johnson, in October 1957 during a time of severe drought, so the specimen was rather scrappy, but it did bear old but unique woody fruits. John decided to relocate this species. Information of locality was very scant, those days being decades before the convenience of GPS devices. John and I went on an initial search for the hakea in August 1967. Long-legged John seemed to swarm up the heights near Standley Chasm like a bib spider¹ while I puffed along in another direction. We had no luck but later that month we tried again, once more without success, but on this occasion it was interesting to see

very old axe cut stumps of native pine trees. They may have been the remains of trees cut for use as poles on the overland telegraph line in the 1870s.

Another attempt was made on August 25th. On this occasion John located the tough little shrub embedded in the rocks high in the mountainside. What a relief!

In September, US botanist Bob Belcher and his wife visited Alice Springs. At John's suggestion I took them to Standley Chasm. Up in the heights we went. By scanning with binoculars I located a perfect specimen of *Hakea*, but to get to it involved, as I wrote in my notebook, 'a cow of a climb'. It was worth it as a specimen from that shrub became the type specimen of



John Maconochie.

Ph. M. Fagg

¹ According to Google this is another name for the Golden Orb web spider

Hakea standleyensis as described by John in *Transactions of the Royal Society of South Australia*.

Here is the story of another new species –

In 1964 I began taking photos and listing plants on Todd River Station, south-east of Alice Springs. Particular attention was made of the Atherrita bore area at the foot of the Rodinga Range, at the bottom of Todd River Station. Among specimens collected on the original survey were some from a pretty, small *Acacia* with curly bark. It could not be keyed out to any local species. The specimens were stored for further examination. Having found the specimens, John came with me on my annual photo run in November 1967 to view and collect specimens from the acacia. We made night camp at Camel Flat bore, 16 km from Atherrita bore. The acacia also grows in this location.

In March 1973 I transferred to the Plant Ecology unit of CSIRO Alice Springs but maintained contact with John and the herbarium, always willing to be of help to fulfil requests. On two occasions after joining CSIRO I made photo runs on Todd River Station, then, in August 1979 I drove John to Atherrita bore. The acacia from which the 1964 specimens had been collected was in excellent condition, vigorous, flowering and fruiting. John collected specimens. Subsequently, I received a letter from WA botanist, Bruce Maslin that stated he was describing the Atherrita acacia and that John Maconochie suggested it be named *Acacia nelsonii* — would that be alright? I had been of the opinion that plants should be named for a feature of them or for localities from which they originated. However, I could not think of anything better than have this particular species given my name. So, *Acacia nelsonii* (and also later *Acacia latzii*), was published in 1980 in the *Journal of the Adelaide Botanic Gardens*. It

was later found that an *Acacia nelsonii* already existed in Africa, so what I like to know as my wattle was renamed *Acacia desmondii*.

The photos, specimens and notes taken on Todd River Station began in the drought year of 1964. When the drought broke in 1966 it was interesting to follow the improving condition of the country. Being so busy fitting in work between botany and chemistry there was little I could do with the information. John analysed

the data from 1964 to 1970, selected before and after drought photos, and an informative paper co-authored by us was published in *The Pastoral Review* in 1972.

The most prolific display of wildflowers I have ever encountered in almost sixty years experience in the NT occurred in 1968. After continuing above-average rainfall from January 1966 there was a surge of plant growth on what had been desolate, bare country. To take advantage of such growth a specimen-collecting trip was planned.

In July 1968 John, myself and a new assistant, Jenny Must (Purdy) set off in the

lead in the heavily laden botany section Land Cruiser; following us was a short wheel based Nissan Patrol from Adelaide University in which was Tony Orchard and an off-sider named Joe¹. The route of the six day trip took us through Todd River Station, down to Andado, west to Kulgera then north to Alice Springs. The first few days saw some pretty tough going as the countryside was sodden, with areas under water and creeks flowing. The laden Land Cruiser sank into some bad wet bogs causing much work by shovel and tow rope. I had developed a trick of pushing steel fence pickets under the tyres of a bogged vehicle, which works very well. As this was Jenny's first trip, John generously let her be the collector for the NT Herbarium. The

¹ Joe Weber, botanist at the State Herbarium of South Australia



John Maconochie.

Ph. M. Fagg

South Australians made their own collection. By the time we came to a research site in big sand dunes on Andado we had quite a few very full plant presses. We met up with Al Weideman from Canberra, and Rod Hodder of CSIRO Alice Springs. They were conducting an ecological survey across the dunes. The weather was cold with periods of light rain. One day it was decided that the botany group would help Rod and Al with their work. The presses were arranged around a big camp fire to help dry the specimens. Joe stayed to keep watch while the rest of us drove away several kilometres to go trudging over the sand-hills. After some time we noticed a distant plume of smoke. Its origin was disastrously apparent when we returned to camp. Becoming bored, Joe had gone for a walk. During his absence the plant presses had ignited. All that remained of them was ash, belt buckles and copper rivets¹. Luckily, we had a supply of empty presses so we then had a very busy time doing another collection, so Jenny got her botanical start after all.

To assist the public to recognise different grass species, John had the idea of growing individual species in buckets of soil. However, there were just too many grasses and not enough buckets. To overcome this problem it was decided to establish a living herbarium of grasses. Tony Nicholls had departed but Peter Latz was now present, so John gave Peter the task of establishing what became known as the Grass Patch, situated close to the south west of the Arid Zone Research Laboratory. Parallel rows of drip irrigation lines were laid. Along these, scores of local grasses were grown. I was glad to help out with this project which commenced

¹ Tony Orchard recalled this event as follows: Ah, the press burning! I will be interested to see how this anecdote has survived the years. It was my first big field trip, with Joe Weber from AD. John & co. took us on a trip into the Simpson Desert. By the time we got to Old Andado the weather was getting overcast, and we had a large number of presses full of damp material. Joe was left in charge of them at the campsite, with the idea they would be put out in the sun to dry. He decided to arrange them around the campfire, then wandered off to do some collecting. Shortly afterwards we noticed a large pillar of smoke. Hansjoerg Eichler was not impressed when we got back to Adelaide some weeks later!!! Shortly afterwards we had to leave the Simpson abruptly, with large thunderstorms rolling in. So much for my desert collecting experiences.

operating in late 1970. When I joined CSIRO in early 1973 my family remained in residence in a house on the Arid Zone Institute for two years. During that time I kept the Grass Patch weed free.

In January 1969 I began work on a four year project of John's that kept me very busy. It examined the foliage production of four top-feed species known to be grazed by cattle. The species and the sites were Witchetty Bush (*Acacia kempeana*) just south of the Alice Springs airport; Gidgee (*Acacia georginae*) 50 km south east of Alice Springs; Acacia bush (*A. victoriae*) 53 km north of town; and Plumbush (*Santalum lanceolatum*) near Ooraminna waterhole 40 km to the south. Twenty five individuals of each of these were chosen at each site. On each of these, thirty leaf stems were marked by numbered tags attached by thin plastic coated wires. Except for some preserved whole, these stems were given simulated grazing treatments. The total number of stems tagged was 3,000 and the initial leaf count was 15,000. On each monthly visit the number of leaves on each stem was recorded. A rain gauge was set up at each site. Monthly, and after each rainfall event 100 soil samples were taken for moisture determination. The Gidgee and Acacia bush sites were equipped with Stevensen Screen which housed thermo-hygrographs for daily temperature and humidity records. Their charts had to be changed each Monday. A round trip to visit the sites was 300 km. It was a massive task, and I had other work to fit into my schedule. For the first eighteen months I had help from Jenny Must, but when she moved on I operated the experiment alone for two-and-a-half years. I enjoyed the work but found the pressure so great at times that I resorted to camping overnight at one or other of the sites to allow the job to be done in reasonable time. When John learned I was camping out on the job he insisted I be paid camping allowance for such occasions. The project finished in early 1973 just as I was transferring to CSIRO, but later that year – to fulfil a request from John – I went out to the Gidgee site to collect soil samples for analyses.

A scientist from NASA called in August 1968. He had a photograph taken from a satellite which showed a sharp boundary of colour on a broad landscape. The site was an area of Napperby

Station. With the NASA man (an Australian), John and I set off to locate the place to find an explanation to this phenomenon. What we found was a fire scar that was about as straight as if it had been ruled. The wide plain on which it was located had a thick growth of kerosene grass (*Aristida holothera*). We presumed the fire had been quickly extinguished by heavy rain. It seemed a rarity to find a natural fire scar with such a precise boundary.

When John took the reins, the herbarium was situated in a cul de sac in former army buildings in Hartley Street, Alice Springs, where Jock Nelson building is situated today. The laboratory at the Arid Zone Research Institute was officially opened by Mr Barnes, Minister for Territories, in November 1967. The part of the building which now houses the library was the new site for the herbarium. It was to be fitted with steel compactus shelving for housing the herbarium specimen boxes. There was such a long delay in the arrival of the new shelves that it was decided to wait no longer, but to make use of the old wooden shelves. The big move out to the institute took place in February 1968. A problem was soon apparent. The ceiling of the new building was lower than was that of the old herbarium. The old shelves would not fit – so they were sawed in half to be used until the compactus units came. When they did, a government regulation required that the obsolete shelving should be destroyed under supervision. John asked me to see to that. What I did to dispose of the old shelves was to give them to any staff at the Institute who could make use of them. Among the recipients was John, while Patricia and I still have several items of furniture derived from more than fifty years old herbarium shelves. After all, no time limit was given to their destruction!

John asked me to plant local trees around the edges of the car park at the back of the Institute. This work began in April 1970. Some small plants were provided by the then forestry nursery on the grounds, and some I brought in from the bush. There are a number of those trees still existing.

Because I was on the move around the country so much, John passed various requests on to me. Among them were the collection of certain plant specimens and seeds. Twice, I collected seed from various phyllode-forms of mulga.

To fulfil a request for seed from Palm Valley palms I enjoyed a pleasant camp there and also collected leaf and timber samples from cycads for John's research. Specimens and wood samples were taken from *Eremophila* species and acacias. Some requests for chemical analyses were quaint, such as gum exuded from acacias, the powder from the trunks of Ghost Gums and bulk supplies of certain species. Assistance was given to visiting scientists, e.g. to a lady [Barbara Randell] who was investigating the taxonomy of *Senna* spp. and to a couple examining eucalypts [Dr Dennis and Dr Maisie Carr]. One of the jobs I did for John before leaving the herbarium was to excavate the root systems of certain plants to study their formation.

As previously stated, I continued my contact with John and the herbarium after my transfer to CSIRO. Duplicates of plant specimens collected in the course of my new work were lodged in the herbarium. They included two type specimens. I also continued to make special collections when asked by John.

There is much more to John's botanical work that I have outlined here – field trips, visits to other herbaria, overseas work and producing papers. I have simply told of my personal contact with him.

Finally, some comments of a more personal nature.

Sometimes John suffered from hay fever – a distinct disadvantage for one who enjoyed working with acacias and pollen-laden daisies, although he overcame this nuisance well enough.

John was a member of the congregation of the Flynn Church. At the Anzac Hill High School he taught adult education biology lessons.

As happens so often when a professional person stays with an institution for a lengthy period they become a senior person, and may be obliged to be involved in administrative matter. This, indeed, was what happened to John and I am sure this was quite an irritation, as it interfered with his scientific work.

That John was not fond of admin matters was evident early in his NT career. Each section was

required to submit a monthly report with details of work, staff matters, expenditure, requirements etc. George Chippendale was noted for his comprehensive reports. John, however, began by writing very little, in effect something akin to, 'Work took place in the herbarium this month.' After several paltry efforts John had to change his ways when a report was returned with a note: 'John. I realise brevity is the soul of wit but I would like to see more detail in your reports.' Barry Hart, Assistant Director.

Then there was spelling, which was not one of John's better qualities. Commenting about this he said, 'Oh, I don't need to spell – someone will correct it!' True enough. We had a very competent typist familiar with scientific language and words. There was a burst of laughter from her one day. She was typing a plant description written by John. The reason for mirth was John's statement that a feature of the plant was its long 'stork'.

John and Aija Maconochie were good friends with my wife Patricia and me. We visited each other, had meals together and we helped during their several shifts from house to house. Pat and I lived in a house on the Arid Zone property or Animal Industry Branch (AIB) farm, as it was generally known. There was no bridge over Chinaman Creek, which could isolate us from town when it flowed. In 1968, when the birth of our third child was imminent, the Todd River and Chinaman Creek flowed. The Maconochies sheltered Pat overnight in their house in town. Fortunately, water levels dropped and all was well.

Tragically, John passed away at too young an age in January 1984, due to a motor vehicle accident while overseas. The following year Aija died in her home town Adelaide. They left two boys. John left quite a botanical legacy and he and Aija left many friends. Happily, a beautiful *Acacia* was named for John, *Acacia maconocheana*. Examples of it are prominent in the Olive Pink Botanic Gardens. Pat and I were honoured when one of these trees was dedicated to us on our 40th wedding anniversary in 2001.

To conclude, I would like to pay a tribute to Dr Margaret Friedel of CSIRO Alice Springs. As if she didn't have enough to do, Marg. worked on John's unpublished data, and papers were produced that placed more of his work into

scientific literature, with his name cited in authorship.

Farewell, John Richard Maconochie. It was good to know you.

Addendum

Philip Short and Robyn Barker

Collections

John's Australian plant collections are mostly at DNA with some still in NT.

His 800 private collections from Oman were donated to the National Herbarium of Oman (ON) in Muscat in 1982 and were the basis for the start of their national collection in that same year. His specimens are specifically mentioned in an article on the herbarium in an Omani newspaper (Prabhu 2010).

Prabhu, C. Herbarial treasure trove. Oman Daily Observer 7th March 2010 <http://omanobserver.om/node/2165>

Eponymy

Acacia maconochieana Pedley, *Austrobaileya*, 2: 235 (1986).

Cycas maconochiei S.K.Chirgwin & K.D.Hill, *Telopea* 7: 48 (1996).

Euphorbia maconochieana B.G.Thomson, *Nuytsia* 8(3): 354 (1992).

Hakea maconochieana Haegi, *Flora of Australia* 17B: 396 (1999).

Ptilotus maconochiei Benl., *Journal of the Adelaide Botanic Gardens* 1: 201 (1978).

Triumfetta maconochieana Halford, *Austrobaileya* 4(4): 533 (1997).

Species named by John Maconochie

Acacia ammobia Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 180 (1978).

Acacia ayersiana Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 182 (1978).

Acacia crassifrugis Tindale & Maconochie, *Contributions from the New South Wales National Herbarium* 4(5): 267 (1972).

