

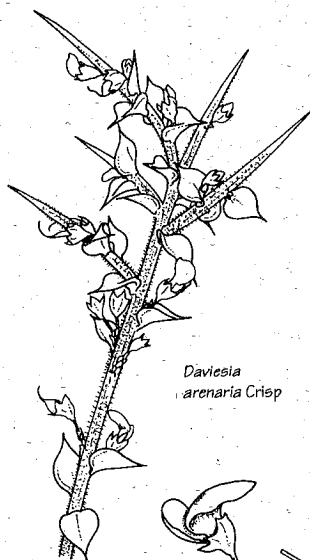


# Australian Systematic Botany Society NEWSLETTER

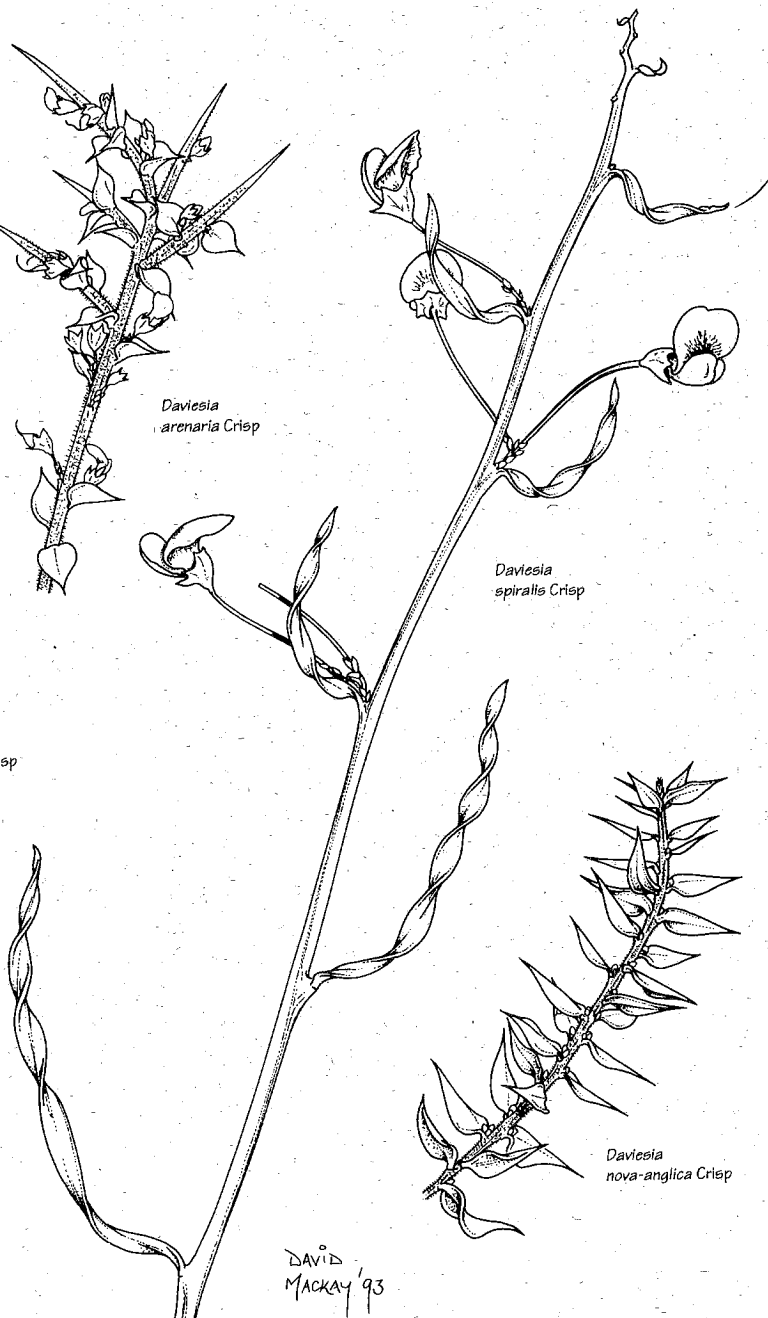
No. 79 June 1994



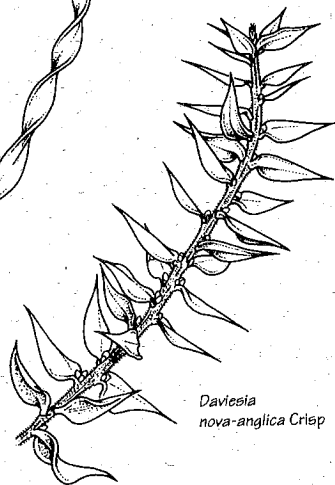
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## EDITORIAL

Well, for a couple of people who were conned (by Barry Conn, as you will recall) we seem to have been in the newsletter business for an extended period of time. As we have noted before, we are stopping one issue short of Gordon Guymer's record of 15 consecutive issues (3.75 years) as editor. Like all previous incumbents, we feel that it is time for a change (for us, not for the *Newsletter*).

The *Newsletter* has come a long way since its inception, and we hope that we've managed to keep it on the right track. The professional standards of production are not easy to maintain when you're doing the job in your spare time, although computer technology has improved in the past couple of years. The content, however, can be nothing more than a reflection of the interest shown by members of the Society itself.

One positive change during our time has been the increase in submissions that are received in computer format, either on a floppy diskette or via email. This makes the job of the editors much easier, and saves the Society in production costs; it also, to some extent, allays the problems caused by late contributions (especially from the Council).

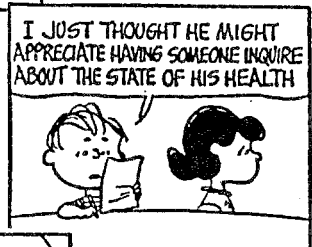
One way in which the *Newsletter* definitely did change during our time was in length. Starting at an average of 15 pages per issue in 1974, the length crept up over the years, reaching an average of 27 pages immediately prior to our stewardship. We managed to average 33 pages per issue, thus beating even Barry Conn's average of 30 pages. We're not sure whether this is a good thing, or a retrograde step. Part of this length was, of course, written by Dr Morrison, mostly comprising a series of unnecessarily-long book reviews. These were a by-product of the hour-long train trip that he has to work (on those rare occasions when he turns up, being an academic), which may also explain the slightly dissatisfied tone that has crept into the reviews themselves.

It has also been our lot to prepare a number of consolidated indexes to the earlier issues of the *Newsletter*. While the feedback indicates that these indexes are useful, they are certainly some of the most

tedious, monotonous, boring, tiresome, fatiguing, irksome, humdrum, soporific, somniferous, wearisome, dormitive and uninteresting things to prepare. The third part is enclosed with this issue of the *Newsletter*; there may be more to come.

We feel that it's appropriate that the editorship is returning to Perth, as it hasn't been there since 1980. We wish Nick Lander all the best with the job, and we hope that the contributions flood in for him (as they sometimes did for us).

David Morrison  
Barbara Wiecek



## ARTICLES

### The biodiversity crisis of the Pacific region

Barry Conn  
National Herbarium of New South Wales  
Royal Botanic Gardens  
Mrs Macquaries Road  
Sydney NSW 2000

#### Introduction

The recent "Biodiversity and Terrestrial Ecosystems" symposium (17–20 April 1994), held at the Institute of Botany, Academia Sinica, Taipei, Taiwan (Republic of China) raised a number of important issues about the loss of species diversity and general habitat destruction.

The symposium had three broad themes: (1) Biodiversity, (2) Terrestrial ecosystems, and (3) Plant diversity in the Pacific region. However, several presentations dealt with aspects of all of the major themes. The loss of biodiversity was reported from organisms as diverse as butterflies, fishes (both freshwater and marine), birds, bryophytes, mangroves and crop plants. In all cases, the primary cause of the loss of species diversity was directly linked to human activities.

#### Loss of biodiversity

It is disturbing to note that more than 10% of the native vascular plants of the Hawaiian islands are now formally listed as endangered, and at least 50% *should* be considered endangered in the biological sense, even if legal recognition has not yet occurred. Ninety-five species have become extinct since 1778. Several indigenous species are known by a single plant only (in the wild), and many species have been reduced to wild populations of less than 100 individuals. Tourists who follow the normal scenic route around Oahu (Hawaii) will not see one native species! In 1778, there were about 12 introduced plants in Hawaii, by 1888 there were 100 species, and by 1987 there were about 900.

There are approximately 9,000 species of birds worldwide, with about one new species described per year. However, one or two species of birds become extinct every year. It is thought that 1,000–2,000 species of birds have become

extinct in the Pacific Basin. It is expected that about 90% will soon become extinct in Hawaii. About 50% of the New Caledonian birds have become extinct in the last 1,000 years or so. One of the major causes has been the ever-increasing rate of deforestation. In Taiwan, the almost total conversion of the lowland woods, wetlands, and other natural habitats, to agriculture, industry, and urban use caused many bird species to become rare or endangered. There has been a shift in the species composition of these areas towards early-successional or human-dependent species.

