



# ANICdotes

The official newsletter of the Australian National Insect Collection

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## Welcome to our first issue for 2015

David Yeates, Director, ANIC

It has been an extremely busy 6 months again here in ANIC, and this contains some of the highlights. This edition covers the Australian summer and we report on fieldwork recently conducted in the Barrington Tops, part of the World Heritage Gondwana Rainforests of Australia. This upland plateau is replete with the southern-most stands of *Nothofagus moorei*, and we encountered many insects that probably have their origins in the Mesozoic, when Australia was a cooler and wetter place.

An important milestone for ANIC was the establishment of the Australian Lepidoptera Research Endowment in early March. This fund has been established to support research on Australian Lepidoptera, and the curation of the ANIC Lepidoptera collection. At the launch of the Foundation we also recognised the birth of a new family of primitive moths into the scientific literature, the Aenigmatineidae, only known from Kangaroo Island. This issue also celebrates the success of one of our staff, Hermes Escalona, in obtaining a prestigious Humboldt Research Fellowship from the Humboldt Foundation in Germany. Hermes will take up his fellowship in Bonn at the Alexander Koenig Research Museum, working with Professors Misof and Niehuis. His Humboldt research will focus on the genomes and transcriptomes of non-model Australian insects.

In this issue we also report on the publication of the first catalogue of Australian weevils, written by a team lead by Rolf

Oberprieler. The described Australian fauna comprises just over 4,000 species in just over 800 genera, however the number of species in nature is likely to be four times as large. Anybody who has ever embarked on a major cataloging project will understand what a detailed and heroic task this has been.



David Yeates

This issue also includes an article on visitors from the National University of Laos, and a virtual excursion to ANIC that was developed by Cate Lemann in collaboration with Questacon.

The recent publications list also includes a paper in *Science*, published in November 2014, presenting a new phylogeny of insects based on transcriptome data. It has three ANIC authors: Karen Meusemann, Adam Ślipiński and I. This is an important output of the 1000 Insect Transcriptomes Project, the dataset represents a huge increase in the volume of transcriptomic data available for insects, and is in very high demand. Although it was made available on the data depository Dryad on publication in November, the dataset was downloaded over 34,000 times in 2014, over 28,000 times more than the next most downloaded dataset. Our development of phylogenomic datasets for Australian insects continues to gather momentum, with field work to obtain live samples in north Queensland taking place in May.

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

## New primitive moth family, Aenigmatineidae

Ted Edwards



Richard Glatz and Ted Edwards with specimen and display  
[Photo: A. Landford]

The ANIC celebrated the description of the new family of primitive moths, Aenigmatineidae, on the 5th March and concurrently launched the Australian Lepidoptera Research Endowment (see elsewhere in this issue of ANICdots). The new species *Aenigmatinea glatzella* Kristensen & Edwards, has gone under the nickname KIM (Kangaroo Island Moth) while the paper was in gestation. It is the first new family of primitive moth described since the 1970s. The family was introduced by Prof. Doug Hilton supported by John Landy, David Yeates and Marianne Horak. Dr Richard Glatz, the initial discoverer, attended the celebration and related the discovery story in person.

The species name refers not only to its discoverer but also to the German word Glatze which means 'bald head' and is a feature of the moth but not of its discoverer. When the first two damaged females were sent to ANIC, their significance was immediately apparent. The way the forewing and the hindwing are connected places the species firmly in the

primitive Lepidoptera but the head was unlike any similar Australian moth. The mouthparts were so atrophied as to be undiscernible, which made its placement problematic. It was a "Eureka" moment but my caution and a lack of detailed information on a few foreign primitive families tempered celebration. A female was sent to the late Prof. Niels Peder Kristensen in Copenhagen, the world authority on basal Lepidoptera, and his enthusiasm knew no bounds.

A contingent of Marianne, Glenn Cocking and I, all from ANIC, and George Gibbs from New Zealand and five amateur micro-lepidopterists from Australia descended on KI in October 2012 to find the then unknown male, habits and food plant of the moth. Our way was ably prepared by Richard and we were all aware of a sense of discovery and adventure. This cooperative effort was wildly successful and a good series of the putative new family collected. The food plant was evident as the moths were swept only from Cypress Pine (*Callitris gracilis*). Andy Young observed the habits of the males, which fly at sun-up, and females, which fly very little and oviposit between the scale leaves at the tips of branchlets. Also noted was the highly fire-protected habitat on sparsely vegetated sand hills.

