The newsletter of the Society of Australian Systematic Biologists. Issue 3 (November 2009)

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Editorial

In January 2008, Quentin Wheeler argued in 'Systematic Entomology' that taxonomy deserves funding for it own virtues as a science. This year in the same journal, Jiri Hulcr replied saying this aloofness does no favors for taxonomy, and that taxonomists should be aware of the service role of their work.

I agree with both. Ideally, taxonomy should be funded as a science, but practised as a service. Unfortunately, the current situation is more like the opposite. Often taxonomy is practised as a science with little regard for end-users who use the results of our research, but is funded as a service from funds left over from other, 'proper' scientific research. I would hope that as we make ourselves more accessable, it would cause the balance to shift more toward the ideal.

This issue of 'Banksia' has a very strong zoological focus. This is not intended to be slight against our botanist colleaugues, rather no botanical contribution were received for this issue. It would be great to receive some in the future. As always comments, suggestions and contributions are warmly welcomed. Keep them coming!

Samuel Brown

About the Society

SASB Officers:

Bob Mesibov (President)
mesibov@southcom.com.au
Penny Mills (Vice-President) Andrew Thornhill (Secretary)
andrew.thornhill@anu.edu.au
Samuel Brown (Newsletter Editor)
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Steve Cooper (Treasurer)
Lyn Cook
Michael Braby
Mike Crisp

The Society:

The Society of Australian Systematic Biologists is open to all people who utilise the science of biological systematics as a basis for the study and understanding of nature. The Society is a non-profit inter-disciplinary organisation whose purposes are to promote the scientific study of biological systematics and to disseminate scientific and educational information related to its fields of interests.

Membership:

Membership is free. Details are available on the society website (http://www.sasb.org.au/contacts.html) and from the secretary.

President's corner from incoming president Bob Mesibov

Thanks again to past president Volker Framenau and to Lyn Cook, who kindly stepped up when Volker stepped down for work reasons in June 2008.

Many thanks also, to the SASB officers and members who contributed to the great success of the Darwin 200 conference in Darwin at the end of September. Planning has begun for another joint conference in 2011 in Melbourne, most likely in the week beginning Monday, 28 November.

The next few months will see the SASB website get a makeover. The domain host and website structure will change, and I plan to extend the site with up-to-date training tools and information sources for Australian systematists. The URL will remain www.sasb.org.au.

Our electronic newsletter *Banksia* will continue under the very capable editorship of Samuel Brown. *Banksia* issues will soon be available for download from the SASB website.

Also looking forward, it would be good to see SASB members supporting (and reporting back to the SASB membership on) the Atlas of Living Australia (ALA) and the Taxonomy Research and Information Network (TRIN), two major initiatives currently underway at a national level. Another plug: the remarkable Entomology Curriculum Australia gets underway in 2010 (www.entomology.edu.au, see 'Entomology@Uni' link) . Could this be a model for online systematics training?

Please feel free to email me at any time about SASB and related matters. I'm retired, so you'll get a quick response if I'm at home, and only a slightly delayed one if my wife and I are off on a field trip!

Bob Mesibov

Frontiers of Biogeography

Frontiers of Biogeography is the new scientific magazine of the International Biogeography Society (ISSN 1948-6596). This publication aims to be a forum for biogeographers and a way to disseminate research in biogeography to a broader audience. The publication welcomes contributions from all biogeographers or other persons interested in biogeography or in applying biogeographical knowledge, whether or not they are members of the International Biogeography Society (IBS, http://www.biogeography.org/). Publications within the scope of the magazine include various news items, reviews, opinions and perspectives, interviews, articles on how to teach, disseminate and/or apply biogeographical knowledge, but not original research papers based on data. The first issue was published in September 2009, and is available free through the Society website. The first issue included articles highlighting recent significant publications, software developments, commentaries and perspectives on major issues and questions, a book review, conference summary, personal profile, job advertisements, and advertisements of upcoming events.

Chris Burridge

Discussion topic

Recently, questions have been asked regarding the usefulness and validity of subspecies. This issue's discussion topic was based on the quote below and the following questions: What are your ideas on subspecies? What characteristics should define them? Should they be monophyletic? When are they useful? Are they actually useful at all? Should they be encouraged or discouraged?

Thank you to all respondents. Selected responses are given below. See also Michael Braby's take on the situation with regard to butterflies later in the issue.

"... This expectation, that subspecies will be monophyletic, provides a way to evaluate named subspecies. Subspecies should be judged to fail as meaningful units if they do not predict the evolutionary history of the populations they represent."

