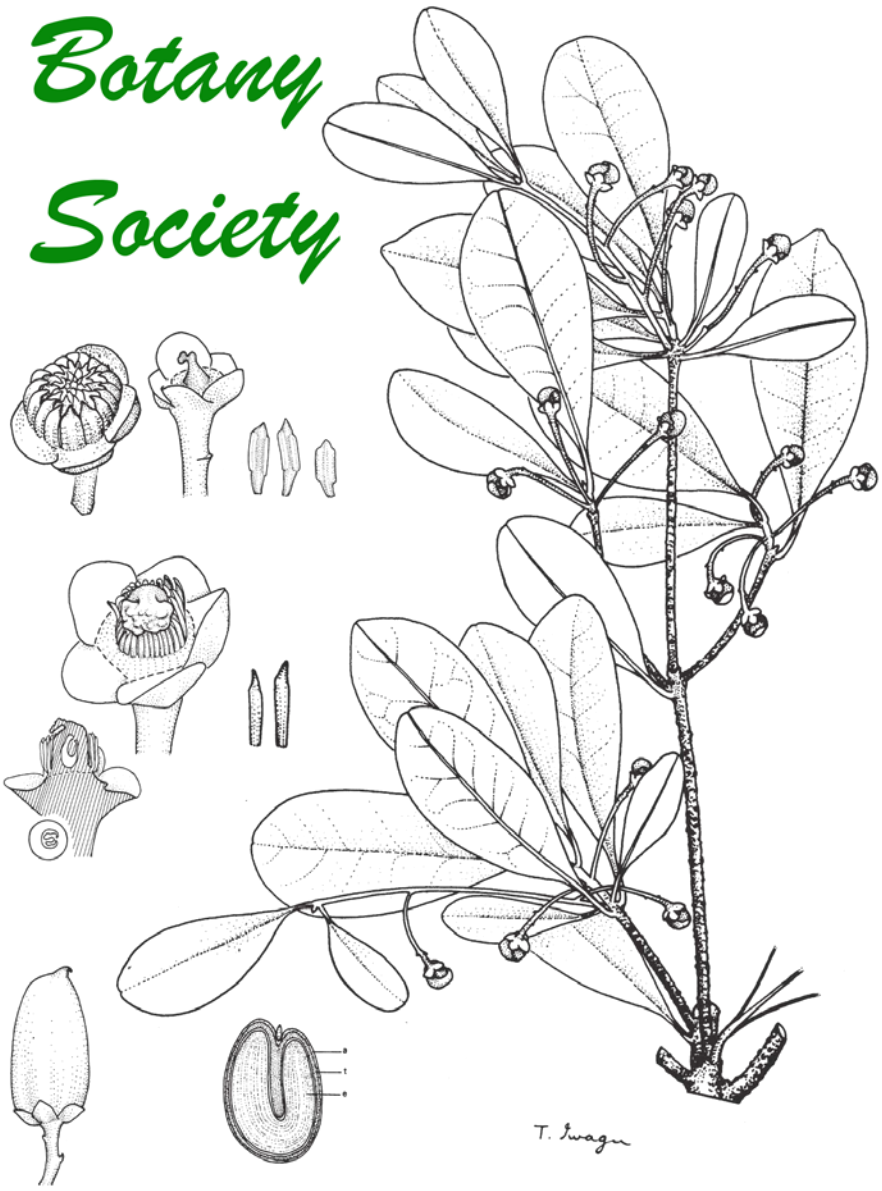
ASBS

Australasian Systematic Botany Society



Newsletter

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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Hansjörg Eichler Research Committee
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Chair: Mike Bayly, Vice President
Grant application closing dates:
Hansjörg Eichler Research Fund:
on March 14th and September 14th each year.
Australian Conservation Taxonomy Award:
to be advised

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

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Australas. Syst. Bot. Soc. Newslett. 155 (June 2013):
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From the President

Death of Dick Brummitt, nomenclaturalist

Australasian plant systematics has lost a great friend in Dick Brummitt. His death on 18th September, after a long illness and a week after being admitted to hospital, will be mourned widely around the world, so great was his sharing of his knowledge of nomenclature and the warmth of his hand of friendship. He was an engaging man, loyal to his science.

In the following pages we have provided personal tributes from two friends, former Botanical Liaison Officers at Kew and Executive Editors of the *Flora of Australia* project. No doubt there will be comprehensive eulogies from colleagues at Kew and those involved closely in the development of the Code during Dick's long period of sharing in its stewardship. He is deserving of high praise. Dick was one of botany's leading nomenclaturalists over the past 40 years. He will be remembered affectionately by many Australasian systematists, not only by those visiting Kew. Those attending nomenclatural sessions of International Botanical Congresses experienced his passion. For many of my generation of systematists that opportunity first arose in Sydney in 1981 where antipodeans numbered highly in the audience. Dick's knowledge and clarity of message were evident. As a special rapporteur along with Werner Greuter, both conspicuously youthful amongst their elder peers, he passionately interpreted and discussed the questions of the day. He is also remembered by a more recent generation from Down Under when he led an absorbing day on botanical nomenclature as part of the Brisbane ASBS conference in 2005. He also participated in the conference, steadfastly confronting the issue of paraphyly in classification, and enthusiastically participated in the field trip (*ASBS Newsletter* 125: 30-35; Fig. 1). Dick was conspicuously missing at the nomenclatural session at the IBC in Melbourne in 2011 through his ill health.

Robyn and I befriended him at Kew in 1985, Robyn sharing research interests in

Fig. 1. Dick Brummitt amongst ASBS friends; participants in his nomenclatural workshop in Brisbane in 2005; Dick is in standing back in the centre of the second lowest row. (See *ASBS Newsletter* 125: 34 for a similar photo with list of participants.) Ph. Bill Barker

Acanthaceae and I being regularly confronted by his tenacity at squash. I remember the yard-high pile of nomenclatural correspondence in his office awaiting his attention.

Dick's "Iter Australiense" for his 39-day, anticlockwise circuit of the country in late 2001 was emailed to many of us, accompanied by:

> This is just to thank all those friends and others who have helped me to put together my projected tour of Australia ... I have known 38 different ABLO's at Kew for a year at a time, as well as a number of others who have come over and taken root here for longer or shorter periods. Many of them still seem to be hanging on down there, and I look forward to renewing acquaintainces with many of them on my little tour.

To which he added following his visit:

> I have just returned this morning from a really most successful, enjoyable and botanically educational six weeks tour of Australia, and before I write more personally to some, I am expressing my combined thanks to all those old friends and new friends who contributed so much to the tour. It was for me a tremendous pleasure to visit the all herbaria of which I have heard from a succession of liaison officers who have spent time at Kew, to see so many friends, and to go in the field and sample parts of your extraordinary flora. ... I was delighted to get to Pearth, Adlide, Cairnbra, Melbun, Sinney, Brizzy, Cayuns, Atherton (as before *c. Gilchrist b. McGrath*), Daahwun and Pearth again. It was a pleasure to see 21 former ABLO's and two former SABLO's, and at least two intending ABLO's for the future, as well as others whom I have met in other ways. I very much hope that these valuable links between us all will long continue. My sincere thanks to all of you for your many kindnesses and hospitality. It was for me a trip to remember for as long as I know what botany is all about.

Dick's son Neil said that he'd received messages of condolence which showed the esteem with which he was held in Australia. I think we can see here the reason why.

In his brief visit to Adelaide he met a member of a line of Brummitts (to him unknown) descended from Dr Robert Brummitt of Burra, an early plant collector of the 1890s. I had been helping the local family with several folios of botanical paintings by their forebear Sarah Kay, a fine but little known artist of the same period. Remarkably, the two Brummitts from either side of the globe looked like brothers.

Visiting Perth

This gem from Jim Croft's Facebook pages was brought to my attention while I was working in the WA Herbarium (Jim is one of those mates whose help you sometimes appreciate):

> Heard at tea in Canberra: "When I was in Perth Bill Barker was over, doing *Stackhousia* ... " Response: "He's been overdoing *Stackhousia* and *Lindernia* and *Hakea* and *Euphrasia* for years".

This cap fits – and long has it weighed heavy. At least the last two groups mentioned have had major publications. In retirement I've at last a serious chance of delivery of the outcomes of all my long-standing research. Unfortunately, in our region I am not alone in this situation. Among our too few taxonomists, too many are having to undertake too many other duties, jeopardising their attainment of prime institutional goals of advancing published knowledge.

I had three plus weeks in the still spanking new WA Herbarium. Though planning as much as possible to be poring over specimens I did manage to experience the striking floral diversity of the local spring, something I missed in the ASBS conference week last year.

The task I set was to work through three of several genera I've been revising for many years. For its part the WA Herbarium asked that I ensure the distinctivenes of unnamed taxa of conservation significance and provide them with appropriate names and diagnostic characters. It was a welcome opportunity to test my concepts, established on loans in AD, on the much material collected since. I was assisted by a very supportive PERTH staff and by Bruce and Thu Maslin's generous offer of accommodation for the duration. During the time the collections of *Stackhousia, Stemodia* and *Josephinia* were greatly reshuffled and manuscripts upgraded. Finally, Mike Hislop and I agreed on the taxa in the obscure genus *Elacholoma* to be delimited in a joint paper – he had remarkably realised their importance from single collections and limited published diagnostic detail.

Many ASBS members experienced the WA

Herbarium when visiting the State for the last ASBS conference, but this was my first entry through its doors. The facility is an exemplar of a modern herbarium. Its design and procedures seem to cater well for: maintenance and health of the collection; servicing Government and external needs, including biological survey, plant identification, and conservation of taxa; capturing, maintaining and delivery of data and information; running volunteer activities; and undertaking taxonomic research and interfacing with other areas of environmental science.

Surely, one thinks, this is a sign of a State Government willing to support a fundamental knowledge service relating to one of its major environmental assets, its flora. WA's legislation promotes environmentally responsible development. But in the background one senses the inevitable problem of basic Australasian science, that perennial cloud that threatens the levels of experienced staff necessary for maintaining and improving knowledge assets critical for smart decision-making. They have already suffered cuts over recent years.

Marlies Eichler bequest received

After a long period the Society has received the greater part of Marlies Eichler's generous bequest from her estate. Peter Weston is to be thanked for continuing to engage with the executors long after his presidential term on Council. Council has chosen to place the funds in a term deposit during the time it will take to determine the best way to utilise them. We consider it critical to maintain the value of the principal allowing for fluctuations in inflation and interest rates. At this point, while we are experiencing this sustained period of low interest rates, we envisage that returns will not be sufficient to provide for more than a doubling of the existing level of research support to members. Council is seeking ways of improving our safe investment strategy and is seeking options for increased support for plant systematics in our region to put to the membership.

Seeking chapter conveners

We are pleased to welcome Matt Baker of the Tasmanian Herbarium as a new convener for the State as a whole. The Hobart Chapter convenership has been vacant for some time. Thanks Matt for your offer to help promote plant systematics in your area.

Council has been active in trying to ensure that local activity in centres of plant systematics is at a level desired by the members. Secretary John Clarkson has sent a note to existing conveners and is following up on expressions of interest from others to be conveners. Below we've included his draft item on the role of Chapter Conveners for Council's Procedures Manual (a continuous project). We invite approaches from members wanting to establish or resurrect activities in their region and to assist Council in various activities. Council is happy to assist canvassing members of a region.

The ASBS Facebook presence

Congratulations to instigators Todd McLay and Mike Bayly and participants in this new venture. The number of Friends registering interest in the pages has passed the century. We will have had some months of use to make some assessment of the value of the facility by the Annual General Meeting in Sydney in December.

Council elections

The Secretary has received a nomination for each position on Council by the due date for nominations to Council. As no multiple nominations for positions were received, no election will be necessary. More on this at the Annual General Meeting in early December.

ASBS Inc. business

From John Clarkson, Secretary

The role of Chapter Conveners

Members of the Australasian Systematic Botany Society are widely dispersed across Australia and New Zealand. Communication with members relies heavily on the Newsletter, email, Facebook and face to face meetings with members who come to annual conferences. However, throughout both countries, in capital cities and some regional centres, there are clusters of members. Since its inception ASBS has encouraged members in these places to take on the role of convener in a local "chapter". Chapter conveners can do much to ensure the

Society remains active and relevant to members. Experience has shown that where there is an enthusiastic and active local convener, local members are retained or numbers increase.

Here are some suggestions of the sorts of things chapter conveners can do to assist the Society. The list is not exhaustive and Council would encourage and support other ideas.

Events and activities

- Organising seminars. Sometimes these can be co-badged with institutional seminars
- Organise occasional social gatherings for local members
- Organise professional development workshops for local members

Promote the Society

- Promote the Society and its goals amongst those with an interest in plant systematics
- Encourage locals who have an interest in plant systematics to join the Society
- Encourage local members to contribute articles for the Newsletter
- Encourage local interest in hosting the Society's annual conference
- Promote events and activities on the ASBS Facebook site

Administration

- Provide a point of contact for Council for all manner of issues related to Society business
- Help track down members who move and forget to advise the Society of their new contact details
- Reminding members that annual subscriptions are due
- Remind members of the closing dates for research grants offered by the Society and encourage them to apply

Most of the information on Society matters chapter conveners might need to be fully informed on can be readily obtained from the web site (Web ref. 1). Conveners are encouraged to visit the site occasionally so that they are familiar with its content. The Society also maintains a Facebook group (Web ref. 2).

The role of chapter convener can provide a valuable insight into the business of the Society and several conveners have gone on to become members of Council. However, there is no expectation on the part of Council that this need happen in all cases.

Web references

Web ref. 1. ASBS web site: *www.anbg.gov.au/asbs/index.html*

Web ref. 2. ASBS Facebook group: *https://www.facebook.com/groups/434955569922530/*

Deadline for applications for student support for the Sydney conference

Student members: are you aware that if you present an oral presentation or a poster the ASBS/SASB conference to be held in Sydney in December (Web ref. 1) you are eligible for financial assistance to help you pay for travel and accommodation?

At this stage, Council hopes to be able to provide a sum equivalent to the student early bird registration of $200. If the number of students seeking support is higher than our estimate, the support we provide may be a little less than this but we don't imagine it would be much lower than $150. We won't know until applications close on 31st October. Cheques will be available for collection at the conference. The application form is available at the ASBS website (Web ref. 2). Once you have completed this email it to me at the address below.

Remember: applications must be received in advance of the conference, by 31st Oct 2013.

Web ref. 1. *www.systematics2013.org/*

Web ref. 2. *www.systematics2013.org/*

Eichler Research Grants

Please note that having successfully applied for an ASBS grant before does not prevent you applying again as long as you have fulfilled all of the requirements of the previous grant which includes providing a report for publication in the ASBS Newsletter.

Latest Eichler Research Grant applications

A number of applications have been received and are being assessed by the Research Committee.

Outstanding membership fees

Please check that you have paid your subscription for this year. Pina Milne (*Pina.Milne@rbg.vic.gov.au*) would love to hear from you if you haven't or can't remember doing so. There are more than a few members who still have to pay.