Niels Kristensen mobilised international cooperation with sequencing and sequence analysis and interpretation in Finland, sectioning in Germany and morphological studies in Denmark. Doug Hilton and Axel Kallies also organised valuable sequencing in Australia.

The name enigma moth came about because the lack of mouthparts created difficulties in placing the moth and because morphology and sequencing gave conflicting trees, resolved only by accepting more homoplasy in the early development of the Lepidoptera and implying two independent developments of proboscis muscles. The moth

also strengthened the case for accepting a clade including the Neopseustidae and Acanthopteroctetidae (both not Australian) that had been proposed but had been weakly supported.

The project demonstrates the immense benefits of collaboration with amateur lepidopterists in Australia and with colleagues around the world, making it a truly cooperative effort. It strongly emphasises the value of the effort ANIC puts into maintaining close contact with Australian amateurs. It also shows the potential for future significant discoveries in Australia, exciting finds that are of world significance in elucidating the higher classification of the Lepidoptera.

We thank all those who have been involved in the study for their help. What was achieved was truly exceptional. Gabby Russell and Kate List worked wonders with publicity and the celebration.

A sad note was introduced with the untimely death of Niels Peder Kristensen just before publication of the paper. However, studying this new family gave him much pleasure and it makes a fitting memorial.

### References

Kristensen N.P., Hilton, D.J., Kallies, A., Milla, L., Rota, J., Wahlberg, N., Wilcox, S.A., Glatz, R.V., Young, D.A., Cocking, G., Edwards, T., Gibbs, G.W., Halsey, M., 2015. A new extant family of primitive moths from Kangaroo Island, Australia, and its significance for understanding early Lepidoptera evolution. *Systematic Entomology* **40**: 5-16.

Hilton, D. & Edwards, T. 4 March 2015, "The Conversation" website: [theconversation.com/newly-discovered-moth-is-enigmatic-evolutionary-wonder-38276?](http://theconversation.com/newly-discovered-moth-is-enigmatic-evolutionary-wonder-38276?)

## ANIC Field Trip to Barrington Tops, NSW

Alan Landford

In mid-February 2015, four ANIC members undertook a week-long collecting trip to the Barrington Tops National Park in northern New South Wales. Barrington Tops is noted for being the largest plateau above 1,400m in Australia outside the Southern Alps, and it is part of the World Heritage Gondwana Rainforests of Australia. The steep slopes of the plateau are a surviving piece of a vast basalt lava flow from a volcanic eruption that occurred about 45 million years ago. The range of altitude, soils, climate and vegetation has resulted in some unique species evolving in the area, because of long isolation from their nearest relatives. Antarctic beech, *Nothofagus moorei*, occurs extensively on the plateaux in sheltered areas.

After careful planning and equipment checks (including the purchase and registration of a new GPS-equipped personal locator beacon for ANIC), David Yeates, Alan Landford, Bryan Lessard and Dave Ferguson set off in two fully loaded CSIRO 4WD vehicles for what would be a 1,500 km round trip.

Liaison with the local Lower North Coast Region National Parks office prior to arriving ensured that rangers were aware of our collecting activities under current ANIC permits. NPWS were also very helpful in identifying a range of high-altitude swamp and forested areas in which we could collect, and in suggesting accommodation at the (remote) Moonan Brook Forestry Cottage - which suited our purposes perfectly as a base for collecting in the park and working on collected specimens in the evenings.

The trip was originally scheduled for January, to coincide with the peak flowering season, but it was initially delayed due to heavy rains in the area. Nevertheless, a return to generally good weather meant that setting up of a number of large and smaller Malaise traps and extensive collecting by hand sweeping with nets at various locations yielded some



Bryan Lessard and Dave Ferguson examining a new species of Horse Fly

very successful results. This was supplemented by some quite productive collecting at a light sheet set up each night adjacent to the Moonan Brook Cottage. Samples of a number of collected specimens were stored in RNAlater solution for transcriptome analysis.