Zink, RM. (2004).The role of subspecies in obscuring avian biological diversity and misleading conservation policy. Proceedings of the Royal Society of London B *271:561-564. doi: 10.1098/rspb.2003.2617*

The responses:

"My two-cents on subspecies monophyly is that not even all species *could or should be monophyletic. Take a species comprising a number of populations (distinguished as such by inter-population gene flow being less free than intra-population gene flow) and let that species speciate by peripheral isolation (one of the populations gets to be so isolated that it no longer interbreeds at all with the other populations). The isolated population is 'monophyletic' in the sense it has a single origin, but the set of populations it became isolated from are no more 'monophyletic' than they were before the new species was budded off. The same applies to speciation by polyploidy and a number of other specation mechanisms. Roughly one species in two should be 'paraphyletic' in the sense of having no single population of origin, not shared with another species.*

Of course, even the budded-off species won't necessarily show monophyly in any or many genes. That status takes time and may not be acquired (through drift or selection) for many generations. However, in general, the budded-off population will be smaller than the rest of the populations combined, plus it may sample only a subset of alleles. Therefore, at any point in time (after that population became isolated and can be recognised as a new species) there will be a greater chance of finding monophyly of any given gene in the budded-off species than there is in the 'rump' or leftover species. As a consequence, for very many years/generations, the one species may show monophyly in individual genes while the other still retains polymorphism in those genes from the common ancestor. Thus, at a molecular level, one in two of all species should be paraphyletic most of the time.

As applied to subspecies I think there is a useful distinction to be made between a subspecies and a variety. The former word I would reserve for incipient species that have almost but not quite separated, though are judged to have a good chance of achieving separate gene-pool status eventually. Only one in two of these should be in any sense

monophyletic, and most likely not in any gene (except for genes in non-recombining organelles: those gene trees show monophyly right down to the level of the individual). The latter is a good word for a phenotypic form based on a recognisable combination of alleles, and, since the alleles are sloshing around in and across the species at all times, any particular combination might occur by chance (or selection) more than once. All instances are the same and deserve the same name. Therefore, I would say a variety never has to be monophyletic at all."

John Trueman

"Below the species level, relationships are reticulate, hence questions of monophyly do not enter into it.

Subspecies are populations within a species which differ from each other as a whole, but not absolutely. All one can say is that there may be a point at which there is such a high frequency of character state difference between two or more populations that it becomes useful for various purposes (conservation, especially) to dignify them with trinomials.

Subspecies do not have a reality, an individuality, in the way that species do. They should under no circumstances be reified."

Colin Groves

"My understanding of subspecies is that they are geographically-based morphological variants. As such, they are not open to testing other than being a member of the species to which they have been assigned. The use of the name and what it represents is a matter of agreement among users of the name. Contrary to the quote given, I think monophyly is not a test of subspecies. It would be expected that subspecies should not be reciprocally monophyletic - to be so indicates that there has been no recent or contemporary gene flow and hence they are likely distinct species, not subspecies. Subspecies are populations of the one species and therefore should experience gene flow. They are useful for describing morphological variation across space, but not necessarily testable entities."

Lyn Cook

Cool trick with Google Maps

Sometimes I wonder why introductions to spatial science are still taught at university, now that Google has gazillions of people using their freely available GIS programs every day. My favourite for fieldwork is Google Maps. It not only helps me plan my trips, it plots their results as well.

The trick to the plotting is to write a KML file and put it on a Web server somewhere. What's a KML file? It's a plain text file written in a special format. Here's an example I wrote, called 'test.kml'.

```
<?xml version="1.0" encoding="UTF-8"?>
<kml xmlns="http://www.opengis.net/kml/2.2">
<Folder>
```