The last four decades have seen a severe challenge to the continuing survival of Taiwan's freshwater fishes. Habitat alteration, over-exploitation, introduction of non-native species, and pollution have all contributed to their decline. At least 12 native species have become extinct, with at least 10% extinct in the last 50 years. Almost 50% of the 2,100 coral reef fishes are endangered by long-term overfishing, pollution, habitat destruction, and a growing trade in aquarium fish. Unfortunately, the conservation of marine fishes has received a disproportionately lower level of attention than have freshwater fishes and terrestrial animals.

Another disturbing trend is the dramatic reduction in the genetic variability of the various food crops, caused by the significant progress in plant breeding and rapid dissemination of improved cultivars providing increased productivity. Not only has this process quickly led to a widespread dwindling of genetic variability and diversity of agricultural crops, it has also resulted in a dramatic decline in the related wild species. Approximately 5,000 species of plants are used as food throughout Asia, but only three species (namely maize, rice and wheat) represent c. 60% of the total food intake. Rice has been cultivated in mainland China for

about 8,000 years. High-yield rice has now replaced the 100,000 varieties that were grown previously. Several institutions have responded to this threat to the level of genetic diversity by collecting and storing seeds for future use. However, unless these Seed Banks are used, they are more likely to be Seed Morgues! Many of the Seed Banks held by botanic gardens throughout the world may only be museum collections rather than dynamic gene banks.

Although I have tended to be unimpressed by the arguments expounded for *ex situ* conservation, it is clearly the only option available for some species. Very small populations are subject to environmental and demographic accidents, and the need for captive propagation is often inescapable. However, it is not just the low number of individuals that should be of concern, but also the variability in numbers (through time) within the population. Both could result in precariously low populations. Since more-variable populations are more likely to reach very low levels than will less-variable ones, the intensity of the monitoring effort should be set according to population (and environmental) variability. I have occasionally felt that attempts to re-introduce species into the wild have been hampered by a lack of knowledge of the condition of the population(s) that lead to the decline in the first instance. In general, these populations must be monitored at an intensity that will allow proactive decisions on the need for management.

In Australia, there has been a tendency for conservation strategies to be left to ecologists (particularly those of the National Parks services and other Conservation agencies) when there is clearly a need for systematists to be involved in the overall management process. There have been instances where large amounts of resources, including money, have been allocated to the preservation of isolated outlying individual plants, which probably have no chance of maintaining the species but, more importantly, may not contribute to the morphological and/or genetic variability of the taxon. Current, as yet unpublished, work on the systematics of *Hemiantra pungens* (Lamiaceae) of Western Australia has shown that what was once regarded as one widespread, unthreatened species is in fact several uncommon species, of which many are probably vulnerable. The preservation of biodiversity can only benefit by the collaboration of the two disciplines.

### Biological inventories

Perhaps the most disturbing message to come out of the Symposium was the inadequacy of the inventory of living organisms. The incompleteness of the inventory of micro-organisms clearly illustrates the magnitude of the problem. For example, about 5,000 species of viruses have been described, compared to the estimated total number of 500,000 species. There are about 4,000 described species of bacteria, out of a total of somewhere between 400,000 and 3 billion species. Of the estimated 1–1.5 million species of fungi, only about 70,000 species have been documented. About 40,000 species of protozoans have been described, out of an estimated 100,000–200,000 species. Although it is accepted that micro-organisms: (1) determine the fertility of soil, and hence the ecosystem, (2) sustain soil productivity, and (3) aid in pest management, there have been insufficient resources assigned to the primary documentation of this biodiversity. Systematics Agenda 2000: Charting the Biosphere estimated that it would cost \$US50–100 million to prepare a worldwide inventory of the micro-organisms. However, this estimate was regarded as exorbitant; whereas the destroyed \$US78 million NASA satellite failed to raise a comment. Such are our values!

It is clear that the destruction of tropical rainforests and other tropical communities is an impending disaster — it is not only discussed at the scientific level, but is now urgently discussed by the political and social communities. Fortunately, the rate at which the natural communities of New Guinea are being destroyed is much less than in some other tropical areas, but these tropical forests are rapidly being modified and destroyed. Of primary concern to systematists and conservationists is the fact that there is no recent, reliable documentation of the flora of New Guinea. The rate of extinction of the New Guinean flora is therefore not known. Moreover, a reliable estimate of the total number of vascular plants is still not possible. The state of knowledge of most other groups, with the possible exception of the majority of the vertebrates, is considerably worse.

To develop a sound conservation strategy for the flora of this region, the documentation of the flora must be a priority, to ensure that the species diversity is better known and the effectiveness of a conservation strategy can be assessed. However, such a documentation

process would have to rely almost totally on the expertise of non-resident botanists. Recent indications, from within New Guinea, suggest that foreign financial support would also be required. Considering the lack of New Guinea expertise and resources, together with the increasing pressures on the New Guinea vegetation, the possibility of completing an inventory of the flora of this region seems unlikely within a reasonably short period of time.

If resources (both financial and botanical) were available, what would such a project cost? A few years ago, I attempted to estimate the actual cost of preparing a flora account of a region, from the beginning of the project until its completion. Unfortunately, this information was not available for the many regional Australian floras nor for the current *Flora of Australia* project. One of the reasons given for not providing such an estimate was because of the potential political impact these figures might have. Understandably, no one wanted to discourage the "money-givers" before a project was initiated or completed. In the case of the *Flora of Australia* project, I doubt if anyone has been courageous enough to estimate the actual cost of publishing a species description for that project. Of course, the ABRIS grants only cover a fraction of the real costs of preparing accounts for this flora. Even though most institutions within Australia are able to "hide" many of the costs within the overall running expenses of the institution, the long-term political wisdom of this may be questionable. However, these costs will need to be known if the documentation of the flora of New Guinea is to be completed, largely because international financial aid will need to be sought for such projects.

Although based on much smaller land masses, it is thought that it costs \$US250–350 per species to describe a species for flora-style projects (based on the recent *Manual of the Flowering Plants of Hawai'i* and the *Flora of Taiwan*). With an estimated vascular flora of

about 22,000 species, it would be expected to cost at least \$US5.5 million (\$AUS7.9 million) to write the flora of New Guinea! I guess that the only way to evaluate the "value-for-money" of such a proposal is to estimate what it will "cost" if we are unable to estimate the species diversity, and the distribution and relative abundance of each species. However, I suspect that the above "costs per species" may only be valid for the smaller island nations of the Pacific, for example the Cook Islands. It is not known how this "cost per species" rate compares to the actual cost of the recently published floras of Lord Howe Island and Norfolk Island. Irrespective of the above, I am sure that these estimates would prove to be a gross under-estimate of the actual costs of writing a flora of New Guinea.

Although the South Pacific is a region of extraordinary biodiversity, much of this diversity has become fragmented since human colonization. The environments of some countries have been degraded beyond repair. For example, Rapa Nui (Easter Island) was forested 12,000 years ago, but the last tree species was lost during this century. This region is characterized by mostly small island nations with small economies. Recently, these countries have often been dependent on subsidies and on direct utilization of the unprocessed materials of biodiversity for their survival. Many of these nations either have only rudimentary, out-dated inventories of their flora and fauna, or they have no lists at all. Fiji is one of the few lucky exceptions.

There have already been some discussions concerning the direction that systematic botany should take after the *Flora of Australia* project is completed. Clearly, there needs to be an ongoing revisionary process of this first edition, but what else could or should be done? Perhaps we should consider assisting our neighbouring Pacific nations. If one were to pose the question: "Is there life after the *Flora*?", for many Pacific species the answer would be no!

The rabbit has a charming face:  
Its private life is a disgrace.  
I really dare not name to you  
The awful things that rabbits do;  
Things that your paper never prints —  
You only mention them in hints.

They have such lost, degraded souls  
No wonder they inhabit holes;  
When such depravity is found  
It only can live underground.

Naomi Royde Smith (in part)

## Hooker and Presl

Peter G. Wilson  
National Herbarium of New South Wales  
Royal Botanic Gardens  
Mrs Macquaries Road  
Sydney NSW 2000

### Introduction

While trying to track down information on the generic name *Lencymmoea* Presl, I came across this review of Presl's work *Epimeleae Botanicae* by Sir William Hooker in *Hooker's Journal of Botany* IV: 286-7 (1852), and I thought that readers of the *Newsletter* might find this critique of armchair botany as fascinating as I did.