We collected predominantly in the Polblue, Little Murray, Junction Pools and Paddy's Creek areas of the park at altitudes up to around 1,500 metres and found a range of interesting insects (beetles, moths, katydids, etc) and significant numbers of Diptera (flies) many of which will improve on our ANIC material currently held. As an example, the fly families included Stratiomyidae (soldier flies), Tabanidae (horse flies), Bombyliidae (bee flies), Nemestrinidae, Xylophagidae, Syrphidae (hover flies), Asilidae (robber flies), Tachinidae (tachinids), Empididae, Tipulidae, and Micropezidae.



*Exeretonevra maculipennis* Macquart  
[Photo: A. Landford]

Some unexpected observations included spectacular starfish and coral fungi and birdlife including a male Flame Robin feeding fledgling young, Lyrebirds calling, families of the Yellow Tailed Black Cockatoo, as well as a Magpie and Willy Wagtail that quickly learnt to plunder insects on the light sheet at dawn. Animals included nocturnal possums and fruit bats, wallabies, various skinks, dingo/wild dog tracks, a brumby skeleton, and a large Copperhead Snake sunning itself beside the track to a Malaise Trap.

A return trip to Barrington Tops later in 2015-16 when the weather warms up again would be useful – next time with updated topographical maps, as many of the tracks in the park have changed significantly over time.



## Hermes Escalona, a new Humboldt Fellow from ANIC

Adam Ślipiński

Hermes obtained a PhD in Entomology from the Universidad Central de Venezuela in 2012 and has been a visiting scientist for the last five years at the ANIC, CSIRO, working with Drs. Adam Ślipiński and John Lawrence on projects on Australian beetles and, more recently, molecular evolution with Dr. Lars Jermiin. In the last few months, Hermes has been awarded an Endeavour Fellowship from the federal government and a Humboldt Research Fellowship from the Humboldt Foundation in Germany.

This postdoctoral funding will allow Hermes to conduct genomic and transcriptomic research on Australian non-model insects with Prof. Dr. Bernhard Misof, head of the Centre for Molecular Biodiversity Research (ZMB) at the Alexander Koenig Research Museum in Bonn, Germany, and Dr. Oliver Niehuis, head of the section Evolutionary Genomics at the ZMB. This research is supported by Drs. Adam Ślipiński and David Yeates from ANIC.

The ZMB is currently one of the main centres for insect molecular research. The ZMB, in strategic alliance with the Beijing Genomics Institute (BGI) from China, is developing several molecular projects at different scales, many of them organised under the megaproject 1KITE (<http://www.1kite.org/>) and the i5K Genome Sequencing Initiative for Insects and other Arthropods (<http://arthropodgenomes.org/wiki/i5K>).

The research team plans to sequence beetle genomes and to compile transcriptomic data using modern platforms of next-generation sequencing, to investigate the genomics underpinning signatures of complex phenotypic traits that, hypothetically, moulded insect diversity, such as the evolution of herbivory in beetles. To accomplish this task, bioinformatics tools for genome assembly, genome annotation, data mining,



comparative genomics, and transcriptomics will be developed and used.

This will be an exciting adventure for Hermes, filled with other trendy 'omics', challenges and learning. In the not too distant future, genomics-based research may be a basic skill for the natural history museum scientist, and we will need to embrace

and adapt this tool into the knowledge base (with morphology, taxonomy, etc.), to be able to formulate stimulating hypotheses about the forces that drive biodiversity, and the perils of its conservation.