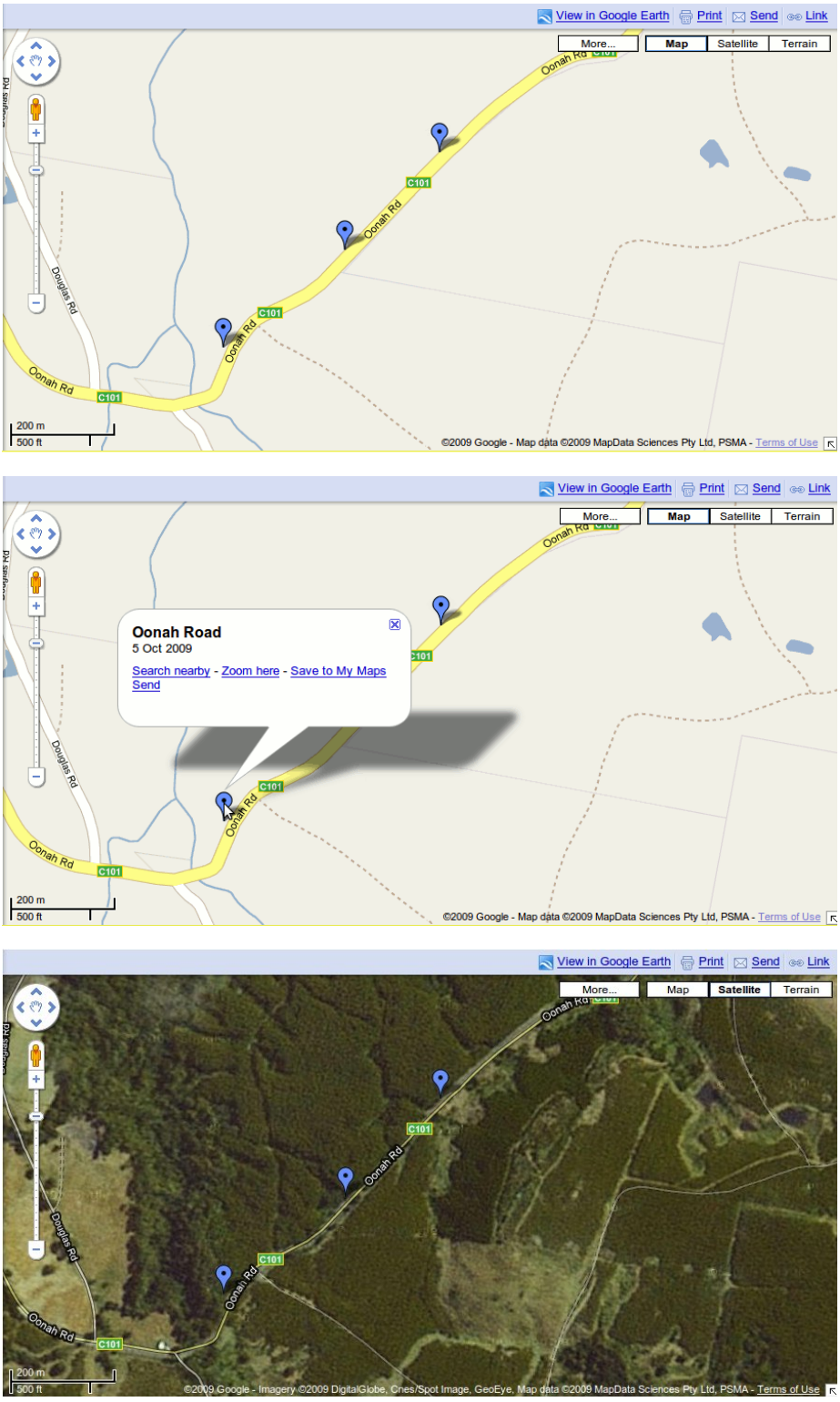

Figure 1. Top: test.kml as viewed in Google Maps. Middle: information associated with each point. Bottom: test.kml when viewed in satellite view.

```
<Name>Tasmaniosoma sp. 'H'</Name>
<Placemark><name>Oonah Road</name><description>5 Oct
    2009</description><Point><coordinates>
    145.6900,-41.2433,0</coordinates></Point></Placemark>
<Placemark><name>Oonah Road</name><description>5 Oct
    2009</description><Point><coordinates>
    145.6878,-41.2450,0</coordinates></Point></Placemark>
<Placemark><name>Oonah Road</name><description>5 Oct
    2009</description><Point><coordinates>
    145.6850,-41.2467,0</coordinates></Point></Placemark>
</Folder>
</kml>
```

The key bits are the three 'Placemark' lines. Each has information about a particular location, in this case one of the three sites I sampled along Oonah Road in northwest Tasmania on 5 October 2009.

I now send 'text.kml' to a Web server to which I have access, in this case one at the Queen Victoria Museum and Art Gallery. (You could use any Web folder to which you have access.) Next, I open Google Maps in my browser, enter the full Web address (URL) of 'test.kml' in the Search box, and hit Enter. Voila!, Google Maps has plotted my three locations (Fig. 1, top). If I click on one of the markers, Google Maps shows me the information in the 'name' and 'description' spots in the KML file (Fig. 1, middle). Note that you can put *any* information in these spots, like 'Third site', 'Had lunch here' or 'Female with eggs, QVM 23:56114'.