Articles

Plant systematics, ecology, and evolution at Massey University

Jennifer Tate

Plant research in the Manawatu has a long history that continues today. With Massey University and several Crown Research Institutes 'just across the road' (Plant and Food, AgResearch), the area is a hub of active research on native and introduced plants. Although the plant science community in Palmerston North is much larger than what is represented here, this article provides a brief overview to botanical research at Massey from the ecology, systematics, and evolution folks.

The main Massey campus (Manawatu) is located in Palmerston North with two sites: Hokowhitu and Turitea (Fig. 1a, b). There are reported to be some 11,000 species growing on the Turitea campus and in the associated Arboretum, which offers year-round botanical interest. Bledisloe Park, with lovely native bush typical of the area (Fig. 1c), joins up with the campus and is a popular place for a stroll.

Teaching

At the undergraduate level, the Plant Science B.Sc. major (including Plant Biology and Horticultural Science since 2011) at Massey has 17 students, while the postgraduate Plant Biology group is thriving with 14 Ph.D. and eight M.Sc. students. The Plant Biology teaching group, based in the Institute of Fundamental Sciences, includes six academics and one senior tutor, while the Plant Ecology group (Institute of Agriculture and Environment) has two academics.

Research facilities

The Dame Ella Campbell Herbarium (MPN) (Fig. 2) specializes in plants from the central and southern parts of the North Island. Our specimen database currently has ~38,000 specimens with only half of the holdings estimated to be entered to date. We are following the APGIII family names (with ongoing reorganization!) and these are listed alphabetically within ferns, gymnosperms, dicots and monocots. Several important collections are housed at MPN separate from the main collections, including E. A. Hodgson's collection of bryophytes (primarily liverworts, ~14,000 specimens), E. O. (Ella) Campbell's bryophyte collections (~3,000 specimens), and J. M. McEwen's *Coprosma* collection (including hybrids that he made between species, ~1,000 specimens). MPN will soon be relocating to a new 'purpose-built' space on campus which will see the collections housed in

Fig. 1. Anticlockwise from top right. a, Entrance to Massey Campus (Turitea site) in Palmerston North. b, View of campus from entrance. c, Silver fern (*Cyathea dealbata*) in Bledisloe Park.

Fig. 2. Clockwise from top left. a, Lesley van Essen (Keeper) and Prashant Joshi (Technician) working with the data base; b, The entrance to the current herbarium is cryptic and hidden! c, Cabinets in herbarium – note the 'earthquake proofing' 2 x 4 timbers between the cabinets. d, Specimens are kept in flimsies within folders and these within boxes on the shelves.

a separate climate-controlled vault with ample work space and new stereoscope with digital camera. Some of you might know that MPN was under threat of closure a few years ago, but we are happy to report that the herbarium has seen resurgence in activity and is receiving strong support from the administration. MPN will also house vouchers associated with New Zealand's contribution to Kew's Millennium Seed Bank Partnership (with duplicates housed at CHR, Landcare) in cooperation with the Margot Forde Forage Germplasm Centre, Landcare Research, and the New Zealand Plant Conservation Network. Herbarium staff include Lesley van Essen (Keeper), Prashant Joshi (Technician), and Jennifer Tate (Curator).

The Margot Forde Forage Germplasm Centre housed at AgResearch in Palmerston North is an international resource containing 100,000 populations of 2,000 species as a strategic resource. New seed from global collections are added annually in an effort to improve forage crops in New Zealand and around the world. The Centre will be the repository for seed collected as part of New Zealand's participation in the Millennium Seed Bank Partnership with Kew Gardens.

The Manawatu Microscopy and Imaging Centre (MMIC) is conveniently located at the bottom of the Science Towers building, where most of the plant people are. The Centre was opened in 2008 by then Prime Minister Helen Clark and currently houses an environmental SEM, confocal (Fig. 3), TEM, and several

compound microscopes equipped for fluorescence and with digital cameras. Three full-time staff members assist with sample preparation and imaging. Dr. Matthew Savoian just started as the new Director of the MMIC in August 2013.

Massey Genome Service provides DNA and RNA sequencing to New Zealand and international customers. Traditional Sanger sequencing and genotyping is performed on an ABI3730. Next-generation sequencing via the Illumina MiSeq platform is offered as part of Massey's partnership with New Zealand Genomics Limited (along with University of Otago and University of Auckland).

The Massey Plant Growth Unit has a suite of ~20 glasshouses and growth cabinets available for experimental work; these are located across from the main campus. Additionally, on campus, there are several smaller growth cabinets that are frequently used for climate-controlled experiments.

Academic Profiles

David Penny traditionally tackles the 'big questions' in evolutionary biology and research on plants is no exception. Along with Bojian Zhong (see student profiles), David has been working on the origin of land plants using whole chloroplast genome sequencing. He is particularly interested to integrate phylogeny with cell structures to get a more coherent picture of early plant evolution. Several more chloroplast genomes of green algae are 'in the pipeline' in order to better understand how organisms became larger – two of these genomes are being done in collaboration with Tony Larkum of The University of Sydney.

Gillian Rapson is interested in the vulnerability of vegetation to both endogenous and anthropogenic disturbances and how these impact on ecosystem sustainability. She investigates how vegetation (especially New Zealand's) normally functions, and how it responds to novel perturbations (often due to human impacts), compared with changes within its evolutionary "experience", as a measure of vegetation's vulnerability. A current focus is on wetlands and short-turf vegetation, e.g. dunes, grasslands, urban areas and alpine vegetation, but Jill works in a range of vegetation types as the situation permits.

Alastair Robertson (Fig. 4) is interested in the ecology of all sorts of plant-animal interactions, particularly how well native mutualisms are working, and recently, how crop harvest can be enhanced by better plant-pollinator management. Some current projects include: seed predation in tawa and how kereru dispersal helps seeds escape native moth predators; pollen quantity and quality limitation of bird-pollinated plants; developing easy-to-measure indices of pollination and seed dispersal services; designing and testing plantation plans for high-quality manuka honey; efficient kiwifruit pollination systems.

Vaughan Symonds (Fig. 5a) research has two inter-related primary foci: (1) Quantitative genetics and molecular evolution approaches are used to identify the genes and polymorphisms that underlie natural variation for traits important to both short-term response to environmental change and local adaptation and (2) Population genetic methods are employed to study the forces that influence the distribution and exchange of genetic variation within and among populations to better understand local adaptation, gene flow, species distributions, and speciation. For these, Vaughan uses a variety of native and introduced species, including *Arabidopsis*, *Tragopogon*, and *Lupinus*.

Jennifer Tate (Fig. 5b) is a systematist with broad interests in evolutionary biology. She is particularly interested in factors driving plant speciation and diversification. Current projects are focused on understanding the evolution of dioecy in Australasian Malveae (Malvaceae), the genomic consequences of polyploidy

Fig. 3. The Manawatu Microscopy and Imaging Centre's confocal microscope.

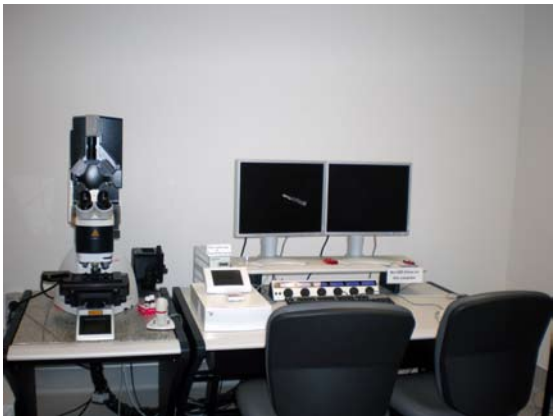

Fig. 4. a, Georgie Hamilton (current student of Alastair Robertson's) collecting soil for a manuka pot experiment from Te Awaite station, Wairarapa. b, Alastair Robertson and Amir Sultan (Ph.D. student) photographing *Korthalsella* mistletoes at Cole's Bush, North Island, New Zealand.

Ph. Alastair Robertson

(mostly in *Tragopogon*), and the taxonomy and phylogenetic systematics of Andean mallows.

Claudia Voelckel and **Peter Lockhart** (Fig. 5c) are using high-throughput technologies for investigating the evolutionary history and adaptive potential of New Zealand plants. In a recent joint project, they used evolutionary transcriptomics to identify genes involved in adaptation of *Pachycladon* (Brassicaceae), a genus endemic to the Southern Alps of New Zealand. Their most recent publication provides statistical evidence for chloroplast capture, hybridization-mediated introgression and recombination of adaptive alleles for glucosinolate hydrolysis (Becker et al., 2013). They suggest that hybridization has facilitated *in situ* survival of *Pachycladon* populations through past periods of climate change. Further characterisation of adaptive gene sets in *Pachcycladon* is currently underway with the development of a BAC library for *Pachcycladon*. Furthermore, experimental and analytical protocols optimized with *Pachycladon* are now being transferred to other New Zealand alpine plants, such as the alpine buttercups (*Ranunculus*). Their transcriptome studies are being complemented by in-situ microclimate, physiological, genetic and proteomic studies. Matthias Becker and Nicole Gruenheit, two former PostDocs with P. Lockhart continue to work closely with Claudia and Pete on these projects.

Student profiles (Fig. 6)

Amir Sultan recently submitted his Ph.D. thesis (supervised by Alastair Robertson and Jennifer Tate), which focused on the systematics and ecology of the mistletoe *Korthalsella* (Viscaceae). In addition to conducting a molecular phylogenetic analysis of the entire genus, Amir studied the host range, regional host preferences, reproductive biology, natural enemies and demographics of the New Zealand species. He is now Director of the National Herbarium of Pakistan (RAW) in Islamabad.

Jessie Prebble is a 2nd year Ph.D. student (supervised by Vaughan Symonds and Jennifer Tate), working on the nature of rarity in the New Zealand forget-me-nots (*Myosotis*, Boraginaceae), specifically the endemic *Myosotis pygmaea* complex. She is using population genetic data, morphometrics, chromosome counts and ecological niche modelling to delimit species within the group, as well as to elucidate key differences between the rare and common species. She will determine if

Fig. 5. Clockwise from top right. a, Vaughan collecting *Tragopogon* in Canterbury, South Island, New Zealand; b, Jen at Tongariro Crossing, North Island, New Zealand; Claudia and Pete's data logger at *Ranunculus nivicola* site.

patterns of genetic variation vary significantly between naturally uncommon species and those that are thought to have gone through a decline by human-mediated influences.

Kay Pilkington is a M.Sc. student (supervised by Vaughan Symonds and Jennifer Tate) working on *Selliera* (Goodeniaceae), which has three described species in New Zealand; *Selliera radicans, S. rotundifolia*, and *S. microphylla*. These species have been delimited based on morphology, geographic location or chromosome number, but the status of some of these species remains doubtful. Kay is using a population genetics approach to attempt to determine the status of each of these species and to investigate the genetic structure within them.

Tina Sehrish will soon submit her Ph.D. thesis (supervised by Jennifer Tate and Vaughan Symonds), which focused on polyploid genome evolution in *Tragopogon* (Asteraceae). She has used a variety of molecular tools to examine the consequences of whole genome duplication, including cytonuclear interactions and expression of floral genes in reciprocally formed polyploids.

Bojian Zhong recently submitted his Ph.D. thesis (supervised by David Penny and Peter Lockhart). He has research interests in plant molecular phylogenetics and evolutionary theory in general and has examined the evolutionary origins of the angiosperms and the Gnetales – that enigmatic group of seed plants whose phylogenetic relationship to flowering plants has been highly controversial. Currently, he is investigating the origin of land plants using molecular data (nuclear genes and chloroplast genomes) and applying novel analytical methods (e.g., multispecies coalescent models and heterogeneous models).

Matthew Krna is a Ph.D. student in the Ecology group (supervised by Gillian Rapson) and is investigating how climate change might impact carbon sequestration in the alpine environments of New Zealand's tussock grasslands. He is using latitudinal and altitudinal gradients (as proxies for future climate change predictions) to examine plant productivity, litter decomposition and subsequent carbon sequestration responses.

Come and visit us in 2014

We'd love you to come and experience our great team and facilities at the 2014 ASBS meeting. Palmerston North conveniently sits at the junction of the Ruahine and Tararua Ranges, which offer numerous opportunities just a short drive from town for tramping, birding, etc. The spectacular volcanic plateau (with Mts. Ngauruhoe, Tongariro, and Ruapehu) is two

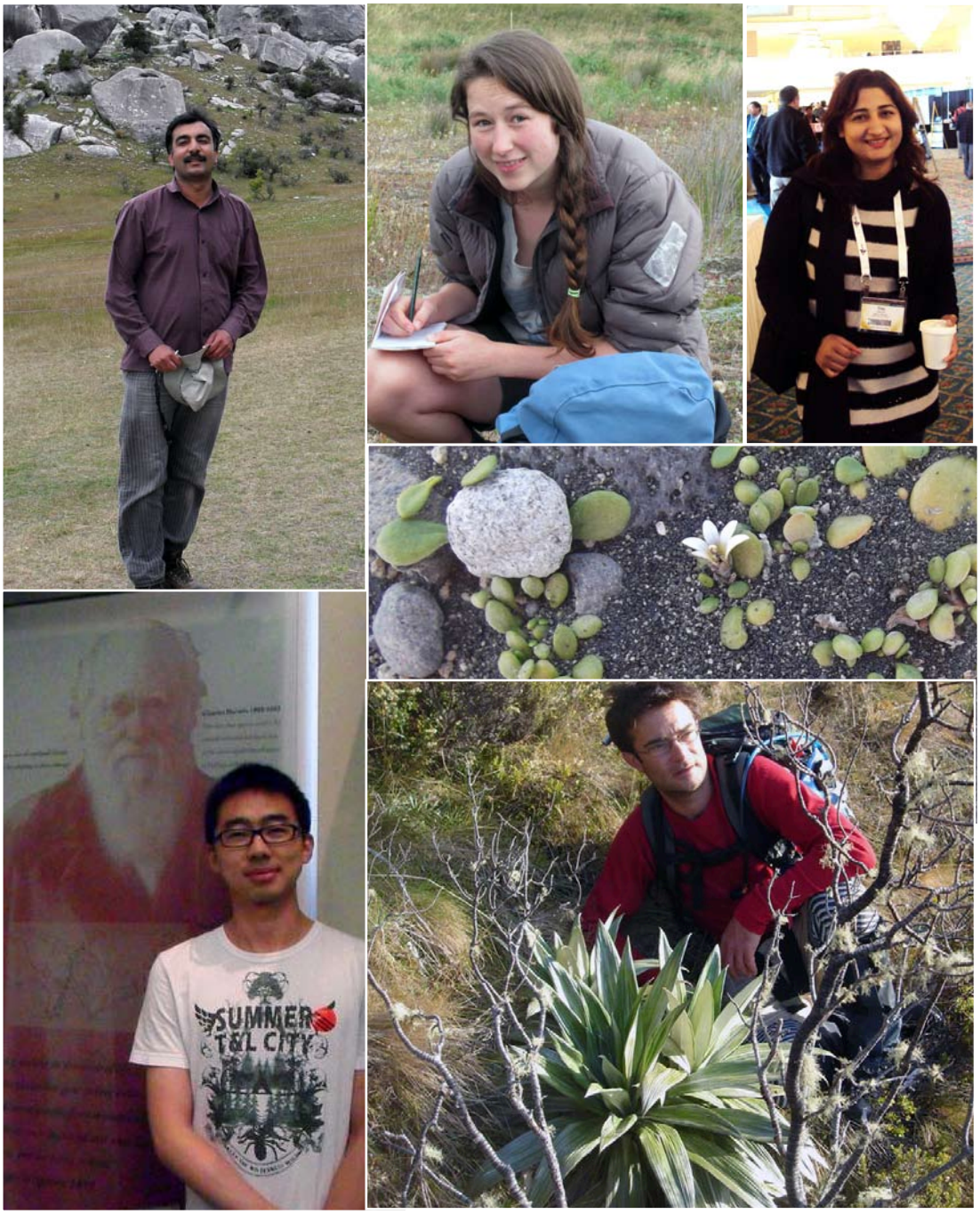

Fig. 6. Students at Massey. a, Amir collecting *Korthalsella* at Castle Hill, South Island, New Zealand; b, Jessie collecting *Myosotis* at Chrystall Beach, South Island, NZ (Ph. John Barkla, Dept of Conservation); c, Tina at the Plant and Animal Genome conference in San Diego (2013); d, *Selliera rotundifolia* at Kaupokonui beach, North Island, New Zealand; e, Matt ascending through scrubland to get to his field sites in the tussock grasslands on Poplars Range, North-Central Canterbury, South Island, NZ; f, Bojian with one of his heroes at the Auckland Museum.

hours north, and we should also mention that lovely beaches are just 20 minutes away as well!

