

Our fifth issue

David Yeates, Director, ANIC

The months since issue 4 of ANICdotes have seen many staff travel to conferences, and others hunker down through the Canberra winter, mostly adapting to the new Collections and Facilities area of CSIRO, and research. David Yeates, postdoc Karen Meusemann and PhD student Michaela Purcell all attended the 8th International Congress of Dipterology in Potsdam, Germany, in August. Michaela’s poster on maternity in the multilocular galls formed by Fergusoninidae flies won first prize at the Congress, and we have an article about this award in this issue. On the topic of awards, Adam Slipinski and Hermes Escalona were winners of the 2014 Whitley Medal for their book *Australian Longicorn Beetles (Coleoptera: Cerambycidae) Volume 1*, published by CSIRO Publishing and The Australian Biological Resources Study in 2013. This is the most important and prestigious prize in Australian zoological publishing. At the same ceremony Adam’s book with John Lawrence entitled *Australian Beetles: Morphology, Classification and Keys Volume 1*, published by CSIRO Publishing, also in 2013, won a Certificate of Special Commendation. We featured the winning book in ANICdotes October 2013 Issue.

Rolf Oberprieler, Debbie Jennings and Kim Pullen have put the finishing touches on their mammoth catalogue of Australian weevils (Curculionidae), to be published shortly in *Zootaxa*, and we focus on our weevil research in this issue, as well

the beetle identification course instructed by Adam Slipinski and K

Cate Lemann. Nicole Fisher provides an account of the DigitalSpecimen conference in Berlin she attended September – Nicole presented on the mass digitization initiatives in the CSIRO collections. Debbie Jennings and Ted Edwards report on the significance of the Eggleton butterfly collection recently donated to the ANIC, and we also pay tribute to our beetle volunteer Greg Fletcher, who passed away recently.



David Yeates

The other members of the Organizing Committee and I have been occupied in recent months planning for the 50th anniversary conference of the Australian Entomological Society, to be held in the Shine Dome, Canberra, from 28 September to 1 October. A highlight of the conference will be an Insect Art exhibition developed in collaboration with the Wildlife and Botanical Artists Inc. group. We look forward to seeing many of you at the Conference.

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BANNER: *Graphium macleayanus* image from the [Biodiversity Heritage Library.](#)

Beetle research group win the Whitley Medal for 2014

David Yeates

At a ceremony in Sydney on Friday 12 September, the Royal Zoological Society of NSW announced that Adam Slipinski and Hermes Escalona were co-winners of the 2014 Whitley Medal for their book 'Australian Longhorn Beetles (Coleoptera: Cerambycidae) Volume 1', published by CSIRO Publishing and The Australian Biological Resources Study in 2013. The other medal winner was Marion Anstis for her book 'Tadpoles and Frogs of Australia'. This was a medal double for 2014! The Whitley Medal is the most important and prestigious prize in Australian zoological publishing. At the same ceremony

Adam's book with John Lawrence entitled 'Australian Beetles: Morphology, Classification and Keys. Volume 1', also published by CSIRO in 2013, won a Certificate of Special Commendation.

Join me in congratulating Adam, John and Hermes. Special congratulations also go to the extremely talented people who work tirelessly illustrating these prodigious works, Cate Lemann and Anne Hastings.

I am amazed by the sheer quantity and unrivalled quality of scientific output produced by ANIC's beetle research group.



Adam and Hermes with a copy of the winning book.

8th International Congress of Dipterology, Germany

Postdoctoral fellow Karen Meusemann, PhD student Michaela Purcell and David Yeates all attended the 8th International Congress of Dipterology in Potsdam, Germany, from 8-15 August 2014. Potsdam is a historic city close to Berlin. With almost 400 delegates from over 40 countries represented, the Congress was a real buzz.

David Yeates presented a keynote address on austral biogeography, Karen and David presented submitted papers on phylogenomics using transcriptomes, and Michaela presented a poster on her work with Fergusoninidae flies.



Michaela with her winning poster.