Google Maps also has a satellite image backdrop you can switch to (Fig. 1, bottom), and if Street View covers the road you've sampled, you can get a near-eye-level view of your sampling spot (Fig. 2, top), or tilt up for a canopy view (Fig. 2, bottom).

I haven't tested the limits of the Google Maps servers to see how many Placemarks can be displayed, but I know that several thousand locations can be loaded into a single KML file and plotted almost instantaneously. All that Google Maps needs is the coordinates for each Placemark in the form 'longitude, latitude, elevation', with lat/long in decimal degree format and the usual convention that south latitudes and west longitudes are negative. These numbers go between `<coordinates>` and `</coordinates>`, as in 'test.kml' above. Note that I arbitarily set the elevations to zero. Entries in the 'name' and 'description' fields are optional.

For more - much more! - on KML, see http://code.google.com/apis/kml/documentation/kmlreference.html. Or just copy the file above, rename it '[something].kml' and make up your own Placemark lines.

You can also use your homemade KML file in Google Earth, and this time you don't have to send it off to a Web server. If Google Earth is installed on your computer, just double-click on the '*.kml' file name in your file manager, or right-click on it and 'Open with...' Google Earth.

Bob Mesibov

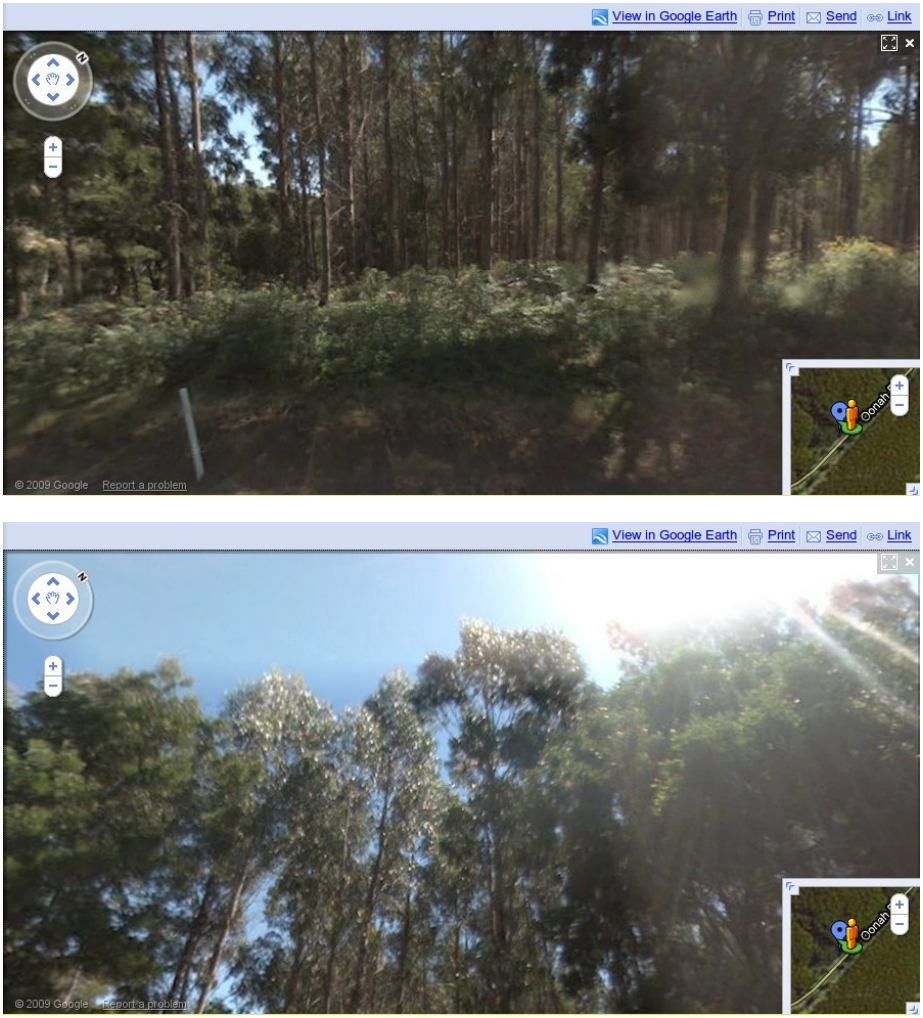

Figure 2. Street views of recorded sites

ICZN appointment

Dr Mark Harvey, an arachnologist specialising in pseudoscorpion taxonomy and based at the Western Australian Museum, was recently elected to the International Commission on Zoological Nomeclature (ICZN) as one of six new commissioners. He joins the ICZN at an interesting time as the commission investigates how best to encourage and maintain standards of nomenclature in an increasingly digital world. Mark's duties from the ICZN include promoting and educating others about nomenclature, as well as voting on problematic nomenclatural cases that are brought to the attention of the commission. The commission seeks to fulfill the needs of the taxonomic community, and as such relies upon input from the community. Mark is keen to hear your views and opinions on the state and direction of zoological nomenclature. He is also very happy to assist systematists from the Australasian region with nomenclatural problems.

Samuel Brown

Type definitions

Finding, describing and designating type specimens is an essential aspect of the taxonomic process, and one that has become encumbered with a great deal of very complex jargon. While all of us should know what holotypes and paratypes are, lectotypes are a bit harder to come to terms with, and gems such as cyrioplesiotype and metatopotype are completely impenetratable to the uninitiated.

Thankfully, Neal Evenhuis has come to our aid with a comprehensive document defining the myriad of terms that have come to describe taxonomically and nomenclaturally important specimens. In his "Compendium of Zoological Type Nomenclature: A Reference Source", you not only discover that a cyrioplesiotype is the principal specimen of a series used for a redescription but you also find the following useful terms:

Remorsotype: The type of a taxon the author regrets having described.

Heberotype: A unique type specimen that has been used for molecular analysis (that failed) and is only left with a barcode label to identify it.

Spitotype: The type of a taxon described expressly to vex a colleague.

Boobootype: A holotype that should not have been described. For example, a specialist fails to recognize his own earlier described species; the museum technician or the star graduate student does, however.