## Australian Lepidoptera Research Endowment

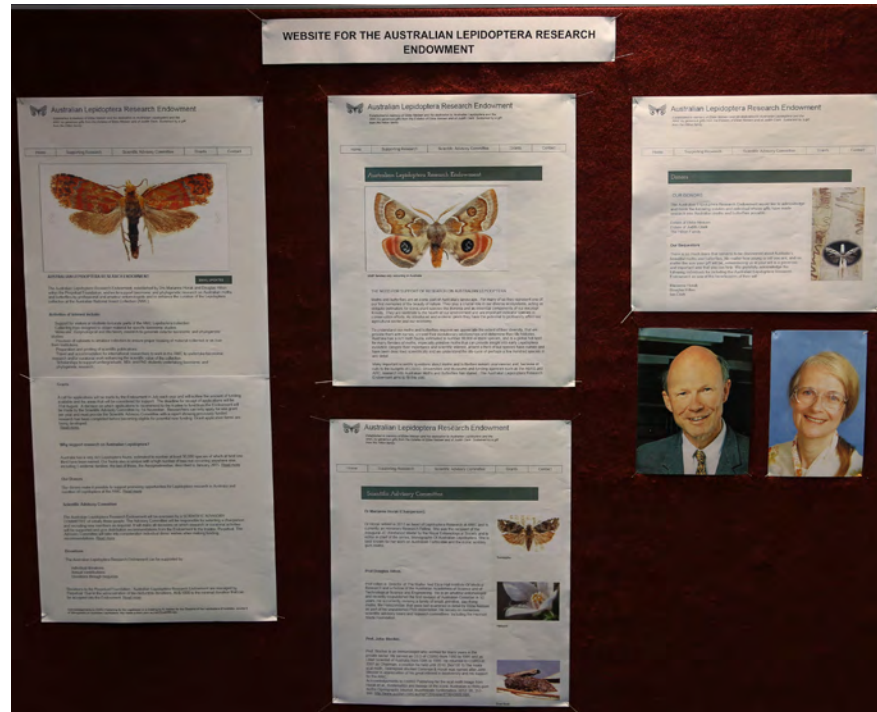
Marianne Horak

The ANIC Fund, established in 1991 by Mr. John D'Apice, Drs John Landy and Doug Waterhouse, Ms Patricia Feilman and Drs Max Whitten and Ebbe Nielsen, provided many years of support for taxonomic research at the ANIC above and beyond what was possible with government funding. The eventual closure of the ANIC Fund after Ebbe Nielsen's death made it necessary for those with bequests from their estate to look elsewhere to support taxonomic research on insects. In memory of Ebbe Nielsen, Prof. Doug Hilton and I have now set up the *Australian Lepidoptera Research Endowment*, an independent entity established within the Perpetual Foundation and entitled to collect tax-deductible donations.



John Landy with co-runner Bob Landford [Photo: A. Landford]

Australia has a rich moth fauna, estimated to number 30,000 or more species, and it is a global hot-spot especially for primitive moths. Less than a third of our species have been described scientifically. The *Australian Lepidoptera Research*



A poster from the launch showcasing parts of the Endowment website [Photo: A. Landford]

*Endowment* aims to help fill this void, to support taxonomic and phylogenetic research on Australian Lepidoptera by professional and amateur entomologists and to enhance the curation of the Lepidoptera collection at the ANIC. The activities eligible for support include curating parts of the ANIC Lepidoptera collection, targeted collecting trips, taxonomic research, preparation and printing of scientific publications, and scholarships to support students. As Trustee, the Perpetual Foundation will ask for distribution recommendations from the Endowment's Scientific Advisory Committee on an annual basis. The Advisory Committee, initially comprising Prof. Doug

Hilton (Director of the Walter and Eliza Hall Institute) and Prof. John Stocker (formerly CEO and Chairman of CSIRO) and I (formerly head of Lepidoptera Research at ANIC), will take into consideration the wishes of individual donors.

The Endowment has been set up with an initial capital of \$200,000 from donations from the estates of Ebbe Nielsen and Judith Clark and a gift from the Hilton family. Judith Clark had been an exceptionally gifted and dedicated volunteer who for 13 years staged and labelled all our Lepidoptera at the ANIC, leaving a lasting legacy of more than 80 drawers with over 50,000 specimens. There are already commitments for several bequests to the endowment, some very substantial, and though the funds to be distributed will initially be limited they will grow considerably in the future. On 4th March we officially celebrated the Lepidoptera endowment together with the official launch of the publication of the new

family Aenigmatineidae, the enigma moth from Kangaroo Island, in order to make the point that so much still remains to be discovered in the Australian Lepidoptera fauna. Dr. John Landy, one of the founding board members of the ANIC Fund, and Dr. Richard Glatz, who first discovered the enigma moth, were some of the visitors at the launch presided over by Prof. Doug Hilton. A website provides all the necessary information to support the endowment or to apply for funds: <http://www.australianlepidopteraendowment.com/>