We were all delighted when Michaela's poster won first prize in the student poster competition. The next Congress of Dipterology will be in Stellenbosch, South Africa in 2018.

2014 Training Course for identification of Beetles of Biosecurity Concern

Cate Lemann

The course was funded by the National Plant Biosecurity Diagnostic Network. The scope and purpose of the Course was to increase the knowledge of participants, with limited prior exposure, to common beetle taxa and beetle taxa of biosecurity concern.

Trainers: CSIRO: Australian National Insect Collection, [Dr Adam Slipinski](#), Research Scientist and [Cate Lemann](#), Research Project Officer.

The 3 day course was held on the 7th to the 9th of July in teaching facilities at the Australian National University and focussed on 54 out of a possible 117 families of beetles.

The course first aimed to give participants the basic morphological knowledge required to identify specimens and then the opportunity to be exposed to and become familiar with many real examples and images from each of the chosen families.

Each day was divided into a morning and an afternoon session. Each session started with a presentation followed by at least 2 hours of practical experience. Tea and lunch breaks were incorporated into the daily sessions to encourage interaction and networking for this “community” of diagnosticians.



Identification Lab session at ANU

The Participants:

[Guy Westmore](#), DPIPWE Tasmania

[Chris Bloomfield](#), NSW DPI - ASCU

[Michael Nash](#), SARDI

[Mark Blacket](#), DEPI

[Stacey Anderson](#), Department of Agriculture

[Luke Sullivan](#), Department of Agriculture

[Sarah Johnston](#), Department of Agriculture

[Graham Teakle](#), DAFF

[Therese Oliver](#), Ministry for Primary Industries, NZ

[Dongmei Li](#), Ministry for Primary Industries

[Tony Robinson](#), Department of Agriculture

[Eliza Finlay](#), Department of Agriculture

[Elaine Tou](#), Department of Agriculture - Entomology

[John Nielsen](#), Department of Agriculture

[Justin Bartlett](#), Biosecurity Queensland

[Stephanie Sopow](#), Scion (NZ Forest Research Institute)

[Carol Muir](#), MPI

[John Botha](#), DAFWA Department of Agriculture WA

[Haidee Brown](#), Dept Primary Industry & Fisheries

Weevilling in the ANIC and beyond

Rolf Oberprieler, Debbie Jennings and Kim Pullen

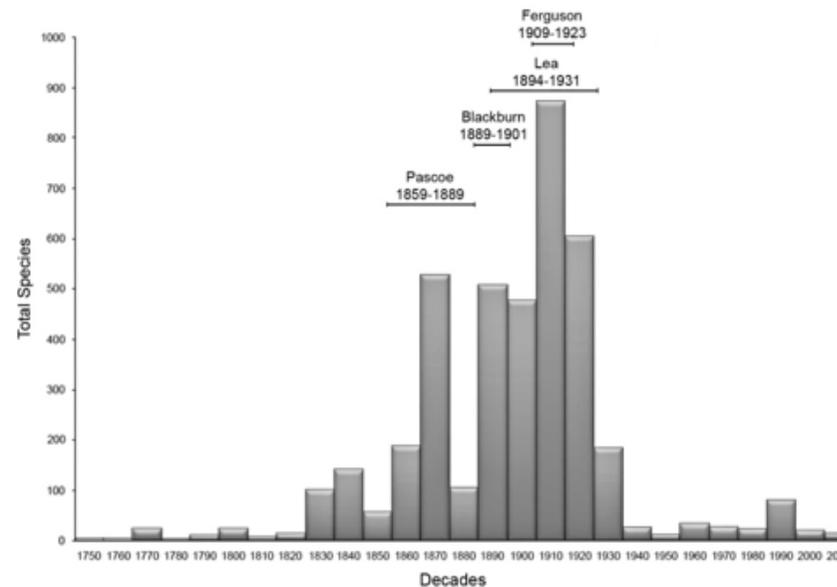
Weevil research in the ANIC recently focussed on converting the electronic checklist in the Australian Faunal Directory into a proper, annotated catalogue of all Australian weevils. This required careful checking of all original descriptions and other records in the literature as well as of the weevil holdings in the ANIC, and it revealed a number of interesting facts in both realms.