We look forward to welcoming you to the ASBS meeting in 2014!

Mimulus orbicularis Benth. (Phrymaceae), a newly recorded aquatic from northern Queensland

W.R. Barker[a] and R.W. Jobson[b]
[a]State Herbarium of South Australia; [b]National Herbarium of New South Wales

During a field trip by RWJ to northern Queensland to study the *Utricularia dichotoma* complex, an unusual plant *w*as found in a freshwater swamp near Dunbar, south-east of Kowanyama in the Gulf Plains region. The plant resembled a *Mimulus* with opposite circular floating leaves and striking flowers raised above the water surface (Fig. 1).

From the photograph WRB considered it had features both of *Peplidum* and of *Mimulus orbicularis* Benth., an aquatic known from paddy fields in south-east Asia. The former is a genus diverse in Australia (e.g. Barker, Nesom, Beardsley & Fraga 2012), with a single autogamous species spread to south-east Asia and north Africa. The latter is native to Myanmar, Thailand, Cambodia and Vietnam (Yamazaki 1985) and Bangladesh and India (Orissa, West Bengal) (Lansdown 2011). It is included in the Red List of globally threatened species (Lansdown 2011), but at the level of "Least Concern". There is an unsubstantiated statement alluding to invasive potential:

> The species occurs over a reasonably large area and is capable of exploiting anthropogenic habitats, it is unlikely to become extinct in the short term.

Yet a Bangladeshi publication is quoted with contrasting commentary:

> The species typically grows on the margins, rooted in shallow water or floating in ponds, marshes, ditches and rice fields; it often grows in estuaries and lagoons by the coast (Ahmed *et al.* 2009). … In Bangladesh, efforts should be made to relocate the species in its known and adjoining areas and initiate conservation through *ex-situ* methods (Ahmed *et al.* 2009).

Examination of the floral features reveals that the Australian specimen is a true *Mimulus*, not a *Peplidum*: it has bi-lamellate stigmas and bilocular confluent anthers. Its features are very like those of *M. orbicularis*, though leaves and flowers of herbarium material examined are apparently larger than in that species.

As a result of a recently published conspectus of the family Phrymaceae based on morphological and particularly molecular evidence (Barker et al. 2012), *Mimulus* is now narrowly circumscribed and limited to eight species in Australia, Madagascar, Africa, India, Asia and eastern North America, a remarkable distribution. *Mimulus orbicularis* is among the species that were not examined closely for diagnostic features nor included in molecular analysis. Its placement in *Mimulus s.str.* was questioned because of the resemblance of the entire floating leaves to *Peplidium*. One of us (WRB) has been making approaches to colleagues in Myanmar and Vietnam for fresh material of *M. orbicularis* for molecular and morphological study, now with added importance in establishing the taxonomic status of this new Australian discovery. In the interim, descriptions in the literature and specimens online (e.g. in the Sonnerat Herbarium, Museum

Fig. 1. *Mimulus orbicularis* near Dunbar, north Queensland, *Jobson 1723 & Cherry* (NSW973275). Ph. R. Jobson

National d'Histoire Naturelle, Paris; Web ref. 1) it is has no clear differences and many similarities and it is appropriate to apply the south-east Asian name to the Australian plant.

This preliminary note is aimed at encouraging a search for more locations and further collections to better define the distribution and variability of the Australian plant. This will allow better taxonomic assessment and also a more informed consideration of the age and origin of its occurrence in Australia. While the discovery is also of conservation interest, there is also the question, depending on the age of its origin in Australia, of whether the plant needs to be monitored as a potential invasive of freshwater swampland.

Specimen examined

Queensland. Gulf Plains region: Dunbar, (-16.059º, 142.313º), 17 Apr 2013, *R.W. Jobson 1723 & W.A. Cherry* (NSW973275, with duplicates for distribution).

References

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Think before you throw it out

Robyn Barker
State Herbarium of South Australia

The plea for newsletters, conference proceedings and other material that might be considered ephemeral to be deposited in local libraries has appeared in the Newsletter from time to time.

While writing up David Symon's scientific achievements for our house journal I encountered a great deal of difficulty in finding information surrounding the early days of a number of societies. With the much heightened awareness of conservation issues from the 1960s there was a resultant formation of new societies, many of which, if they still exist, have yet to analyse their history and their achievements. Foremost of these in terms of David was the Nature Conservation Society of South Australia (Web ref. 1), formed in 1962 and in which David played a leading part in the early days. But much of the information about his involvement is only able to be pieced together from the various reports which were published at the time or by searching whatever archives the society may have.

But this is just one example. David was also involved with the Australian & New Zealand Association for the Advancement of Science (ANZAAS), once the pre-eminent scientific society of Australia and New Zealand and the conference that would have been attended by older members of our society. Formed in 1888 ANZAAS held its last scientific meeting in Adelaide in 1997, and it could be said that its legacy lives on in the form of specialist societies such as ASBS which arose from the Botany Section meetings. It is good to see that the society still exists (Web ref. 2) and that it has reinvented itself to promote science amongst later secondary school students in the form of Youth ANZAAS. But where is the history of the society and its achievements and where does one go to find information on their meetings? Our library in AD holds information on very few meetings. While lists of the recipients of the Mueller (begun in 1904) and the ANZAAS medals (begun in 1965) are available, a proper history and analysis of this society is well overdue. Even the four major libraries listing archival resources appear to have incomplete records.

David also belonged to the Friends of the Waite

Arboretum, formed in 1997. He published a number of articles in their quarterly newsletter, but again our library has poor representation. Newsletters of the Society are available on the web from 2008 (Web ref. 3) but those early newsletters are now scarce.

Even more difficult to find was information about the Coolabah Club, formed in 1959 and consisting of land owners interested in planting trees on their properties and on roadsides. While the society is now defunct at one time it consisted of a hundred families and produced a newsletter. Only those from 1981 to 1995 are represented in our library through their donation by one of our herbarium volunteers. Finding copies of the early ones will probably be difficult, if not impossible, particularly as they consisted on just a couple of roneoed pages. The same may well be true of such societies as Men of the Trees, Trees for Life, Land Care etc and yet there can be useful information about the source of plantings which might now be causing concern or dated observations on plantings. For example, David Symon was instrumental in distributing *Pistacia atlantica* to members of the Coolabah Club in 1965; we have no material of this species in the herbarium from South Australia and do not know whether it continues to exist on those farms which planted it.

And what about our own society. Presumably ASBS has all of its conference abstract booklets deposited with the archive in Melbourne, but perhaps someone should check! Certainly our library does not have a complete set, something that will hopefully be rectified in the near future, *if* copies can be found. And perhaps we might consider placing them on the ASBS web page as a resource.

As Alex George said in his presentation at the history conference in 1988 (George 1990) "History is now". But it is also the last 50 years and in this throw away society can easily be lost. So, when you attend a conference, or receive a newsletter of a specialist society, think before you chuck it out and see if it is represented in your library before you do so. The librarian may not love you but down the track someone may well be thankful that the information is readily available.

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Web ref. 1: *www.ncssa.asn.au/*

Web ref. 2: *www.anzaas.org.au/*

Web ref. 3: *http://waite.adelaide.edu.au/arboretum/friends/newsletters/*

Current issues

Australasian plant systematics white paper

In previous Newsletters we have outlined ideas and steps towards conducting a review or assessment of the current state, trends and potentials of plant systematics and taxonomy in Australasia. We have been considering and discussing the best way to progress this, and the best structure for such an endeavour, to maximise effectiveness and impact.

While discussion has largely been confined to amongst the three of us, we don't intend to keep it that way. Since the last Newsletter article we have developed a first draft plan of the report(s) we hope to produce, and a rough description of the process we envisage to get them written. By developing the draft document plan we have been able to more clearly describe what we see as the scope, content and overall message of the report. Once these are finalised, we see the next step as seeking community feedback, discussion and, hopefully, engagement in the draft plan and the process. With a clear and agreed direction and end goal, we'd like then to engage with as many members of our community as possible who would like to be involved, to help provide ideas, text and feedback on the evolving report.

We have booked a forum at the forthcoming ASBS Conference in Sydney in November, and expect that the draft plan and a more detailed description of the process will be ready for inclusion in the next ASBS Newsletter. Until then, please watch this space.

Kevin Thiele, Ilse Breitwieser, Bill Barker

Eichler Research Fund report

Species limits in the *Bulbine glauca* complex (Asphodelaceae or Xanthorrhoeaceae *s. lat.*)

Iain S.F. Moore
University of New England, Armidale NSW, Australia
imoore@myune.edu.au

Four and a half years ago, it was suggested I undertake a part-time Masters degree while trying to maintain myself working as a town planner. At times, I've questioned the wisdom of that advice – but the light is now starting to glow brighter at the end of the tunnel. Therefore, in the English idiom of better late than never, the following report provides an update on my research into species limits in the *Bulbine glauca* complex (Fig. 1). The study, being completed with the assistance of the ABRS Hansjörg Eichler Scientific Research Grant, is part of a M.Sc. at the University of New England, Armidale NSW.

More than twenty years have elapsed since the cytological work of Watson (1986) which identified three major groups within *B. bulbosa* (R.Br.) Haw.: a Bulbosa group having somatic counts of *2n* = 24, 48 and 72; a Kroombit Tableland group from Queensland and a 'Rock Lily' group from south-eastern Australia, each having a predominant chromosome count of 2n = 46. The Kroombit Tableland and 'Rock Lily' groups were later described as *B. vagans* E.M. Watson and *B. glauca* (Raf.) E.M.Watson, respectively, by Watson (1987) in the *Flora of Australia*.

Large distributional disjunctions and morphological variation between populations of *B. glauca* suggest a species complex may be involved. Putative new species have been separated out and given phrase names in the N.C.W. Beadle Herbarium.

I have collected plant material from 25 sites in eastern NSW, the ACT, southern Victoria and eastern and central Tasmania. The populations are extremely localised in their distribution and are poorly represented in herbarium collections. Plants occupy mostly rocky habitats, including Mount Kaputar, Mount Canobolas, Queanbeyan, Nungar Plain, Shoalhaven River and Bega in NSW; Mount Coree and Uriarra Crossing in the ACT; and Lake Tyers, Organ Pipes N.P. and Warby Ranges in Vic. and various sites in Tasmania. Thanks to the assistance of the Hansjörg Eichler Scientific Research Grant, I have been able to undertake nine major collecting trips to Tasmania, Victoria, ACT and NSW populations.

Field studies and herbarium research have been supplemented by research on cultivated material. Virtually all extant *B. glauca s.lat*. populations and a population of *Bulbine crassa* D.I.Morris & Duretto from Wilsons Promontory (Vic.) have been sampled and propagated material has been used for detailed morphological, cytological and molecular work. I have also studied herbarium specimens from HO, BRI, MEL, SYD, CANB and WRSL covering the entire geographic range of *B. glauca s.lat.*

I must add that field trips have not always gone to plan. In particular, I have made three field trips to Lake Tyers (Vic.) and, whilst a beautiful part of the country, it has failed to reveal the whereabouts of a population of *B. glauca* which is the type location of *Bulbinopsis terrae-victoriae* Poelln. (a synonym for *B. glauca*). Fortunately, I have been able to borrow the holotype of *Bulbinopsis terrae-victoriae* from Wroclaw University (WRSL) for inclusion in the study.

I have analysed both morphological and molecular variation in and between populations of *B. glauca*. Species limits have been tested using graphical and statistical analysis of morphological datasets derived from the herbarium specimens and field collections. The data matrix has been analysed using the pattern analysis software package PATN version 3.03 (Belbin and Collins 2006), with population groupings defined using cluster and ordination analysis. Seed attributes, leaf bract size and shape, number of flowers per scape and leaf orientation have shown strongest support for the putative new species. I am currently

Fig. 1. Images of *Bulbine glauca s. lat.*, cockwise from left: a. collecting on Mt Coree, ACT–NSW; b. flowers, Shoalhaven River gorge, NSW; c. habit and habitat, Mt Kaputar, d. seed variation (left, Mount Canobolas, NSW; right, Mount Kaputar, NSW).

using DELTA (Dallwitz 1980) to maintain and manipulate species descriptions and hopefully produce an illustrated interactive identification tool via Intkey.

After some initial scepticism on my behalf, it is quite motivating, if not relieving, to find that the specimens of *B. glauca s.lat.* used in the phenetic analysis are falling into a number of groups, with leaf cross section, floral bract shape and size, number of flowers per scape and seed colour being principal characters separating them. Karyomorphological data appears to show no signs of hypothesized polyploidy status of populations. However, the karyotypes do show different chromosome sizes.

MatK sequences have provided some support for the phenetic groupings, but follow-up, finer scale sequence analysis is currently being undertaken using other nuclear and plastid regions. Of course, I'm keeping my fingers crossed that neat groupings will fall out nicely – well, I can hope.

As for that wisdom, I have managed to see a lot of great country, met some great people and learned quite a bit along the way. Who knows – maybe I'll take the plunge into a Ph.D. – but definitely not on a part-time basis! Perhaps wait until I see how my DNA extraction PCR skills pan out.

Finally, I would like to acknowledge that 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. Most of the work has also been done with the financial support of an Australian Biological Resources Study (ABRS) National Taxonomy Research Grant and I express great appreciation for this. Thanks are also due to my supervisors Jeremy Bruhl, Ian Telford and Elizabeth Brown for continuing advice. I must also thank the technical staff in the Botany Department of UNE, particularly Richard Willis and Theresa Choi, who continue to help with advice or obtaining, or gaining access to, study material and preparations, and funding from the School of Environmental and Rural Science at UNE.

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News

Inaugural prize for work on southern floras to Peter Heenan

To mark its 50th birthday in 2013, the *New Zealand Journal of Botany* has initiated an annual prize for outstanding contributions to the flora of the southern hemisphere. The award will alternate between researchers who have a sustained record for excellence and those early-career researchers who have published a significant paper in recent issues of the journal.