### EPIMELIAE BOTANICAE: auctore CAROLO BOR. PRESL, M. et Ph.D.

Of this quarto publication 192 pages with fifteen plates are devoted to the development of Dr. Presl's peculiar views on the systematic grouping of Ferns, and to the establishment of a vast number of supposed new genera and species. The remaining seventy pages form a kind of sequel to the "Botanische Bemerkungen" of the same author, already noticed by us (*London Journal of Botany*, vol. vii. p. 103); and we regret to say, the critical remarks we thought it necessary to make on that work are equally applicable to the present one. It exhibits the same reckless establishment of new genera founded upon incorrect analysis, mistaken affinities, and neglect of the labours of others, the same apparent desire to attach the author's name to as many species as possible, and the same apparent antedating of the work by at least two years; for although it bears on the title-page the date of 1849, it does not seem to have been in the hands of booksellers till the commencement of 1852.

Under these circumstances any detailed criticism might be superfluous, but, as many of the so-called new genera are taken from collections which have been very generally distributed, it may not be amiss to give some clue to such of them as have come under our observation.

*Grymania* (p. 193) is *Couepia* as limited in Hook. Journ. Bot. 1840. vol. ii. p. 212.

*Adenopodia* (p. 206) is in nowise distinct from *Entada*; the doubt formerly entertained

on the question, owing to the fruit having been imperfectly known, is now removed by the examination of the ripe pod, which, as stated by Presl, is precisely that of *Entada*.

*Cymelonema*, referred to Memecyleae (p. 210), is a species of *Urophyllum* (Rubiaceae), on which the stipules, being small and often nearly obliterated, were overlooked by Presl.

*Hyperum trifidum* (p. 211), from Brydges' last Chilian collection distributed by Cuming (not from Cuming's own collection), is identical even as a species with *Wendtia gracilis* Meyen, *Ledocarpon Reynoldsii* Hook. Ic., and *Martiniera potentilloides* Guillem. in Deless. Ic. Dr. Presl appears however to have examined a flower deprived by accident or by abortion of two of its stigmata.

*Carlea* (p. 216), referred to Onagrarieae, is a species of *Symplocos*! and as far as we can judge from the description *Lencymmoea* (p. 211), referred to Memecyleae, is another *Symplocos*; but on this point we cannot speak with certainty, as we do not possess Helfer's plants.

*Corynostigma* (p. 218) is a true *Jussieuia*, closely allied to *J. nervosa*.

*Botryoropsis* (p. 220) is the well-known *Barringtonia acutangula*.

*Strakaea* (p. 221) is a *Bragantia*, closely allied to, if not absolutely identical with, *B. corymbosa* Griff., and if distinguishable from *Bragantia*, as proposed by Griffith, it should take his name of *Alsiphonia*.

*Blepharochlamys* (p. 245), generically distinguished from *Mytropetalum* as being dioecious, is the very plant upon which *Mytropetalum* was founded, and is essentially monoecious, as appears even in the figures and descriptions quoted by Presl, which he cannot have seen.

*Cardiostegia* (p. 249) is a mere variety of *Brotera bracteosa* Guillem. et Pers., or at any rate a species very closely allied to it; and Webb has shown, in the "Spicilegia Gorgonea" (*Niger Flora*, p. 111), that *Brotera* cannot be distinguished generically from *Melhania*.

The changes of names among Piperaceae will probably, where they are worth adopting, have been anticipated by Miquel's valuable labours on that difficult tribe. The *Antidesmata* described p. 232–235 will be found to be illus-

trated in a far superior manner in Tulasne's admirable monograph in the "Annales des Sciences Naturelles", third series, vol. xv. p. 180, which ought in point of fact to have precedence over the "Epimeliae".

## COMMENTARY

### Ferdinand von Mueller

In the March issue of the *Austral. Syst. Bot. Soc. Newsletter*, Peter Jobson reviewed Ann Moyal's paperback edition of *A Bright and Savage Land*. Jobson lamented the lack of information about Ferdinand von Mueller in the book, and found Moyal's discussion of the *Flora Australiensis* controversy, in which Mueller took a large part, too "pro-Australian". Jobson said that conversations with members of the Mueller project at MEL led him to conclude that Mueller was "no angel", and possibly deserved to be dismissed as director of the Melbourne Botanic Gardens.

To assert bluntly that Mueller was or was not an angel is an inadequate assessment of a 40-plus-year, all-absorbing career in botany. Mueller's actions were variously judged in his own time as they are now.

As a member of the Mueller project team I have read much of Mueller's surviving correspondence, and my impression of the *Flora Australiensis* debate is that Mueller had a just claim to write the *Flora* and was eminently competent to do so. George Bentham could not

write the *Flora* without Mueller's assistance (which Mueller gave generously). Mueller shipped thousands of specimens to Kew. There was no suggestion of Kew doing the same for him.

Surviving correspondence about Mueller's dismissal from the Melbourne Botanic Gardens suggests that the reason for it were complex, and included economic, aesthetic, political and personal considerations. Senior public servants in the 19th century, as today, could be pawns of the political change. Mueller was a capable administrator, and his gardens were not without beauty.

The Mueller project intends to publish all of Mueller's surviving incoming and outgoing correspondence. The first instalment, covering the period 1840–1857, will appear in 1994/5. This will enable everyone to look at the letters for themselves, and to make up their own minds about the important events involving Mueller in the history of Australian science.

Sara Maroske  
Mueller Correspondence Project  
National Herbarium of Victoria

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### Evolution

When we were soft amoeba, in ages past and gone,  
Ere you were Queen of Sheba, or I King Solomon,  
Alone and undivided, we lived a life of sloth,  
Whatever you did, I did; one dinner served for both.  
Anon came separation, by fission and divorce,  
A lonely pseudopodium I wandered on my course.

Arthur Shipley



## A.S.B.S. Inc. BUSINESS

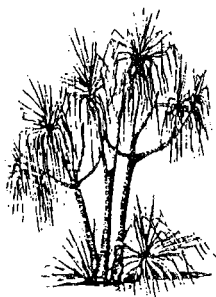


### Subscriptions

for 1994

Subscriptions for 1994 were due on 1 January, 1994. Members who are unfinancial will not receive any *Newsletters* after this one and should have received a reminder notice with this issue. Monies should be sent, with the membership renewal form, to the Treasurer at the address shown inside the front cover.

Peter Wilson  
Treasurer, ASBS Inc.



### Origin and Evolution of the Flora of the Monsoon Tropics

#### July 4-6 1994, Kuranda Rainforest Resort

Over 100 people have registered for the conference, including delegates from Indonesia, the Netherlands, New Zealand, Papua New Guinea, the Phillipines, Singapore, and the U.S.A. The conference facilities at the Kuranda Rainforest Resort have (finally) been built, and will be the venue for the symposium and the workshop.

The symposium has a full programme, from 9am-5pm each day; so, the symposium organizer is a happy and contented man. The sessions have been organized into themes, including a keynote speaker each day.

Delegates are reminded that free transport will be provided from Cairns for those people who are staying at the Kuranda Rainforest Lodge, provided that you let us know when you will be arriving.

The post-symposium tour is full, with 24 participants. It will be lead by John Neldner (from MBA) and Bruce Gray (from QRS).

John Clarkson  
Queensland Herbarium

### Funding support from the Australian International Development Assistance Bureau International Seminar Support Scheme

Over the past five years there has been an increasingly international outlook to ASBS symposia, attracting a growing number of international delegates; and this year's conference is no exception. Since the biodiversity of the monsoon tropics is a significant concern of those countries to our immediate north, it is appropriate that ASBS apply for funding to bring several of our neighbours' scientists to our meetings.

The AIDAB-ISSS provides finance for delegates to attend conferences that can make a direct, practical contribution to the economic and/or social advancement of developing countries by building up their human resources capacity to meet their own needs. Our conferences clearly provide a forum for discussion of international developments in plant systematics, and biodiversity-related knowledge and sustainable management practices.

ASBS applied for funding to bring five scientists to our meeting in Kuranda:- from Indonesia, Dr Johanis P. Moge, Tri Harsono, Mrs Rugayah; from the Philippines, Edwino S. Fernando; and from New Guinea Osia Gideon.

We are very pleased to announce that AIDAB has provided a total funding of \$4,700 to enable Moge, Fernando and Gideon to attend the conference. This funding is greatly appreciated, since all nominees had indicated that they could not attend the conference without this support.

Christopher Puttock Secretary  
ASBS Inc.

## Workshop on Analysis of Cladistic Data: Morphological and Molecular

### 25–29 September 1995

This five-day workshop, to be held at the Australian National University, is designed for professional botanists who are inexperienced in cladistics, and postgraduate students. Preference will be given to ASBS members and students (with a reduced fee). Numbers will be limited to about 40 people, so we may have to refuse some applicants.

Participants will be expected to have some background in systematics, at least at the undergraduate level. They will also be expected to have some familiarity with computers, either Macintosh or MS-DOS, or both.

The workshop will be a joint sponsorship between ASBS and the Centre for Plant Biodiversity Research. Mike Crisp will be the convener, and John Trueman, Mike Crisp and David Morrison will teach the course.