The longest Australian weevil, *Eurhamphus fasciculatus*

The ANIC weevil collection, housed in 82 cabinets, began with the CSIR's early acquisition of Walter Froggatt's general collection and of Eustace Ferguson's more focussed collection of Amycterini. The holdings were later expanded with material from numerous ANIC expeditions throughout Australia. The collection also contains valuable comparative specimens of other faunas, notably New Guinea and North America. The smallest weevils in the

ANIC are blind midgets of the genus *Myrtonymus*, less than 1 mm long; at the other extreme are 60 mm giants of the Great Pine Weevil, *Eurhamphus fasciculatus*. A specimen of *Ethadomorpha clauda* collected by a certain Charles Robert Darwin is among the most valuable. He found it in 1836 at King George Sound, W.A., the place of which he famously wrote "... he who thinks with me, will never wish to walk again in so uninviting country."! There are also six specimens of Australia's only known extinct weevil, the flightless *Hybomorphus*

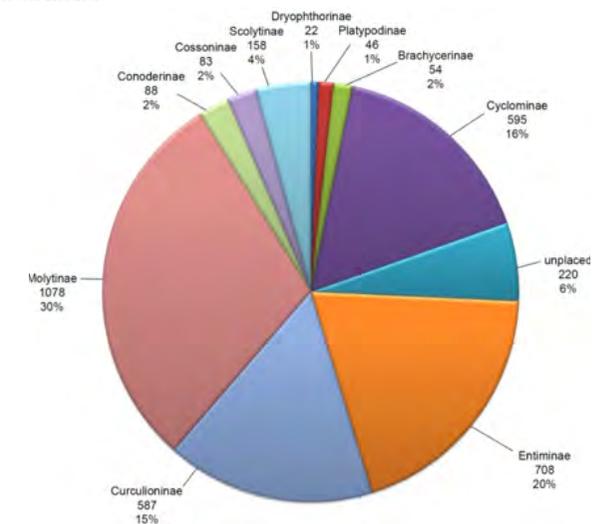


Numbers of Australian weevil species described per decade

melanosomus, once plentiful on Lord Howe Island but last seen in 1869. The ANIC contains over 460 primary type specimens of weevils, including 19th-century Macleay material on permanent loan from the Macleay Museum.

The Australian fauna comprises 7 % of the world's weevil species. It is a unique mixture of endemic austral elements, such as the iconic tribe Amycterini, and of northern, Oriental elements, and it is particularly rich in species of the subfamilies Cyclominae, Entiminae and Molytinae. Only Australia, New Guinea and South America harbour all seven currently recognised weevil families. The heyday of descriptions occurred during the period 1870–1930, and the fauna currently comprises 831 genera containing 4110 valid modern species –

half of them described by one man, Arthur Lea. It is estimated that another 4000 weevil species are already in the collections throughout the country, and countless more probably await discovery. The Cryptorhynchini are the most diverse tribe, with 691 species in 171 genera, but in the ANIC alone there are numerous small, undescribed species collected from forest leaf-litter, one of the most poorly sampled habitats in the country. One nemomychid, *Talbragarus averyi*, is known only as a Jurassic fossil.



Numbers and percentages of species of Curculionidae by subfamily

Andreas Zwick

David Yeates

Andreas Zwick came from Tübingen (Germany) to the ANIC for the first time in 2002, studying the phylogeny and taxonomy of antheiid moths for his Ph.D.. As a postdoctoral researcher at the University of Maryland (USA), he spent two years analysing the large molecular data sets of the “Assembling the Tree of Life Lepidoptera” project. He then worked for four years as curator of Lepidoptera at the Natural History Museum in Stuttgart (Germany). At long last he returned to Canberra in 2014 to take on a research position as molecular systematist at the ANIC. In this role he runs the molecular lab of the ANIC and has oversight of research in the Lepidoptera collection.