## First-ever weevil catalogue published

Rolf Oberprieler

Just before Christmas last year the *Annotated Catalogue of Australian Weevils* was published, as a *Zootaxa* Monograph spanning 481 pages. It took four long years of hard work by Kim Pullen, Debbie Jennings and I to compile. As mentioned in ANICdotes ISSUE 5 of September 2014, it grew out of the electronic checklist of weevils assembled for the Australian Faunal Directory in 2012, largely by Kim. Due to the format and time frame of this electronic list, there was no scope then to check and correct the numerous nomenclatural, taxonomic and bibliographic mistakes and other errors scattered through the literature on the Australian weevils. For the catalogue Kim painstakingly checked all spellings and references, while I worked tirelessly on the “taxing” taxonomy component, resolving numerous complicated nomenclatural tangles, synonymies, authorships and taxonomic errors, as detailed in 377 annotations at the end of the catalogue. This includes the descriptions of 16 new genera and six new species whose names had not been validly established before, as well as 189 new combinations, 97 new synonymies and 46 type species designations. Debbie in the meantime put her computational skills into action by crunching the numbers and producing charts and graphs to illustrate the growth of weevil taxonomy over the years, the contributions of the main authors and the composition of the Australian weevil fauna, which are summarised in three introductory chapters.

From this first-ever catalogue of the Australian weevils it appears that the fauna currently consists of 4114 described extant species, classified in 832 genera. In comparison, the Australian fauna of terrestrial vertebrates comprises about 2358 extant species (386 mammals, 828 birds, 917 reptiles, 227 amphibians), a mere 57% of the number of weevil species. And, given that only a quarter of the actual number of Australian weevil species is estimated to have been described so far, there



From the left: Kim Pullen, Debbie Jennings, Rolf Oberprieler

are probably 40 weevil species for every mammal species in Australia, 20 for every bird and reptile and 70 for every frog. Whereas mammalogists, ornithologists and herpetologists now work on detecting cryptic genetic diversity in their species, in weevils we have virtually no data on the distributions, hostplants and life histories of the described species, let alone of the countless undescribed ones standing in collections

(the “known unknowns”) or those not yet collected (the “unknown unknowns”).

The cover of the weevil catalogue sports one weevil in particular: *Tomweirius mirus*, or Weir’s Wonderful Weevil. It is befittingly named after its discoverer, our esteemed colleague and ANIC Honorary Fellow Tom Weir. Over four decades Tom has made an enormous contribution to insect research at the ANIC, particularly in the orders Coleoptera and Hemiptera, describing many new genera and species and collecting even more. “We won’t describe them all in my lifetime, not in ten people’s lifetimes”. This quote by Tom is especially true for weevils — new species and genera are already being described now, but it will probably take another 250 years or more to describe the rest

of the number estimated to exist in Australia. But a special, wonderful weevil was described in his lifetime!

## Visitors from the National University of Laos

YOUNG SU

The Australian Government is collaborating on a project to improve the scientific and technical skills at the National University of Laos. The project is headed by Dr. Ian Naumann of the Department of Agriculture and will enable Australia to support the Lao Department of Agriculture in the identification of pests and diseases.