Fees should be minimal, and are only intended to cover costs — of the order of \$100–200 for employed professionals, and \$40–50 for full-time students. This cost will cover tuition, printed hand-outs, and morning and afternoon tea, but not meals or accommodation. ANU college accommodation at a moderate tariff will be organized.

ANU computer teaching laboratories and other facilities will be used. We will provide a course handbook, containing notes on cladistic theory and instructions for using the computer programs.

If you are interested in attending this workshop, please fill in the form inserted with this issue of the *Newsletter*.

## Programme

### 1. Structure

Duration 5 days; 4 sessions per day. The first and third sessions (1–1.5 hours each) will be lecture / discussions on theoretical background. The second and fourth sessions (2 hours each) will be workshops using provided data sets and programs. Later in the week, participants will analyze their own data, which they will be encouraged to bring. Data can be provided for those who lack any, e.g. several hundred rbcL sequences.

### 2. Topics

Theory: 9 sessions. These will start from basics — the sort of stuff taught in a third-year systematics course. Aims and a brief overview of classification and phylogenetic reconstruction (1 session). Cladistic theory and methods, especially parsimony (2 sessions). Other approaches, e.g. neighbour-joining, maximum likelihood (1 session). Analyzing molecular data (1 session). Testing robustness of phylogenetic hypotheses, and congruence (1–2 sessions). Applications: comparative biology (1–2 sessions); biogeography (1 session).

Practical work: 9 sessions. How to use a Macintosh / PC (1 session). PAUP (3 sessions). MacClade (1 session). Hennig86 (1 session). Other programs (Component, Phylip) (1 session). Own data (2 sessions).

### 3. Supplementary activities

Mid-week we will provide some light relief — say, a half-day excursion to the new Australian National Herbarium, followed by the ASBS Inc. general meeting, and dinner. On Saturday 30 September we hope to run a one-day excursion to Monga to see temperate rainforest.

Mike Crisp  
President, ASBS Inc.

## Email addresses of members of the Australian Systematic Botany Society Inc.

### Introduction

Maintaining close contact among its members has always been seen as one of the primary services provided by the Australian Systematic Botany Society Inc. An increasing number of our members have access to the elec-

tronic mail services provided by AARNET and its connection to the world-wide Internet academic network. It therefore seemed to be an appropriate time for the Society to compile and publish a list of members' email addresses, so that the members can make effective use of this new technology.

The main advantage of using email is that it provides almost instantaneous written communication world-wide. However, when using this form of communication it is always necessary to remember that some members take full advantage of the capabilities of the electronic network, while others rarely, if ever, check their email repository for new messages. Furthermore, some members do not have a personal computer in their office, but use an email repository located elsewhere (often in another building); these members may not check for incoming email every day.

This is a preliminary list of email addresses for ASBS members, based on the membership list published in *Austral. Syst. Bot. Soc. Newsletter* 76: 12–26. This email address list was compiled from a number of sources, including both the "Plant Taxonomists Online" and the "ERIN Collaborators and Associates" computer databases, and the online staff listings of the various Australian universities and government organizations (all of which I accessed using the Gopher software briefly discussed in *Austral. Syst. Bot. Soc. Newsletter* 78: 27–28, either directly or via the World Wide Web software).

The publication of this preliminary list is intended to stimulate members into helping

complete a final version, and I apologize in advance to those people whom I have missed or who I have listed incorrectly. Please inform me (via email to davidm@iris.bio.uts.edu.au) of any corrections or omissions to this listing, so that I can finish compiling an accurate list. This final list will then be published in a future issue of the *Newsletter*.

Only a small number of the people in the list have so far registered their email address with the "Plant Taxonomists Online" (PTO) directory. This worldwide directory has existed for about three years now, being maintained by Jane Mygatt at the University of New Mexico. It contains (in the last listing that I saw, 4 April 1994) the email addresses (and postal addresses and phone numbers) of nearly 500 plant taxonomists. An indexed copy is also maintained on the Gopher server at the Australian National Botanic Gardens. Clearly any such directory is only as useful as the number of people who register — so please send a message with your name, postal address, phone and fax numbers, and email address to jmygatt@bootes.unm.edu.

David Morrison  
Department of Applied Biology  
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## REPORTS



### Australian Biological Resources Study

As foreshadowed in the last report, *Flora of Australia, Volume 49 (Oceanic Islands 1)*, covering Norfolk and Lord Howe Islands, was launched in early May. The book is dedicated to Ru Hoogland, in recognition of his major contributions to Australian taxonomic botany, and in particular, his major input to the study of Australia's off-shore island territories. This is not only our biggest single volume to date, with 681 plus xxiii pages (just over 700 pages in all, for those of you who are still having trouble with your Latin), but it has also received probably the most elaborate series of launches.

The first launch took place on the morning of 2nd May, when our new minister, the Hon. John Faulkner, addressed a substantial gathering in the Visitor Information Centre at the Australian National Botanic Gardens. The Gardens staff provided copious examples of living plants from Lord Howe and Norfolk Islands as an attractive backdrop to the ceremony.

The following day there was a "local" launch of the book on Norfolk Island by Michael Hill, Deputy CEO of the Australian Nature Conservation Agency. This was attended by a good proportion of the residents, including the Administrator and other officials. Fortunately, the major author, Mr Peter Green, was able to fly out to Norfolk Island from the U.K., thanks to the generosity of the residents, and some fast talking to airlines by Ian Hutton and colleagues. An unusual feature of this launch was the simultaneous release of two commemorative aerogrammes by the Norfolk Island postal authorities, commemorating the publication of the *Flora*, and reproducing the cover painting, *Ungeria floribunda*, by local artist Glenn

Douran. These aerogrammes, with values of 70¢ and 45¢, are available by mail order from the Norfolk Island post office, and should also be available through major philatelic centres in Australia. Despite a couple of minor proof-reading errors ("*Ungeria florigunda*", and the history of plant naturalization being referred to as "the history of human escapes") these aerogrammes are notable for being the first time, to my knowledge, that publication of a *Flora* has been commemorated on any stamp issue.

Subsequently, Peter Green flew on to Lord Howe Island, where the book was launched for the third time, at the Museum. A few days later he arrived in Sydney, and delivered a well-illustrated lecture to the Friends of the Royal Botanic Gardens on the island floras. Several of the editorial staff of ABRS drove to Sydney for this talk. Research, however, proceeds apace. We found that during his visit to Norfolk Island for the launch, Peter had discovered an additional three adventives not covered in the book, i.e. it was out of date before its publication! There are no plans as yet for a second edition.

*Volume 49* is now available from AGPS bookshops or by mail from AGPS Mail Order Sales, GPO Box 84, Canberra ACT 2601, for \$69.95 (hard cover) or \$54.95 (soft cover). This volume completes the Oceanic Islands subseries of the *Flora of Australia, Volume 50* having been published last year.

ABRS staff (and our authors) are now hard at work putting the final touches to *Volume 55*, the second of the Lichen volumes. This is expected to be published later this year.

### Grants Programme

Applications for Participatory Program funding in 1995 have now closed. We have been informed that funding for grants (flora and fauna) in this round will be a total of \$1.98 million, slightly less than was available last year. This is disappointing, given the growing demand for support for taxonomic research, and the community expectation of more detailed information to support biodiversity initiatives. The outcome, unfortunately, will be that competition for funds in this year's round will again be very fierce, and some worthy projects will miss out or receive less funding than they need.

Former grantees' attention is drawn to the acquittance procedures set out in the last *Biologue* (a few copies are still available on request). Governmental accounting and reconciliation policies have been tightened, and grantees are now required to supply, at the end of each year, a report on progress and a financial statement. Forms for these reports will be distributed in November and January respectively. Grantees must also supply a final report when the project is completed.

### **DELTA Training**

The Dallwitz team have announced that they will not be providing any further beginner training for DELTA use. They will, however, provide advanced training for DELTA users in due course. This throws the responsibility of beginner-training back to the beginner and his/her user-colleagues, and to those tertiary teachers who are DELTA-users.

The DELTA program is seen as a tool for taxonomic research and as an identification tool for the wider community. Predictably, DELTA's application and use by practicing scientists and students of biodiversity will grow. The Australian Systematic Botany Society will have to take a role in facilitating this by co-ordinating/organizing beginner training in the future.

### **DELTA Enhancement**

The Dallwitz team is working on enhancing the DELTA software to increase its facility and user-friendliness. To this end, they would appreciate to have your constructive comments when you identify: a) problems, or b) functions it could do but doesn't, or c) does do but could do better. Mike is available on (06) 246 4075.

### **The Families of Flowering Plants by L. Watson and M.J. Dallwitz**

Les Watson is anxious to have this document tested/enhanced. As a potential user you have a role to play to this end. If (and when) you identify a problem, telling your friends will not rectify it. Please let Les know. Les is available on (09) 841-6181.