This valuable and entertaining resource is available from the website of the Bishop Museum. http://hbs.bishopmuseum.org/publications/pdf/bm-tp41.pdf

Samuel Brown

Evenhuis, NL. (2008). A compendium of zoological type nomenclature: a reference source. *Bishop Museum Technical Report* 41. 23 pp.

Galls of females of *Eremococcus* on *Agonis* (WA). Photo: Lyn Cook.

PhD project

A PhD project is available in Lyn Cook's lab at The University of Queensland to work on questions of co-radiation and biogeography of Australian scale insects and tea-trees (*Leptospermum* and relatives). For more details, see http://www.uq.edu.au/~uqlcook/available_student_projs.html.

Lyn Cook

Updated SASB website now online

The new SASB website is now online at the old address, http://www.sasb.org.au/.

It has a simpler structure than the old website and should load faster in your browser. Your suggestions for additions, deletions and corrections would be very welcome on two of the pages in particular:

http://www.sasb.org.au/journals.html

http://www.sasb.org.au/courses.html

Please note that the 'courses' page tries to list only those units which are more or less dedicated to systematics, and does not include the many excellent biology courses around Australasia which cover systematics along with many other topics.

Ideas and contributions are (always!) very welcome for the Resources section. Please contact the webmaster directly: Bob Mesibov, mesibov@southcom.com.au.

Bob Mesibov

Website review: BunyipCo Blog

Following his retirement from CSIRO in Canberra, David Rentz headed for warmer climes to a place in the bush around Kuranda, Queensland. Since 2007, he has been maintaining a blog (http://www.bunyipco.blogspot.com/) to share his observations of the variety of wildlife he dwells amongst.

Reflecting his research interests in insects in general and orthoptera in particular, most of his posts focus on the insect fauna that he comes across, mainly at the permanent light sheet that has been a fixture of his back yard for a long time. The activities of the resident cassowaries are also chronicled, and the local amphibians and reptiles also get showcased in various places. All posts are accompanied by spectacular photos and form a valuable record of the biota of the area.

BunyipCo is an interesting and informative blog about the Australian wet tropics. David's delight in the fauna he records is obvious to all. His posts are accessible and enjoyable, and that combined with the photography make BunyipCo a blog worth having a look at regularly.

Samuel Brown

The subspecies concept as applied to Australian butterflies

The species level of biological organization is the fundamental unit of analysis in ecology, evolution and conservation biology. Subspecies represent a lower unit of biological organization and are also frequently the focus of conservation programmes. Under the International Code of Zoological Nomenclature, subspecies are recognised as a formal trinomial - "the scientific name of a subspecies is a combination of three names" (Article 5.2). The subspecies concept was conceived as a formal means of documenting geographical variation, or units of variation within species which had been ascribed to as geographical races. According to Ernst Mayr, a subspecies is an aggregation of phenotypically similar populations of a species inhabiting a geographic subdivision within the overall range of the species and differing from other aggregate populations inhabiting other geographic subdivisions. It has been assumed that these geographically isolated populations represent an incipient stage of differentiation, that is, they are genetically distinct and in the process of independent speciation, but able to interbreed freely at zones of contact.