Acacia jasperensis Maconochie, *Journal of the Adelaide Botanic Gardens* 6(2): 201 (1982).

Acacia macdonnellensis Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 183 (1978).

Acacia olgana Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 183 (1978).

Cycas calcicola Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 175 (1978).

Cycas pruinosa Maconochie, *Journal of the Adelaide Botanic Gardens* 1(3): 177 (1978).

- Hakea coriacea* Maconochie, *Transactions of the Royal Society of South Australia* 97: 132 (1973).
- Hakea minyma* Maconochie, *Transactions of the Royal Society of South Australia* 97: 130 (1973).
- Hakea standleyensis* Maconochie, *Transactions of the Royal Society of South Australia* 97: 127 (1973).
- Indigofera ammobia* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(4): 325 (1980).
- Isotropis centralis* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(4): 323 (1980).
- Tephrosia arenicola* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(4): 325 (1980).
- Trachymene dendrothrix* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 184 (1980).
- Trachymene hispida* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 174 (1980).
- Trachymene inflata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 176 (1980).
- Trachymene lacerata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 178 (1980).
- Trachymene psammophila* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 181 (1980).
- Trachymene longipedunculata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2(2): 178 (1980).

Type specimens collected by John Maconochie

- Acacia abbreviata* Maslin, *Journal of the Adelaide Botanic Gardens* 2: 301, fig. 1 (1980). T: "Tanami, 20° 00' S, 129° 40' E, Northern Territory, "Small bushy shrub to 2 ft. high, stems and branches spreading. Localized to drainage areas on stony spinifex plain." 25 May 1970, *J. R. Maconochie* 1026. Distributed as *Acacia amenitifera* F.Muell. (holo: PERTH; iso: K, MEL, NT, PERTH.)"
- Acacia auricoma* Maslin, *Journal of the Adelaide Botanic Gardens* 2: 303, fig. 2 (1980). T: "Bloods Range, 24° 43' S, 129° 01' E, Northern Territory, "Erect shrub to 2 m, inflorescence golden brown, falling rapidly when dry; bark smooth. Growing on scree slopes with Spinifex and occasional bloodwood, mulga, solanum; Plect. melvillei, multi-stemmed." 10 April 1972, *J. R. Maconochie* 1395. Distributed as *Acacia* sp. nov. affinity *A. retivenia* (holo: PERTH; iso: AD, B, BRI, CANB, DNA, K, MEL, NSW, NT. I have seen only the K, NT and PERTH sheets.)"
- Acacia desmondii* Maslin, *Nuytsia* 6: 33 (1987), a nom. nov. based on *A. nelsonii* Maslin, *Journal of the Adelaide Botanic Gardens* 2: 314 (1980), nom. illeg., later homonym of *A. nelsonii* Staff. T: "Atherrita Bore, Todd River Station, 24° 26' S, 134° 52' E, Northern Territory. "Tree to 4 m, flowering almost finished, red peeling bark, phyllodes erect. Flowering sparse on all trees." 21 Aug. 1979, *J.R. Maconochie* 2507 (holo: PERTH, iso: NT, PERTH.)"
- Acacia maconochieana* Pedley, *Austrobaileya*, 2: 235 (1986). T: "J.R. Maconochie 1749 (BRI, holotypus; specimina distributa ad AD, B, CANB, DNA, K, NSW, NT, PERTH, sed non visa) and '117 km W of Hookers Creek, 18°12'S, 129°44'E, Jul 1973, *Maconochie* 1749 (TYPE: BRI, holo; AD, B, CANB, DNA, K, NSW, NT, PERTH, n.v.)."
- Arnhemia cryptantha* Airy Shaw, *Kew Bulletin* 33: 1 (1978). T: "Australia, Northern Territory, *Maconochie* 1451 (holotypus NT)."
- Cycas calcicola* Maconochie, *Journal of the Adelaide Botanic Gardens* 1: 175 (1978). T: "Holotypus: *J.R. Maconochie* 1314, 16 km N. of Katherine, N.T., 10.vi.1971 (NT); female plant, two sheets."
- Eucalyptus eremaea* D.J.Carr & S.G.M.Carr, *Eucalyptus* 1. New or little-known species of the *Corymbosae* 38 (1985). T: "J.R. Maconochie 658, 18 Jan. 1969, Chermiside area, W. of Ayer's Rock, Northern Territory. Holo. (NT 15587), iso. (AD, FRI)."
- Ptilotus maconochiei* Benl., *Journal of the Adelaide Botanic Gardens* 1: 201 (1978). T: "Typus: Queensland; Mt. Isa, City Lookout, ca 570 m alt.; coll. Benl (*Au* 64) & Maconochie, 8.iii.1978 (holotypus M; isotypi AD, ADW, B, BM, BRI, CANB, DNA, K, M, MEL, NSW, NT, NY, P, PERTH)."
- Trachymene hispida* Maconochie, *Journal of the Adelaide Botanic Gardens* 2: 174 (1980). T: "Holotype: D.E. Symon 7980, ca 11 km W. of East Alligator River crossing on road to Oenpelli, 29.vi.1972 (NT). *Isotypes*: ADW, CANB, K, L." [Hart & Henwood (2006, *Australian Systematic Botany* 19: 43) recorded "holo DNA!, iso AD (photo!), CANB, K, L." and referred it to synonymy under *T. rotundifolia* (Benth.) Maconochie.]
- Trachymene inflata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2: 176 (1980). T: "Holotype: C. Dunlop 2470, Kurundi W.H., 20° 29'S, 134° 41'E, 15.ii.1972 (NT)." *Isotypes*: BRI, CANB, NSW." Hart & Henwood (2006, *Australian Systematic Botany* 19: 34) recorded "holo DNA!, iso BRI, CANB, NSW 452753!"
- Trachymene lacerata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2: 178 (1980). T: "Holotype: D.E. Symon 7738, 32 km north east Doingi Camp, Arnhem land, 13° 09'S, 134° 51'E (NT). *Isotypes*: AD, ADW, CANB, K." [Hart & Henwood (2006, *Australian Systematic Botany* 19: 34) recorded "holo NT, iso AD, CANB, DNA!, K!" and referred it to synonymy under *T. microcephala* (Domin) B.L. Burt]
- Trachymene longipedunculata* Maconochie, *Journal of the Adelaide Botanic Gardens* 2: 178 (1980). T: "Holotype: P. K. Latz 3237, Wessel Islands, 11° 12' S, 136° 43' E, 28.ix.1972 (NT)." *Isotypes*: AD, CANB, K." [Hart & Henwood (2006, *Australian*

Systematic Botany 19: 26) recorded “holo DNA!, iso AD, BRI, CANB.”

Trachymene psammophila Maconochie, *Journal of the Adelaide Botanic Gardens* 2: 181 (1980). T: “Holotype: P. K. Latz 3275, Wessel Islands, 11° 11' S, 136° 44' [E], 28.ix.1972 (NT).” *Isotypes*: AD, CANB, K.” Hart & Henwood (2006, *Australian Systematic Botany* 19: 26) recorded “holo NT!, iso AD, BRI, CANB, DNA!, K!, MEL!, PERTH 1597345!”.

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J.R.Maconochie. *Studies on the leaf production of selected plant species in the temperate, southern arid and central arid regions of South Australia*. M.Sc. Thesis, 1967, Department of Botany, University of Adelaide.

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Death notices

Maria Louise Szent-Ivany (née Lakatos)

Mrs Maria Louise Szent-Ivany (nee Lakatos) passed away in Adelaide on 9th March 2012 aged 92 years. Mrs Szent-Ivany was born in Budapest, Hungary on 10th November 1919. She was the wife of the well-known entomologist, Joseph Szent-Ivany, who died in 1988 and the daughter of Géza Lakatos, who was for a short time, in 1944, the Prime Minister of Hungary. As well as sharing her husband's entomological interests Mrs Szent-

Ivany was an artist and illustrated David Symon's *Solanum* revisions in the *Journal of the Adelaide Botanic Gardens*, although botanical art was not her usual medium.

John Reid

John Reid of the National Herbarium of Victoria (MEL) passed away on the 8th February.

John had worked at the Royal Botanic Gardens since 1997 as part of the Identifications service. He had been battling cancer for approximately two years.

CHAH report

CHAH (the Council of Heads of Australasian Herbaria) brings together the heads of all major Australian and New Zealand herbaria plus representatives of the University herbaria and of ABRs. CHAH meets four times a year to discuss issues and plan projects that are of common benefit to all Australian botanists. I have taken on the Chairmanship of CHAH for the next three years, and plan to try to write a brief report on CHAH activities for every issue of the ASBS Newsletter.

CHAH has recently been extremely busy with three major initiatives. The first of these involves ongoing and linked discussions around the Australia's Virtual Herbarium (AVH) and Atlas of Living Australia (ALA) projects. The AVH began as a CHAH initiative to make accessible in a single web application records of all Australian specimens from all Australian

herbaria, with a first prototype developed in 1999. This prototype led to CHAH negotiating significant funding from the Commonwealth Government for a campaign to digitise our collections, and the AVH proper was born. The current version (AVH3) was released in March 2010. In 2011, further development and hosting of the AVH was continued through the ALA, along with development and hosting of OZCAM, the equivalent portal for Australian museum records of animals.

Currently, the AVH is hosted at the Australian National Herbarium, accessible via the CHAH website at www.chah.gov.au/avh. Many of you will be regular users of the AVH. For those few who don't currently use it, the AVH is a great resource that allows you to plot maps and download specimen records of all Australian plants from the combined 4.5 million specimens

housed in Australian herbaria. A new version with an increased range of functions and analysis tools developed as part of the ALA, will be released in the coming months. The next ASBS Newsletter should carry an announcement and description of the newest AVH – watch this space.

Of great relevance here also is that our New Zealand colleagues have built the New Zealand equivalent, the NZVH (www.virtualherbarium.org.nz). New Zealanders for many years were observer members of the Council of Heads of *Australian* Herbaria. At the 2010 CHAH meeting in Christchurch, CHAH changed its name and scope to *Australasian* and welcomed the heads of New Zealand's principal herbaria as full members. At around the same time, New Zealand announced, after a mammoth effort and a full-steam development cycle, the release of the first version of the NZVH. Australia and New Zealand lead the world in these types of activities and have done so for many years. This leadership is continuing with the new AVH and NZVH, and with the ALA. We are the envy of the rest of the world.

CHAH's second main initiative at the moment is the botanical component of the National Species Lists project. The vision of the National Species Lists is to create and manage an agreed checklist or census for all Australian biota. Again, funding coming through the ALA project has been very significant in turbocharging this activity. CHAH is managing the creation and delivery of five National Species Lists, for vascular plants, mosses, liverworts, fungi and freshwater algae. A sixth checklist of interest to our community, that for marine algae, is being managed by ABRs.

Of these, the first versions of the moss, liverwort and freshwater algae checklists are now complete, the vascular plants checklist is done except for orchids, and the fungi checklist is nearing completion. Of course, these checklists will never be complete and will need to be maintained over time as taxonomies change and grow.

These checklists will be made available through websites and web services, and eventually perhaps integrated into a single checklist covering all Australian biota. For the time being, you can use the vascular plants checklist through the APC website (www.chah.gov.au/chah/apc), the mosses through AusMoss (www.rbg.vic.gov

[au/dbpages/cat/index.php/mosscatalogue](http://www.rbg.vic.gov.au/dbpages/cat/index.php/mosscatalogue)) and the fungi through the Interactive Catalogue of Australian Fungi (www.rbg.vic.gov.au/dbpages/cat/index.php/fungicatalogue). An agreed census for all plants in Australia will be of enormous benefit to us all, and will underpin many of the web-based resources we will all increasingly be using as part of our day-to-day work.

The third main CHAH initiative is a new one. Australia, through CHAH, has just joined the Global Plants Initiative (GPI), an international collaboration aiming to digitise and make available plant type specimens, together with other botanical resources, for scholarly purposes. The GPI network of content providers currently includes more than 166 partner herbaria representing over 57 countries, funded and spearheaded by the Andrew W. Mellon Foundation. The GPI is an important initiative for Australian (and all the world's) botanists. For more information on the GPI and what it can do for you, please see the separate article in this Newsletter.

While I've highlighted these three major projects in this report, CHAH is involved in many other activities including the response to the myrtle rust invasion of eastern Australia, help with the Bushblitz project run by ABRs that is rolling out biological surveys of some of Australia's least well-known reserves (discovering many new species along the way) and negotiations with the Terrestrial Ecosystem Research Network (TERN) over the best way for herbaria to contribute to this important national ecological research program.

All in all, CHAH continues to grow as an effective organization for developing, managing and funding botanical resources for the benefit of us all, and as a forum for planning and problem-solving in Australia's botanical collections community. Along with our sister organizations CHAFC (faunal collections), CHAEC (entomological collections), CHACM (microbial collections) and CABC (the Council of Australian Biological Collections, a peak body comprising the executives of all of the Councils), we are working hard to support and help develop and champion the entire Australian collections community.

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

level or any ideas that you believe CHAH should become involved with. In my next post in the next Newsletter I'll describe the activities and role of CHAH's two subcommittees, HISCOM

(the Herbarium Interchange Standards Committee) and MAHC (the Managers of Australasian Herbarium Collections).

Kevin Thiele, Chair

The Global Plant Initiative

In my CHAH report I briefly described the Global Plants Initiative (GPI), which Australian and New Zealand herbaria have recently joined through CHAH. The GPI is an international collaboration aiming to digitise and make available images of plant type specimens, together with other botanical resources, for research purposes. The GPI network currently includes more than 166 partner herbaria representing over 57 countries, funded by the Andrew W. Mellon Foundation. Australia has recently joined the GPI, and all major Australian herbaria will have either started or will shortly begin making high-resolution images of the entire Australian type collection, to add to the GPI collection. This article describes how you can access this incredibly valuable resource.

Many of us regularly use JSTOR, a "not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive of over one thousand five hundred academic journals and other scholarly content" (they wrote that, not me). JSTOR Plant Science is the delivery service for the GPI images. Currently (as of writing) there are 1,295,524 GPI digital images of type specimens from throughout the world, including (currently) 39,800 from Australia available through JSTOR. Most of the Australian types available at the moment are from European collections that have been digitising their types for the GPI for several years. Note that both these numbers are growing every day as more and more specimens are scanned. The GPI has a goal of making 2.2 million type specimen images available

worldwide through JSTOR by 2013, and seems well on track to achieve that.