Peter Heenan of the Allan Herbarium was awarded the inaugural prize for "outstanding contributions to the flora of the southern hemisphere". Peter is the pre-eminent taxonomic botanist of his generation in New Zealand, and has published about 150 peer reviewed articles on plant taxonomy, phylogeny, biogeography, evolution and ecology. His research explores the New Zealand vascular plant flora as a whole and its links to the rest of the world and thus his attention is not limited to any particular group of plants. None-the-less, the families Brassicaceae and Fabaceae stand out as areas of particular expertise.

Peter was presented with the award at the two-day multidisciplinary conference on John Buchanan (1819–1898) in Otago in November 2012.

Web ref.: *www.royalsociety.org.nz/publications/journals/nzjb/*

fig. 1. Dr Peter B. Heenan receiving his award from *New Zealand Journal of Botany* Associate Editor Associate Professor Julian Eaton-Rye

Rob Smissen
Allan Herbarium, Lincoln

Who was John Buchanan FLS?

And for those of you who don't know who John Buchanan of the previous item was, to quote from the brochure advertising the symposium (Web ref. 1):

> John Buchanan is one of Otago's most famous sons, remembered above all for his superb painting of Milford Sound (1863). But he also made wide-ranging and substantial contributions to New Zealand botany, geology, exploration and scientific illustration. All highly significant achievements about which the general public know almost nothing today.

Discussion at the conference covered the following aspects:

> Scottish background and connections that fitted John Buchanan so well for his later life and work in New Zealand. And it will traverse the explorations that he made most notably in southern New Zealand, comparing his views of our southern landscape with what we see today. We will look at John Buchanan's Dunedin, at his friendships, scientific, professional and personal, and most intriguingly, at how he reconciled his artistic and religious views, with the Darwinian evolutionary world that unfolded during his lifetime.

A biography of John Buchanan was presented in ASBS's *History of Australasian Systematic Botany* symposium in 1988 (Adams 1990).

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Adams, N.M. (1990). The botanical collections of John Buchanan F.L.S. In P.S. Short (Ed.) *History of Systematic Botany in Australasia*. (ASBS Inc.; Canberra).

Web ref. 1. *www.otago.ac.nz/scottish_studies/pdf/BuchananBrochure.pdf*

Eds.

A new algal order

While Victorians and Tasmanians are probably very aware of a new algal order since it hit the headlines at the beginning of September, it might have passed the rest of us by. But great news that Tim Entwisle is to have a new marine algal species named in his honour.

This is something that quite a number of our members can lay claim to but none of them to my knowledge have had a new species also belonging to a new family and order named for them. The new species, *Entwisleia bella*, belongs to the new family Entwisleiaceae and the new order, Entwistleiales[1].

The paper describing the new alga (Scott et al., in press) will be published in hardcopy in November 2013 and online a little sooner.

You can read more about the experience from Tim on his blog spot (Web ref. 1), from the press release of the Royal Botanic Gardens, Melbourne (Web ref. 2), or from the article in *The Age* (Web ref. 3).

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Scott, F.J, Saunders G.W. and Kraft, G.T. (in press). *Entwisleia bella* gen. et sp. nov., a novel marine "batrachospermaceous" red alga from southeastern Tasmania representing a new family and order in the Nemaliophycidae. *European Journal of Phycology* 48(4).

Web ref. 1: *http://talkingplants.blogspot.com.au/2013/09/new-seaweed-may-be-hobarts-wollemi-pine.html*

Web ref. 2: *www.rbg.vic.gov.au/documents/Rare_seaweed_named_after_Botanic_Gardens_Chief_Executive_(ap.docx*

Web ref. 3: *www.theage.com.au/national/sea-alga-discovery-a-feather-in-experts-cap-20130901-2syu7.html*

Resignation in Sydney

News came through in September of the sudden resignation of Prof. David Mabberley from his Executive Directorship of the Royal Botanic Gardens and Domain Trust, Sydney. No official details seem to have been released.

Hugh and Patty Cross departing Adelaide

Appointed in 2008 to the State Herbarium and the Australian Centre for Evolutionary Biology and Biodiversity, Hugh Cross worked in multiple areas of DNA Barcoding and assisting systematists with molecular work. He is moving to a postion in Norway working on spruce genetics. His wife Patricia Fuentes-Cross has been undertaking a Ph.D. on variation in *Santalum*.

[1] The authors justify their approach to the spelling of the name endings in their paper. Eds.

Central Australia blooming

Another couple of botanists to make it into the media recently are the Alice Springs Herbarium botanists, Peter Jobson and Peter Latz. Following heavy rainfall in May the desert is apparently putting on a wonderful display (Web ref. 1). Latzy also made it into *The Weekend Australian* on the same subject in early September, but our copy of the issue has been recycled and the article doesn't seem to have made it into the online archive.

Web ref. 1: *www.abc.net.au/news/2013-09-18/desert-central-australia-wildflowers/4962422*

Changes in the Netherlands

The collections of the former National Herbarium of the Netherlands (Leiden, Utrecht, Wageningen and Amsterdam) have recently (June 1st) become part of the collections of Naturalis Biodiversity Center in Leiden. The members of staff of the Leiden Herbarium have become employees of Naturalis. The staff of Wageningen Herbarium will become employees of Naturalis later this year, for which they will move office to Leiden. As a consequence, all Herbarium collections will be transferred during the remainder of 2013, early 2014, to Leiden and within Leiden from the Van Steenis building to another facility. During these operations the collections are not or only limited available for study and loans.

Simultaneously, Naturalis Biodiversity Center is performing large scale digitization of the Herbarium collections which will last until mid 2015. This digitization process will add to and extend the duration of limited access of the collections. I therefore kindly ask you to take this into consideration and organize your visit and loan request well in advance, as most likely you will have to delay your plans and requests during the coming 1–2 years. We kindly request always to contact our staff first through *botaniecollectie@naturalis.nl*.

We apologize for this inconvenience.

For access to digital collection data, see: *http://vstbol.leidenuniv.nl/*. From early 2014 onwards we hope to be able to make the first batches of digital images available on line, offering at least some support to your work.

Dr. René W.R.J. Dekker
Director of Collections
Rene.Dekker@naturalis.nl / www.naturalis.nl

Food for thought

Compiled by Robyn Barker. Those of you participating in FaceBook might consider providing such short notes for the Newsletter.

The responsibility of our Universities

Our universities were once the home of vigorous debate. Now, academics are silent and teaching comes second to research. What's going on? An article in *The Age* of July 25th 2013 by Professor Don Aitkin, foundation chair of the Australian Research Council and the vice-chancellor and president of the University of Canberra, suggests:

> There must be a reappraisal of the role that research now plays in [universities], and a recognition that it is the education of students that is the real responsibility of the university.

Web ref. *www.theage.com.au/comment/academias-harshest-lesson-go-back-to-basics-20130724-2qjj1.html*

Increasing number of authors for a new species equals an expanding workforce?

The following has been taken from the summary of a recent paper by a group of Oxford University botanists (Bebber *et al.*, 2013), and it is encouraging to our discipline that it appears to be the most downloaded paper for the month. Even more encouraging is that it combats the notions of some other British ecologists who think that taxonomists are not an endangered species (Joppa et al. 2011).

> Recent research has claimed that the increasing number of authors associated with the description of new species represents an expanding workforce discovering the remaining new species from an ever-diminishing pool. We present a comprehensive dataset from The International Plant Names Index (IPNI) of new species of flowering plant published between 1970 and 2011 and show that, on average, 1855 new species have been described annually since 1970. We show that compared to other scientific disciplines the increased number of authors on taxonomic papers is relatively small and may reflect changes in scientific practice rather than an increase in taxonomic capacity. These data, alongside published results demonstrating a lag period of 35 years[1] between a specimen being collected and published as a new species, strongly suggest that the global taxonomic capacity to describe new species of flowering plant is stagnant at a time of unprecedented concern for conservation and extinction.

An interview with Robert Scotland about this paper can be seen on the web (Web ref. 1).

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Bebber, D.P., Wood, J.R.I., Barker, C. & Scotland, R.W. (2013). Author inflation masks global capacity for species discovery in flowering plants. *New Phytologist*. Article first published online: 24th Sep 2013. DOI: 10.1111/nph.12522. *http://onlinelibrary.wiley.com/doi/10.1111/nph.12522/abstract*

Fontaine, B., Perrard, A. & Bouchet, P. (2012). 21 years of shelf life between discovery and description of new species. *Current Biology* 22(22): R943-R944. *www.cell.com/current-biology/abstract/S0960-9822(12)01248-1*

Joppa, L.N., Roberts, D.L. & Pimm, S.L. (2011). The population ecology and social behaviour of taxonomists. *Trends in Ecology and Evolution* 26: 551-553.

Web ref. 1. *http://phys.org/news/2013-09-species-game.html*

Interactive media illustration for identification

Check out this article showing the use of revolving SEM images to help in taxonomic identification. In this case it is for millipedes, but it would clearly be useful for plant species as well. Those hair types could take on a whole new life!

Reference

Akkari, N., Cheung, D.K-B., Enghoff, H Stoey, P. (2013). Revolving SEM images visualising 3D taxonomic characters: application to six species of the millipede genus *Ommatoiulus* Latzel, 1884, with description of seven new species and an interactive key to the Tunisian members of the genus (Diplopoda, Julida, Julidae). *Zookeys* 328: 5-45. *www.pensoft.net/journals/*

[1] Interestingly a French study has indicated that the lag phase is 21 years (Fontaine et al., 2012). Ed.

zookeys/article/5763/abstract/revolving-sem-images-visualising-3d-taxonomic-characters-application-to-six-species-of-the-millipede-genus-ommatoiulus-l

Maintaining quality of on-line specimen data – a funding dilemma?

Are you frustrated with the quality of the data being presented in the Global Biodiversity Information Facility (GBIF) and Atlas of Living Australia (ALA)? Millipede specialist, Bob Mesibov of the Queen Victoria Museum & Art Gallery was and he documented his concerns in a paper in *ZooKeys* in April this year (Mesibov 2013). A response was forthcoming from ALA and GBIF in the June issue of the same journal (Belbin et al. 2013), both of them freely available. Part of the response read:

> In the ALA, anyone can annotate an issue exposed in a record. Such annotations are sent to the data provider for evaluation and correction. It then depends on the resources of the provider to ensure that record is updated.

The "resources of the provider" may well be the stumbling block in this present climate where a number of herbaria are unable to keep records up to date because of increasingly scarce funding. It had been hoped that this known presence of "dirty" data would lead to more pressure from users of the data for resources to keep the underlying information up to date, but this has not been the outcome to date.

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Belbin L, Daly J, Hirsch T, Hobern D, Salle JL (2013) A specialist's audit of aggregated occurrence records: An 'aggregator's' perspective. Title. *ZooKeys* 305: 67–76, *doi: 10.3897/zookeys.305.5438*

Workshops and courses

Kew training courses

Kew's fifth Botanical Nomenclature Training Course

27th–31rd January 2014

The course is aimed primarily at early-career researchers in taxonomy, but is relevant to anyone working on taxonomic revisions, checklists, plant name databases etc. who needs to get to grips with the International Code of Nomenclature for algae, fungi, and plants. Selection will be based on scientific merit, motivation and usefulness of the training for one's career.

A course outline is available from the Kew website (Web ref. 1). The course is part of the DEST Modern Taxonomy course programme (Web ref. 2) and applications must be made through DEST. I expect the course programme and registration form to be available on the DEST website in August.

Deadline for registration is 17th October 2013.

Web ref. 1: *www.kew.org/learn/specialist-training/courses-a-z/botanical-nomenclature-training/Botanical-nomenclature-course.htm*

Web ref. 2: *http://www.taxonomytraining.eu/*

Katherine Challis
Botanical Nomenclature Course Coordinator
email k.challis@kew.org

Annual Tropical Plant Identification Course

21st April to 2nd May 2014.

Full details and an application form are available at Web reference 1.

The application deadline is 20th December 2013. Feel free to contact me if you need any further information.

Web ref. 1: *www.kew.org/learn/specialist-training/courses-a-z/tropical-plant-family-identification/ST-courses-plant-family-identification.htm*

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Obituaries

Two tributes to R.K. (Dick) Brummitt (1937–2013)

From Alex George

Australia (indeed the world) has lost a botanical colleague and friend of many years. Dick joined Kew in 1963 and so knew all the ABLOs from that time, as well as many other Australian visitors. He enjoyed his visits to Australia, the first for the XIII International Botanical Congress in 1981, the last for a field trip with me in Western Australia in 2004. He was happy in the field, seeing and collecting plants that added to his knowledge of the world's flora.

Dick was generous with his time both professionally and socially. His work with IAPT and providing advice on nomenclatural matters took precedence over his own systematic research, although he made substantial contributions on the African flora. Not all agreed with his views but he was a staunch supporter of practical systematics and argued forcefully for what he believed was the best way forward.

He often had guests to stay, sometimes for several weeks, and protested if they tried to contribute to 'running expenses'. Besides his family and botany he was a passionate follower of Liverpool.

Kardinya, WA

From Tony Orchard

The tragic news of the death of Dick Brummitt on 18th September 2013, is a blow to Australian taxonomists, as well, of course, to others worldwide. I had corresponded with Dick for over 30 years, from the time I joined the General Committee on Nomenclature in 1981. I later became much more involved with him when I joined the Spermatophyta Committee in 1992. He was Secretary of the latter Committee for many years, and what a great job he did in providing committee members with timely and detailed summaries of the cases we needed to deal with, and ensuring that we in turn replied in a timely manner. In those cases where the committee was obviously divided or undecided, Dick could be relied upon to provide balanced and succinct summaries of the arguments on both sides, and with gentle persuasion nearly always guided us to a final, definite, decision. He never imposed his own views, but, in my experience, his clear exposition certainly, in many cases, placed the choices in sharp focus.

Fig. 1. Dick collecting Calectasia south of Cataby, W.A., 8 Sep 2004.
Ph. Alex George

Dick's efficiency and organisational skills were also apparent in another project with which we were both involved, that of *Species Plantarum*, an ambitious attempt to publish a species-level flora of the world. This project was almost entirely Dick's concept, which

began to take solid shape when I volunteered to take on the role of editor. The published fascicles were modelled heavily on *Flora of Australia*, largely for my convenience, as I could use the templates from that work for formatting *Species Plantarum*. Dick assembled a steering committee, carefully chosen to be geographically representative, and took on the role of Secretary. Again, his enthusiasm ensured that members of the committee were kept well informed of progress. Over a decade or so, 16 parts have been published, with descriptions of 11 families, including two major, multivolume, accounts, Juncaceae and Chrysobalanaceae. Unfortunately, due to work pressures, I had to stand down as editor in 2003, but Annette Wilson continued as editor for a few years before editorship passed to Jan Kirschner and Karol Marhold. Dick stepped down as Secretary about 5 years ago, but remained on the committee.