Andreas’ research interests centre around methods of molecular data analysis and the higher phylogeny of arthropod groups. Expanding a large multi-gene data set to include most hexapod orders, he investigates the order-level phylogeny and origin of insects. These data also serve to explore analytical peculiarities in the reconstruction of such ancient relationships, e.g., the signal retained by serine codon clusters. Using transcriptome data, he also works on reconstructing the evolutionary relationships of mites and smaller arachnid orders (Euchelicerata), of malacostracan crustaceans, and of mayflies (Ephemeroptera). In collaboration with ANIC’s Adam Slipinski, Andreas just started to work on the genus-level phylogeny of the ladybird beetle tribe Coccinellini, which will support a taxonomic revision of the group by Adam and colleagues. And last but not least, with a background as lepidopterist and a passion for moths, he is particularly interested in the phylogeny of moths and butterflies. To this end he resumes a project with Marianne Horak on the early divergences within the economically important tortricid moths.



Andreas caught on camera in the field

A key interest of Andreas is to make genetic information that is retained in the vast traditional collections of the ANIC accessible for taxonomic and applied research. In a collaborative project supported by an ignition grant from the ANU’s Centre for Biodiversity Analysis, he tries to piece

together the genome of a 70-year-old, pinned moth specimen. It belongs to the very rarely collected species *Helicoverpa prepodes*, and comparative genomics might help understand key traits in the closely related mega-pest bollworm species *H. armigera*, *H. zea* and *H. punctigera*.

DigitalSpecimen 2014, Museum für Naturkunde Berlin

Nicole Fisher

I attended the International *DigitalSpecimen* conference hosted by the Museum für Naturkunde Berlin, to bring top researchers with experience in digitising, curators and technical experts together to exchange up-to-date experiences and ideas. The focus of *DigitalSpecimen* was on the creation and curation of digital 3D data, rather than their use.

The program was packed with nearly 70 talks and eight workshops in only five days. It ran from the 8th to the 12th of September and was located at the Humboldt-Universität in Berlin. Fortunately, all the events were planned so that there were no double sessions for the talks and symposia.

DigitalSpecimen included a workshop on the mass digitisation of Natural History Collections. My goal at this workshop was to provide an overview of current technologies used in the mass digitisation of the CSIRO Collections. In collections, there are a great variety of object types, making it necessary to use and develop a large array of methods and technologies. We are just at the beginning of making our collections freely accessible to the public. Currently, we cannot predict how the speed of the digitisation process will increase. The challenges and opportunities this presents can only be addressed through national as well as international cooperation by means of workshops such as this.

I also used the opportunity to visit colleagues at the Museum für Naturkunde, where a Whole-Drawer Digitisation program is effectively being accomplished. Both the Museum für Naturkunde and the ANIC use the same SatScan™ system to produce images of collection drawers.

The occasion enabled colleagues from institutions that are involved in Whole-Drawer Digitisation, the Zoologische Staatssammlung München, the Swedish Museum of Natural History, the Museum für Naturkunde and the Australian



The Conference Welcome event and venue

National Insect Collection, together with US staff from iDigBio (Integrated Digitisation of Bio-Collections), to view collection management practices and digitisation workflows performed at the Museum.

The Tony Eggleton collection of Australian Butterflies

Debbie Jennings and Ted Edwards

The Lepidoptera group is delighted to receive the collection of Australian butterflies assembled by Emeritus Professor Tony Eggleton between 1982 and 2010.

The collection contains approximately 1400 specimens representing about 258 species. It contains such rarities as *Trapezites waterhousei* and *Jalmenus aridus* from the goldfields of WA and is exceptionally rich in species from Weipa, Qld (51 species) of great value because the western Cape is almost unrepresented in ANIC. There is also the only known specimen of *Acrodipsas myrmecophila* from the ACT.