### **Flora of Australia, Volume 1**

ABRS is planning a revised edition of *Volume 1* of the *Flora of Australia*. This will

include a revision of the Key to Families of Flowering Plants by H.T. Clifford. This key has been available for using/testing for 12 years. We are aware from informal comments that several problems have been identified. Please help ABRS to make this key more effective by advising them of your problems. Contact me on (06) 250-9442 or at GPO Box 636, Canberra ACT 2601. As well as having problems pointed out, it would be useful also to receive suggested solutions!

### **ABRS Funding & National Taxonomic Database Co-ordination**

The recent budget did not result in any increase of ABRS funding. ABRS funding was effectively cut by \$0.525m following the Prime Minister's December 1992 Statement on the Environment. This took effect in the 1993/94 financial year and affected the 1994 Grants. The response to this from the scientific community was not particularly loud.

Support for the National Taxonomic Database Co-ordination from the scientific community had the proviso that it did not take resources from the current taxonomic funding levels. Again the recent budget did not provide any funds for this Co-ordination initiative. This means that ABRS will be able to provide only a somewhat simplified co-ordination role. This will begin via Gopher / Internet later this year.

Tony Orchard  
Flora of Australia

### **A.S.B.S. Canberra Chapter**

Meetings of the Canberra Chapter are held on the fourth tuesday of the month at 4.30 pm in the Crop Adaptation Seminar Room, Plant Industry, C.S.I.R.O., Clunies Ross St. All members and visitors are welcome.

### **Seminar Programme, June–September 1994**

*Tuesday, June 28*

Andrew Young

Centre for Plant Biodiversity Research,  
Australian National Herbarium

"Forest fragmentation and the population  
genetics of Sugar Maple"

*Tuesday, July 26*

Rod Peakall  
Div. of Botany and Zoology,  
Australian National University  
"Why is pollination by sexual deception  
widespread in Australian orchids?"

*Tuesday, August 23*

Bob Makinson  
Centre for Plant Biodiversity Research,  
Australian National Botanic Gardens  
"Biogeography patterns in *Grevillea*"

*Tuesday, September 27*

Ian Brooker  
Centre for Plant Biodiversity Research,  
Australian National Herbarium  
Topic to be announced

Further information can be obtained from  
me on (06) 249-4841.

Carolyn Weiller  
Research School of Biological Sciences  
Australian National University

American section, and is planted with a range of plants from that continent. Other areas of the rock garden will be re-planted over the next few years and organized into a geographic arrangement.

Speaking of the gardens, the Australian House at Kew is also soon to undergo a complete change. It will be used for a new permanent educational display telling the story of plant evolution. This will be achieved with a combination of displays of living relatives of ancestral plants and life-like models of extinct plants. Space constraints have made it necessary to feature just three key periods in plant evolution. These will be: the period from the prokaryotes to the first land plants in the Devonian; the Carboniferous period; and the Cretaceous, featuring the emergence of early flowering plants. The Evolution House, as it will then be called, is scheduled to open in late spring 1995. I have been assured that this change has nothing to do with Mr Keating's push for a republic.

The extensive spirit collection in the herbarium is now accessible, after the facilities for storage underwent a major refurbishment. The collection can be checked for holdings of particular taxa or specimens by using the computer-based catalogue.

A fortnightly phylogenetics discussion group at Kew has been established, and about 20 people turned up for the first meeting. Led by some of the more experienced cladists, the group discussed recently-highlighted problems associated with taxonomic congruence and consensus of different data sets, and the validity of re-sampling techniques, particularly when applied to the relatively small data sets commonly encountered in the literature.

Forthcoming conferences are: "Compositae: Systematics, Biology, Utilization" – 25 July to 5 August; and "The Kew Chromosome Conference IV" – 30 August to 2 September. The Asteraceae, sorry, Compositae conference will feature workshops, as well as presented papers. The theme of the first week will be the systematics and evolution of the family, and the second week will be devoted to its biology and utilization.

Australian visitors in the last quarter included Jenny Chappill, Ken Hill, Trevor Whiffin, Jim Armstrong, Hellmut Toelken, and Karen Wilson.

Laurie Jessup  
ABLO



**Australian  
Botanical  
Liaison  
Officer**

Requests have continued to come in at a steady rate. Following two separate trips to the continent, one to Berlin and one to Paris, and a holiday in between during the end-of-school term break, the last quarter seems to have passed very quickly. This is the time when liaison officers begin to reflect on what they have achieved and what still needs to be done.

There have been two royal visits in recent months. On the 18th March HM the Queen officially opened the extension to the Jodrell laboratory. On the 27th April HRH the Duke of Kent opened the redesigned rock garden. The new rock garden is now known as the North

## Queensland Herbarium

All seminars will be held in the Entomology Conference Room, Agricultural Research Laboratories, Meiers Road, Indooroopilly. Unless otherwise noted, they are on wednesdays at 1.00 p.m.

### Seminar programme, May–November 1994

*Wednesday, May 11*

Sue O'Brien

CSIRO

"Pollination ecology of *Leptospermum*"

*Wednesday, May 25*

Julia Playford

Botany Department,

University of Queensland

"Conservation genetics of *Austromyrtus gonoclada*"

*Wednesday, June 8*

Bruce Wilson

Queensland Dept of Environment & Heritage

"Vegetation of coastal wetlands in the Northern Territory"

*Wednesday, July 27*

Rachel Macfadyen

Alan Fletcher Research Station,

Queensland Dept of Lands

"Biocontrol and nature conservation"

*Wednesday, August 10*

Rod Fensham

Queensland Herbarium

"Dry rainforest conservation in north Queensland"

*Wednesday, September 14*

Julie Philipps

Queensland Herbarium

"Sex in marine macro-algae"

*Wednesday, October 19*

Laurie Jessup

Queensland Herbarium

"Reflections of a year at Kew"

*Wednesday, November 2*

George Batianoff & Hans Dillewaard

Queensland Herbarium

"Problems with large-scale vegetation mapping"

*Wednesday, November 23*

Paul Forster

Queensland Herbarium

"Cycad systematics, biology & conservation"

Enquiries to me on (07) 877 9328

Paul Forster

Queensland Herbarium

## Botany Committee meetings of the Pacific Science Association 19–22 April 1994, Taiwan

The Botany Committee of the Pacific Science Association held several meetings during the "Biodiversity and Terrestrial Ecology" symposium, at the Institute of Botany, Academia Sinica, Taipei, Taiwan (Republic of China). First, we remembered the late Ben Stone who died in Manila on the 19 March 1994 (his eulogy is presented elsewhere in this *Newsletter*). The generous support and hospitality offered to the Botany Committee by Dr Chang-Hung Chou (Director, Institute of Botany, Academia Sinica) was also gratefully acknowledged. The Committee will be ever in debt to the kindness and generosity of Dr Chou, Dr Ching-I Peng, and other staff of the Institute of Botany.

The committee spent most of its time on finalizing the details of the various symposia of the Botany Session of the "XVIII Pacific Science Congress", to be held in Beijing, China (5–12 June 1995). All five symposia need to be organized by mid-June of this year. The symposia of the Botany Session include:- (1) Extinction in Pacific floras (organizer, Sy Sohmer); (2) Conservation priorities for Pacific floras in the 21st century (organizer, David Given); (3) Plants and peoples in the Pacific (organizer, Jan Salick); (4) Plant explorations and drug discovery in the Pacific region, with particular reference to Southeast Asia (organizer, Doel Soejarto); (5) Workshop: Whither Pacific botany in the 21st Century (co-organizers, Fiona Norris & Chang-Hung Chou).

The Workshop is regarded as the "keystone" to the botany session. There are seven themes:- (1) Control of alien species (co-ordinator, Cliff Smith); (2) Environmental awareness (co-ordinator, Chang-Hung Chou);



(3) Inventory of the flora of Oceanic Islands (co-ordinator, Barry Conn); (4) Conservation status of Pacific floras (co-ordinator, David Given); (5) Ecosystem rehabilitation (co-ordinator, Charles Lamoureux); (6) Funding botanical endeavours in the Pacific (co-ordinator, Aprilani Soegiarto); (7) Furthering database sharing (co-ordinator, currently unasigned). It is intended that one principal review

paper will be presented on each theme, followed by workshop-style discussions, which are designed to lead to a set of guidelines that would actually become part of the published theme paper.

Barry Conn  
National Herbarium of New South Wales

## PERSONAL NEWS

### In Memoriam

#### Benjamin C. Stone

It was my sad and regrettable duty as Director to call staff and Board members on 19 March, after I learned that our Senior Research Botanist, Principle Investigator of the Philippine Plant Inventory, story-teller extraordinaire, jazz flautist, devoted model aeroplane builder, kind, wonderful and decent human being, whose knowledge of the plants of the Malesian area was unsurpassed, had died in the Philippines around 2:00 p.m. Manila time. He had been at the Herbarium at the National Museum, where he had spent so much time over the past several years collaborating with our Philippine colleagues on the *Flora of the Philippines* Project, to work on some material from one of the recent field trips of the Philippine Plant Inventory Project. A security guard and one of the project staff members, who had come in to take some plant presses off the driers, could not revive him after he collapsed of a heart attack. So ended a career that began in Shanghai, China, and had brought him to Fort Worth, Texas, where he was beginning to send down deep roots into the North Central Texas soil.