The nomenclatural skills that Dick possessed were well utilised by a generation of Australian botanists. He was always willing to provide advice, and that advice was invariably found to be sound. Many Australian taxonomists first met him while they were serving as Australian Botanical Liaison Officers at Kew, and that meeting usually developed into lifelong friendships. Others met him during Nomenclature Sessions at International Botanical Congresses, where he was active in proposals to modify the Code of Nomenclature. I had met Dick briefly on a number of occasions, and had even stayed with him in London on a couple of occasions. His house was a frequent stopover for botanists from around the world. But it was during 2008–9 that Theresa and I really got to know him well, while I was ABLO. Dick went out of his way to make us welcome to London, and organised weekend excursions to places of interest, such as Leeds Castle and Down House (Charles Darwin's home). On later visits he took us to Petford, Sissinghurst and many other places.

Dick was a passionate advocate of the need to recognise paraphyletic taxa, pointing out in numerous papers the result of recognising larger and larger, more and more inclusive taxa, which must in time result in the collapse of the taxonomic hierarchy. He was frustrated by the refusal of many to recognise the evolutionary

Fig. 2. Dick running his Nomenclatural course at the Brisbane ASBS meeting, Nov 2005. Ph. Bill Barker

truth that one species must of necessity arise from within another pre-existing species, that each new genus must have arisen by the budding of a line of species, with specialised characteristics, derived from a taxon within an existing genus. To argue otherwise is akin to invoking spontaneous generation. To him, and to those of us who agreed with him, this was a self-evident truth, and he was concerned at the nomenclatural damage he saw being inflicted by more rigidly doctrinaire cladists. I suspect that history will judge him kindly on this subject.

Dick Brummitt was a true gentleman, kind, considerate, ever helpful to those in need of assistance or advice. He had a keen intellect, and could carry an argument with ease. Botanical taxonomy and nomenclature was his life, and he threw himself into its study with enthusiasm. His passing leaves a gaping hole in our science, and many will mourn him as friend, scientist, colleague and nomenclatural expert. He will be sorely missed.

Canberra

ABRS report

ABRS turns 40

This year marks the 40th anniversary of the ABRS, with the establishment of the Interim council on 6 December 1973.

In true ABRS tradition, there will be cake, at a date to be confirmed when we know who will be our new Commonwealth Government Minister for the environment.

A major piece of our celebrations will take place at the *Systematics without Borders* conference, which happily coincides with our "birthday". The conference will include a symposium highlighting ABRS' roles in Australian systematics over the last 40 years, including of course the ABRS National Taxonomy Research Grant Program, and our contributions to the establishment of the various national taxonomic databases which we all take (almost) for granted in the 21st century.

Flora of Australia

I am working on the final editing and production of *Flora of Australia* volume 37–Asteraceae 1. This book will cover all the Australian Asteraceae except for the tribes Gnaphalieae and Astereae, which will appear in volumes 38A and B respectively. With luck this book will go to press around the end of the year.

Grants

Applications for the next round of Research grants are currently open (closing on November 1). You can find application forms and information on our web site (Web ref. 1). Applications for ABRS Churchill fellowships open in November, and the student travel bursaries next March.

Bush Blitz I and II

To mark the successful conclusion of the Bush Blitz program a symposium, *Adding to Australia's Biodiversity Picture*, was held on 30 July at Old Parliament House, Canberra. Over 160 delegates turned up to hear speakers talk about their Bush Blitz-aided research and their experiences in the field. The event was opened by Dr Karl Kruszelnicki.

Funding has now been secured for a second phase of Bush Blitz, and agreements between the Australian Government, BHP Billiton and Earthwatch have now been completed.

Annette Wilson
Editor, *Flora of Australia*
June 2013

Web ref.1: *www.environment.gov.au/biodiversity/abrs*

Miscellanea

Account of 1975 field trip for *Solanum* alkaloid survey

David J. Collins, School of Chemistry, Monash University, has provided an electronic copy of his *Diary of a Field Trip, 11 May–14 June 1975*: *A Survey of Australian Solanum Plants for Steroidal Alkaloids* to the library of the Botanic Gardens and State Herbarium of South Australia. The account is dedicated to David Symon who participated in the field trip. Following the diary transcript is a brief history of the Solanum project initiated by David Collins soon after taking up his position at Monash University in 1971 and for which David Symon was the associated botanist. Specimens from the field trip are held in the State Herbarium of South Australia (AD). The author is investigating publication of the account with Monash University.

Robyn Barker

Melbourne Herbarium and Gardens on ABC Radio

In case you haven't heard them here is a link to radio interviews with Collections Manager and ASBS Councillor Pina Milne talking about her favourite herbarium specimens at Melbourne's National Herbarium (Web ref. 1) and with Director Tim Entwisle pertaining to a stroll in the Gardens (Web ref. 2).

Web. ref. 1. *www.abc.net.au/radionational/programs/offtrack/royal-botanic-gardens-melbourne/4891614*

Web. ref. 2. *www.abc.net.au/radionational/programs/offtrack/past-programs/*

Book launch

Launching "Short & George", a new Botanical Latin resource

***A Primer of Botanical Latin with Vocabulary*, by Emma Short and Alex George, published by Cambridge University Press**

Launched at Wesley College, South Perth, 19th July 2013

Alex began with a welcome in Latin until he realised that he was not in the 'Latin room' and reverted to English. He reminded the audience of the many English words that are the same as in Roman times or so similar that ancient Romans would recognise them, though many have moved on from the original meaning. He then invited Brian Moyle to launch the book. Brian is a long-time stalwart of the Wildflower Society of WA. He has been involved in many Western Australian conservation issues such as their Bushland Conservation Fund and their Road Verge Conservation Committee

Brian mentioned his initial reluctance to accept the invitation because of his limited knowledge of Latin. He reminded us that, far from being a dead language, Latin is still used in the Vatican and, surprisingly, there are, according to the census, 250 people in Australia who speak Latin in their daily lives. Latin is commonly used to add 'gravitas' (a good Latin word!) to writing. He had been intrigued to see the invitation to the launch printed on one side in Latin.

He then discussed the use of Latin, referring to older texts still in use and the value of a vocabulary in understanding plant species epithets. He was glad to see that, when it came to plant epithets, Emma and Alex had used Australian and in many cases Western Australian genera and species as examples. Also the names of several local identities were used as examples in plant names, such as Magda and Ernie Wittwer. This made a welcome change as so often such books are published in Europe or America and some of the names they use can be of little local interest.

Brian referred to Alex's humour and quirkiness as shown in some of the names he has given plants, such as *Dryandra trifontinalis* which comes from the Three Springs area and *Dryandra drummondii* subsp. *macrorufa*. The *macrorufa* part of the name came from the nickname the members of the Dryandra Study Group gave this taxon before it was formally described, that is 'Big Red'.

Brian congratulated Emma and Alex on the writing of the book, as well as Charmaine Cave for the design and Cambridge University Press for publishing a very practical book for both amateur and professional botanists as well as plant enthusiasts and students of Latin grammar. He then officially launched *A Primer of Botanical Latin with Vocabulary*.

The two authors spoke after the launch.

Alex George

Emma's speech

Over the last year or so, during and after the publication of our book, quite a few people have asked me how on earth I managed to get involved with such a thing and what's it like writing a dictionary ... to which I hastily reply that Botanical Latin is alive and well, it has a very small grammar, and as to writing a glossary – you let the co-author do most of it!!

Anyway, these questions got me thinking and I decided I ended up here almost by accident.

Initially at school in Barnard Castle in County Durham (North-East England), it was touch and go, whether Botany or Archaeology would be my career, as aged 12, I loved History, and the botanical bits of Biology. Edward Mason, our Biology teacher, was keen on Botany, and took us in about September 1975 for a nature walk across the school playing fields. We came across *Sanguisorba officinalis* within the first 5 minutes and that was it – I was hooked on Latin names. Thank you Edward. *Sanguisorba officinalis,* by the way, was used to treat bleeding. It was believed to encourage clotting and the formation of scabs, as its inflorescence is shaped a bit like a *Casuarina* cone, maybe a bit smaller, and is the colour of a blood clot.

In our second year we were expected to pick up another Language besides French, and it was either German or Latin. My father who had

Fig. 1. Emma and Alex at the book launch. Ph. Alex Nikulinsky

spent many an evening under the table while the German bombers off-loaded their surplus on Swansea before their return trip to Germany, was much more enthusiastic about my learning Latin, as was my mother. 'Any idiot can pass Latin O-level' they said, 'German is difficult' with *very long* words. In 1980, alas, I failed my O-level and to this day blame this failure in part on the grammarless Reading Latin Course developed by Cambridge, and based on the life of one Lucius Caecilius Iucundus, who lived rather too close to Vesuvius in AD 79. I bet you can guess what happened to him! This linguistic disaster, together with the Whig Reforms of the 1830's (standard fare for O-level History) combined to ensure that I pursued Botany.

By 1981, I spent my spare time dithering about Botany *versus* Horticulture. I had offers from both Reading for Horticulture and St. Andrews for Botany. I loved both. Then one bitter afternoon over in Cumberland we visited a house with ample gardens and a huge orchard. The unfortunate lady responsible for tying back the espaliered apples had frizzy hair with a woolly bobble-hat pulled down low, three pairs of gloves with muddy fingers poking out at the ends, jumpers, body warmers, trousers with muddy knees, and big boots. I don't mind mud, I'm all for comfy, shabby woollies, but what I did mind was her red, cracked face like a North Sea fisherman, the cold wind, and the fact that she was going to be pruning *in the cold* for *another month*! She had *graduated from Reading***!!!** So *I* went to St. Andrews! Botany and warm greenhouses beckoned.

With a not particularly wonderful degree under my belt, I went to live in Surrey and answered a very small ad. in *The Guardian* for a Scientific Officer at Royal Botanic Gardens Kew – and got the job. The job primarily involved correcting the errors in the *Index Kewensis* database. The boss, Mark Coode, felt so bad about such a boring job that he let me and my colleague, Linda Gagg, attend Classical Latin lessons so our brains wouldn't atrophy. They were taught by a retired schoolmaster once a week to anyone interested. At this point also, I found out that the deciding factor in Kew's offering me the job, was my failed Latin O-level. Another fact to come out 15 mins into Lesson 1 was that the authors of Reading Latin admitted that their course did not work, and that it is impossible to osmose Latin grammar. They had revamped the course completely, and produced a really good one, which included nouns laid out in neat tables so you could chant them if you wished. By 1988, and 948,878 records later, IK was clean and tidy, and I was put on to help Dick Brummitt compile *Authors of Plant Names*, and organise a symposium. This is when I first met Alex. Then in 1991, an Australian Botanical Liaison Officer Philip Short turned up at Kew, he liaised with the natives, and we got married, and by Nov 1992, I was in Melbourne, and in Jan 1993 I took up freelance work with the *Australian Journal of Plant Physiology*, *Australian Journal of Botany* and *Australian Systematic Botany*. I corrected the Latin and loved doing it. I was even sent off with money to buy a decent dictionary.

We moved to Darwin in 1996 with two small children. I did a variety of freelance work, and

in 2004 I taught a six-week course of Botanical Latin to the Herbarium staff. For the course I prepared what I called my Aide-Mémoire which listed the different parts of speech, with lots of examples, and that I think filled a gap between total ignorance of grammar and the level of understanding required for William Stearn's book *Botanical Latin* – William Stearn being the Botanical Latin guru. In 2007, as a result of that, I taught a two-day course for the Australian Systematic Botany Symposium workshops and 20 people attended. And they all came back on the second day. The workshop was written up in the *ASBS Newsletter* and Alex read about it, and contacted me to ask if I'd like to combine my Aide-Mémoire with his course notes, and produce a book.

At some point he came to stay with us so we could go over the text thoroughly, and it dawned on us that we'd have to compile a glossary. I did A and B and a bit of C. Alex's other work lessened and he compiled masses, before handing it back to me (while he was away on holiday) to do H. He returned from his trip, promptly asked for it back and did almost all the rest, except for a bit of X, Y and Z. Every now and again, I'd send him a note asking him for it back so I could contribute more, but not weeping salty tears if he kept it, which he did. I can tell you, getting H back was a shock!! X, Y and Z were almost complete, and were great to finish off. Overcome with guilt, I took to haunting the Herbarium library and reading glossaries, I learnt all sorts of interesting words to do with fungi, diatoms, mosses, liverworts, ferns, and algae. Matthew Barrett even sent me a fungus glossary as he saw how keen I was, and it was a particularly good one. Also to make up for my laziness, I insisted that I should write the exercises. They were a nightmare, but my very good friend in Britain, Vivienne Kent (with whom I giggled in the back of A-level Biology taken by Edward Mason, and Betty, his wife) agreed to check them, as she likes things like hieroglyphs, cuneiform script, so a very big thank you is due to her. She found an unbelievable number of errors, for which I was very grateful.

Botanical Latin as a required language for publishing new taxa was abolished at the International Botanical Congress in June 2011, my man on the spot – Philip rang me 10 minutes after the vote to tell me. I felt like going into a decline, but, by this stage CUP were very interested, and the Commissioning Editor, after a brief Council of War, suggested we add a couple of extra chapters which we did, and Alex braved the Darwin heat of early September 2011 so together we could crunch our way through the text *yet again* and add chapters on how to form Specific Epithets and how to translate a diagnosis from Latin into English.

So – finally, thank you to all family, friends and colleagues who helped, encouraged and provided advice, a very big thank you to Charmaine for the wonderful cover, with such lovely colours, and an even bigger thank you to Alex, for coming up with the idea in the first place, and compiling most of the glossary, and for keeping our noses to the grindstone.

Finally, thank you to all the editors at CUP, and the unfortunate Suresh Thiruvagandam in India who had the unenviable task of of trying to fit:

> Nominative *arachnoideus arachnoidea arachnoideum* nominative *arachnoidei arachnoieae arachnoidea.*

all into one line!

Thank you.

Emma Short, Darwin

Alex's speech

For this launch it seemed appropriate for me to return to the place where my association with Latin started. Wesley was a rather different place in 1951, much smaller than now in both buildings and people. Our classrooms for First to Third Years were on the other side of the Quadrangle. After the Junior Certificate, out of my class only I continued to study Latin, so I had a one-to-one student-teacher relationship. For Fourth and Fifth Years my teacher and I retired to a small room in the dormitory block for my lessons. I was fortunate to have the same teacher right through the five years, Ted Price, who we knew as 'Foureyes' because he wore glasses. Interestingly, Dr Rossiter, the headmaster until 1952, had a Latin nickname, 'The Bunt'. In earlier years he had taught Latin and would try to instill the ending of certain plural verbs by saying '*bunt*, boy, *bunt'*.

To begin with I learnt Latin because it was a standard subject for First Year. I found that I liked languages (I also studied French) so

continued with both to the Leaving and then on to University. At the time I knew nothing of botanical Latin, and no inkling that I would ever use the language in my career, let alone write a textbook on it. It was only after starting at the Herbarium in 1959 that I became aware of its use in botany and began to appreciate the advantage I had in knowing the language. Since then there would not have been a week when I haven't used it for one reason or another. It has helped not only for translating to and from Latin but in understanding grammar and the formation of many English words, not to mention the meaning of scientific plant names.