A problem we currently face is that such collections contain valuable specimens but also many specimens of common species, and our limits on space restrict what we can accept. Professor Eggleton has generously allowed us to select valuable specimens for the ANIC collection and use the more common species for display purposes in Discovery, which will eventually involve deterioration.

Professor Eggleton has had a very distinguished career of 35 years (1966-2001) teaching in the Geology Department at the ANU where he specialised in regolith mineralogy. (The regolith is the heterogeneous layer of loose material on the surface of the earth that covers the bed rock and includes soils, salts, alluvium, calcrete, silcrete, laterite and bauxite. Or in Tony's words "Regolith: the icing on your rock cake".) He also worked on a group of metamorphic minerals, the modulated layer silicates that can be some of the most complex minerals known, one being named after him, eggletonite.

He has co-authored a book on regolith geology and geomorphology and produced a regolith glossary.

Since retirement Professor Eggleton, as a Visiting Fellow at ANU, has worked tirelessly to promote an awareness and



Ted Edwards and Tony Eggleton. Tony in front, holding the butterflies

understanding of climate change, and in 2012 he published a book for the non-scientist: *A short introduction to climate change*.

Thank you, Tony.

Tribute to ANIC Volunteer, Greg Fletcher

Cate Lemann



Greg working tirelessly in the ANIC collection

On Tuesday 8th July 2014, we woke to the sad news that one of our beloved volunteers, Greg Fletcher, had passed away unexpectedly in the early hours.

Greg joined the ANIC Volunteer Scheme some 5 years ago, thinking that involvement in the ANIC would be an interesting change from his working life in education, how right he was! His primary work was in the Coleoptera (beetle) Hall,

where he provided untiring assistance in the ongoing challenge of ensuring that the collection and its environment were orderly and well maintained.



Greg's ever-practical and diligent approach was of enormous value and his attention to detail was wonderfully applied to every task, from the ongoing camphor top-up, to pinning and labelling and more random tasks such as replacing cracked glass lids from insect drawers.

Greg, along with fellow volunteers in the Beetle Hall; Frank Tesseyman, Robert Tompsett, and Franz Grossbechler, brought great comradery to the ANIC



The "Beetle Boys" : Frank Tesseyman, Franz Grossbechler, Greg Fletcher and Robert Tompsett in February, 2013

and formed lasting friendships, which extended beyond their weekly attendance in the collection. This band of merry men is affectionately known to ANIC staff as the "Beetle Boys", and

the gang is sadly diminished by the loss of Greg. Greg is greatly missed by both the volunteers and staff.

Recent publications

- Cai, C., **Lawrence**, J.F., **Ślipiński**, A. & Huang, D. (2014) First fossil tooth-necked fungus beetle (Coleoptera: Derodontidae): *Juropeltastica sinica* gen. n. sp. n. from the Middle Jurassic of China. *European Journal of Entomology* 11(2): 299–302.
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- Eow, L.-X., **Mound**, L.A., Tree, D.J. & Cameron, S.L. (2014) Australian species of spore-feeding Thysanoptera in the genera *Carientothrips* and *Nesothrips* (Phlaeothripidae: Idolothripinae). *Zootaxa* 3821 (2): 193–221.
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- Hewish, M., Marriott, P., **Edwards**, T., Kallies, A. & Williams, S. (2014). Moths of Victoria. Part 5. Satin Moths and allies. Geometroidea (A). *Entomological Society of Victoria*, Melbourne. 36 pp. +CD.
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- Lawrence**, J.F., Leschen, R. A. B., & **Ślipiński** A. (2014). *Antillipeltis*, a new genus of Antillean Trogossitidae (Coleoptera: Cleroidea) with a key to the Cleroidea. *Zootaxa* 3793(3): 346–454.
- Lawrence**, J.F., **Escalona**, H., Leschen R. A. B., & **Ślipiński** A. (2014). Review of the genera of Mycetophagidae (Coleoptera: Tenebrionoidea) with descriptions of new genera and a world generic key. *Zootaxa* 3826(1): 195–229.
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