Note that because of complex funding arrangements, the type specimens available through JSTOR can be viewed at low resolution by anyone, but at full resolution only by subscribers, which includes all members of all participating herbaria. So, you will be able to view the high resolution images from work, but your aunt will only get the low-res access. Because of the way of tracking subscribers (using ip computer addresses), you also won't be able to access the full-resolution images from home.



Fig. 1. Home page of JSTOR <http://plants.jstor.org/>

To get to the images, visit <http://plants.jstor.org/>. The Home page (Fig. 1) shows the range of activities JSTOR Plant Science is involved in, including photograph and drawing collections and (this may be a very useful one) a handwriting collection. The type specimens are accessed by clicking on the Specimens icon. Alternatively, if you want to see specimens from a known continent, click on the map.

Once you're at the specimens page, you'll see thumbnail images of all available specimens (Fig. 2a), either from the world or from your selected region. There are, of course, search options that allow you to refine your search to a particular genus or species, globally or regionally, or a particular herbarium or collector. The interface is neat, clean and very functional, I think.

To access a specimen image (not available from your home), click on the thumbnail and a larger version and specimen details will appear (Fig. 2b). While this is bigger than the thumbnail, it will still usually be too small for the details we usually need to see. But try out the Viewer button at the top of the specimen details section. This will open the image in a special viewer that will allow you to zoom in to the maximum available resolution. (Fig 2c). It's good.

Increasingly, these types of initiatives are working towards giving us instant access to the resources we need to do our work more effectively. I think we'll all find JSTOR Plant Images a very useful site. I suggest you bookmark it now.

Kevin Thiele

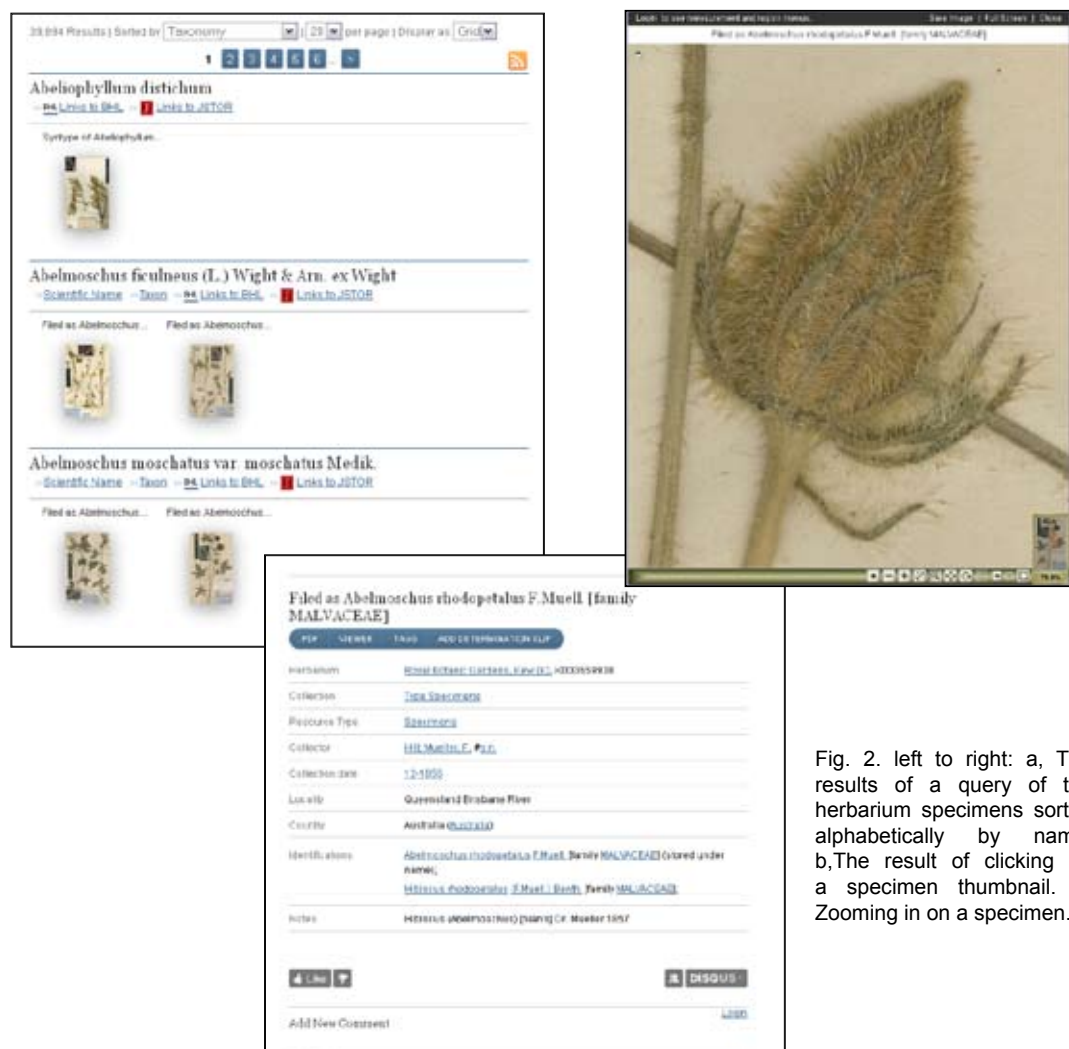


Fig. 2. left to right: a, The results of a query of the herbarium specimens sorted alphabetically by name. b, The result of clicking on a specimen thumbnail. c, Zooming in on a specimen.

Conference reports

Fourth International Barcode of Life Conference, Adelaide Australia 2011

Hannah MacPherson
National Herbarium of New South Wales

The Fourth International Barcode of Life Conference, and the first to be held in the Southern Hemisphere, was held at the University of Adelaide in South Australia from 28th November to the 3rd December 2011. Pre-conference training events on Informatics and DNA barcoding methods filled the first two days and the formal proceedings of the conference began with the opening reception on the evening of the 29th of November at Adelaide Zoo. It was clear from this initial event that the conference was going to be an interesting one with 463 participants from 61 countries, more than doubling the attendance statistics of the first Barcode of Life Conference at the Natural History Museum in London in 2005.

Participants had a chance to sample the local wine and some tasty canapés, listen to the didgeridoo and meet some of the native Australian animals while mingling with colleagues from around the world. Andy Lowe gave a warm welcome on behalf of the organising committee and highlighted the diverse range of DNA barcoding applications and developments that would be presented over the course of next four days. These included animal, plant and microbial systematics, pest and disease diagnostics, illegal wildlife and timber trade, forensics, quarantine identifications, environmental monitoring and assessment, and an ever increasing list of ecological applications.

Presentations from studies of a wide range of organisms showed that while no single barcoding approach will suit all life there are many new tools, techniques and experimental approaches to maximise DNA barcoding outcomes. The rate of data being produced by the DNA barcoding community is increasing rapidly. As Next Generation Sequencing approaches become more widely accessible and

affordable it is hard to fathom how much more data we will be able to generate. Given that there is already a recognised time lag between production of data and publication of studies, the next big challenge will be to address this time lag given a whole new world of bioinformatics. As more barcoding data is generated and the reference databases continue to expand, the more effective DNA barcodes will become as tools for a wider range of applications.

The use of DNA barcodes for identification of environmental samples in large-scale ecological studies (and indeed the many potential uses for future studies) was an area that stood out at the conference in Adelaide.

Any past controversy over whether barcoding is a threat to the field taxonomy was put to rest at the conference with the barcoding community calling out for experienced taxonomy to underpin their work, especially where phylogenies don't provide a clear-cut picture.

The conference was extremely well organised and ran very smoothly. Even when one session proved more popular than expected and overflowed the allocated room, participants and speakers were relocated quickly and the session was able to run to schedule.

Audio recordings of many presentations, powerpoint files and poster presentations in pdf format are available on the Conference website www.dnabarcodes.org along with a photo gallery accessible through Connect Discussion Forum <http://connect.barcodeoflife.net/>

Impressions from the 4th International Barcode of Life Conference in Adelaide

Katharina Schulte

Australian Tropical Herbarium & Centre for Tropical Biodiversity and Climate Change,
James Cook University, Cairns

Get involved! The success of DNA barcoding will depend on the engagement of the taxonomic community.

The 4th International Barcode of Life Conference held at the University of Adelaide in South Australia from the 28th November to the 3rd December 2011, was the first to be held in the Southern Hemisphere. With 463 delegates from 61 countries this conference constituted the largest held so far with a twofold increase of participant numbers compared to the 1st Barcode of Life Conference at the Natural History Museum in London in 2005. Besides the wide participation from scientists from all around the globe, the great interest the conference aroused among stakeholders from the applied fields of DNA barcoding, such as government agencies and industry was remarkable, and showed that DNA barcoding is achieving real-world application.

The central idea of DNA barcoding is to sequence standardized DNA markers for all organisms on Earth in order to facilitate their rapid identification – without any taxonomic expertise required of the user. Thus, DNA barcoding is mainly tailored for the user of taxonomic information who may not have the adequate training to use traditional tools to identify specimens or the capacity to determine hundreds or thousands of samples in settings with rigid time constraints, as in customs, quarantine, forensics, quality control of plant and animal products, or in broad scale ecological studies and rapid environmental assessments. One prime example for the latter is the rapid biodiversity assessment study of Craig Costion (University of Adelaide/Australian Tropical Herbarium) *et al.* who demonstrated that biological diversity can be accurately estimated in unknown tropical floras based solely on barcode data (Costion *et al.* 2011). At first glance species identification based on DNA sequences appears to be an intimidating scenario for taxonomists. In the past DNA barcoding has often been perceived as just another threat for taxonomy – would a molecular identification system not render

the taxonomic expert superfluous? The 4th International Barcode of Life conference showed that, eleven years after the advent of the barcode initiative, DNA barcoding in fact promotes and strengthens taxonomy.

At the conference the results of a great range of barcoding flagship projects were presented, and certain groups of organisms (like fishes, butterflies, and marine life), or certain geographic regions (like the island of Moorea) were barcoded at large scale. The participants learned that in the past few years the number of DNA barcodes in public databases such as Genbank has increased tremendously, with over 500,000 entries to date carrying the label “BARCODE”. This label indicates that besides the mere DNA sequence, a photo of the specimen plus the original sequence trace files are uploaded, and a voucher is held in a recognised institution. The first hand reports from these large scale barcoding projects demonstrated quite impressively how such mega-data sets can reveal and highlight taxonomic problems. Besides the mundane uncovering of incorrect specimen identification (like the supposed ant that was in fact a spider mimicking an ant), such mega-data sets can reveal – like other molecular phylogenetic data sets – the poly- or paraphyly of species, possible cryptic species, reticulate evolution, etc., and ultimately lead to the fundamental question of how to delimit taxa appropriately. And here, the presenters frequently stressed that the molecular data sets alone often cannot resolve the taxonomic questions but that taxonomic expertise is essential, and during the conference the call for taxonomists to contribute to barcoding projects was heard often.

In the past few years, DNA barcoding contributed to cut costs in high throughput Sanger sequencing, especially through the efforts at the Canadian Centre for DNA Barcoding (CCDB) in Guelph, and new developments using next generation sequencing are currently underway. So far, massive data sets have been assembled, with CCDB being the largest contributor of

DNA barcode data in Genbank. But, as Ilene Mizrahi, a representative of NCBI/Genbank, revealed in her talk, over 70% of the barcode data on Genbank are level zero data, i.e. without species determination, many of them even without determination at genus or family level. As the NCBI/Genbank representative announced in her talk, Genbank wants to counter this undesirable development by no longer accepting submissions of level zero data as barcode data. This development highlights once again where the real bottleneck lies: in the identification of the material. This is time consuming and requires adequate expertise, and is most challenging in understudied groups or faunas/floras where comprehensive identification keys do not exist, or where the respective taxa are new and require formal description. Thus, DNA barcoding underscores once again the importance of fundamental taxonomic work and highlights simply that there are insufficient taxonomic experts already and the situation is worsening.

To counter the challenges and costs of *de novo* sampling of biological material for building the DNA barcoding reference data base, several talks promoted the sourcing of well curated scientific collections as an efficient alternative. One of the flagship projects, presented by John La Salle (CSIRO), was the barcode blitz held at the Australian National Insect Collection in Canberra, where 28,000 samples representing 8,000 species of Lepidoptera, i.e. 90 % of named Australian butterfly species, were sourced for DNA barcoding in only ten weeks. For more than 95 % of the samples, a DNA barcode was successfully generated, rendering this the first continent-wide barcode data set for a megadiverse arthropod group. For flowering plants, similar large scale projects were presented, for example the Barcoding the Flora of China project presented by De-Zhu Li (China Plant BOL Group *et al.*: over 6,000 species barcoded) which revealed that ITS is the most powerful tested marker and should be used as official DNA barcode for land plants, or the Flora of Wales project carried out by Natascha de Vere and co-workers at the Botanic Gardens of Wales (De Vere *et al.* 2011). Both studies relied mainly on herbarium material and consistently reported highest success rates in material less

than 10 years of age, and varying success rates depending on the markers applied. Shorter regions with more conserved priming sites such as *rbcL* yielded the highest success rates (ca. 90 %) and longer regions with more variable priming sites (such as *matK*) resulted in lower success rates (ca. 70 %). The lower success rate in generating DNA sequences from herbarium compared with fresh material is offset by the cost efficient acquisition of a huge sample size; therefore this approach appears promising. For example, in the Barcoding of the Flora of Wales project, over 4,000 individuals were sampled, and over 5,000 DNA barcodes generated (*rbcL* and *matK*) representing 1143 species, i.e. about 90 % of the sampled species. These projects underscore the value of well curated biological collections and the potential of those collections to enable future, as yet unknown, scientific enterprises. Using existing collections for barcoding projects helps to address long standing taxonomic questions, and provides the taxonomist with a wealth of data for taxonomic research. Thus, such collection blitzes add value to our scientific collections and increase their importance as reference libraries for genetic information stored in publicly available data bases, and at the same time support taxonomic research.