In 1965 appeared a quite wonderful book, *Botanical Latin*, by the English botanist William Stearn. This contains almost all you could need on the subject, and has been very successful, going to four editions and a number of reprintings. In recent years, however, most systematic botanists have kept the descriptions to be translated to a minimum, and hence the need for great detail has diminished. Hence there appeared to be a vacancy for a concise work with just the essential basics of the language. Further, at the XVIII International Botanical Congress in Melbourne in 2011, the rule requiring any new plant to be described in Latin was discarded. Latin may still be used, but English is an acceptable alternative. Of course, botanists will always have to translate earlier texts that are sometimes written wholly in Latin, so we hope there is a place for our book.

The first real suggestion for a book like this came during a council meeting of the Australian Systematic Botany Society in the late 1970s. It remained only a suggestion, however, until a few years ago. Quite independently, Emma and I were asked to give courses in botanical Latin, Emma in Darwin and I at the Western Australian Herbarium. Emma has commented on hers, but for mine I realised from the start that if I set out my course notes properly they might be turned into a book. Early in 2007, I read in the *ASBS Newsletter* that Emma had given her course, so I contacted her to suggest that we combine our efforts. The result: *A Primer of Botanical Latin with Vocabulary*. We exchanged our course notes and combined and refined them, then had a workshop in Darwin to go through the whole text. For the vocabulary we began by going through that in Stearn's book, taking it in turns to go through each 'letter'. For conciseness we omitted several hundred of his terms that are never used in descriptions these days, but we realised that there were many terms for non-flowering plants (algae, fungi etc.) not in his list, so we added these. We can admit that we included two terms for which we could find no Latin equivalent, so constructed them. Perhaps we should leave it as a challenge to users to find them!

Throughout the project we corresponded with colleagues locally, around Australia and overseas. We were especially chuffed that Dick Brummitt at the Royal Botanic Gardens, Kew, who we had both been associated with over many years, agreed to write an endorsement that appears on the back cover.

Once CUP agreed to publish the book, we asked if we could have the cover designed here by Charmaine Cave and were very pleased that they agreed. Charmaine suggested several designs but the one we have almost chose itself. It has added another personal touch because the specimen used for the image came from my garden. We take a kind of perverse pride in knowing that, from the southern hemisphere, we have produced the kind of book that traditionally has come from Europe or North America. So, the cover, featuring a plant whose name means 'well covered', will remind users that we in the antipodes can do it. Charmaine, a very big 'thank you' for your design. It's very fitting that your name appears on the cover for the world to see.

That leads me back to school, for Wesley College's motto is in Latin – '*audendo atque agendo*'. You will all recognise *instantly* that these are gerundives from the verbs *audeo*, *audere*, to dare, and *ago*, *agere*, to do, both in the ablative case, connected by the conjunction *atque*, and—that is, 'By daring and by doing'. I think that in various ways during my career and life I have lived up to this. I would like to think of 'Foureyes' looking on today with benevolent pride.

Finally, thank you all for coming. To slightly paraphrase Caesar … *veni*, *vidi*, *vexi* (I came, I saw, I carried) – a hint to buy a copy.

Alex George
'Four Gables', Kardinya, WA

New books

A new book on Edward John Eyre

Eyre: The Forgotten Explorer.
By Ivan Rudolph. Harper Collins Publishers Australia, September 2013. Hardback, trimsize 240 x 165 x 37 mm: pp. 416; price $39.99; ISBN: 9780732297152; ISBN10: 073229715X. eBook: download options Adobe DRM EPUB; price c. $20.00. ISBN: 9781743099797

The new book on Edward John Eyre (1815–1901), for which the publisher's blurb is reproduced below, concentrates on Eyre's 1841 traverse of the Nullarbor. Eyre did collect botanical specimens on his expeditions, but not all of them survived and whether this is one of his expeditions where they did is not known.

For our New Zealand brethren, Edward John Eyre later became lieutenant-governor of New Zealand from 1846 to 1853.

> Edward John Eyre was one of the bravest explorers to tackle the unforgiving Australian outback - and one of the youngest. Lake Eyre, the Eyre Peninsula, the Eyre Highway that traverses the Nullarbor between Adelaide and Perth and many other landmarks are named after him - so why do Australians know so little about him today?
>
> In this new biography, Ivan Rudolph shows how this idealistic young Englishman - still in his teens when he arrived in New South Wales in 1833 to seek his fortune - transformed himself into a rugged frontiersman, taking up farming and later overlanding cattle to Melbourne and Adelaide. But it's Eyre's attempt on the Nullarbor that was the peak of his Australian career. Determined to find an overland route to Perth, he left Adelaide with a small party on 24 February 1841.
>
> Using Eyre's own journals and other sources, Ivan Rudolph relates their journey step by step - and it makes for gripping reading. Beset by the harsh terrain, a constant lack of water, food rations running low, the danger from hostile Indigenous people and dissent - and worse - among Eyre's companions, could Eyre achieve his ambition and find a way across the Nullarbor?
>
> Based on original documents, letters and previously unpublished material, this fascinating portrait reveals a young pioneer who led an adventurous life in the early years of the colonies. Truly a forgotten hero of Australian history.

Banks Peninsula plants

Plant life on Banks Peninsula. ***By Hugh D. Wilson. Manuka Press. www.manukapress.co.nz/Plant_Life_on_Banks_Peninsula.htm***

This is the crystallisation of what Hugh Wilson has found out about plants on Banks Peninsula, which lies on the southern perimeter of Christchurch, after nearly a lifetime of living and working there. It is a substantial book, beautifully illustrated with hundreds of Hugh's drawings, with photographs from several local photographers, and with readable, accessible text that will be enjoyed by both interested lay people and professional botanists. More than an identification manual, this is an extraordinary account of the natural history of an extraordinary place. The book is 420 pages in landscape format (260 mm by 240 mm) with over 500 detailed drawings (160 in full colour) and over 60 colour photographs. To be published in Spring 2013 (due for shipping on 15th October 2013) it can be ordered on-line through the Manuka Press website.

Paraphrased from the Canterbury Botanical Society newsletter, Dean Pendrigh, editor.

New guide to National Parks of South Australia

If you are visiting South Australia's National Parks or want some information on them a new, very colourful guide has just been produced. It can be bought as a book or downloaded from the Govt environment department website (Web ref. 1).

The information is fairly basic but might be useful for those planning field work in South Australia.

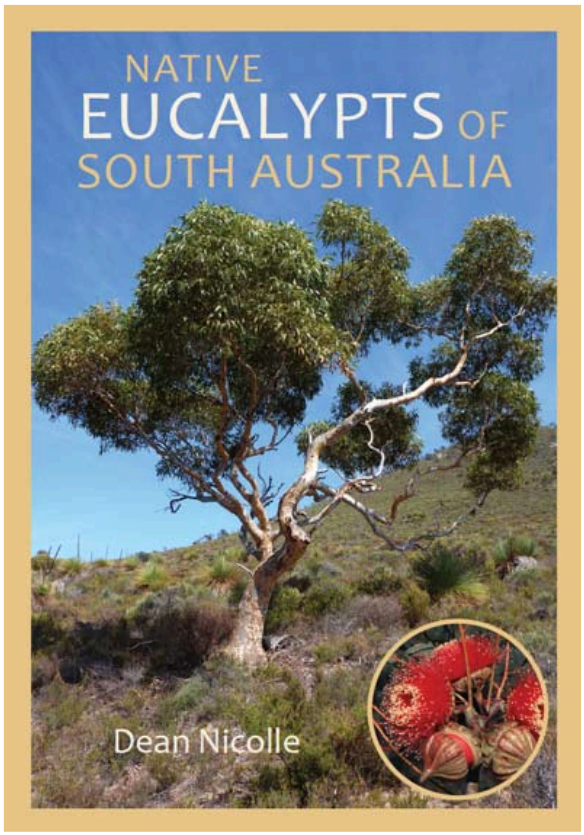
Web ref. 1. *www.environment.sa.gov.au/parks/Find_a_Park/SA_National_Parks_Guide*

Book reviews

The best of *Eucalyptus* identification guides

Tony Bean
Queensland Herbarium, Brisbane

Native Eucalypts of South Australia.
By Dean Nicolle
Published by D. Nicolle, Adelaide (2013). 238 pp. ISBN 9780646904108.
RRP AUD $35.00 (paperback)
www.dn.com.au/Eucalypts_of_South_Australia.html[1]



Dean Nicolle published a guide to South Australian eucalypts in 1997. The present book is not a revision of that, being entirely rewritten and using new distribution maps and digital imagery. One hundred and three taxa are covered, all with a double page spread. The book measures 26.5 x 18.5 cm, and is definitely small enough and light enough to go into the backpack or into the car alongside the bird books and the wildflower guides.

Nicolle devotes four pages on how to use the book, where each section is comprehensively explained. A further introductory section outlines the major characters that are used in the delimitation and identification of *Eucalyptus* species, and there is a page on habitat and another on hybrids and intergrades. All these pages are well written and beautifully illustrated.

I went straight to the species treatments, which make up the bulk of the book. They are stunningly good. The editor and producer (Annett Börner) is to be congratulated. The layout of the pages is ideal. The first page has sections on etymology, nomenclature, distinctive features, distribution and habitat, cultivation and uses, miscellaneous notes (usually how to distinguish other related taxa), and conservation status. The information is well written and consistent between taxa, and it is obvious that much editorial effort was expended. The page is not cluttered, with each paragraph well separated from the next. In the Notes section, exceptionally tall or large specimens are documented for some species. The distribution of the taxon is depicted as a brown fill on a map of the state. With major roads and lakes shown, the map works well and it is evident at a glance where each taxon may be found.

The language and terminology are generally easy to understand, with one exception. The author uses the term "waxy" very often when discussing the morphology of various species.

[1] This web page has a list of stockists and a mail order link, as well as all the supplementary material for the book

I was very unclear about what this actually means. I know about bee's wax, candle wax, and ear wax. Does "waxy" refer to the colour of one of these, or the texture? The author evidently thinks the meaning is plain, as the term does not appear in the glossary. I remained perplexed until I came to page 12, devoted to the morphology of branchlets, where there are photographs portraying "waxy" and "non-waxy" buds and fruits. It appears that waxy *sensu* Nicolle is pruinose. Why not just use the term pruinose throughout, particularly as pruinose is explained in the glossary?

The second page consists mainly of photographic images, plus a taxonomic description in the bottom-right corner. Almost every image in the book is of a high quality. All images of whole plant and bark were taken in the wild, in sunny conditions with the sun behind the observer. The buds and fruits portrayed are ideal, in that the buds are mature or nearly so, and the fruits are similarly mature. The fruits are all photographed fresh, so that the valves are closed. In the field, it is dry, opened fruits that are most often encountered. Hopefully, the reader can extrapolate from the appearance of the unopened fruits to the opened ones. Many of the images of buds and fruits are from Nicolle's arboretum, and many have a pleasing neutral grey background. There is no scale bar for the bud and fruit photographs, but because the measurements are given in the description, this is only a minor deficiency. The botanical description is in all cases comprehensive, informative, and carefully drafted. It takes up only a small portion of the page, reflecting the fact that many people do not use or value a detailed description. For several species, the author uses the following phrase "outer stamens lacking anthers (staminodes)". This is ambiguous – it could be interpreted as meaning that staminode is another term for anther. It would be much better to stick with one or the other i.e. staminodes present OR outer stamens lacking anthers.

Spelling errors are few and far between; *Eucalyptus 'pilbaraensis'* (pages 50 & 232), should in fact be *pilbarensis*. The acronym for the herbarium at Florence is incorrectly given as FL on p. 156, but correctly as FI on p. 112.

The nomenclature section has been very well done, and is up to date, with the exception of the type details for *E. camaldulensis*. Since the acceptance by The Nomenclature Committee for Vascular Plants of the conservation proposal by Brooker & Orchard, the type is no longer the collection by Dehnhardt held at Vienna; it is a collection made by Nicolle himself from near the mouth of the Murray River.

Two new subspecies of *Eucalyptus cladocalyx* are formally described in the book, subsp. *crassa* and subsp. *petila*. All three subspecies are geographically disjunct, with the typical subspecies confined to the Eyre Peninsula. Two taxa have had their rank altered; *E. alatissima* (formerly *E. kingsmillii* subsp. *alatissima*), and *E. ovata* subsp. *grandiflora* (was *E. ovata* var. *grandiflora*). The author has fulfilled all the requirements of the ICN so these are validly published. Some readers may be bewildered by the proliferation of subspecies in *Eucalyptus* in recent decades, and Nicolle is an avid devotee. I feel it is a necessary evil. In a complex and actively evolving genus like *Eucalyptus*, it is often not possible to pigeonhole populations into discrete species, and subspecies offer a useful way of documenting the variation that is observable in the field.

Nicolle has resurrected some names from obscurity, notably *E. cajuputea* Miq., which has long been considered a synonym of *E. odorata*. *E. capitanea* Johnson & Hill has been newly accepted by Nicolle for a taxon related to *E. incrassata*. *E. polybractea* is newly recorded for South Australia, after the author concluded that South Australian populations, often referred to as an undescribed species, do not differ significantly from those of *E. polybractea* in Victoria and New South Wales.

The book does not include a key to species, but the author refers readers to a dichotomous key written by him, and available on the Internet.

I have no hesitation in recommending this marvellous book to anyone with the slightest interest in eucalypts. In fact, it is my opinion that this is the best identification guide to eucalypts that has ever been published.

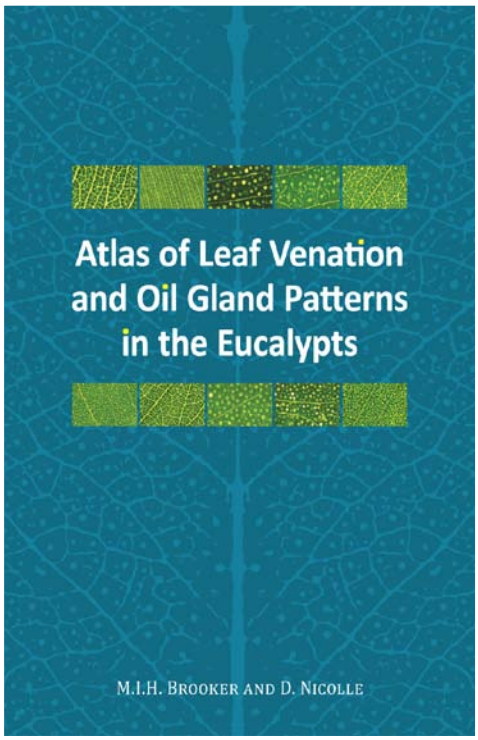
Turning over a new leaf

Bob Hill
Faculty of Sciences, University of Adelaide

Atlas of Leaf Venation and Oil Gland Patterns in the Eucalypts. ***By M.I.H. Brooker and D. Nicolle***
CSIRO Publishing, Collingwood, Victoria. 2013.
232pp. ISBN: 9780643109858. RRP AUD $130 (hardback)
www.publish.csiro.au/pid/7083.htm

The aim of this book is stated in the very first paragraph of the introduction

> We intend this work to be an aid in field identification and for confirmation of natural affinities between species and higher level taxa on the basis of their comparative morphology.