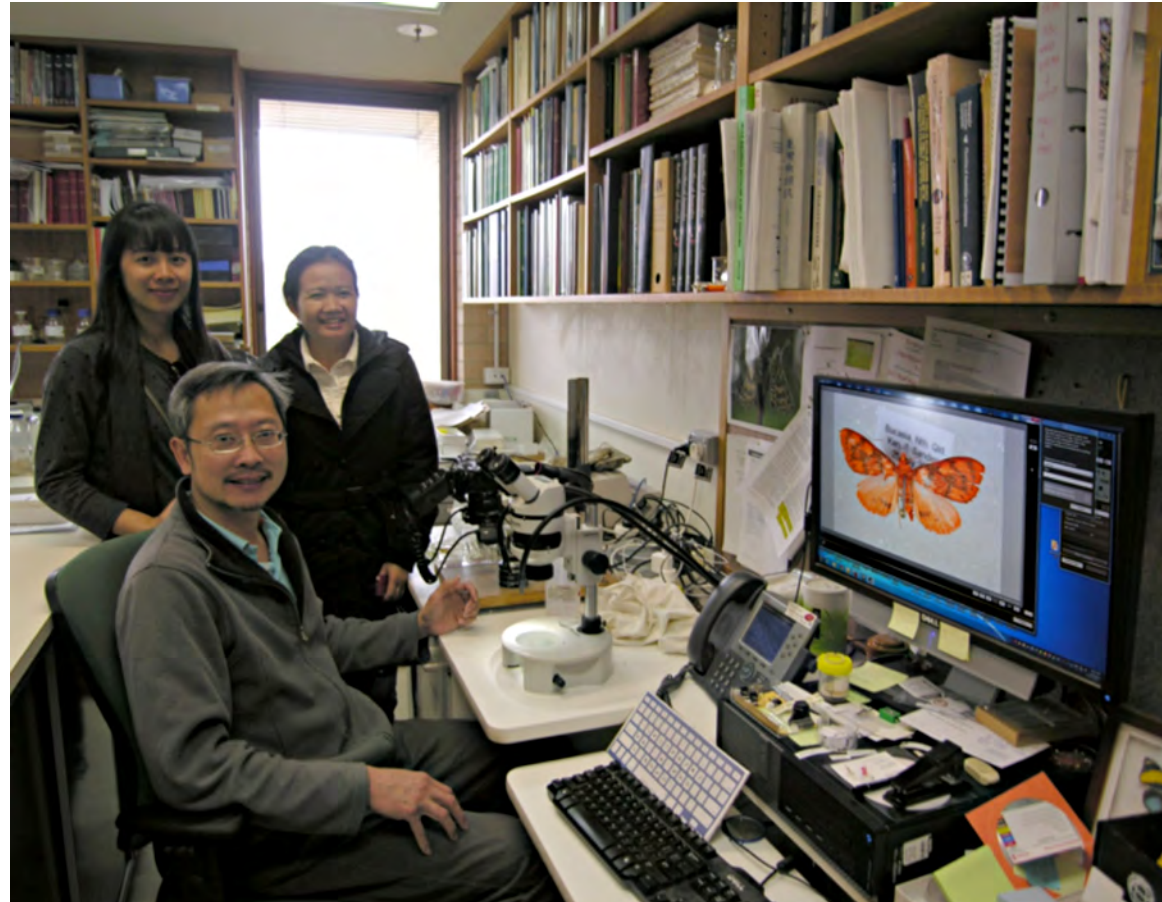
As part of the project, microscopes and equipment for digital imaging are being provided to Dr. Phouthasone and Mrs Viengkham of the Faculty of Agriculture at the National University of Laos.

Dr. Phouthasone and Mrs Viengkham visited the Australian National Insect Collection on 15<sup>th</sup> and 16<sup>th</sup> of September 2014 to gain insight into how their new equipment can be used.

You Ning introduced the visitors to the macrophotography system at the Australian National Insect Collection. He demonstrated that a Digital SLR camera useful in the field is also being successfully used in the Lepidoptera Laboratory. The camera has a large sensor area. The system uses a high quality macro lens to magnify specimens so they fill the whole sensor area of the camera. This combination creates images with extremely high levels of detail. The training provided hands-on experience with the camera for both the visitors.

Cate Lemann started her session with the visitors by demonstrating the process of selecting and preparing insect specimens for photography. She followed up with a live session on the very powerful Visionary Digital Imaging System and finished with a discussion on the fundamentals of image processing and image file management.

Anne Hastings showed the visitors how some of our digital images are used to communicate information online. They



Dr Phouthasone and Mrs Viengkham with Youning

were particularly interested in how these were used in online identification keys.

Finally, Dr. Mike Hodda gave the visitors a short introduction to nematode identification. He talked about the equipment

needed, quite different from the equipment used to identify insects, and the type of training that would help the students and staff take useful photographs. He also discussed potential collaboration between his work in the Lao PDR and the Lao Plant Protection Centre in Vientiane.