His Philippine friends, colleagues and co-workers, under the sensitive leadership of Domingo Madulid, our long-standing colleague and co-worker at the National Museum, paid long and emotional tribute to Ben, culminating with a memorial service on Wednesday 23rd March. Ben was held in high esteem and honour in the Philippines, as everywhere he had been, due to his knowledge, his humaneness, and his generous spirit. A memorial service was held for him on 6 April at BRIT in Fort Worth after his ashes returned to us.

Ben's inspired scholarship and untiring dedication contributed greatly to BRIT's and the Philippine National Museum's success in completing the first part of the Philippine Plant Inventory and in commencing the second part of this project, which was the reason he had specifically returned to the Philippines this time. From a personal standpoint, I had never met anyone who had less interest in material possessions and trappings, or who had as high a degree of scientific knowledge, moral integrity, and intellectual curiosity. He was a delightful mixture of wisdom and innocence that defied description. He could launch into an in-depth discussion of the techniques of some of the jazz greats of this century. He had an extensive collection of classical jazz and other tapes and records, and I will never forget sitting in the living room of his apartment in Kuala Lumpur in 1973 listening to all of the recordings of vintage Tom Lehrer.

Ben was admired and respected beyond his unsurpassable knowledge of plants of Southeast Asia. He was a thoughtful, conscientious, and caring individual. Perhaps one of his most endearing traits was his eagerness to impart his knowledge of botany to others. He mentored hundreds of students, officially or unofficially. He was definitely one of the world's foremost experts in the flora of the Malesian region, which includes Malaysia, Indonesia, Papua New Guinea, and The Philippines. He was also highly respected for his knowledge of the flora of Polynesia and Micronesia.

Ben was born in Shanghai, China, on 26 July 1933. He was an only child. His father was English and worked for the civil authorities in Shanghai. Sensing the coming troubles, his mother took Ben to live in the San Diego area, U.S.A., where she had family, before the out-

break of war. His father was interned in a camp in Japan for most of the war. The family was not reunited until the war was over.

Ben got his primary and secondary education in the San Diego area, and then received his B.A. in Botany from Pomona College, in Claremont, California, in 1954. He earned his Ph.D. from the University of Hawaii in 1960. His major professor in Hawaii was Harold St. John, a fixture in Hawaiian botany from 1926 to 1991, when he passed away at the age of 99. Ben's career path then took him to Washington, where he was a research assistant in the Department of Botany at the U.S. National Museum of Natural History at the Smithsonian from 1960–61. From there he went to Guam, where he was Professor of Biology at the College (now University) of Guam from 1961–65. It was during this period that he wrote the *Flora of Guam* single-handedly, and created *Micronesica*, the journal of the University of Guam.

In 1965 he accepted a position at the University of Malaya in Kuala Lumpur, Malaysia, in large part because he wished to master the flora of the Malesian region, having gotten a very good grip on the Polynesian and Micronesian flora. He served the University of Malaya until 1984, when he returned to the U.S. to take up the chairmanship of the Department of Botany of the Philadelphia Academy of Natural Sciences, a position he held until 1990, when he joined the *Flora of the Philippines* Project as the Principal Investigator for the Philippine

Plant Inventory at my urging. The project was located at the Bishop Museum at that time, but moved to Fort Worth when I relocated to BRIT in 1993. He gladly joined our staff as Senior Research Botanist, a position here that will hopefully always bear the imprint of his moral, intellectual and scientific integrity.

Ben was the author or editor of 300 articles and books. He was a specialist in three difficult tropical family groups, the Pandanaceae, Rutaceae and Myrsinaceae. He wrote or co-authored numerous papers on these groups, and his reputation as a pandan worker was unsurpassed. Scores of students were enticed into botany as a result of his mentoring, and he developed a substantial understanding about the culture and customs of the region.

S.H. Sohmer  
Botanical Research Institute  
Fort Worth, TX 76102-1079  
U.S.A.

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## David G. Catcheside

Professor David G. Catcheside died after a long illness on 1 June 1994, at the age of 87. He will be sadly missed by the botanical community. The loss felt by bryophyte systematists will be immense.

## REVIEWS

### Cladistics. A Practical Course in Systematics.

By Peter L. Forey, Christopher J. Humphries, Ian J. Kitching, Robert W. Scotland, Darrell J. Siebert, and David M. Williams. The Systematics Association Publication No. 10. Clarendon Press / Oxford University Press, Oxford. 1992. xi+191 pp. ISBN 0-19-857767-2. \$US52.50.

As most of you will have noticed by now, I have been looking for a good introductory book about cladistics. I have, in fact, been looking for some years now, and it's been a pretty depressing process. While I don't claim to have any moral relationship to either King Arthur or Don Quixote, the zetetic legends sur-

rounding these two figures are beginning to seem very realistic to me. Unfortunately, after reading this book, I have realized that my quest has not yet come to an end.

Most of the systematics books that I've encountered so far in my search have either been written by someone who claims little expertise in cladistics, and who therefore misrepresents it out of ignorance, or they have been written by experts who get so tied up in the minutiae that they can't see the wood for the trees. The first of these books make good compost, while the second type are only of practical use to the *cognoscenti*.

This is not to say that there aren't some good general introductions out there. For

example, the chapter by Michael G. Simpson in *Fundamentals of Plant Systematics* (by Albert E. Radford) is getting dated (1986) but is still readable, as is the section in the more recent (1990) *Plant Taxonomy: The Systematic Evaluation of Comparative Data* by Tod F. Stuessy. There is also a good introduction in *The Insects of Australia, Second edition, Volume 1* (I thought that I'd slip that in in case Penny and Pete read this). The chapter by David Swofford and Gary Olsen in *Molecular Systematics* (edited by David Hillis and Craig Moritz) is the best discussion of the actual analysis techniques, and Wayne and David Maddison's *MacClade: Analysis of Phylogeny and Character Evolution* provides an excellent introduction to an explicitly phylogenetic perspective on biology.

However, the problem with these works is that they are either general introductions that don't go into enough detail to be useful to someone who wishes to explore the subject seriously, or they only cover one part of the topic. What the systematic world still needs is an introductory text that strikes a balance between the generalities and the details; and this is, of course, what *Cladistics* intends to do. It falls short of this *desideratum*, however.

The book had its genesis as the course material for an intensive one-week workshop (called "Cladistics: Theory and Practice") sponsored by the Systematics Association in 1991. The course manual was revised for the repeat of the workshop in 1992, and was then published in its current form. The intent of the workshop was to cover modern cladistics as taught by expert practising cladists, and in this I'm sure that it succeeded. However, the idea of publishing the workshop manual directly as a book is little short of ludicrous, for three reasons.

Firstly, the book reads like a set of lecture notes — the style is very abrupt, with very little development of any one concept, and little flow between concepts. This does nothing to enhance the reader's understanding of the ideas being discussed, nor of how these ideas relate to one another. As an exercise in scientific communication this is not up to par, and I'm sure that the authors would like to have extensively re-written their material if they had been given the chance.

Secondly, the way in which ideas are discussed in person and the way in which they are communicated in books is very different. This is why personal contact and interaction are so important in the workshop environment, both

between the instructor and the participants and among the active participants. This is why intensive workshops can be so successful. In this context, the lecture notes only fulfil the role of *reminders* of the topics covered, *not* as the sole means of communication, as they must be in a book. So, the course manual is part of a larger package; and the reader of this book is being short-changed, as they are only getting part of this package. For a book to be comprehensible, the material needs to be completely re-written from what is appropriate for a course manual.

Thirdly, there are so many mistakes in this book that it is positively misleading for novices. Consider this as a partial list:- Figure 1.4 only shows four ways that two characters can relate to one another, whereas the text claims that there are five such ways; Figure 3.5b has a line joining the wrong character states; Figure 4.3a shows taxon D having character state 2 instead of 0; Figure 4.12d has taxon C having character states 11 instead of 01; the legend for Figure 6.2a refers to the left-hand diagram rather than the right-hand one; the example calculations in Table 7.1 do not follow the formula given; Figure 7.12 seems to have a spurious character change included; Figure 8.6b disagrees with 8.6a about whether Cycads have pinnate leaves or not; section 9.2.2 is referred to repeatedly in Chapter 9 when it apparently should be section 9.2.2.11; on page 151 the reference to section 9.2.2.5 should be to 9.2.2.3; page 158 refers to an asterisk in Figure 9.18, which isn't there; Chapter 10 has several references to Nelson (1973) when there are three such references in the References; Figure 10.3 has variant spellings of the name of taxon 2.2.2.2.4.6. Some of these problems are trivial, but some actually *change* the interpretation of the information being communicated, which is unacceptable. There are also many typographical errors in the text, figure legends and table titles, including unnumbered pages, mis-spellings, wrong tenses, transposed words, etc.