Given the book is dedicated to leaf morphology, and especially venation pattern and oil gland density, it attracted my attention as a palaeobotanist who has spent most of his career looking at fossil leaves. I am certainly not a eucalypt expert, but I thought I knew what a eucalypt leaf looked like and I am obviously keen to find evidence for this taxon in the Australian macrofossil record. I got the strong feeling that this book is designed to be used in conjunction with either a very good working knowledge of eucalypt taxonomy, or access to a library of other works on eucalypt identification. I had neither of these advantages, but I also think it is reasonable for a book to be a stand-alone item, unless very specifically stated otherwise. To invest (in this case a quite considerable amount of) money, only to discover you have purchased part of the solution, is not reasonable.

This book is basically a manual of leaf venation and oil gland prominence, distribution and density in a subset of eucalypt species that are a fair representation of the entire group. Photos are presented in a uniform way, and characters are either well described or quantified, or both. The authors go to considerable effort to make sure the user knows how to duplicate what they have done. The number of taxa involved and the nature of the project means that most of the book is a set of photos with quite brief descriptions. I suspect that if you know roughly what species you are dealing with, these data will be a useful aid in final identification, with the proviso that the format of the book hardly makes it a field guide. The need for photos of fresh specimens means that if you are really serious about using this book to check species identities (or at least some taxonomic level close to species), then you will need to either be prepared to take the right photos in the field and check later, or be prepared to take this rather unwieldy book into the field with you and check on the basis that you know roughly where to look. There is no key, and no way of easily narrowing the range of options to look at. Unless you know roughly where the answer is likely to lie, you may be in for a frustrating time trying to use this book in that manner.

What other purposes could this book achieve? It may be useful for people preparing detailed phylogenies of eucalypts and who are old-fashioned enough to think that morphology counts. My guess is that this could be quite important. It won't surprise me if, a generation from now, the general view of the research done on eucalypts up to this point in time suggests that we had homed in on some of the important truths about the big picture questions

on the origin and evolution of this major taxon (although there is clearly a lot of detail still to uncover), but we were a long way from properly circumscribing the species limits (if that is even the appropriate term) of eucalypts, and in fact we may be in a very messy place right now, with many more formally described taxa than is appropriate. Will this book assist us in the future to resolve any of these issues? Yes, it may well do, since it does provide a fresh avenue into new data.

As a palaeobotanist, looking through this book certainly demonstrated to me that eucalypt leaf morphology is far more variable than I understood. This was a useful learning exercise and will help me in future when examining the fossil record. A companion work (perhaps not a book though) on leaf cuticle morphology would be a welcome addition, although I acknowledge that it would probably excite a far smaller audience than this book.

In summary, this wasn't the book I was expecting, but then I am not sure what that book would have looked like either. On reflection, this is an important addition to what we know about eucalypts, and it is a pleasure to see that there is still room for high quality morphological research. I think we are seeing a return of morphology to the front page of research excellence and that is overdue. In the near future, we may need many more excellent morphologists than we have now, and books like this may well assist in getting young people inspired by the magnitude and diversity of the work that remains to be done. I doubt that anyone expects this book to be a best seller, but I do expect that it will earn its place in the small but important group of books that really do matter in explaining basic plant morphology in a way that makes a difference.

Plant form for practitioners and students of botanical art

Rod Seppelt
Australian Antarctic Division, Kingston, Tasmania

A Handbook of Plant Forms for Botanical Artists. ***By Ernest E. Clark and Margaret Stevens***
Batsford (an imprint of Anova Books Group), London. 2013
224 pp. ISBN: 9781849940726. RRP AUD $39.99
www.anovabooks.com/imprint-batsford

Ernest Ellis Clark (1869-1932) was a Derby-born artist who became an artist for Royal Crown Derby. He rose to become an arts instructor and later Arts Master at Derby College of Art, winning many prizes for art and becoming a National Silver Medallist in Ornament and Design.

Margaret Stevens is a former President of the Society of Botanical Artists, Gold Medallist and Course Director of the SBA Distance Learning Course in Botanical Art. She is also author of several books on botanical illustration.

The botanical text and drawings are taken from Ernest Clark's original edition of the book: *A handbook of plant form* (Batsford, 1909). This text and the accompanying illustrations have not been altered and they reflect the level of botanical understanding and nomenclature of the time. The illustrations may seem somewhat coarse and simplistic but they portray clearly both the necessary terminology and, with minimal embellishment, habit and form of the subjects.

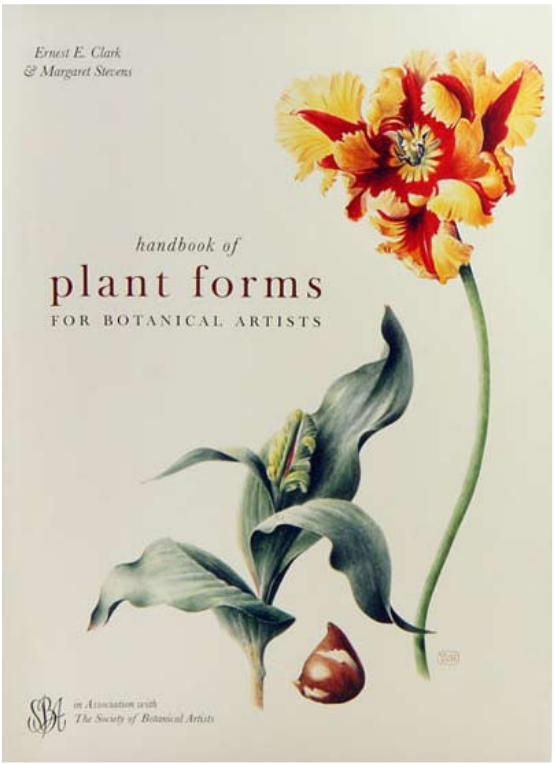
To supplement the subject material of the original book, Margaret Stevens was asked to provide an updated version and "make it relevant for today's botanical art students – or indeed anyone who appreciates fine botanical paintings and wishes to learn more about their creation."

As admitted by Stevens, to update a volume published just over 100 years ago is no easy task. A starting point was to address the continuing need for observation and drawing. An understanding of structure and form is fundamental to creating a scientifically accurate botanical painting. A concession to modernity is the rearrangement of the original text to reflect current concepts of familial order with the list of plants now arranged in alphabetical order of botanical families.

Three things have changed significantly since Clark's book was originally published. Firstly, it would now be difficult to find an establishment offering Botany as part of a degree course, thus providing a thorough understanding of plant

form, function and interrelationships. Secondly, in Clark's time there was a real hope that botanical art students would find employment in their chosen field. Thirdly, at that time, school students were given ample opportunity to study nature and children benefitted from art lessons at school. How times have changed.

From a botanical point of view, Clark's original illustrations may seem somewhat simple, but by the careful use of minimal line work they convey the need for careful observation of form and structure. The plates are minimally labelled but include frontal, lateral and reverse aspects of the subject, all vital aspects of a finished botanical art work. The accompanying text all but eliminated the need for detailed labelling.



Margaret Stevens has included some 62 modern examples, from 32 identified artists, of the original plant subjects or closely related taxa. Most of these plates are full colour, several in graphite (pencil) or mixed graphite and colour. Accompanying the plates is a critique by Stevens of the artwork and, for the most part, an indication of the colour palette used. Comments on particularly difficult or finely executed aspects of the work, principles of composition, and occasional suggestions for improvement are of particular benefit to the botanical artist.

It is easy to be critical of the end product of any book. Personally, I found the quality of the printing of the recent illustrations a little disappointing. They would have benefitted from the use of a finer print screen. For example, the reader is invited to examine with a magnifying glass one of the graphite works (a frontal view of the flower of *Papaver orientalis*) in order to appreciate the quality of the shading control using very fine pencil strokes. Sadly, as with all the recent plates, such detail is difficult to appreciate (x10 hand lens) because of the coarseness of the print screen lines. However, a finer print quality may also have resulted in a much greater publication cost and retail price.

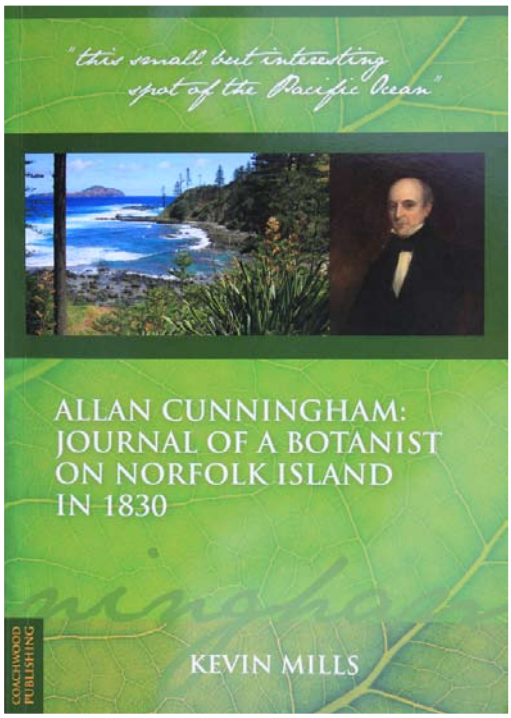
So, does Steven's update of the original work succeed, with such contrasting styles and intent? To me, it works because in Clark's original the form of leaves, buds, flowers and fruits is clearly shown by simple line work and the original text is succinct and informative. This aspect of the work is directed to the aspiring botanical artist rather than to the student of botany. The recent plates should be viewed from the aspect of a botanical artist. Stevens' comments on the painting style and compositional aspects are particularly valuable. However, their use is perhaps more for the practised artist than for the student, since a step-wise approach to the finished artwork would be more appropriate in a book solely aimed at the techniques of botanical art. It would appear, however, that most modern botanical artists rely on using an array of pre-mixed proprietary colours rather than having a deep understanding of primary, secondary and tertiary colours and how a plethora of colours can be created from a very limited palette.

The book is a useful reference for the botanical artist: the original text and illustrations for the student; the recent plates with their accompanying critique and comments for both student and botanical artist. Stevens' text could have benefitted by some more careful proof reading but this does not detract from the finished product.

Allan Cunningham on Norfolk Island

A.E.Orchard
c/o Australian Biological Resources Study, Canberra, ACT.

Allan Cunningham: Journal of a Botanist on Norfolk Island in 1830. ***By Kevin Mills.***
Coachwood Publishing, Jamberoo, NSW. (2012)
98 pp. ISBN 9780646579900. RRP AUD $25 (paperback)



Allan Cunningham (1791–1839) is rightly remembered as Australia's foremost botanist/explorer in the early 1800s. For over 20 years he was involved in most of the major exploring expeditions, including that of Oxley (1817) into inland NSW, with P.P. King on four coastal survey expeditions in northern and north-western Australia (1817–1822), and to Tasmania (1819), as well as numerous expeditions of his own into inland NSW and southern Queensland (1817–1831). Curry *et al*. (2002) provided a useful summary. During much of this time he kept a detailed journal of his day-to-day activities, as well as lists of species collected, draft descriptions of new taxa, and details of the geography and geology of the country he passed through. Sadly, much of this original material has never been published. The most complete transcription is that of Ida Lee (1925), where large parts of Cunningham's journal were published, but abridged in part, and with much of the detailed botanical content omitted. One reason why the remainder has not been published is its sheer volume. I began a project to publish the journals a few years ago, and quickly discovered that they would fill five large books, even before the addition of illustration, annotation and interpretation!

It is thus pleasing to see that Kevin Mills has made a start on the important task of transcribing and interpreting this important part of our botanical history. In around 100 pages he presents a full transcript of the journals and plant lists compiled by Cunningham on a 4-month trip to Norfolk and Phillip Islands from 10th May to 11th September 1830, along with background notes on the man, the history of exploration of the islands, the geology and natural history of the island, and a full interpretation of Cunningham's notes and collections.

This was Cunningham's last major expedition in Australia. He had been based in Parramatta, New South Wales, since December 1816, employed as a plant collector for the Botanic Garden at Kew. For several years prior to 1830, he had been asking his supervisor, William Aiton, Superintendent of Kew, to have him recalled. He was in poor health, and worn out by over 20 years of strenuous expeditions, in harsh climates, eating generally poor food. Aiton consistently ignored these requests – Cunningham was Kew's last and one of its most successful collectors, almost the last man standing from a golden age of plant collecting dating back to the end of the 18th century. Cunningham was in fact to be recalled weeks after his return from Norfolk Island, not by Aiton, but by Treasury, who were paying his salary and expenses, and were in the midst of cutting expenditure. He was, therefore, the first Australian botanist to be the victim of a government "Efficiency Dividend"!

Cunningham had long contemplated a visit

to Norfolk Island, but an opportunity had not presented itself. Norfolk Island was occupied as a convict settlement in 1788, and remained so until 1814, when it was abandoned. It was not re-occupied until 1825, again as a convict settlement. Thus for much of Cunningham's time in New South Wales, there was no available transport that would allow him to reach and explore the island. By 1830, however, there was a population of about 1200 convicts, 180 soldiers and a small number of free settlers, and they were supplied by irregular, but reasonably frequent ships from Sydney. Cunningham also wanted to revisit Tasmania, where he had had a fleeting stay in 1818-19, and his plan was to spend just a few weeks on Norfolk Island, return to Sydney, then travel to Tasmania for an extended Spring-Summer collecting expedition. However, his return to Sydney from Norfolk Island was severely delayed by lack of a ship (the vessel that had taken him there, the *Lucy Ann*, was detained in Sydney for urgent repairs), and his trip to Tasmania had to be abandoned because of the lateness of the season. Cunningham never did revisit Tasmania.

The book is made up of seven Chapters. The first two describe the background to Cunningham's visit, and the physical attributes, history, natural history and management of Norfolk Island and its sister islets. The next is a transcription of Cunningham's travel to, and activities on, Norfolk Island itself, from 8th–21st April. There is little detail of his day-to-day excursions, except that he gradually extended his 'walks' to encompass the entire island. The chapter largely describes the settlement, and the general character of the island. Chapter 4 is a discussion (by Cunningham) of the botany of the island, and a list of the plants that he had found. Chapter 5 is a further transcription of Cunningham's journal, describing a week's excursion to Phillip Island in the second half of June, notable for two occurrences. On Phillip Island, Cunningham was the last to collect *Streblorrhiza speciosa*, an endemic pea species, which shortly afterwards became extinct, eaten by the goats, pigs and rats swarming on the island. Also on Phillip Island, Cunningham and his three servants were robbed by a party of 11 convicts, who had stolen a boat from Norfolk Island. Cunningham and his party were relieved of their tent, clothes, cooking utensils, cask of water, and all portable property before the convicts sailed off in their boat, never to be seen again. Cunningham and his party were rescued by another boat from the settlement two or three hours later. The final transcription chapter covers the period from then until Cunningham finally arrived back in Sydney. The book ends with a brief summary of Cunningham's career, and two Appendices, one a glossary, the other a list of plants collected by Cunningham on Norfolk and Phillip Islands. The list gives Cunningham's original names, their current names (apparently taken from Flora of Australia vol. 49), and their common names.

The book is well illustrated, with contemporary or near contemporary plates (most in colour) from a range of sources, plus numerous photographs taken by the author. These illustrations are in general good, although some of the modern photographs are a little over-saturated. There are a number which were new to me, including photographs of Cunningham's wooden travelling chest, "No. 1", which is still held by the Royal Botanic Gardens, Sydney.