## A Virtual Excursion to ANIC...

Cate Lemann

Questacon has been running 2-hour teacher workshops on 'Using Digital Communication Technology for Science Lessons'. The workshops aim to introduce Canberra-based teachers to the possibilities of virtual excursions and how teachers and their students can witness and interact with the real work of scientists without having to leave the class room or invade a workplace en-masse.

One example "virtual excursion" was an ANIC-based demonstration of the technical end of preparing beetle images for publication. The activities at ANIC included the selection and preparation of specimens, imaging and image processing procedures. The "excursion" involved a live link from ANIC to a group of classroom-based teachers at Questacon. Two Questacon staff were on site in ANIC to perform the roles of guide and camera operator. They used a WIFI-connected iPad for the direct video-link, relayed workshop participant Twitter questions and took phone-camera still images about details to send back in direct response to those questions. The conference-style live feed gave me the ability to respond as I was working. This gave the participants direct involvement in the activity and also allowed the "excursion" to travel around the collection halls and to the different pieces of equipment used on the day.

From the Questacon end this highly practical workshop gave teachers the opportunity to:

- dial in and connect to a video conference, manipulate controls and troubleshoot common technical issues including time delays
- discover how to implement hands-on activities that progress students from being passive audience members to active participants



Questacon virtual classroom

- set up and test a Twitter account to more effectively engage students in posing questions and answers with scientists via video conference

From the ANIC end the "virtual excursion" was a great way to show a group of people some of the more intricate aspects of our work without trying to fit them all in around a microscope or in the tight confines of the imaging lab. At this stage these virtual excursions are not without technical glitches and do

require a reasonable amount of preparation, however, even these things were part of the positive outcome for the teacher participants and the Questacon staff. Despite the hiccups this type of "excursion" has the potential to allow geographically distant and potentially quite large groups of people to "visit" and interact with the collection and collection staff in real time without trying to physically accommodate them in the collection halls or labs.



## Recent publications

### ELECTRONIC RESOURCES

- Hilton, D. & **Edwards, T.** 2015. Newly discovered moth is enigmatic evolutionary wonder. "The Conversation". <http://theconversation.com/newly-discovered-moth-is-enigmatic-evolutionary-wonder-38276?>
- Yeates, D.K. 2014. Insects are the great survivors in evolution: new study. "The Conversation". <http://theconversation.com/insects-are-the-great-survivors-in-evolution-new-study-33786>