So, even from the start the authors have an uphill battle to make this book worthwhile. Nevertheless, it's still advisable to have a look at the content of the book, to see what topics they consider worth covering as an introduction to cladistics. The workshop consisted of about 10 hours of lectures, and the book consists of 10 chapters, presumably following a 1:1 relationship. (The workshop also had about 30 hours of practicals, devoted to using the Hennig86, PAUP, Phylip, and Component computer pack-

ages — however, it's *much* easier to teach cladistics using MacClade and PAUP on a Macintosh).

Chapter 1 (11 pages; by Robert Scotland) covers Cladistic Theory, and does so quite well. However, there is no balancing alternative viewpoint, as phenetics and phyletics only get a paragraph each. More to the point, these alternatives are only criticized, while cladistics is only lauded. A slightly more objective perspective would not be hard to achieve, but this seems to be beyond the capabilities of many practising cladists.

Chapter 2 (8 pages; by Robert Scotland) discusses Character Coding, while Chapter 3 (22 pages; by Ian Kitching) describes The Determination of Character Polarity. These seem to be quite well balanced and comprehensive coverages, and they get the book off to a good start about the techniques.

Chapter 4 (28 pages; by Ian Kitching) supposedly covers Tree-building Techniques, but it rather surprisingly never makes clear how a tree is actually constructed. This chapter is actually about tree evaluation, rather than tree construction. Tree evaluation is considered by default to be based on a parsimony criterion, and what we actually learn about here is how character reconstruction is carried out on a pre-existing tree. While this *is* useful, even essential, it relegates actual tree-building to a black box. Perhaps a change of title is needed.

Chapter 5 (17 pages; by Darrell Siebert) has the unwieldy title of Tree Statistics; Trees and 'Confidence'; Consensus Trees; Alternatives to Parsimony; Character Weighting; Character Conflict and its Resolution. As you will gather from this amazing list, this covers everything that didn't go into the previous chapter; this makes it a bit eclectic, to say the least. However, there is definitely a single thread that runs through it — parsimony is good, and everything else is to be criticized. Consequently, we learn very little about the ideas of those people who believe that phylogeny reconstruction should be based on an explicit evolutionary model; we are clearly under the influence of the pattern cladists here. Furthermore, we never learn that ordinations are supposed to summarize non-hierarchical patterns, unlike dendrograms — they are solely criticized for their inability to reflect trees.

Chapter 6 (13 pages) and Chapter 7 (22 pages; both by David Williams) form a pair covering DNA Analysis, Theory and Methods

respectively. These are both quite good, although Chapter 6 is a bit erratic, sometimes repeating things covered in earlier chapters and sometimes assuming a fair bit of unexplained background. Chapter 7 says very little about either distance methods such as neighbour-joining (other distance methods are covered in detail) or about maximum likelihood methods, which is unfortunate, as these are very commonly used in molecular studies.

Chapter 8 (13 pages; by Peter Forey) is an eclectic, but good, discussion of Fossils and Cladistic Analysis. It almost convinced me that they have some use after all (much to the relief of Mike and Peter, I'm sure).

Chapter 9 (23 pages; by Christopher Humphries) covers Cladistic Biogeography, and it's certainly the hardest chapter to come to grips with. It's a very convoluted introduction to the topic, covering more detailed historical background than do the other chapters in the book. In fact, it reads very much like a cut-down version of something that was much longer. Consequently, the ideas are very hard to follow (I spent a long time on the example in section 9.3.3, and I thought that I already understood it); and I have a horrible feeling that people are more likely to be put off by this chapter, rather than encouraged to try some biogeographic analyses for themselves. This is a pity.

Chapter 10 (10 pages; by Peter Forey) brings us to Formal Classification, and to the most controversial aspect of cladistics — cladistic classification. The desire to have only monophyletic taxa creates all sorts of practical difficulties. Unfortunately, the existence of paraphyletic groups in our current classifications is not explained at all well in this chapter, and the concept of metaphyletic taxa is not discussed all. Furthermore, the supposed chapter summary actually incorporates four paragraphs of ideas about ranks that appear nowhere else in the chapter. This hampers what is otherwise a good end to the book.

So, what do we have here? A pretty brave attempt, I guess, but no cigar (for those of you who remember Groucho Marx's quiz show). We definitely need a book like this one, but this one isn't really worth it. It may very well be the best book of its kind, but this is only because of lack of competition rather than because of the intrinsic quality of the book itself. Until something better comes along, we may well have to recommend this book to our friends as an introduction to cladistics. However, someone, somewhere

will write a good introduction to cladistics someday, I'm sure of it (but it won't be me — I'm worn out from writing all of these dogmatic book reviews).

David Morrison  
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University of Technology, Sydney

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### A Key to Australian Grasses. Second edition

By Bryan K. Simon. Department of Primary Industries, Brisbane. 1993. 206 pp. ISBN 0-7242-5381-5. \$35.

As a plant ecologist, I often need to put a name to a grass. Like many of my colleagues, I dread the prospect; but one of the things I have learnt is that in the quest for a name it is best to have as many irons in the fire as you can manage, so another key is welcome. The purpose of this particular book is stated at the beginning of the Introduction: to serve plant ecologists and naturalists while we await the *Flora of Australia* volumes on the Poaceae. The book is of field size and weight, but most of the characters really need laboratory conditions for their diagnosis.

Upon first opening the book, I found myself looking at what was clearly a key to groups within the Poaceae. It was atrocious ("Leaves with Kranz anatomy" for heavens sake!). My initial horror was only brief, though, since I quickly discovered that this key was being used as an example of a natural key, unsatisfactory for identification purposes. Fortunately, this book is a long way from being unsatisfactory.

There are two keys to the genera. The first is pretty much a classical key that is clear, concise and unambiguous. The couplets are short, there is lots of white space on the pages, and the general impression given is of simplicity. So, I asked a few students to use it (this is the most stringent test that I know of for any key). The result was fairly average — I spent about as much time as I normally would saying things like, "Look it up in the glossary" and trying to explain the structure of spikelets. During that process, gaining familiarity with the book, I learnt to appreciate the few diagrams at the beginning (very instructive) and the aforementioned simplicity — if you know what

you're being asked to look at, you can really motor through the key without encountering lots of "either"s, "or"s and other challenges to your logical functions.

The second key to the genera is a computer-generated one supplied by Les Watson of A.N.U. It is much less inviting to the eye than the first key, and uses more characters than are necessary in each couplet. However, many of these characters are vegetative ones, and I think that in those too-numerous cases when part or all of the spikelet has gone or has not yet appeared, it will prove useful. I haven't yet tried it out on the students.

The keys to the species are as simple as the first key to the genera. If anything, the student test here was a little more successful.

One student reported that she couldn't find "cataphyll" in the glossary. All of them complained about the lack of illustrations throughout the key. The latter is a standard whinge, and I give it little weight — illustrations don't make much difference when the real problem is the effort needed to see much of what is important; and of course, a book becomes enormous when you begin to illustrate everything.

Distributional information on each species is too broad (it is by state, rather than by region) to be really useful for field workers. Synonyms and misapplied names are provided as each species is keyed out. They are also included in the index. So someone working with an old species list is unlikely to come to grief.

I will continue to use Wheeler, Jacobs & Norton's *Grasses of New South Wales* for identification of grasses in those areas where I spend most of my time these days, but Simon's key won't be far away. I am sure it will prove very useful to many workers who don't yet have a local key, and its clarity might make it the preferred key for some of those who do.

Rod Buckney  
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University of Technology, Sydney

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### Recent Publications

#### Molecular Markers, Natural History and Evolution.

By John C. Avise. Chapman & Hall, London. 1993. 520 pp. ISBN 0-412-03771-8. £75 hbk, £25 pbk.

## NOTICES

### Biology science olympiads

The Australian Biology Olympiad (ABO) programme is managed by the Australian Science Olympiads, and is funded jointly by the Australian federal government and private industry. The ABO provides students with a programme of accelerated learning in biology, and aims: to stimulate an active interest in science, both theoretical and practical; to promote and reward excellence in scientific endeavour; and to have a team of four members represent Australia at the International Biology Olympiad competition.

Prospective students sit for the ABO Qualifying Examination in October. Normally students entering the qualifying examination would be in Year 11, but exceptional Year 10 students are considered. The qualifying examination selects approximately 20 students to attend the Biology Summer Training School run by DEET, and held at the University of Canberra in January.