The scholarship throughout is thorough, although I did note a few slips. One of these is the statement, made twice, on page 1 and on page 69, that Cunningham was "Government Botanist" in New South Wales throughout his stay there. This is not true. From 1816 until 1831 Cunningham was employed by the British Treasury to collect plants for the King's private garden at Kew. On those occasions in which he referred to his position, he called himself "His Majesty's Botanical Collector". His immediate superior was Banks until the latter's death, then Aiton, not the colonial government. The Colonial Botanist of New South Wales was Charles Fraser, from about 1816 until his death in 1831. He was succeeded by Richard Cunningham from 1833 to 1835. Allan Cunningham was appointed in his brother's place, serving as Colonial Botanist only from February to December 1837. In the Glossary, "suffricose" should, I think, be "suffruticose". The transcriptions read true, and there are very few [unclear words]. Cunningham's handwriting is not always easy to decipher, and his phraseology was a little old fashioned, even compared with his contemporaries. Cunningham frequently used contractions, and in these cases the last letter or two were

superscribed (e.g. S^{ly} for Southerly). The author faithfully transcribes these contractions, but does not use superscripts. This sometimes looks odd. In the example given, S[outher]ly becomes Sly. This is not a major problem – the meaning is usually clear – but could have been improved.

The author notes that Cunningham recognised that at least 16 of the plants that he had collected were new, and, in his plant lists, supplied Latin diagnoses. He notes that these manuscript names and descriptions were never published, and claims that Cunningham published little. The reason these names were never published is because Cunningham found, shortly after his return to England in 1832, that Endlicher (1833) had published a flora of Norfolk Island, based mainly on Bauer's collections of 1804–5, and had effectively gazumped him. Had Endlicher not published his work, there seems little doubt that Cunningham would have written his own Flora (he was certainly capable of it – between 1836 and 1839 he published a serialised Flora of New Zealand in the *Annals & Magazine of Natural History* and in the *Companion to the Botanical Magazine*). For the rest of his life he accumulated notes on additional Norfolk Island plants. Also, the claim that Cunningham published little does not bear scrutiny. As I will show in a paper recently submitted for publication (Orchard, unpublished), Cunningham actually published descriptions of large numbers of taxa under his own name, although many were buried in the publications of others (particularly *Curtis's Botanical Magazine* under the editorship of William Hooker), and hundreds more were published by others, picking up Cunningham's manuscript taxon names.

So what is the verdict on this book? I found it well written, easy to follow, and well illustrated. The content (despite a few reservations which are listed above) is well argued and informative. I found the italic font in which the transcripts are written a little fussy, but the book in general is well produced and sturdily bound. Above all, its merit lies in finally bringing to print an important historical Australian document, nearly 200 years after it was written. Cunningham was the last botanist to see Norfolk Island with its vegetation largely intact, and his eye-witness account is valuable for that reason. The book is modestly priced, and this, plus its interesting content, qualifies it for a place in any good library of Australian botanical books. I recommend it.

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A botanist's delight!
More on the Otways flora

Michelle T. Casanova
Royal Botanic Gardens, Melbourne

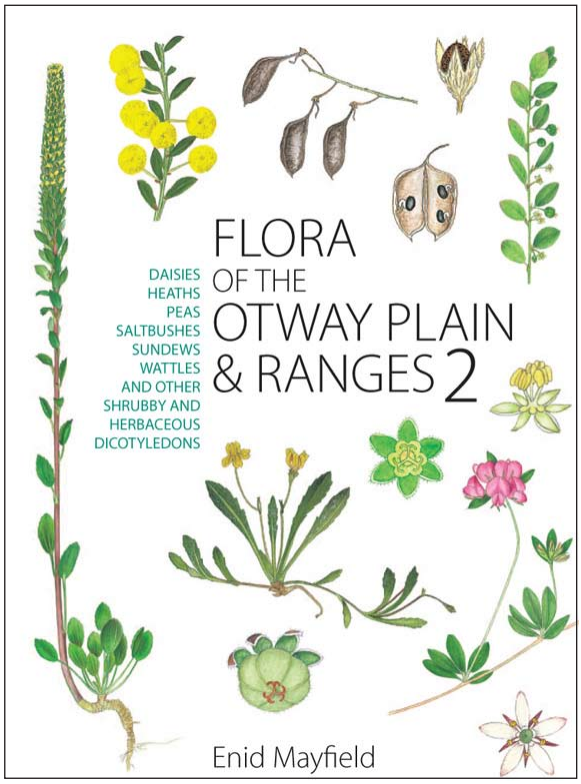
Flora of the Otway Plain and Ranges 2: Daisies, Heaths, Peas, Saltbushes, Sundews, Wattles and other Shrubby and Herbaceous Dicotyledons. ***By Enid Mayfield.***
CSIRO Publishing, Collingwood, Victoria. 2013
436 pp. ISBN: 9780643098060. AUD $59.95 (paperback)
www.publish.csiro.au/pid/6521.htm

I was really pleased to get this book in the mail. The place of interest (Otway plains and ranges) is close to where I live, so many of the species are familiar to me. We all face the same problems when providing a guide to flora: how to interest the non-botanist and assist them to identify plants without being too technical, but also how to provide enough detail to distinguish closely related species. This book achieves both aims nicely.

Enid Mayfield's treat-ment covers more than 480 species within the group specified (daisies, heaths, peas and other herbaceous dicots) in 75 families and 200 genera. Each species is illustrated with diagnostic characters, and always a coloured illustration of the plant

characteristics in life.

The 'How to use this book' section is complicated, but not as complicated as a key to families or dicots. There is a really good use of colour and boxes. On every page, a contents guide is presented in the upper right (or left)-hand corner. It helps to have a bit of a clue as to what you're looking at, and also the scientific arrangement of species into genera and families. However, if you only know the common name you can find the plant you want by referring to the quick plant finder where common, scientific and family names are listed. If you really have no clue, the different families are listed and characterised, so it's a start if you have the plant in front of you. If you already know the family they are listed alphabetically through the book. The genera and species are then arranged within each family, alphabetically.



I've used lots of guides, floras, information booklets etc. but this one is probably the best. It has a good layout and arrangement. In contrast to guides that arrange plants by colour of their flower, in this treatment, if you think it's a daisy, you will find all the daisy relatives close together. If it's a pea, they're all there together, with all the colours and colour combinations.

What makes this book different from most floras is that the person identifying the species has had the living plant right there, for illustration and to help determine distinguishing characters, and it makes a real difference. The other difference is, of course, that the number of species dealt with is a subset of the Victorian flora, so examples given of each genus are quite likely to be the one or two species in the genus that occur on the Otway plains and ranges. So in Haloragaceae there three species of *Gonocarpus,* three species of *Haloragis* and two species of *Myriophyllum*. There can be no confusion, really. The illustrations are accurate and well laid-out.

The only problem I have with the book is that it has a very narrow geographical range (as indicated by the title). I'd love to have a similar guide to western district flora. Despite that, I know I'll use this book, probably as a first point of reference to living plants. If my specimen doesn't match then I'll go to the Victorian flora, as usual. I would recommend this book to any amateur, and for professionals. It's a delight to use and look at. I don't have volume 1 (monocots) but I'll be buying it next chance I get.

A drinking companion for the botanically inclined

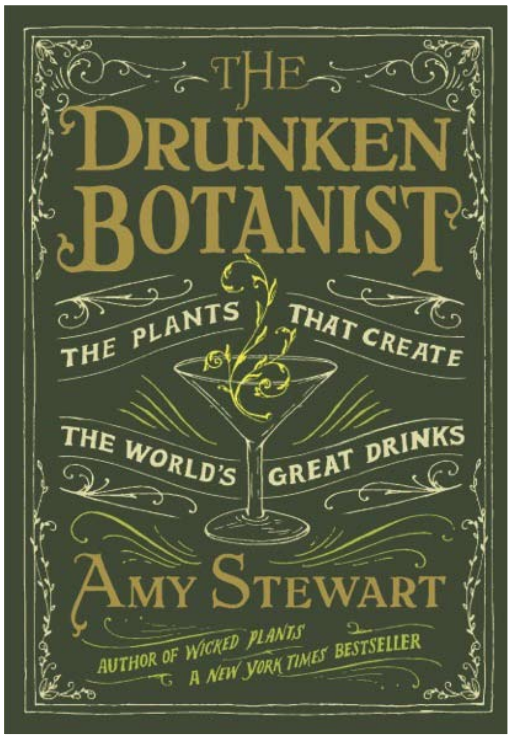
Tim Entwisle
Royal Botanic Gardens, Melbourne

The Drunken Botanist: The Plants That Create the World's Great Drinks. ***By Amy Stewart.***
Algonquin Books, Chapel Hill, NC. 2013.
381 pp. ISBN: 9781616200464. RRP AUD $36.99 (hard cover)
www.amystewart.com/books/drunkenbotanist/

What a hoot. A brace of botanists walk into a bottle shop and gather ingredients for a fancy gin cocktail. Gin, they discover, is made of bits

of conifer, some coriander seeds, citrus peel and even lavender buds. They search for *real* tonic water, with extract of cinchona bark and *Saccharum officinarum*.

Their eyes opened, they realise the shelves are full of botanical concoctions. "This is horticulture! In all of these bottles!" From this revelationary excursion to a bottle shop in Portland Oregon, with a cacti expert from Tucson Arizona, Amy Stewart created *The Drunken Botanist* and a 'New York Times Bestseller'.



Stewart whisks us away on a breathless journey through the great, and not so great, alcoholic drinks of the world, satisfying that fundamental equation of life: carbon dioxide plus sunlight gives us sugar and oxygen, and that sugar with some yeast gives us alcoholic drinks (and I should add other subsidiary staples, such as bread and vegemite). It may sound nerdy but this is an infectious and intoxicating book.

The journey takes us from plants we turn into alcohol (grapes, barley, rice, corn and the like), to the infusions we add to some (herbs, seeds, fruit), through to the mixers (mint, lemon and for Stewart it seems, most often jalapeño). Within these three sections, the plants are considered in encyclopaedic fashion, in alphabetic order.

I got enough from the first plant, in the first section, to fortify me for many a plant inspired drinking session. I guess most people know tequila and mezcal (yes, that's how the locals spell it) come from the succulent agave. But I knew less about pulque, the poor cousin of those Mexican spirits.

Pulque is the product of a sexually frustrated agave. Agaves are sometimes called century plants, because they grow for many years without flowering, then bloom and die. They hardly live fast and die young, but in reality their life span is more like a decade than a century. Anyway, what the cunning Mexican pulque producer does is cut off the flowering stalk just as the plant readies itself for its once in a life time chance to reproduce.

After several months the base of the plant, now engorged with sap, is lanced, 'causing its heart to rot'. The rotten insides are scraped away, irritating the plant into producing an uninterrupted flow of sap at the rate of a gallon or so a day for many months. A single plant can produce more than a thousand litres before it shrivels and dies. All very anthropomorphic, but also very evocative and memorable.

Pulque is apparently not very nice to drink and rather low in alcohol (4-6 percent by volume). 'There are no dead dogs, nor a bomb, that can clear a path as well as the smell of pulque' according to the sixteenth century historian Francisco López de Gómara quoted by Stewart. It seems to be making a comeback in modern Mexico, although not yet competing with beer, that country's best selling beverage.

And that's not the end of the entry for agave. We learn of Pechuga Mezcal which is allowed to infuse over a raw chicken breast to balance the sweetness of added local fruit. Stewart recommends this one, and any tequila or mezcal made from 100% agave. Do avoid the mixtos, she says, which are made from a mix of agave and other sugars.

And so to B for barley... This book is a fascinating and stimulating romp through the plant world, using brewed beverages as a hook. And hooked you will be. The book is beautifully produced and bound, like an old-fashioned compendium or almanac. The

writing is racy but well-grounded. Alongside tales of discovery and inebriation, you get shots of horticultural advice and explications on botanical nomenclature, all laced with plenty of cultural and natural history.

Taking a few more sips from *The Drunken Botanist*, I learn about the beneficial chemistry of adding a few drops of water to your whiskey (and why it's not, in some cases, whisky); the truth about absinthe; how monkey puzzle seeds can be brewed, chewed and spat to create mudai; plus recipes for Prickly Pear Sangria, Bison Grass Cocktail and the Perfect Pastis (ingredients: 1 plane ticket to Paris, 1 summer afternoon and 1 sidewalk café). There is even a shout out for one of the tools of our trade, the International Plant Names Index!

With over 160 plants probed and exposed, Stewart does well to cover most of our favourite tipples. That said, I was little disappointed that cloudberry didn't make the cut. "Rare berries, gently ripened by long, light summer days and freshened by autumn mists are handpicked from the untamed Arctic wilderness to make Lapponia liqueurs" proclaimed the label on the back of the bottle I left in my last house. You know an alcohol drink is suspect when your son's friend, an aficionado of the goon, happily passes on this duty free gift to you nearly full. Let's just say it has a lingering palate, and goes well with *The Brothers Karamazov*, by Fyodor Dostoevsky, where it is name checked a couple of times.

I'm sure it's bad form to write a review when you are only part way through a book but I'm an advocate for responsible reading. In this case I want to savour the pleasure, prizing this book open with pot of brewed barley or flute of the very best fermented grapes. It's the perfect companion, along with my wife Lynda, to take on my next visit to a pub, café or botanical bottle shop.

Matters historical

Anthelme Thozet

A website devoted to Anthelme Thozet, primarily known to botanists as a plant collector for Mueller, is under construction by the Friends of Muellerville (Web ref. 1). Many of Mueller's collectors had considerable influence in their places of abode but Thozet had more impact than most in his home town of Rockhampton. Visit the site for background to this remarkable Frenchman who named his experimental garden after his friend Mueller and was involved in the establishment of the Rockhampton Botanic Gardens in 1869.

Web ref. 1. Thozets at Muellerville: history of Anthelme Thozet and family and his contribution to science in Rockhampton. *www.thozet.com*

Constance M. Eardley

For older Adelaide botany graduates, there is an article on C.M. Eardley, long-time lecturer in systematic botany (1950–1971) at the University of Adelaide, in the winter issue of the university's magazine, *Lumen* (Cook 2013). Somehow it misses the essence of the Miss Eardley we remember, but it is a useful addition, and it has a fairly typical photo of her in the field. We are not given sources or the relationship of the biographer. A touching obituary by three who worked for many years with her appeared in the *ASBS Newsletter* (Lange et al. 1978) and she features in other historical references (e.g. Robertson 1986; Orchard 1999, also Web ref. 1).

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Eds.

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ASBS publications

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

Australian Systematic Botany Society Newsletter No. 53
Systematic Status of Large Flowering Plant Genera
Edited by Helen Hewson, 1987

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

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Evolution of the Flora and Fauna of Arid Australia (book)
Edited by W.R. Barker & P.J.M. Greenslade.
Peacock Publications, ASBS & ANZAAS, 1982

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

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

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History of Systematic Botany in Australasia (book)
Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990

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

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AUSTRALASIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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

Membership

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

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

The Newsletter

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

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

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

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