### JOURNAL ARTICLES

- Babaeian, E., **Halliday, B.** & Saboori, A. (2015) A new species of *Geholaspis* Berlese (Acari: Mesostigmata: Macrochelidae) from Northern Iran. *Zootaxa* 3925 (3), 422–430.
- Cai, C., **Ślipiński, A.** & Huang, D. (2015) First false jewel beetle (Coleoptera: Schizopodidae) from the Lower Cretaceous of China. *Cretaceous Research*, 52, 490–494.
- Ferguson, D.J.** & **Yeates, D.K.** (2014) A new species of *Anabarhynchus* (Diptera: Therevidae) from an ocean beach in south east Victoria. *Biodiversity Data Journal* 2, e4016.
- Ferguson, D.J.** & **Yeates, D.K.** (2015) A new species, new immature stages, and new synonymy in Australian *Dasybasis* flies (Diptera: Tabanidae: Diachlorini). *Zootaxa* 3942 (2) 261–273.
- Kristensen N.P., Hilton, D.J., Kallies, A., Milla, L., Rota, J., Wahlberg, N., Wilcox, S.A., Glatz, R.V., Young, D.A., Cocking, G., **Edwards, T.**, Gibbs, G.W., & Halsey, M., (2015) A new extant family of primitive moths from Kangaroo Island, Australia, and its significance for understanding early Lepidoptera evolution. *Systematic Entomology* 40, 5–16.
- Lessard, B.D.** (2014) Revision of the austral horse fly tribe Scionini (Diptera: Tabanidae). *Austral Entomology* 53, 203–239.
- Li, J., Tomaszewska, W., Pang, H. & **Ślipiński, A.** (2014) Ladies in stripes: taxonomic confusion in a potential mimicry complex among Wallacean Coccinellidae (Coleoptera: Coccinellidae). *Zootaxa*, 3900 (4) 592–600.
- Liu, Z., **Ślipiński, A.** & Pang, H. (2015) Notes on Australian *Laius* Guérin-Méneville, *Dicranolaius* Champion and *Intybia* Pascoe with description of new species related to *Dicranolaius c-purpureus* (Lea) (Coleoptera: Melyridae: Malachiinae). *Zootaxa* 3936 (2), 272–280.
- Liu, Z., **Ślipiński, A.**, Leschen, R.A.B., Ren, D & Pang, H. (2015) The oldest Prionoceridae (Coleoptera: Cleroidea) from the Middle Jurassic of China. *Annales Zoologici* 65 (1) 41–52.
- Mašán, P., Fendá, P., Krištofik, J. & **Halliday, B.** (2014) A review of the ectoparasitic mites (Acari: Dermanyssoidea) associated with birds and their nests in Slovakia, with notes on the identification of some species. *Zootaxa* 3893 (1), 77–100.
- Marquardt, T., Kaczmarek, S. & **Halliday, B.** (2014) Ovoviviparity in *Macrocheles glaber* (Müller) (Acari: Macrochelidae), with notes on parental care and egg cannibalism. *International Journal of Acarology* 41, 71–76.
- Minaei, K. & **Mound, L.A.** (2015) Thysanoptera disjunct distribution between western America and the Mediterranean with a new *Psilothrips* species (Thripidae) from Iran. *Deutsche Entomologische Zeitschrift* 62 (1) 1–7.
- Minaei, K. & **Mound, L.A.** (2014) The *Liothrips*-lineage of thrips (Thysanoptera: Phlaeothripidae) from Iran with the first record of micropterous morph of a *Liothrips* species *Zootaxa* 3889 (1), 107–117.
- Minaei, K. & **Mound, L.A.** (2014) The genus *Sitothrips* (Thysanoptera: Thripidae) with a new grass-living species from southern Iran. *Zootaxa* 3884 (6), 594–596.
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- Mound, L.A.** (2015) Problems in Costa Rican thrips taxonomy and systematics (Insecta, Thysanoptera). *Florida Entomologist* 98, 27–31.
- Mound, L.A.** (2015) Fifty years of thrips biological diversity - progress and prognosis. *Antenna ECE Special Edition* 2014, 95–96.
- Mound, L.A.** & Tree D.J. (2014) Generic relationships of two obscure Australian Thysanoptera species described by A.A.Girault. *Australian Entomologist*, 41 (4), 205–210
- Mound, L.A.** & Tree D.J. (2014) The minute, fungus-feeding species of *Sophiothrips* (Thysanoptera, Phlaeothripinae) from Australia and New Zealand. *Zootaxa* 3860 (2), 184–194.
- Mound, L.A.** & Tree D.J. (2014) Fungus-feeding phlaeothripine Thysanoptera in the genus *Holothrips* from Australia and New Caledonia, with a structurally similar new genus, *Holoengythrips*. *Zootaxa* 3860 (2), 125–148.
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- Ng, Y.F., **Mound, L.A.** & Azidah, A.A. (2014) The genus *Scirtothrips* (Thysanoptera: Thripidae) in Malaysia, with five new species and comments on *Biltothrips*, a related genus. *Zootaxa* 3856 (2), 253–266.
- Oberprieler, S.K. & **Yeates D.K.** (2014) *Notoatherix antiqua* gen. et sp. nov., first fossil water snipe fly from the Late Jurassic of Australia (Diptera: Athericidae) *Zootaxa* 3866, 138–144.
- Özbek, H.H. & **Halliday, B.** (2015) Four new species of *Olopachys* Berlese from Turkey (Acari: Pachylaelapidae), with a key to the world species. *Systematic and Applied Acarology* 20, 139–152.

- Poorani, J., **Ślipiński, A.** & Booth, R.G. (2014) A review of the genus *Cryptolaemus* Mulsant (Coleoptera: Coccinellidae: Coccinellinae: Coccidulini) from New Guinea. *Annales Zoologici*, 64 (4), 613–654.
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