The 2-week residential summer training school is staffed by professional scientists from Australian tertiary institutions, and team members from earlier Olympiads, and provides students with intensive tuition in all aspects of biology at an undergraduate level. The final examination for team selection is held in the following March. The ABO team for that year will then attend an Easter Training School, which provides the final preparation before the team leaves for further overseas study and the International Biology Olympiad competition.

In 1993, Australia competed for the second time in the Biology Science Olympiads. The Australian team did remarkably well, with the following results:- Anna Brown (gold medal), Tony Handfield (silver), Amanda Henry (silver), Amanda Shaw (bronze). The Australian team came second overall to China.

Two members of the Victorian Cell Biology Society attended the farewell to these young people, and we realized that the teachers coaching these students, and the students themselves, were in need of support from Australian biologists. The Victorian Cell Biology Society has decided to set up mechanisms whereby this support will be available to competing team members from 1994 onwards.

Firstly, we want to establish the Biology Olympiad Bursary, so that each team member will receive some financial support and recognition of their success in being chosen as part of the team of four. Other Science Olympiad contestants are supported by relevant societies or institutes, and each team member receives a bursary of \$500. We hope that the biologists will be able to match that figure, and we have asked societies, institutions, and companies to help.

Please request your institution or company to participate. Cheques should be made payable to the "Biology Olympiads Bursary", c/-

Dr G. Flannery  
Victorian Cell Biology Society  
Department of Genetics  
La Trobe University  
Bundoora VIC 3083.

Secondly, we plan to establish a National Register of Biologists who are able to help with advice to teachers and team members, and also in coaching team members. Initial selection of student candidates is made during the year by the schools. These candidates then compete in the national exam, and the finalists attend the January training camp. Persons in the national register may be asked for advice by teachers at the school level, or to attend the training camp, or for final coaching of the team before the Olympiad in the middle of the year.

If you are able to help, then please send a note, indicating your name, address, telephone and fax numbers, and area of expertise, to:

Dr Lynne Selwood  
President, Victorian Cell Biology Society  
Zoology Department  
La Trobe University,  
Bundoora VIC 3083.  
Tel: (03) 479-2239 Fax: (03) 479-1551  
Email: zools@zoom.latrobe.edu.au

The Victorian Cell Biology Society will run the bursary and national register for 1994 and 1995. After that, they will be run for two years by another society, so that eventually every Australian biological society can participate. In 1996 and 1997 it will be run by the Australia and New Zealand Society for Cell Biology, and thence by delegation to the next society.

There is a third area where your support would be of value. Despite comprehensive press releases, *no* member of the press attended the

farewell, and press coverage of the success of the team was very slight. Biologists should put this on their agenda for attention at every opportunity. It is vital that we change this apathy towards scientific endeavour and achievements in the press and electronic media. Please act immediately, so that the 1994-95 teams receive the support that they deserve.

Lynne Selwood  
Victorian Cell Biology Society

## XVIII Pacific Science Congress

5-12 June 1995,

Beijing, China

The central theme of the forthcoming Pacific Congress is "Population, Resources and Environment: Prospects and Initiatives", which will address a series of great challenges for not only the Pacific region, but also for the whole world. In particular, the problems associated with the human population explosion, the energy crisis and environmental changes.

The six general symposia are:-

1. Global climate and environmental change;
2. Resources: exploration, utilisation and protection;
3. Biodiversity;
4. Population, education and culture;
5. South-North co-operation and sustainable development;
6. Natural disaster mitigation.

The nineteen sessions that are being organized include:-

1. Botany;
2. Bring oral history to a visual understanding and so preserve their culture for future generations;
3. Engineering science: Engineering, environmental engineering, natural energy, marine engineering;
4. Freshwater;
5. Genebank initiatives & prospects for conserving germplasm in the Pacific region;
6. Geography;
7. Human resources for the future: Women and young scientists in Asia and Pacific science;
8. Marine sciences;
9. Mediating multicultural conflict in the Asia-Pacific region at the macro and micro levels;

10. Meteorology and atmospheric sciences;
11. Public health and medical sciences;
12. Role of museums in biological surveys;
13. Solid earth science;
14. Structure and function of biological diversity in Pacific ecosystems;
15. The re-entry accommodation of scientists and engineers returning home after study abroad;
16. The role of prehistory in the formation of east Polynesian culture, in the Cook Islands and in the Marquesas Islands;
17. The teaching and learning of science / technology in the context of human experience;
18. The traditional musics of the Pacific areas and their role in the 21st century;
19. The role that scientific societies play in sustainable development.

If you wish to receive further details, please contact:

Barry Conn  
National Herbarium of New South Wales  
Royal Botanic Gardens  
Mrs Macquaries Road  
Sydney, NSW, 2000. Australia.

Barry Conn  
National Herbarium of New South Wales

The turtle lives 'twixt plated decks  
Which practically conceal its sex.  
I think it clever of the turtle  
In such a fix to be so fertile.

Ogden Nash

The common cormorant or shag  
Lays eggs inside a paper bag,  
The reason you will see no doubt —  
It is to keep the lightning out.  
But what these unobservant birds  
Have never noticed is that herds  
Of wandering bears may come with buns  
And steal the bags to hold the crumbs.

### Flighty fleas

An odd little thing is a flea  
You can't tell a he from a she  
But he can, and she can —  
Whoopee!

## AUSTRALIAN SYSTEMATIC BOTANY SOCIETY

### History of Systematic Botany in Australasia

Edited by P.S. Short. A4, case bound, 326pp. A.S.B.S., 1990.

Members \$30; non-members \$50. Postage \$10.

For all those people interested in the 1988 A.S.B.S. symposium in Melbourne, here are the proceedings. It is a very nicely 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).

### Systematic Status of Large Flowering Plant Genera

A.S.B.S. Newsletter Number 53, edited by Helen Hewson. 1987. \$5 + \$1.10 postage.

This Newsletter issue includes the reports from the February 1986 Boden Conference on the "Systematic Status of Large Flowering Plant Genera". The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concept; 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*.

### Flora and Fauna of Alpine Australasia: Ages and Origins

Edited by B.A. Barlow. A.S.B.S. & C.S.I.R.O., 1986. \$21 + \$5 postage.

The alpine environments of Australia, New Guinea, and New Zealand differ from each other in terms of topography, genesis, climate, and biota. They also contrast strongly with alpine habitats in the northern hemisphere. Palaeoclimatology, palaeobotany, biogeography, ecology, and plant and animal systematics have been used here to give an understanding of the biohistorical relationships of these isolated islands of alpine terrain in the southern hemisphere.

### Evolution of the Flora and Fauna of Arid Australia

Edited by W.R. Barker & P.J.M. Greenslade. A.S.B.S. & A.N.Z.A.A.S., 1982. \$20 + \$5 postage.

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

### Australian Systematic Botany Society Newsletter

Back issues of the *Newsletter* are available from Number 27 (May 1981) onwards, excluding Numbers 29 and 31. Here is the chance to complete your set. Cover prices are \$3.50 (Numbers 27-59, excluding Number 53) and \$5.00 (Number 53, and 60 onwards). Postage \$1.10 per issue.

Also available are sweaters (\$25), t-shirts (\$15), mugs (\$8 each, or \$42 for a six-pack), and scarfs (\$20).

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**AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED**  
(incorporated under the Associations Incorporation Act 1991)

**APPLICATION FOR MEMBERSHIP**

I, .....

of .....

.....  
(address)

.....  
(occupation)

hereby apply to become a member of the abovenamed incorporated association. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force.

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(signature of applicant)

.....  
(date)

I, .....  
(full name)

a member of the Society, nominate the applicant for membership of the Society.

.....  
(signature of proposer)

.....  
(date)

I, .....  
(full name)

a member of the Society, second the nomination of the applicant for membership of the Society.

.....  
(signature of seconder)

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(date)

Return this form, with the appropriate subscription, to the honorary treasurer:-  
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This list will be kept up to date, and will be published in each issue.  
Please inform us of any changes or additions.

## The Society

The Australian 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 an "Membership Application" form and forwarding it, with the appropriate subscription, to the treasurer. Subscriptions become due on January 1 each year.

## The Newsletter

The *Newsletter* appears quarterly, 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.

Contributions should be sent to one of the editor at the address given below. They should preferably be submitted as:- an unformatted word-processor or ASCII file on an MS-DOS or Macintosh-diskette, accompanied by a printed copy; as an unformatted word-processor or ASCII email file, accompanied by a fax message reporting the sending of the file; or as two typed copies with double-spacing.

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 Australian Systematic Botany Society Inc. *Newsletter* items should not be reproduced without the permission of the author of the material.

## Notes

ASBS annual membership is \$30 (Aust); full-time students \$15. Please make cheques out to ASBS Inc., and remit to the treasurer. All changes of address should be sent directly to the treasurer, as well.

Advertising space is available for products or services of interest to ASBS members. Current rate is \$100 per full page, \$50 per half-page or less. Contact one of the *Newsletter* editors for further information.

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## Cover

David Mackay

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