At the conference researchers also presented pioneering work in the field of next generation sequencing (NGS), a catchall term for different high-throughput sequencing technologies that parallelize the sequencing process, producing thousands or millions of sequences at once. Despite the pilot nature of many of these projects the power of this new tool is clear. Especially interesting was the application of NGS in rapid biodiversity assessments and a wide range of ecological studies. In those studies, NGS was used to obtain sequence information for large sample sets where the material often cannot be identified via traditional keys because of sample size, the state of the samples (e.g. they may be sterile, in the wrong life cycle stage, or severely degraded such as in gut contents), or because of the the lack of reliable identification keys for those organisms (e.g. plankton, certain arthropod groups, or tropical fungi). These talks demonstrated that NGS generates a great demand for species identification via sequence

information, and thus the establishment of a reliable reference data base is urgently needed. Indeed, the talks gave a realistic impression on how sequence data will be used in future to identify species, and the crucial point here is that the accuracy of identification will largely depend on the quality of the reference database. In large scale projects, there may be no time to go into details and to verify for each group if the entries in the public database are representative, and thus results may be biased. For example, a Genbank search may reveal that there are only four species with high sequence similarity to the query sequence, which may look like a reasonable result. But this could in fact be caused by a limited representation of this group in the public reference database and results would look different if sequences were available for the remainder of the group. And here lies the problem. A taxonomist may choose to just sequence a couple of species to represent a larger group of closely related species as placeholders for the group, and may consider the sequencing of the remainder as superfluous. In the context of NGS applications, this approach needs to be reconsidered. Because the quality and reliability of reference databases will be crucial for future applications, the engagement of the taxonomic community to build those reference libraries based on representative, well identified and vouchered material, is vital.

The presented results from large scale DNA barcoding studies and environmental studies, with their large fraction of samples that cannot be assigned to any described species put a spotlight on understudied groups for which in the past it proved difficult to make a strong case for taxonomic research. A prime example for this was an ecotoxicological study presented by A. Chariton (CSIRO) about the effects of Triclosan, a common ingredient of antibacterial products such as soaps and toothpaste, on the environment (Chariton *et al.*, 2011). Instead of using the standard handful of indicator species to assess the toxicity of the product on marine benthos, Chariton *et al.* exposed marine water samples to different amounts of the product and sequenced the whole marine water sample using NGS. In this study, DNA sequences could only be matched to broad groups due to a lack of reference sequences. But despite this, the

approach had the power to reveal that a broad range of organisms - and different groups of organisms to varying extents - are negatively affected by the ingredient, and decline. Knowing that a broad range of marine taxa will suffer under the presence of these substances in the water, without being able to even name most of them, let alone know their role in the ecosystem, is worrying, and calls for taxonomic research. Thus, such studies can be powerful levers to fund taxonomic research and make government agencies and the broader public more aware that we need additional investment in this fundamental science.

In summary, the 4th International Barcode of Life Conference showcased recent advances in the field of DNA based species identification and the broad range of possible applications, and underscored that the success of the barcode initiative will depend on the engagement of the taxonomic community. Get involved.

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Book reviews

Rumphius's Ambonese herbal

Tony Orchard
c/o ABRS, Canberra

The Ambonese Herbal. By Georgius Everhardus Rumphius. Translated, annotated, and with an introduction by E.M. Beekman.

Volume One, Introduction; Book 1: Containing All sorts of Trees, That Bear Edible Fruits, and Are Husbanded by People. Yale University Press & National Tropical Botanical Garden: New Haven and London. 2011. ISBN 978-0-300-15370-5 (Vol. 1). Series ISBN 978-0-300-15376-7 (6 vols).

All on alkaline paper. Hardback. US\$85 (Vol. 1); US\$450 (set of 6 vols).

If you ever wondered what the botanical version of War and Peace would look like, this is it. I was sent volume one (of six) for review. It weighs just over 1.5 kg, has 524 pages of 9.5 pt, heavily referenced text interspersed with hundreds of quality illustrations, yet reads like an airport novel (with a plot better than most), impossible to put down, impossible to finish in a single session. It was written 350 years ago by a blind soldier/naturalist, and its content, in general, is as fresh as the day it was written, and has never been surpassed for quality.

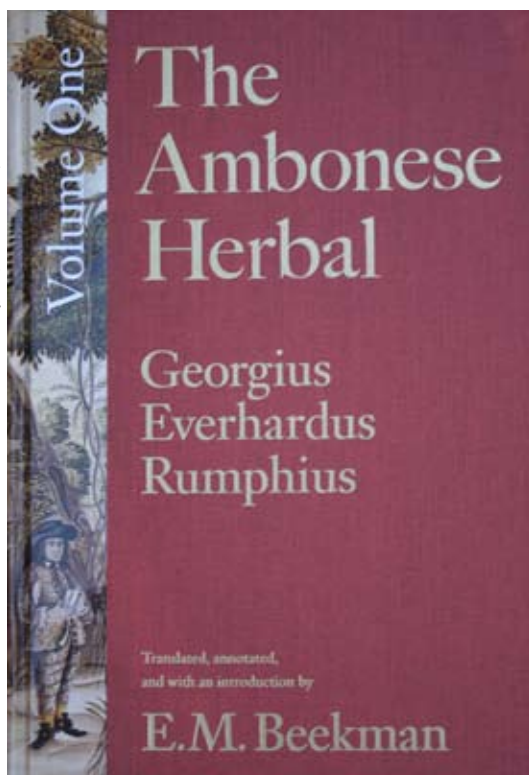
Rumphius is one of that band of 17th and early 18th century botanists who most practitioners of the vegetable sciences have heard of, but know little about. They were pre-Linnaean,

and thus their works (apart from occasional lectotypifications) do not impinge on day-to-day taxonomic tasks. In this case, this is a great pity, and an injustice, because Rumphius's story and work needs to be more widely known. His Ambonese Herbal (Het Amboinsche Kruidboek), along with Van Reede's Hortus Indicus Malabaricus, is the foundation work on south-east Asian tropical botany. Because it was written

primarily as a herbal, it contains a wealth of ethnographic, linguistic, ethnobotanical, horticultural, pharmacological and folkloric information. It is still the best source, in many cases, for such information on the plants of this region. The story of its creation and its several narrow escapes from destruction, before publication long after its author's death, is itself worth the purchase price, and then there is the detailed description of more than 1300 plants, with a wealth of knowledge about each distilled from direct observation and discussions with the Ambonese people and their dukun or herbal

healers.

The Herbal was originally published in Dutch, with a parallel abridged Latin version printed alongside. It is now available in English translation, with a 169 page Introduction and copious interpretative annotations by E.M. Beekman (1939–2008), Multatuli Professor Emeritus of Dutch Literature, Language, and Culture, University of Massachusetts,



Amherst. The annotations throughout the text are worthy of high praise in themselves, as they interpret what would otherwise be archaic Dutch expressions, obsolete nomenclature, geographical terms, and historical incidents. However, in my view, the real treasure is the Introduction. This is a model of how an academic biography should be written. The detail is amazing, not only about Rumphius, but his family, associates, contemporaries, political life, commercial life (particularly about the Dutch East India Company, the VOC), social life, contemporary scientific work, history of Germany and the Netherlands in the 17th and early 18th century, history of the Moluccas, and much more. For all the major figures (and there are many of these) there are short but detailed mini-biographies. The political and military history of north and central Europe, Portugal, and eastern Indonesia are all described. What I found particularly interesting, having been educated on European history from an English perspective, was to see it afresh from a Dutch perspective. The text is minutely referenced as to sources, and there are frequent sidenotes on persons and events, and providing original Dutch versions of documents quoted in English translation. Despite the enormous detail, the text flows easily. In all, Beekman's is a work of great scholarship.

Georg Eberhard Rumpf (or Georgius Everhardus Rumphius in Latin) was born in Wölfersheim, in the Wetterau region of what is now Hesse in central Germany, in October or November 1627. He was unfortunate in being born into the middle of the Thirty Year's war (1614–1648), a struggle for power, territory and influence between the Catholic Holy Roman empire represented by the Habsburgs in Vienna, Prague and Bohemia, and the Protestant Calvinists of Germany. Beekman provides a detailed account of this vicious war, in which first the Calvinists, then the Catholics, and finally the Protestant (Lutheran) forces of Gustavus Adolphus of Sweden prevailed. When Gustavus Adolphus was killed in the battle of Lützen in 1632, a stalemate ensued, settled only by the general peace of Münster in 1648, leaving much of Germany, including the Wetterau completely devastated. The population was reduced to scavenging on dead bodies, rats and grass. The misery was compounded by two waves of the

plague. The population of the Wetterau was reduced from about 5000 at the start of the war, to 38 adults, 10 girls and 6 schoolboys in 1648.

After the war Rumphius's father August eked a precarious living as Baumeister (architect, fortifications expert and civil engineer) repairing the towns and estates of the impoverished local nobility. He based himself in Hanau, a fiercely Calvinist bastion which had suffered severely during the war, and a century later was the birthplace of the brothers Grimm of fairy-tale fame. When Georg finished his Gymnasium (High School) education at 18 (1645) he was persuaded or tricked into joining a Dutch militia unit, allegedly to serve in Venice and Crete, but actually destined to fight for the Dutch West Indies Company (WIC) against the Portuguese in northern Brazil. This ill-fated expedition could have spelled the end of Rumphius, but his ship the Black Raven foundered or was captured by the Portuguese off Lisbon, and Rumphius found himself serving as a foreign mercenary for the Portuguese against the Spanish for the next 3 years. As well as learning the skills of a soldier, he also undertook some exploration of natural history during this period.

Somehow Rumphius relinquished his Portuguese mercenary duties in 1649 and returned to Germany, where for 2 years he was employed as Bauschreiber or overseer by Count Johannes von Nassau-Idstein. In 1651 he abruptly left this position and in 1652 signed up as a soldier for the Dutch East India Company (VOC) and was sent to Java. Beekman provides detailed descriptions of the history of the WIC, the VOC, Rumphius's service in Portugal and Idstein, his excursions in the Cape of Good Hope on his way to Java, and the history of Dutch colonial expansion in the East Indies. There is no room to discuss these here, but they make extremely interesting reading. After a short stay in Batavia, he was posted to Ambon in 1653, where he fought in the Ambonese War (1651–1658) under De Vlamingh van Ootshoorn. Again, Beekman provides a detailed account of this bloody campaign, in which, among other incidents, the peninsula of Hoamoalon Seram was entirely depopulated and stripped of all spice trees, both to deprive the rebellious natives of an income, and to ensure the VOC's monopoly in the clove trade. Similar scorched earth policies were used in Ambon and other

islands.

Rumphius's contract as a soldier expired in 1657, and he was appointed to the position of junior merchant (a sort of local governor) at Larike on the northern peninsula, Hitu, of Ambon. Here he acquired a Eurasian wife, Susanna, with whom he had 3 children. In 1662 he was promoted to merchant, and by 1663 he told his employers that he was working on a Herbal. Susanna shared this work, and by 1669 he had completed a large part of it. Then in 1670 tragedy struck – in just 3 months he went blind from what was probably acute narrow angle glaucoma. Fortunately, through personal and family contacts in the VOC, he was permitted to stay on the VOC payroll, but moved to Kota Ambon on the southern peninsula, Leitimor, where he spent the rest of his life. Here he was permitted to shed many of his mercantile duties, and was provided with a clerk (*amanuensis*) to continue work on the Herbal.

Unfortunately the clerk could not take dictation in Latin, in which Rumphius had prepared the Herbal until this time, so he needed to start again, in Dutch, from memory. In 1674 tragedy struck again. A major earthquake and tsunami struck Ambon, killing Susannah and Rumphius's youngest daughter. He himself narrowly escaped. Rumphius, considered by now the VOC's resident expert on the East Indies, was ordered to prepare a report on the earthquake, along with accounts of the history and geography of the Ambon region, plans to relocate the main fortifications of Kota Ambon, and a treatise on local agriculture. Rumphius married again shortly afterwards, and by 1678 had completed his *History and Geography*, which the VOC immediately classified secret (or commercial-in-confidence in modern parlance). In 1681 he was elected a member of the *Academia Naturae Curiosum* (Schweinfurt, Bavaria), the world's first scientific Academy (preceding the Royal Society in London by 10 years).

Work proceeded on the text of the Herbal. Plates prepared by Rumphius before his blindness were available to illustrate it. Then in 1687, a large part of the European quarter of Kota Ambon was destroyed by fire, and the plates, along with his library, specimens and curiosities

were lost. The text barely survived. Fortunately the VOC sent Rumphius a cabin boy, Van Eyck, to be trained as an artist, and he became quite talented. From 1688–1696 he produced new plates for the Herbal.

In 1692 the first 6 “books” of the Herbal were complete, and sent to Batavia, where they were put aboard the *Waterland* for Amsterdam. Unfortunately the fleet of which it was part was intercepted by a French fleet (the French were at war with the Dutch and English – the Nine Year's War), and the *Waterland* was sunk, taking with it the Rumphius manuscript. Fortunately, the Governor of Batavia had made a personal copy of the manuscript, and this was used to prepare a replacement. In 1696 the first 9 “books” of the Herbal were shipped to Amsterdam, and the final 3 in 1697. There had been further delays. A batch of 61 illustrations had been stolen from Rumphius's office in 1695, and had to be replaced, from memory, by the artist. In 1702 Rumphius forwarded an “*Actuarium*” (a supplement to the Herbal) to Amsterdam. He died a month later.

The VOC in Amsterdam refused in 1700 to give permission for publication of the Herbal, although they changed their minds in 1702. However, it was not until 1739 that Johannes Burman (1706–1779, Professor of Botany in Amsterdam) could assemble a consortium of printers to undertake the task, and it was not until 1750 that it appeared as 12 “books” bound in 6 volumes, nearly 100 years after Rumphius had arrived in the East Indies.

I have not described yet any of the contents of the Herbal, and I can hear the editor grumbling about the length of this article already. Rumphius modelled his work on the *Naturalis Historia* of Pliny the Elder (23–79AD). It was divided into “chapters”, each dealing with a single plant of agricultural, horticultural or pharmacological importance to the Ambonese. Although the chapters were prepared randomly as material became available, the books were assembled in geographical and utilitarian order. The first chapter, on “The Cocos Tree, Calappa”, can serve as an example.

The chapter begins with a full page plate, drawn from life, and of very high quality. The text is

translated carefully to preserve the flavour of Rumphius's original Dutch text. Neologisms are avoided (for example, the use of 'forest rope' instead of the modern 'liane'), and Beekman carefully interprets in copious side notes any unusual words or expressions. He also provides a commentary on Rumphius's description and text. The text begins with a detailed description of the plant, equal or superior to that in most modern monographs. This is followed by a discussion of the various local names applied to the plant and its constituent useful parts. Rumphius read and wrote German, Dutch, Portuguese, Latin and Greek, and had a working knowledge of Arabic. The native names were given in Latin, Dutch, Ambonese (both Hitu and Leitimor dialects) Macassarese and Chinese, all of which he understood. The final part of each chapter was devoted to discussion of the uses of the plant and its products, including medicinal uses. This latter was particularly important to Rumphius, and his first wife Susannah was particularly useful to him in revealing gynaecological nostrums used by the dukun or herbal healers, information which would otherwise not have been revealed to a male outsider. The distribution of the species, in the East Indies, and further afield where known to Rumphius, is also given, along with its ecology. In most chapters there is a short "Comments" section contributed by Burman, who also wrote the parallel Latin text. In the case of Cocos, the next three chapters are supplementary to the first, dealing with "The Kinds, Place, Ground, and Propagation of the Calappus Trees", "Uses and Powers of the Calappus Tree", and "Miscreations and Monsters of the Calappus Tree". This is unusual, as most entities are dealt with in a single chapter, but the coconut was special.