In common with many organisms, most species of Australian butterflies have been delineated on morphological and biological criteria according to the (revised) biological species concept of Mayr, which has had a profound influence on taxonomy and evolutionary biology since its inception almost 70 years ago. Rarely have other concepts been applied, such as the phylogenetic species concept, which has gained increased popularity in the last few decades and which was recently used to distinguish two related species of *Danaus* butterflies in the Indo-Australian region. The validity of subspecies of Australian butterflies, however, is increasingly becoming a pressing issue in both taxonomy and conservation biology because the taxonomic status of many

is controversial while others have been flagged for conservation concern. E.O. Wilson and W.L. Brown in 1953 recommended that the subspecies concept be abandoned because of widespread complacency in their erection, difficulties in determining their delimitation, and that taxonomic decisions made for a particular set of populations are often arbitrary and subjective. They noted that too frequently little attention is paid to quantitative analysis of trends in geographical variation, establishing which characters are genetically independent and, moreover, there is the general tendency for characters to recur in more than one geographical area. Wilson and Brown concluded that subspecies be replaced with a system of reference based on vernacular locality or geographical area names.

To date, Wilson and Brown's recommendation appears to have been largely unheeded. For example, among Australian butterflies, a plethora of subspecific names has been erected over the past 95 years by prominent butterfly taxonomists such as G.A. Waterhouse, A.N. Burns, N.B. Tindale and L.E. Couchman, principally to document geographical variation, and most of these subspecies have been distinguished on the basis that they comprise morphologically distinct allopatric populations. The subspecies are usually recognised by possessing one or more small but diagnostic phenotypic differences in wing pattern or colouration from the nominate subspecies. For example, subspecies may differ in quantitative ratio (continuous) character states such as the extent or width of marginal bands or the size of spots, or differ in fixed qualitative nominal (discrete) character states such as the colour of patches or presence/absence of wing pattern elements.

Several Lepidopterists (including myself) have not recognised many of the 'traditional' subspecies of Australian butterflies because they were deemed to represent historical sampling artefacts - frequently the distributions were continuous or overlapping such that the pattern of variation appeared to be clinal, or reliable diagnostic morphological characters were lacking, or the features on which the taxa were established were inconsistent and too variable. In other cases, subspecies were actually junior synonyms that were subsequently awarded subspecific status with little objectivity rather than being placed in synonymy.

In general, there have been few quantitative attempts to examine critically the validity of subspecific taxa or establish if patterns of variation of Australian butterflies are clinal. Moreover, there have been even fewer attempts to establish if geographical subspecies are also differentiated genetically and comprise a highly structured discrete subunit through the effects of genetic drift according to markers such as mtDNA or microsatellites (i.e. reciprocal monophyly), or are part of a panmictic population with considerable gene flow and is responding differentially to the relative effects of natural selection acting progressively over the range of the species (i.e. adaptive phenotypic variation). If subspecies are, by definition, geographically isolated populations in an incipient stage of speciation, then logically it follows that they should also be differentiated genetically and comprise distinct evolutionary units. Dan Schmidt found in the Australian lycaenid butterfly *Ogyris amaryllis* all but one of the 4-6 putative subspecies, *O. amaryllis hewitsoni* in the narrow sense, were reciprocally monophyletic, and that genetic variation and differentiation within this species was better explained by larval food plant affiliation than geography, let alone adult phenotype. On the other hand, within the Australian endemic lycaenid *Acrodipsas cuprea*, which exhibits polymorphic male colour pattern that is partitioned geographically into three broad allopatric areas, Rod Eastwood found a strong correlation between morphotype and