Rumphius's description of the medicinal properties of his plants were based on Galenic medical theory, (4 humours: phlegm, blood, yellow bile, black bile; 4 elements: earth, fire, water, air; 4 qualities: cold, dry, hot, wet), as interpreted by Paracelsus (1493–1541). These principles are unfamiliar to modern readers, but Beekman provides a substantial and informative summary of this, as for much else. His sarcastic

account of Linnaeus is well worth reading for its revelation of feet of clay!

In summary, this book, and its five companion volumes, are a treasure. Rumphius is revealed as a man centuries in advance of his contemporaries. His work 350 years later is still being rediscovered, and found highly relevant and accurate. That it survived wars, fires, earthquakes, tsunamis, shipwreck and bureaucrats is truly amazing (what else I wonder, written by others, failed to survive such vicissitudes?). I highly recommend it as a source of information on tropical plants of eastern Indonesia, particularly the trees. Equally valuable are Beekman's introduction and annotations. These provide an impressively comprehensive account of European and East Indies history, commerce, politics, botany and culture during the 16th and 17th centuries. Enquire here for information on the botanists Pliny the Elder, Orta, Acosta, Monardes, Clusius, Bontius, Van Reede, Kaempfer, Ten Rhijne, Cleyer, Mentzel, Burman, Gronovius and Linnaeus; physicians such as Galen, Paracelsus, and Boerhaave; patrons like Clifford; soldiers and bureaucrats in the VOC such as De Vlamingh, Maetsuyker, Cops, Camphuys, De Saint Martin, and Chastelein; and plagiarists such as Valentijn. There are authoritative accounts of the Thirty Year's War and the Nine Year's War, extensive accounts of the Dutch wars in Ambon and other East Indies territories, and a partial account of the Portuguese–Spanish border wars of the 1650s.

And the price of this treasure? Just US\$85 per volume, or US\$450 for the set. Surely the bargain of the year. It should be in the library of every botanical institution, and the personal library of every serious botanist.

I cannot finish without reporting the title of Rumphius's Dedication in the Herbal, a model to be emulated by all those who wish to get ahead: [to the] "Noble, Magnanimous, Right Honourable, Mighty, Wise, and Provident Lords: The Lords of the United East India Company. High and Mighty Lords, [...]" !

A wild west tale well told: the story of the Western Australian Herbarium

Barbara G. Briggs
Royal Botanic Garden, Sydney, Australia

A Botanical Journey: The Story of the Western Australian Herbarium

By Roger Underwood

Department of Environment and Conservation WA. 2011

275 pp. ISBN 978-1-921703-12-6. AUD \$ 49.95 (soft cover); \$64.95 (hard cover)

What can we expect from a history of a small state-government organisation over 82 years? Will it be a good read, interspersed with brilliant photographs, a comprehensive account of the exploration of a major segment of Australia's diversity, an opportunity to share the enthusiasm of those who were part of the story, the pleasure of recognising people that we know, all set in a wide context of international links and discovery?

This account of the Western Australian (PERTH) gives us all this and much more. Roger Underwood outlines his story: it "is more than just a story about botany. The Western Australian botanical journey is also about exploration and adventure, science, scholarship and bushmanship. And, as in all good stories, the narrative is overlain by the interplay between fascinating personalities."

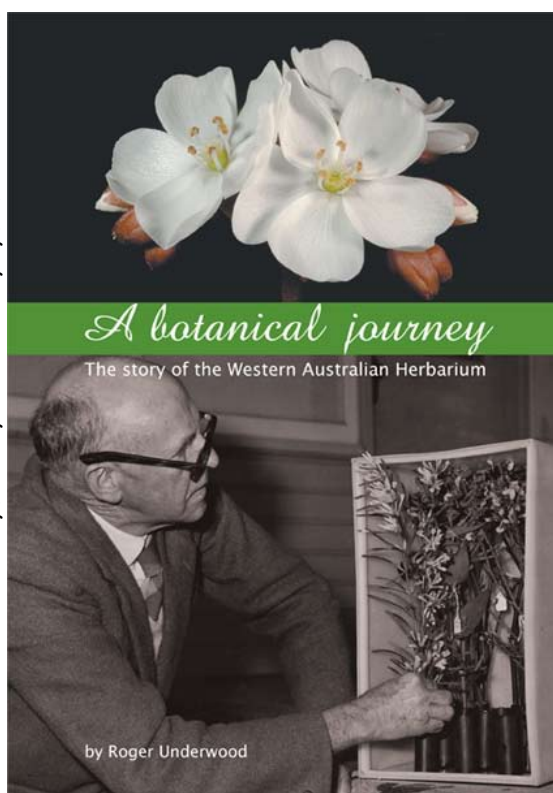
"Nor is it simply a chronicle of an institution and its collection of plant specimens. The story embraces the adventures of the earliest European explorers to reach our coasts, the work of plant collectors, botanists and botanical enthusiasts

whose names are now household words, and internationally famous scientists. There have been great challenges and many brave hard-working men and women. There has been an enduring and significant contribution to science and conservation and to the nation's culture, art, literature and industries. The richness of our botanical history is equalled by the richness of our flora."

The story starts with the exploration of the coast and aboriginal knowledge of plants and ends with the Herbarium's move to the new Conservation Science Centre. Along the way we meet botanists, collectors, technicians, artists and volunteers. There are links with Kew and scientific developments overseas, excellent brief explanations of the scientific purposes of taxonomy and herbaria. It includes sections on DNA research, databases and where on-line resources are now taking us. The origin of FloraBase, that wonderful boon to so many of us seeking information on the WA flora, is described.

Regional Floras and regional herbaria, as well as multi-access keys and ecology, are part of the story.

Some of the most fascinating pages come directly from the botanists. So Barbara Rye writes of the conservation impact of troubleshooting the list of threatened Western Australian species, revealing new taxa and removing those that did not stand scrutiny. The



enthusiasm of Bruce Maslin for the diversity of *Acacia* species and his travels to study them in the field and herbaria is clearly felt. Enthusiasm and conservation are threads though all the contributions by staff members and volunteers alike. Collection Manager Karina Knight writes the Epilogue as PERTH staff look forward to the opportunities that their new location will bring.

Roger Underwood acknowledges the cooperation of current staff at PERTH and many others. The dramatic close-up plant portraits that preface each chapter are by Curator Kevin Thiele. Other photos put a face to the name of almost everyone who has contributed to botany in the west. By way of statistics, we learn that Bruce Maslin has described the most WA taxa, with Alex George and Stephen Hopper coming close, but Ray Cranfield holds the banner for most specimens, followed by Greg Keighery and Charles Gardner. Each of the six leaders of the herbarium over its history has left a distinct legacy.

A strength of this book is the way it explains the workings of systematic botany and herbaria. How are plant names formed? How does a field collection become a documented herbarium specimen? What are identification keys? How are decisions made to recognise new taxa and how does fieldwork contribute? Each of these is discussed briefly and the stories of the people involved in the work illustrate further how this field of science operates.

Don't miss the notes that follow each chapter or

you will not learn that George Bentham was a gifted pianist and spoke 14 languages, Curator Bob Royce walked nearly 300 km along the Rabbit Proof Fence, while another Curator, John Green, had a post retirement media role as a jazz presenter. The great international *Acacia* controversy, the rift between lumpers and splitters, and much more are found in the notes.

Is anything missing from this story? The old stand-off between PERTH and Kings Park is mentioned but receives little focus—indeed, it was time to move on from that long ago. Should there be discussion of the policy to restrict collections largely to the Western Australian region, rather than include representatives beyond state borders? There is so much here that we cannot quibble on these.

Good communicators can do a great service in explaining our science to a wider community. Worldwide, it is doubtful that any herbarium other than PERTH has responsibility for the primary documentation of the flora of a region that is both so large and so biodiverse. All at PERTH can be very proud of the story Roger Underwood has told here.

This is no overpriced coffee table book, but a neat B5-sized volume packed with interest. Buy and read it for the story of a large slice of Australian systematic botany and the people whose legacy it is. Or buy it to have a fine example of explaining to others what is involved in systematic botanical work.

The science of the Burke and Wills expedition, 150 years on

Beth Gott

School of Biological Sciences, Monash University, Clayton, Victoria

Burke & Wills. The Scientific Legacy of the Victorian Exploring Expedition

Edited by E.B. Joyce and D.A. McCann

CSIRO Publishing, Melbourne. 2011

368 pp. ISBN: 978-0-643-10332-0. AUD \$59.95 (hardback)

Robert O'Hara Burke and William Wills, embodied in a prominent statue in the Melbourne City Square, are an example of our tendency to make heroes out of failure.

Flushed with gold in the 1850s, the citizens of the State of Victoria wished to make their mark, and by 1859 the Philosophical Institute, soon to become the Royal Society of Victoria, had created an active Exploration Committee to organise the 'Victorian Exploring Expedition' across the centre of Australia, then regarded as a 'ghastly blank'.

Starting from Melbourne, the route crossed the Murray River at Swan Hill and passed north through far-western New South Wales close to

the Darling River. Major depots were set up at Menindie and finally at Cooper Creek. Even though the goal of the Gulf of Carpentaria was reached by a party of four, the ill-managed and ill-led expedition resulted in the death of seven men, including the leader, Burke, and his deputy, Wills. Most citizens of Victoria regarded the purpose of the expedition to be the discovery of new pastoral lands, especially in advance of a rival expedition being organised from South Australia led by John McDouall Stuart. For the Exploration Committee however, which included leading scientists of the day, the goals were viewed as scientific – geological, meteorological, climatological, biological - and specific tasks were given to suitably qualified participants. In Chapter 1 of the book the editors, Doug McCann and Bernie Joyce, discuss these conflicting priorities. The failure of Burke to value the scientific goals, and the disintegration of the expedition necessitating rescue of survivors by a relief expedition, probably accounts for the fact that ‘no overall scientific report or even any official history of the expedition was ever published. The scientific data remained dispersed, unanalysed and largely unknown.’ This handsome, well-illustrated book seeks to rectify that omission. Nine separate chapters by fifteen authors expert in the various fields have finally collected and analysed the surviving reports of the original expedition and, to a limited extent, the relief expedition. Each chapter carries a bibliography. Extensive appendices give timelines, biographies of the principal scientists, their instructions from the Exploration Committee and a survey of the paintings and sketches.

Chapter 2, by Frank Leahy, analyses Wills’ navigation in detail, and describes it as ‘an extraordinary navigational achievement’, much undervalued in the past. In Chapter 3, Joyce and McCann cover the reports of geology, soils and landscapes. Paintings and sketches by Ludwig Becker, the artist and zoologist, who died on the expedition, illustrate the landscapes. Documents provide a ‘previously overlooked record.....covering a major part of the continent’. Far western New South Wales and western Queensland to the Gulf were new areas for Europeans. Unfortunately, there is today ‘an almost complete lack of surviving geological specimens’.

Chapter 4 covers botany. Ferdinand Mueller was an enthusiastic member of the Exploration Committee, and it chose as botanist Dr Hermann Beckler, who was also to be the medical officer. Collected and pressed specimens ‘remarkably good and well selected’ were regularly returned to Mueller, who worked on their identification. Burke was not sympathetic to the work of the scientists and told Beckler and Becker to ‘give up your scientific investigations [and] work like the rest of the men’. Beckler was left in a party at Menindie, while a second party set out for Cooper Creek. While based there, Beckler ranged widely from September 1860 to June 1861, collecting about 1000 specimens, most of which were returned to Mueller. In February 1861, Mueller began to publish species using the Beckler specimens. These also contributed to Bentham’s *Flora of Australia*. Linden Gilbank, the author of Chapter 4, has included a list of forty-five taxa established using specimens collected by Beckler. Both the current and the original botanical names are listed. Pituri, *Anthocercis* (now *Duboisia*) *hopwoodii* is one example. Beckler travelled north as far as the Bulloo River in southern Queensland but most of his time was then spent attending to the sick. He survived the expedition, and eventually returned to Germany where he continued to work in medicine. In 1965, citing his specimen as the type, Mary Tindale commemorated his name in *Acacia beckleri*. Although called the Barrier Range Wattle the specimen was actually collected at Mutawintji. The botanical collections were further extended by plant collectors who were included in the relief expedition led by Alfred Howitt. Linden Gilbank considers that the plant collections of the Victorian Exploring Expedition ‘are of huge botanical importance because of the expedition’s route and timing and the number and range of Beckler’s specimens’. They certainly enriched Victoria’s Herbarium.¹

Chapter 5 deals with zoology and includes as its authors Bernard Mace (reptiles, fish) Peter

¹ For an earlier account of the specimens resulting from the expedition see Willis, J. H. (1962). The botany of the Victoria Exploring Expedition and of relief contingents from Victoria. *Proceedings of the Royal Society of Victoria* 75: 247-268 (1962). (Eds)

Menkhorst (mammals), Rory O'Brien & Craig Robertson (birds) and Alan Yen (invertebrates, insects). Ludwig Becker was the scientist charged with the responsibility for zoology. He was also an accomplished artist. Despite the directive of Burke to Becker and Beckler to disregard scientific work, Becker worked conscientiously far into the night and this chapter is illustrated by reproductions of several of his meticulous paintings and notes. He died reportedly of scurvy and was buried at Bulloo Creek in southern Queensland.

Further chapters are by C.R. Lawrence (hydrology), John Bye (meteorology) and Harry Allen (Aboriginal people). The latter is illustrated by Becker paintings. Allen has documented all the references to Aboriginal language and material culture from both the Victorian and the relief expeditions. In a discussion of the use of Nardoo (*Marsilea drummondii*) for food by Aborigines, he notes the deaths of Burke and Wills while attempting to live on Nardoo sporocarps. The sporocarps contain an enzyme which destroys thiamine

(Vitamin B1), a deficiency of which can be fatal. Appropriate preparation of this food by Aborigines destroys the enzyme. Beckler wrote a medical report after his return. A chapter discussing the diet of the expedition and its relation to sickness and deaths would have been a welcome addition to this book.¹

Overall this book is an excellent account of the long-neglected scientific results of the Victorian Exploration Expedition, illustrated by original and contemporary material, and bringing together diaries and reports which otherwise would be difficult to access. Its wide coverage will appeal equally to scientists, historians and the general public.

¹ Those of you interested in this aspect of the expedition may also be interested in the outcomes of the mock coronial enquiry held as part of the 150th anniversary commemorative programme on 23-24 July 2011. While the coroner has still to release her findings there is an unofficial account of the proceedings available. See <http://www.burkeandwills150.info/> which also has much more information on the marking of this occasion. (Eds)

Capricornia – once a botanically neglected area

Betsy Jackes

James Cook University, Townsville, Queensland

Plants of Capricornia

By Rhonda Meltzer and Joel Plumb

Belgamba, I.H. and C. Herbert, Rockhampton, Qld. reprinted 2011 with updates

595 pp. ISBN 978-0-64656-122-6. RRP AUD \$160 (hardback)

Capricornia has, for a long time, been a botanically neglected area of Australia. This publication, initially produced in 2007, was the first to partially fill this gap. The paperback edition sold out quickly and, after numerous requests for a reprint, this 2011 hardback edition, which includes updates, was produced. This book covers part of the Central Queensland Coast and Brigalow Belt Bioregions centred on the Rockhampton to Yeppoon area, and includes subregions to the east of the Bruce Highway, north to the Shoalwater Bay Military Training Area and south to the Fitzroy River. However, as many of the over 600 species covered in the book also occur outside these boundaries, it has

a much wider appeal. The layout of the book is clear and easy to follow. The table of contents is attractively designed with landscape unit descriptions, native plants in Capricornia and naturalised plants in Capricornia highlighted.

The introduction covers the climate of the area, how to use the book and a small section on plant classification. In this updated edition, taxonomic name changes have been made based on names accepted by the Queensland Herbarium. Procedures for collecting and preserving specimens are also provided with the caution to only collect if you can't identify the material. Descriptions of landscape units will be particularly useful for people visiting the area. These are well described and illustrated. A list of the diagnostic or commonly occurring plants is included with each description. The book is completed by a list of references, a glossary, faunal appendices and the index.

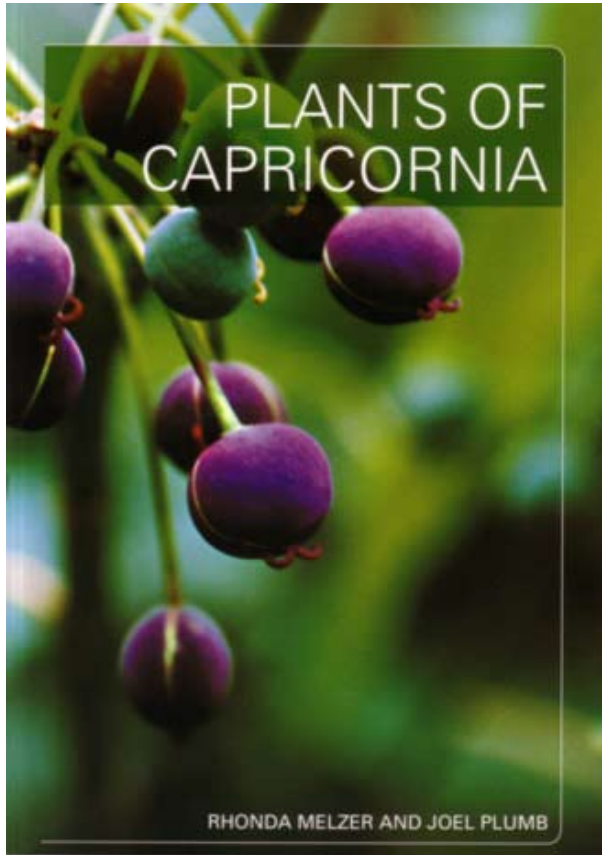
In the main section, plants are arranged in three major groups, trees and shrubs, vines and

herbaceous plants other than vines. Ferns and fern allies are included in this latter group. The groups are then further subdivided, however, flowering trees and shrubs still forms a rather large and unwieldy group. The provision of a key to the families based on main leaf features would possibly have helped break this group up somewhat. Within each group, plants are arranged alphabetically by family, genus and species. Where there are several species in the same genus, a key is provided to the species occurring in the area however no instructions are provided as to how to use a key. For many users this will probably not matter as they will flip through the pages regardless of layout.

The same format is followed for each species described. Scientific name and derivation is given, although some will disagree with the derivation of the scientific name as it may not agree with another authority. This is a minor point. It can help many people recall those strange Latin names. Common names are provided where they are known. The descriptions are concise but unfortunately a number lack measurements which would help to distinguish between species. Notes on preferred habitat and the distribution within the country and elsewhere are given. Many readers will find the entries under the headings Human Usage and Ecological Notes interesting. The latter includes information on fruit and seed dispersers, whether the plant is also a host for various insect larvae as well as the role it may play in the habitat. For instance *Ipomoea pes-caprae* subsp. *brasiliensis* is listed as a sand-binding species of foreshores and

strands.

I particularly liked the identification tips which are provided so that similar species occurring in the general area, and which may turn up within the designated area boundaries, may be distinguished. It would also help to have more photos included in this volume, particularly where there is extra white space so that



pagination would not be upset. A number of species only have photographs of leaves, e.g. *Bosistoa* (p. 307), here a photograph of the follicles would aid in identification. For others, there is room to add a photograph of the flowers or fruits depending on which one is missing. An indication of flower size in the description would be useful for comparison purposes as there is no indication of magnification on the photographs. I am sure that it would be frustrating to many users, who are unfamiliar with keys, to find that for some species a reference is made to the number of species but not all

are described. For instance under *Clerodendrum*, only 2 out of 3 species in the area are described. The addition of a couple of lines indicating the distinctive feature(s) of the third species would be helpful. Some terms in the glossary may be difficult for the amateur to interpret, e.g. –foliolate, whilst botanically correct, in the key on p. 106, I suspect few would be able to distinguish between 1-foliolate versus simple without a diagram.

However these are minor issues in an otherwise excellent and very useful book. In producing such a book it is difficult to decide what to include and what to omit and how

to accommodate conflicting interests. I am sure that most readers will flick through the pages looking for a photograph of the plant in question. Should this book be reprinted, I would recommend that it be produced in two volumes with flowering trees and shrubs in one volume and the remainder in a second volume.

It was good to see the fauna mentioned in the text listed in the appendices, but there are no corresponding page numbers, depending on reader interests I suggest the authors consider adding the scientific names of fauna to the main index.

Western Australian Eremophilas

Andrew Thornhill

School of Botany and Zoology, Australian National University, Canberra, ACT

A Field Guide to the Eremophilas of Western Australia

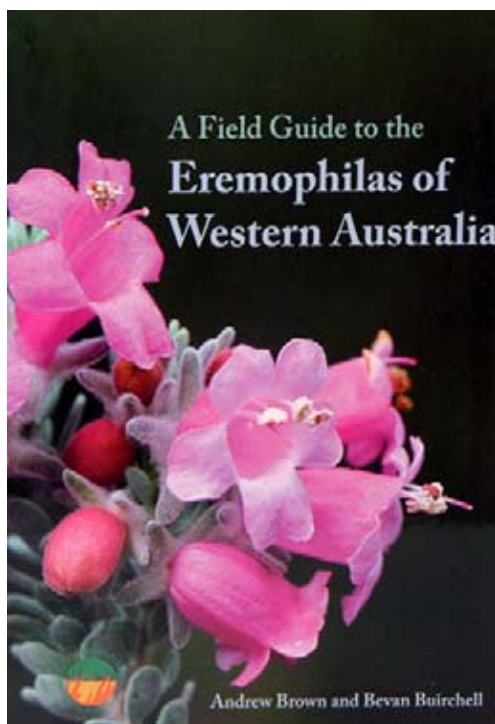
By Andrew Brown and Bevan Buirchell

Simon Nevill Publications, Perth

336 pp. ISBN 978-0-980-34815-6. AUD \$ 35.99 (softcover)

A Field Guide to the Eremophilas of Western Australia includes details for all 219 formally described species, 69 subspecies, and 57 undescribed taxa of Western Australian *Eremophila*. Information for every species includes derivation of the name, description, distribution, and detailed notes. Every species and subspecies is illustrated by three high quality colour photos. The book also has an introduction to the genus which includes comprehensive information on the current taxonomic status of the Scrophulariaceae (tribe Myoporeae) the family in which *Eremophila* is now placed. Early botanical work on the genus (Baron von Mueller was a fan), distribution and habitat, flower types, flowering types, traditional use, pollination, cultivation tips, and the conservation status of many species are discussed. All of this information is useful and is written so that members of the general public and botanists will both be able to find something of interest.

The title of the book suggests that it is a field guide and so I decided to test whether it could be used to easily identify species. In September last year I participated in a field trip to Western Australia with Mike Crisp. We travelled extensively and I took 22 pictures of eremophilas during the trip - none of which I had identified. To make things a little easier, many of the flowers were different



in colour and shape. In about an hour I was able to confidently identify 13 of the 22 images to a species, but some proved too difficult to identify. The main problem in using pictures was that the book is ordered alphabetically by species which means you have to go page by page until you find a flower that matches what you have. The flower shape and colour of *Eremophila* are the most useful features to identify a species and the book is packed full of colour images to help comparisons with any sample you may have. However, once you find a flower that matches your colour you then also

need to find another matching feature such as leaf shape or location to positively identify the species. If the book had been arranged into species that share the same flower colour, or had some kind of identification colour tab on each page, then identifying species would be easier. Another possible ordering could be by botanical regions of Western Australia, although

some species cover more than one area and this may prove difficult.

One suggestion for a future edition would be to include a companion Lucid key on DVD. This would solve the problem of arranging species alphabetically and, given the wealth

of information in this book, could easily be compiled. Regardless of this, the book is still great and well worth purchasing if taking a trip to the mulga and desert areas of Western Australia. I will definitely be taking it with me next time I visit there.

Wild orchids - a global pictorial view

Michael Whitehead

Research School of Biology, The Australian National University, Canberra, Australia

Deceptive Beauties: The World of Wild Orchids

By Christian Ziegler

University of Chicago Press, Chicago, IL, 2011

183 pp. ISBN 978-0-22698-297-7. RRP AU\$59.95, NZ\$73.04 (hard cover)

Available in Australia and New Zealand from Footprint Books (<http://www.footprint.com.au/>)

The book is the work of Christian Ziegler, a man handed the dreadful task of travelling for a year to Central America, the Mediterranean, South West Australia and Borneo to photograph some of the world's most rare, exotic, beautiful and bizarre orchids. It is a good thing Christian was chosen because it turned out he was a very skilled photographer and after his year of orchid bothering, *National Geographic* published his photographs (alongside a story by acclaimed author Michael Pollan) within its glossy hallowed pages. I can only assume that Christian got to see so many orchids and take so many photos that they didn't all fit into that article and so, a bit more than 2 years later, we have all the fruits

of his labour hardbound in 183 pages of glossy, high resolution images along with a foreword, Pollan's article and a running commentary on the natural history of orchids by Ziegler himself.

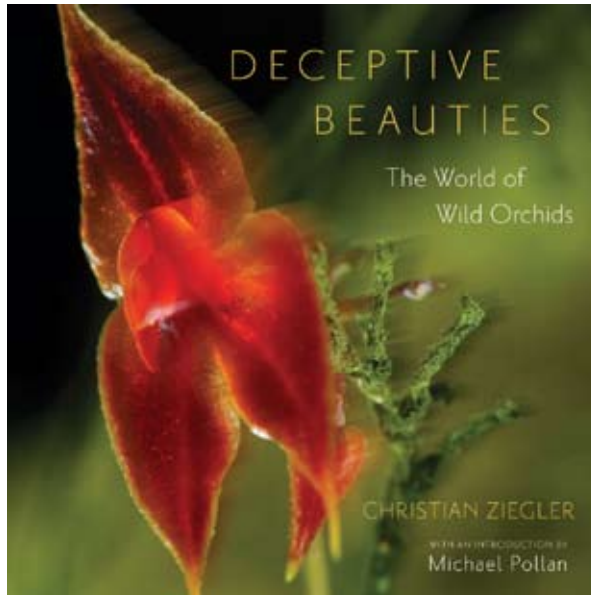
The aim of Ziegler's luxurious book seems to be gratification for lovers of both orchids and natural history as well as turning on those who might not yet have appreciated this particularly revered assemblage of fancy plants. I must confess to being in the former audience and while

I might therefore be a biased assessor of Ziegler's secondary aim, I assume a large proportion of readers will be picking up this book for the same reason I did: to see stunning images of some amazing plants.

The book opens with a foreword by Natalie Angier which is composed of a litany of tidbits from the history of orchid-human interactions, littered with flippant simile and a fair bit of

cringe-worthy tongue-in-cheek. The caricature of orchid admiration that she paints falls away however when she gets to her point: these plants are best appreciated *in situ*, as nature intended.

Following that is the introduction by Michael Pollan which is without doubt the most lucid, entertaining and easy to read popular science



run-down of the state of play in orchid biology today. Pollan deftly covers up-to-date ideas about areas of orchid evolutionary biology such as the adaptive significance of deception, pollinator constancy and efficiency, Darwin's legacy, pollinator specificity, pollinator mediated speciation, mycoheterotrophy and the outcrossing-selfing paradigm, all while maintaining a measured, mature prose sure to captivate readers with and without a biology background. Pollan is clearly across the literature and his introduction is well worth tracking down online or in *National Geographic* even if you have no further interest in the contents of *Deceptive Beauties*.

The format of the book from here is divided into three sections (Adaptation, Diversity and Pollination), each of which starts with a tract of text and then intersperses small amounts of information with page upon page of gorgeous natural history photography. Ziegler does an admirable job of condensing a history of orchid research into an accessible format designed first and foremost to communicate an appreciation for these plants on every level. He tackles some fairly complex evolutionary biology (e.g. pollinator mediated selection, the biogeography of speciation and diversification) and in general the result is cogent and for the most part accurate. The language at times however tends to simplicity which might leave botanists eager for more detail. But in the effort to communicate the things we should (and many of us do) appreciate about orchids, Ziegler succeeds in hitting all the important and interesting elements of their evolution, natural history and ecology that inspire wonder.