haplotype variation for a 582-nucleotide fragment of COI, with little mixing of haplotypes between morphotypes, indicating that if trinomial names were to be given to these populations, each would comprise a reciprocally monophyletic unit. Conversely, Eastwood identified deep genetic structure within *Jalmenus evagoras*, another Australian endemic lycaenid, which what was not evident in the present morphologically based taxonomy, although does roughly correspond with morphological differences between northern and southern populations. Eastwood and others subsequently evaluated the taxonomic status of *J. eubulus*, which previously had been treated as a subspecies of *J. evagoras*, using a multidiscipline approach in which data from multiple properties (adult morphology, ecology, phylogenetics and genomics) were analysed. Although the mean pairwise difference between the two taxa was only 0.85% based on a 615-nucleotide fragment of COI, their analysis indicated fixed differences in the mitochondrial genomes and absence of matrilineal gene flow that was associated with pronounced morphological and ecological differences between two parapatric species. The study also clarified much confusion in the biology and conservation status of *J. eubulus*. These examples echo similar findings that have been widely reported for birds in which most avian subspecies lack population genetic structure indicative of distinct evolutionary units, but when genetic structure is present it is often not reflected in the existing taxonomic classification.

Perhaps the best-known study and the most striking example of an Australian butterfly exhibiting complex geographical variation, involving both primary and secondary clines and hybrid zones, is the polytypic satyrine *Tisiphone abeona*, with 6-8 subspecies recognised by various authors. The subspecies fall naturally into two broad groups, and there is a limited hybrid zone where these two groups meet in central coastal New South Wales. Three subspecies from the southern end of the range, the 'orange group', have a broad orange median band on the fore wing and no band on the upperside of the hind wing. By contrast, the three subspecies from the northern end of the range, the 'cream group', have cream markings on the upperside of both wings and no orange band on the fore wing; the cream markings are only faintly developed in the most northern populations. This hybrid population (known as 'joanna') is highly variable and has arisen through introgression between the southern subspecies *T. abeona aurelia* and the northern subspecies *T. abeona morrisi* and *T. abeona regalis*. In addition, laboratory hybrids resembling 'joanna' have been produced by crossing *T. abeona abeona* (southern 'orange group') with *T. abeona morrisi* or *T. abeona rawnsleyi* (northern 'cream group'). The population has special conservation significance, but is generally not recognised as a formal subspecies. However, like many butterflies in Australia that exhibit complex geographical variation, the various subspecies have not been assessed to determine patterns of genetic distinctiveness and the extent of significant evolutionary units within this species remain unknown.

Another issue concerns the validity of a number of subspecific taxa apparently endemic to Australia, with populations of many species found only on the Torres Strait islands and/or Cape York Peninsula, Queensland, accorded subspecific status. These species frequently occur outside Australia (e.g. mainland New Guinea), but many of these endemic subspecies are of dubious status. In only a few cases have they been assessed objectively to determine if they are merely forms of extralimital taxa, for example, the satyrine *Orsotriaena medus moira* endemic to Australia is now considered a synonym of the more widespread *O. medus licium* from South-East Asia and mainland New Guinea.

In summary, the subspecies is a useful concept for groups such as butterflies that show pronounced geographical variation in wing pattern elements, but subspecies should comprise separately evolving population lineages of a species that are allopatric, phenotypically distinct, have at least one fixed diagnosable morphological character state and, preferably, that these morphological differences are correlated with evolutionary independence according to population genetic structure (i.e. reciprocal monophyly). However, lack of reciprocal monophyly should not be taken as evidence against recognition of subspecies because of the possibility of interspecific hybridisation, incomplete lineage sorting and recent speciation. Where there are many diagnosable morphological characters or if both morphological and genetic differences are further correlated with other properties such as specific mate recognition systems (e.g. genitalic differences), mate incompatibility, hybrid sterility, reproductive isolation, limited gene flow, pronounced ecological differences (e.g. larval food plant and habitat specialisation) etc, then those lineages are probably better regarded as distinct species, for example, as demonstrated by Rod Eastwood and others for the butterfly *Jalmenus eubulus*.

Michael F. Braby

2009 combined Crisp-Cook lab retreat in Yathong Nature Reserve, NSW

For the past three years, members of Mike Crisp (ANU) and Lyn Cook's (UQ) lab groups have gathered in interesting locations to have a joint mini-symposium and field trip. All attending members (and guests) present a summary of their current research and run discussions. Systematics and general evolutionary biology are the main foci of formal proceedings. There are also informal bushwalks and other activities. In June/July 2009, the groups met up in Yathong Nature Reserve (south of Cobar), central New South Wales, where we stayed in the refurbished shearers quarters. It was an excellent venue - good kitchen for our self catering, and hot showers at the end of a day's field activities before settling down to dinner and presentations. Culinary highlights included Andrew and Richard's pears poached in red wine (and port), Bee and Melita's slow-cooked lamb shanks, Gunter and James' vegetarian chilli "beef", and Anna and Penny's roast vegetables.