The photography is lush and melds well with the text as it progresses. Image captions include species name (sometimes just genus) and location. The images run a spectrum from straightforward macro floral portraits, to abstract magnified details, to aerial habitat photos, but the standout in Ziegler's arsenal of techniques is the wide-angle close up. These photos combine the exquisite detail of macro floral photography with composition within context of the surrounding environment and true to the author's thesis they are a fantastic tool for fostering an appreciation of the subjects in their own world. Ziegler's varied photography experience also comes to the fore in the suite of

pollinator shots presented, capturing the action of hummingbird, bee or wasp visitors in the exact instance a naturalist dreams of witnessing in the wild. If there can be one criticism of the photography it is that the wide-angle employed in many shots results in distortion away from the region of focus. In some instances this has been artfully used in abstract, but in the worst cases it can be a distraction.

Lovers of orchids (yes, the cringe-worthy word "orchidophile" is dropped in there somewhere) will definitely enjoy this book. Natural history buffs and amateur and professional botanists brave enough to look into the mind of an orchid admirer will also enjoy the book. I hope it reaches natural history photographers, amateur and professional, who will definitely appreciate the mastery over varied techniques at work here. If you fall roughly into one of the above categories, I would be most surprised if this book doesn't illicit the urge to get outside and find some orchids yourself.

See <http://ngm.nationalgeographic.com/2009/09/orchids/pollan-text> for access to both text and photographs

A fine book on botany for artists

Rod Seppelt

Australian Antarctic Division, Kingston, Tasmania

Botany for the Artist

By Sarah Simblet

Dorling Kindersley, London. 2010

**256 pp. ISBN: 978-1-4053-3227-9. RRP
AUD \$49.95**

This is, indeed, a book presenting the science of botany to the artist in terms that are simple yet technically accurate. However, it extends its reach far beyond just the artist and would not be out of place as a basic text of plant morphology in any tertiary botany course. As a botanist and also a botanical artist, I admit to being greatly impressed by the demonstration of botanical art techniques and by the accuracy and detail with which plant structures are portrayed.

The book was inspired by the author's "love of gardening, a desire to know more about the structures, forms, and lives of plants,..." It contains hundreds of drawings and a good selection of beautiful, complementary photographic images by Sam Scott-Hunter. The print quality of both is to be highly commended.

This is an eminently readable book and although there are major headings - The art of Botany; Drawing plants; Diversity; Roots; Stems; Leaves; Flowers; Fruits, cones and seeds - there is no need to follow a logical sequence throughout. The language is simple, although Simblet does not resist from introducing botanical technical terminology, terms which she has very capably illustrated. Stephen Harris, Curator of the Oxford University Herbarium collaborated as scientific advisor.

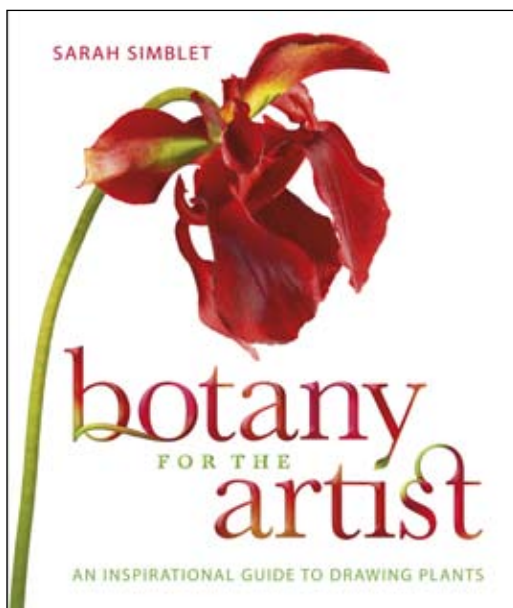
I have only very few minor quibbles with the book. For example, a photograph of a moss with

sporophytes is labelled as *Funaria hygrometrica* when it is actually a species of *Bryum*. There are a few instances where a scientific name is not given the conventional italics. The leaf venation of *Ginkgo biloba* is described as parallel when it is technically dichotomous. However, these are very minor criticisms.

The introductory section traces the origins and development of botanical art with a brief descriptive text and well chosen examples - from a fossil leaf impression of *Populus* (Nature's own artistry), through the earliest known example of botanical art from the 5th Century CE, to the present day use of digital imagery. A second section deals with the elements of working with plants as subjects and includes a short section on artist's materials, use of line work, colour selection

and the creation of a drawing. A third section covers all aspects of plant diversity - algae, fungi, lichens, mosses and liverworts, ferns and their allies, gymnosperms and flowering plants. The bulk of the book and the remaining sections deal with examples and drawings of plant morphology - roots, stems, leaves, flowers, fruits, seeds and cones, and seed germination. Perhaps surprisingly, but very thoughtfully, an easily understood glossary of technical terms used is included.

There are some thirteen "Masterclass" sections depicting a selected historical illustration accompanied by a short text discussing the artist and techniques used in preparation of the work. These include Albrecht Dürer's (1503) superbly detailed "Great piece of turf - study of weeds"; John Miller (1779) "*Passiflora caerulea*" - a hand painted copper engraving with meticulous attention to compositional detail; John Ruskin



(c. 1878) “Spray of olive” – so simple yet so vibrant; through to the beautiful rendition of *Doryanthes palmeri* by Australia’s own Mali Moir (2005).

Eleven “Drawing Class” studies are included, which show how the artist has constructed the drawing and techniques used to obtain the end result, and there are thirteen “Study” pieces. All these demonstrate the skill of the artist in depicting form, complex detail, perspective, light and shade, three-dimensional shape, and vitality, using either pencil or ink. There are many beautifully drawn illustrations in the book. In demonstrating the artist’s skill I particularly liked the habit illustrations of *Taraxacum*, *Ranunculus bulbosus*, *Helleborus*,

a gnarled old *Cedrus libani* tree, the cones of *Larix decidua*, a branch and needles of *Pinus*, longitudinal sections of flowers (although these are described as cross-sections), and the drawing class work of a pine cone. But, there are so many beautiful illustrations throughout the work.

The author, photographer and scientific adviser, together with the publishing team, are to be congratulated on producing one of the best books on botanical art and artistry that I have read. Even if not a botanical artist, the book is worth examining for the quality of the work included.

A new resource for ethnobiology

Bee F. Gunn

Australian National University, Canberra, Australia

Ethnobiology

Edited by E.N. Anderson, D.M. Pearsall, E.S. Hunn and N.J. Turner

John Wiley & Sons, Inc. Hoboken, New Jersey. 2011

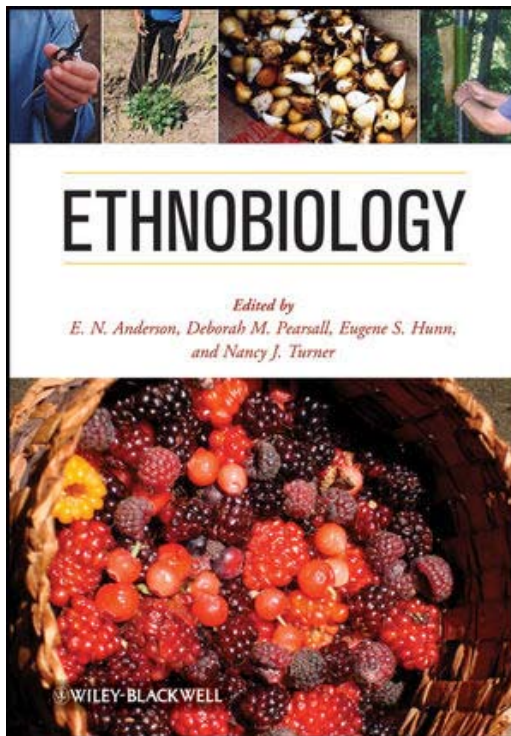
420 pp. ISBN 978-0-470-54785-4. AUD \$110.00

This book is a rich resource which will also serve well as a fundamental textbook for the study of ethnobiology, a multidisciplinary science, closely tied with anthropology, archaeology, linguistics, economic botany, ethnology, ethnoecology and social history. It consists of twenty-two chapters introducing case studies of archaeological and ethnographic research based on plants, animals, fungi and aquatic organisms intertwined with humans and their traditional ecological knowledge.

The juxtapositioning of ethnobotany, with its links to botany, ecology and conservation biology, with social sciences and humanities has made ethnobotany attractive and raised

its profile as a scientific field. It has been further publicised by eminent ethnobotanists such as R. Schultes, A. Hoffmann, W. Davies and M. Plotkin; their adventures into uncharted regions of South America and their interactions with ethnic Amazonian tribes has led to the discovery of new drugs based on traditional knowledge of medicinal plants.

The first four chapters are a good guide to the ethical issues of concern for the researcher and communities of interest. The authors stress the importance of equity of partnership between ethnobiologists and the collaborating communities. The Declaration of Belém (International Society of Ethnobiology,



1988) initiated by the late Darrell A. Posey and colleagues during the First International Congress of Ethnobiology, recognises the authority of indigenous specialists and the need for mechanisms to be established to ensure their participation and consultation in activities that affect them, their resources and their communities. The principles of the code of conduct are now established and finalised under the ISE Code of Ethics (International Society of Ethnobiology, 2006).

Several of the chapters present useful information on the methodologies of ethnobiological research and analyses. Methods include inventory questionnaires, participatory mapping, identification of species and ethnospecies and techniques for evaluating archaeo-faunal and archaeo-botanical samples.

The two chapters on palaeoethnobotany provide suggestions for reconstruction of human-environmental interactions through examining archaeological remains from past vegetation, environmental conditions and uses of plants for subsistence or cultivation preserved as micro or macrofossils in middens.

The understanding of spatial and temporal spread of organisms in the environment and management of resources is very complex and

these concepts are dealt with very well in the chapters on ethnoecology.

An interesting chapter by Yamin-Pasternak on ethnomycology traces the cultural history and uses of the phyla of the “Third Kingdom” and the myths about fungi. Some of the sources of mushrooms are historically passed down through generations and mushroom collecting has been regarded as an art and part of the material culture of societies. In Japan, mushrooms are symbols of prosperity and a gift of matsutake mushrooms is valued more than bank notes.

In general, in spite of some overlapping information among the chapters, this volume is well presented and provides the essential background and the research base for the advancement of ethnobiology and its future as a multidisciplinary science. It is a highly recommended guide for coursework.

References

- International Society of Ethnobiology (1988). Declaration of Belém. <http://ethnobiology.net/docs/DeclarationofBelem.pdf>
- International Society of Ethnobiology (2006). International Society of Ethnobiology Code of Ethics (with 2008 additions). <http://ethnobiology.net/code-of-ethics/>

The power of collaborative science

Christina Flann

Netherlands Centre for Biodiversity Naturalis (section NHN)
Biosystematics Group, Wageningen University, The Netherlands

Reinventing Discovery: The New Era of Networked Science

By Michael Nielsen

***Princeton University Press,
Princeton, New Jersey and Woodstock,
Oxfordshire. 2012***

280 pp. ISBN: 978-0-691-14890-8. US \$24.95. (cloth)

This is a very interesting topic, well tackled by Michael Nielsen who, it is claimed on the dust jacket, is “one of the pioneers of quantum computing...and advocate of open science”. What is not mentioned is that he is a relatively young Aussie from Brisbane - much more fundamental information if you ask me. With an almost chatty style that belies the depth of

some of the concepts discussed - amplification of collective intelligence, restructuring expert attention, data driven intelligence, Reinventing Discovery is an easy book to read.

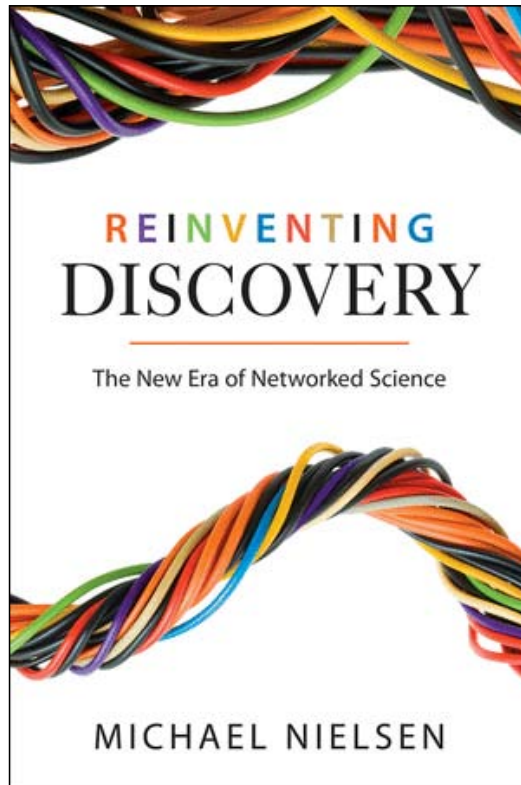
From the outset I should admit that I have a bias. Working as I do in a field that I would clearly class as networked science - biodiversity informatics, I came to this book with preconceptions and the hope of finding reference to collaborations I am involved with (Species2000, Catalogue of Life, Encyclopedia of Life...). While there are a few slightly fleshed out mentions of GeneBank, there are only two explicit references to these other biodiversity initiatives: “Scientists are collaborating online to create enormous databases...and even all species of life” (p.5) and “even catalogs that attempt to map out all

the world's species" (p.121). The examples of reinventing discovery via networks that are covered in detail are the PolyMath Project, Galaxy Zoo and an online collaborative Chess match against a grandmaster: Kasparov versus the World.

Overall, this is a good read and represents an interesting, broad, popular science book. I wouldn't say it is a must read for taxonomists as the underlying open access data message should be pretty familiar to anyone who has followed Taxacom over the last years, but it is a strong take on the issue. I found Part 1 easier reading than Part 2, but then I am also a fan of open access to science so it felt a bit like preaching to the converted. The tone changed slightly between the two parts. The last two chapters were reprinted from a blog essay and it might have been better had they been rewritten in the style used for the rest of the book. This is a minor quibble. The book has broad overarching relevance to taxonomy despite our field not being quite shiny enough to rate detailed inclusion. Its greatest value is the conceptual analysis of the power of collective science – in this case utilising the tools becoming available on the internet.

The potential of collective results and collective research are applicable to taxonomists even though we are not present as examples. Perhaps this is a telling statement about the fundamental interest factor of stars versus species or perhaps it has something to do with our inability to provide a united positive front. As Nielsen points out "Astronomy is a small community with just a few thousand professional astronomers in the world" but somehow this community manages to capture the public's imagination in a way that it seems we haven't, at least for the writer. Yet

there is an obvious attraction to nature programs, particularly programs produced by the BBC. Everyone knows Sir David Attenborough. However Nielsen does recognise the role of citizen science, and birds are mentioned, so perhaps I am just taking our omission overly personally. This book is, after all, written by a quantum scientist who will make a personal choice about the most impressive examples to him. To be honest, I can't see as strong a story in the work we have been doing as in those



he has chosen. He is honest in assessing these choices as well, noting that the "best examples of amplifying collective intelligence in Part 1 came from outside science." He offers templates that are entirely applicable to cybertaxonomy: "It's a symbiosis: the professionals develop the systematic understanding that underlies the mechanics of the [game] and the amateurs then supply the dedicated artistry required to take best advantage of that systematic understanding."

There are many very cool points made in this book in very accessible ways. One I particularly

liked was the concept that the questions you can answer are actually an emergent property of complex systems of knowledge. This book is really a work of Philosophy of Science with concrete examples and is particularly valid in today's climate of computer aided everything.

Whilst extolling the virtues of open science and collaboration, Nielsen is still realistic: Scientists "may agree in principle that they'd like the [qwiki] to succeed, but in practice they're too busy writing papers and grant proposals to have any time to contribute themselves." This is probably all too familiar for many scientists. Despite this realism, I appreciated

the exhortation that “even if your ventures in open science aren’t successful, think of your efforts as service to your community.”

Reinventing Discovery would make a nice scientific stocking stuffer...except we’ve just

had Christmas, but the concepts should still be valid next Christmas and all the way through the year until then as well.

Food for thought

Will the way that papers are refereed change?

... we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.

On November 1, 2011, a new service was launched, called ‘Peerage of Science’ (PoS), which aims to ‘fix the woes of peer review without breaking what works’. Here, we provide an independent overview of PoS and highlight some of its advantages and disadvantages for authors and reviewers. We urge all scientists to consider thoughtfully the changes that will be brought about by PoS and to contribute to the creation of an upgraded peer review and publication process. [Quoted from Hettyey et al., 2012].

A response to this concept can be found in the same issue of the journal (Seppänen et al. 2012).

Further information can be found on the website of the group where a list of peers is included and those journals which are trialling the concept are listed (Web ref. 1). While there are biological institutions listed and some biological journals there does not presently seem to be any involvement by plant systematists.

References

Hettyey, A., Griggio, M., Mann, M., Raveh, S., Schaedelin, F.C., Thonhauser, K.E., Thoß, M., van Dongen, W.F.D., White, J., Zala, S.M. & Penn, D.J. (2012). Peerage of Science: will it work? *Trends in Ecology and Evolution* 27(4): 189-190. <http://download.cell.com/trends/ecology-evolution/pdf/PIIS0169534712000249.pdf?intermediate=true>

Seppänen, J.-T., Mönkkönen, M. & Kotiaho, J.S (2012). Peer review by the Peers, for the Peers: response to Hettyey et al. *Trends in Ecology and Evolution* 27(4): 191. <http://download.cell.com/trends/ecology-evolution/pdf/PIIS0169534712000250.pdf?intermediate=true>

Web ref. 1: <http://www.peerageofscience.org/public/peerlistpage.php>

Web-sites of interest

On-line journals with freely accessible topics of interest

Diversity and Distributions

The September 2011 issue of the journal was a special one on weedy *Acacia*. Entitled *Human-mediated introductions of Australian acacias – a global experiment in biogeography*, the 21 papers are all free access and are treated under seven headings – Setting the stage (2), History and human dimension (3), The species pool

(3), Species traits (4), Biotic interactions (3), Climate and niche (2), and Managing impacts (4).

Web reference

<http://onlinelibrary.wiley.com/doi/10.1111/ddi.2011.17.issue-5/issuetoc>

Trends in Ecology and Evolution

The February 2012 issue is a special issue on *Ecological and evolutionary informatics – the collection, open storage and analysis of large data sets*. All content in the special issue is free

to download. The two papers in the Opinion section titled *Ramping up biodiversity discovery via online quantum contributions* and *Time to change how we describe biodiversity* should be of particular interest to systematists, the latter particularly so given the response in the Letters section to a debate over the number of taxonomists needed; the conclusion is that we need more taxonomists so that we can describe species at a faster rate.

Web reference

<http://www.cell.com/trends/ecology-evolution/>

Ecological Management & Restoration

The January 2012 issue, volume 13(1), of *Ecological Management & Restoration*, published by the Ecological Society of Australia, is a special issue entitled *Indigenous land and sea management in remote Australia*. The issue has been guest edited by Dr Emilie Ens and all papers are freely available for download. There are 16 papers ranging from short reports to longer syntheses, all of them about the combination of indigenous and non-indigenous knowledge for conservation and management purposes. Many of them were first presented at the Indigenous land management symposium at the 2010 Ecological Society of Australia conference.

Web reference

<http://onlinelibrary.wiley.com/doi/10.1111/emr.2012.13.issue-1/issuetoc>

Australasian weeds conference download

On-line publication of 17th Australasian weeds conference

All 144 papers from this conference can be accessed at http://www.caws.org.au/awc_contents.php?yr=2010

Papers are grouped under the following headings: Keynote (2 papers), Crops (18), Significant weeds (11), *Parthenium* (6), Allelopathy (6), Naturalisation and emergence rates (16), Biocontrol (10), Herbicide resistance (11), New techniques (5), Aquatic (8), Forests (12), Eradication (6), Pastures (7), Chilean

needle grass (3), Environmental weeds (15) and Biosecurity (8)

Reference

S.M.Zygenbos (ed.) Seventeenth Australasian Weeds Conference, Christchurch, New Zealand. (New Zealand Plant Protection Society).

New blog for phylogenetic analysis

A group of us have set up a forum for the use of networks instead of trees in phylogenetic analysis. It is likely to be of direct interest to at least some members, and we look forward to hearing from you.

Web reference

<http://phylonetworks.blogspot.com/>

David Morrison

Colonial Art

Lewin: Wild Art Exhibition

The State Library of NSW has the first comprehensive exhibition of John Lewin's original drawings and watercolours in an exhibition which opened on 5 March 2012 and will continue to 27th May 2012. It will then shift to the National Library of Australia in Canberra where it will be open from 28th July 2012 to 28th October 2012.

John Lewin (1770-1819) was the first professional artist to settle in Australia, arriving in 1800 and the exhibition brings together for the first time over 150 of Lewin's distinctly Australian works. These have been selected from the Mitchell Library's renowned collection as well as other major national and international collections, including the British Museum and England's Natural History Museum.

Richard Neville, exhibition curator and Mitchell Librarian, has produced a book, *John Lewin: Painter & Naturalist* (New South Publishing), to accompany the exhibition. Even if you can't get to either city to see the originals you can view them through the web page, and learn more about Lewin,

Web reference

www.sl.nsw.gov.au/events/exhibitions/2012/lewin/index.html

Colonial album acquired by NSW library

Of further interest is the album of Captain James Wallis (Web ref. 1), which was found in the bottom of a cupboard in Ontario, Canada. Wallis compiled the album while he was Commandant of the Newcastle penal settlement from June 1816 to December 1818 and it contains 35 watercolours of the Awabakal people of the Newcastle area as well as depictions of the local landscape. Paintings are by convict artist Joseph Lycett who was sent to Newcastle in 1815 after re-offending in Sydney.

The album has already been on display in Newcastle for a limited period in February.

You can view the images from the catalogue on-line (Web ref. 2).

Web references

Web ref. 1: www.gardnergalleries.com/live_auction.html?id=236 and they do include a number of plants.

Web ref. 2: http://blog.sl.nsw.gov.au/media/enclosures/Wallis%20album_Media%20Alert_171011.pdf

Beckler's Botanical Bounty

Burke & Wills's 150th has inspired an ongoing project entitled Beckler's Botanical Bounty. This is the foundation project and main content contributor for The Menindee Lakes Arts Based Regional Development & Education Initiative. The projects primary focus is the flora of Menindee - 150th commemorative collection which is an attempt to replicate Dr Hermann Beckler's 1860 botanical collection and open avenues into further scientific research. Beckler collected 120 plant specimens from around the Menindee area and one of the outcomes will be 120 accurate botanical illustrations by c. 30 botanical artists of the same plant species from the same location at the same time of year. Project leader is Mali Moir whose work features in the Burke & Will's book reviewed elsewhere in this newsletter.

Web reference

<http://malimoir.com.au/projects/beckler%E2%80%99s-botanical-bounty/>

The 1948 Arnhem Land Expedition

Exploring the Legacy of the 1948 Arnhem Land Expedition.

Edited by Martin Thomas and Margo Neale. ISBN 9781921666445 (Print version) \$39.95 (GST inclusive); ISBN 9781921666452 (Online).

Published June 2011

Web address: <http://epress.anu.edu.au?p=116081>

In 1948 a collection of scientists, anthropologists and photographers journeyed to northern Australia for a seven-month tour of research and discovery—now regarded as ‘the last of the big expeditions’. The American–Australian Scientific Expedition to Arnhem Land was front-page news at the time, but 60 years later it is virtually unknown. This lapse into obscurity was due partly to the fraught politics of Australian anthropology and animus towards its leader, the Adelaide-based writer-photographer Charles Mountford. Promoted as a ‘friendly mission’ that would foster good relations between Australia and its most powerful wartime ally, the Expedition was sponsored by National Geographic, the Smithsonian Institution and the Australian Government. An unlikely cocktail of science, diplomacy and popular geography, the Arnhem Land Expedition put the Aboriginal cultures of the vast Arnhem Land reserve on an international stage. [From the web page]

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Contacting Major Australian Herbaria and Systematics Institutions

From outside Australia: add the country code 61 and omit the leading zero of the area code

AD tel: (08) 8222 9307 fax: (08) 8222 9353 www.flora.sa.gov.au	HO tel: (03) 6226 2635 fax: (03) 6226 7865 www.tmag.tas.gov.au/Herbarium/Herbarium2.htm	MEL tel: (03) 9252 2300 fax: (03) 9252 2350 www.rbg.vic.gov.au/	NSW tel: (02) 9231 8111 fax: (02) 9251 7231 www.rbgsyd.gov.au/conservation_research/herbarium_&_services
CANB tel: (02) 6246 5108 fax: (02) 6246 5249 www.anbg.gov.au/	BRI tel: (07) 3896 9321 fax: (07) 3896 9624 www.derm.qld.gov.au/herbarium	DNA tel: (08) 8999 4516 fax: (08) 8999 4527 www.nt.gov.au/pwcnt	PERTH tel: (08) 9219 8000 fax: (08) 9334 0327 http://science.dec.wa.gov.au/herbarium/
CNS Tel: (07) 4042 1837 Fax: (07) 4042 1842 www.ath.org.au/	New Zealand Herbaria AK, CHR, WELT to be included	NT tel: (08) 8951 8791 fax: (08) 8951 8790	Australian University Herbaria Contact CHAH representative: Murray Henwood, University of Sydney
	ABRS tel: (02) 6250 9417 fax: (02) 6250 9555 email: abrs@environment.gov.au www.environment.gov.au/biodiversity/abrs/	Council of Heads of Australasian Herbaria (CHAH) Chair: Dr Kevin Thiele (PERTH) kevin.thiele@dec.wa.gov.au www.chah.gov.au/	

ASBS Publications

History of Systematic Botany in Australia

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990. \$10; plus \$10 postage & packing.

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).

Only a few copies left!—available only from the Treasurer.

Systematic Status of Large Flowering Plant Genera

Austral.Syst.Bot.Soc.Newslett. 53, edited by Helen Hewson. 1987. \$5 + \$1.75 postage.

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.

Australian Systematic Botany Society Newsletter

Back issues of the Newsletter are available from Number 27 (May 1981) onwards, excluding Numbers 29, 31, 60–62, 66, 84, 89, 90, 99, 100 and 103. Here is the chance to complete your set.

Evolution of the Flora and Fauna of Arid Australia

Edited by W.R. Barker & P.J.M. Greenslade. Peacock Publications, ASBS & ANZAAS, 1982. \$20 + \$8.50 postage.

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.

Also available from Peacock Publications, 38 Sydenham Road, Norwood, SA 5069, Australia. To obtain this discounted price, post a photocopy of this page with remittance.

Ecology of the Southern Conifers (Now out of print)

Edited by Neal Enright and Robert Hill. ASBS members: \$60 plus \$12 p. & p. non-members \$79.95. Proceedings of a symposium at the ASBS conference in Hobart in 1993. Twenty-eight scholars from across the hemisphere examine the history and ecology of the southern conifers, and emphasise their importance in understanding the evolution and ecological dynamics of southern vegetation.

Postage rates: Those quoted apply only within Australia. Please email for prices to other locations. Send **orders and remittances** (payable to “ASBS Inc.”) to:

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

The Society

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

Membership

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

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

The Newsletter

The Newsletter is sent quarterly to members and appears simultaneously on the ASBS Website. It keeps members informed of Society events and news, and provides a vehicle for debate and discussion. In addition, original articles, notes and letters (not exceeding ten published pages in length) will be considered. Citation: abbreviate as Australas. Syst. Bot. Soc. Newslett.

Contributions

Send copy for December 2011 and March 2012 issues to Robyn Barker at the address given on page 27 under Chapter Convenors/ Adelaide. They preferably should be 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.

Formatting of submitted copy. Please use Word in formatting indents, bullets, etc. in paragraphs and for tables. Do not format primitively with tabs, which change with the Normal style sheet. If embedding tables or references or other Objects from other software (Excel, bibliographic software, etc.) ensure that these are converted to Word tables or paragraphs. Letters in abbreviations of Australian States (SA, WA etc., but Vic.) and organisations (e.g. ASBS, ABRIS) should not be separated by full-stops, but initials should be (e.g. W.R. Smith, not WR Smith).

Images: their inclusion may depend on space being available. Improve scanned resolution if printing your image is pixellated at a width of at least 7 cm (up to a 15 cm full page). Contact the Editors for further clarification.

The deadline for contributions is the last day of February, May, August and November. All items incorporated in the Newsletter will be duly acknowledged. Any unsigned articles are attributable to the Editors.

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. Newsletter items should not be reproduced without the permission of the author of the material.

Advertising

Advertising space is available for products or services of interest to ASBS members. The current fee is \$100 per full page, \$50 per half-page or less.

Flyers may be approved for inclusion in the envelope for products or services of interest to ASBS members. The current fee is \$100 per flyer, plus the cost of inserting them (usually roughly \$25–30). Flyers are not part of the Newsletter and do not appear with the Newsletter on the ASBS Website.

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

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