The semi-arid mallee, belah, and cypress and box woodlands were in stark contrast to the wet sclerophyll and rainforest of the 2008 retreat in Barrington Tops, and the coastal heath and forest of the Fingal Bay area (2007). For some students, it was their first trip into the Australian "outback".

Lyn Cook

Summary minutes of the SASB Annual General Meeting in Darwin, 25 September, 2009

The 2009 AGM of the society was held in conjunction with the Invertebrate Biodiversity and Conservation conference that was sponsored by the society and held in Darwin. The following is a summary of the minutes from the meeting.

Lunch stop on ridge walk. From left to right: James Ingham (back), Melita Baum, Richard Carter, Penny Mills, Lyn Cook, Lindsay Popple, Anna Kearns (back), Gunter Maywald, Paul Lin and Bee Gunn. Present, but missing from the photo, are Mike Crisp, Andrew Thornhill and Bort Edwards. Photo: Lyn Cook.

Yathong Nature Reserve. Paul Lin (foreground) and Penny Mills look for scale insects on the mallee. Photo: Lyn Cook.

President's report—Lyn Cook

Volker Framenau was thanked for his work as President; and Samuel Brown for his role as newsletter editor.

Treasurer's report—Steven Cooper, Honorary Treasurer

Current assets of the society stand at $7,174.16 (25 Sep 2009). The Society relies on the continued profits from conferences for its income and for any student bursaries we offer. Although it appears we made a big profit in the last two years, in reality we have only derived new income of about $2000 which limits our capacity to support activities such as supporting student bursaries. This leaves us with the question as to whether we should introduce membership fees? Thanks to Volker Framenau there has been a substantial saving in recent years because the SASB website has been hosted for free by bur.st, and the cost is essentially the payment of $88 we make to Melbourne IT for the continued use of the domain name.

Secretary's report—Andrew Thornhill

In the years between 2007 to 2009 the SASB gained around 52 members. This figure is not precise because records were muddled when we conducted our lost members email audit through the first edition of the SASB newsletter. There are now around 300 addresses on the SASB email list; this figure could change if more lost members email addresses were updated. Membership details are currently compiled in an Excel spreadsheet and the idea of having an online members list was looked into by former SASB president, Volker Framenau. The project stalled when Volker had to relinquish

his duties because of work commitments. While the current management system is OK, an improved method could save time in the future. Responsibility for the maintenance of the SASB website has been passed from Volker to the President and Secretary. The last news to report is that SASB began producing a newsletter thanks to the hard work of Samuel Brown and that at least one Australian university library is keeping it in its catalogue.

SASB Newsletter Editor's report—Samuel Brown

There have been two issues of the Society newsletter Banksia published, in October 2008 and May 2009. We published a variety of articles including software and website reviews, technical advice and a discussion topic in each issue. Most of the newsletter material has been submitted by a handful of contributors, but it is hoped that more will start contributing as the newsletter becomes more established. The aim of the newsletter is to provide a vehicle for communication to and within the Society and to support systematic biology in Australasia. The only way the newsletter will achieve this second aim is if members of the society provide material of interest, and give feedback regarding the usefulness (or otherwise!) of the material and what they would like to see in it. Members are encouraged to contribute and suggestions about extra content are welcome. Contributions can be anything - technical notes, opinion pieces, funny/interesting field or lab reports, lab profiles, job vacancies, news from around the world, ideas for competitions, etc, etc, etc. Photos of Australasian taxa are particularly encouraged to liven the newsletter. The newsletter is in its infancy, and so it is an opportune time to start directing it on the course that is most helpful for the needs of the society members.

Other business

The following officers were elected:

President—Bob Mesibov
Vice-President—Penny Mills
Secretary—Andrew Thornhill
Treasurer—Steve Cooper
Councillors—Mike Crisp, Michael Braby, Lyn Cook

Christine Lambkin was thanked for her long service on the SASB Council, and Lyn Cook was thanked by new president Bob for filling the role of president of the SASB following Volker's standing down.

SASB student conference registration bursaries were awarded to Cathy Car, Karen Edward and Andrew Thornhill.

The future role of SASB was discussed, with suggestions of playing an important part in extending taxonomy to the broader community. Discussions were also held on the possibility of sponsoring a training workshop; and the ability of the society to accept donations and whether these could be tax deductable.

The next meeting will be held at the IBCC joint conference in Melbourne at the end of November 2011.

Full minutes of the AGM including financial statements are available from the secretary.

Samuel Brown