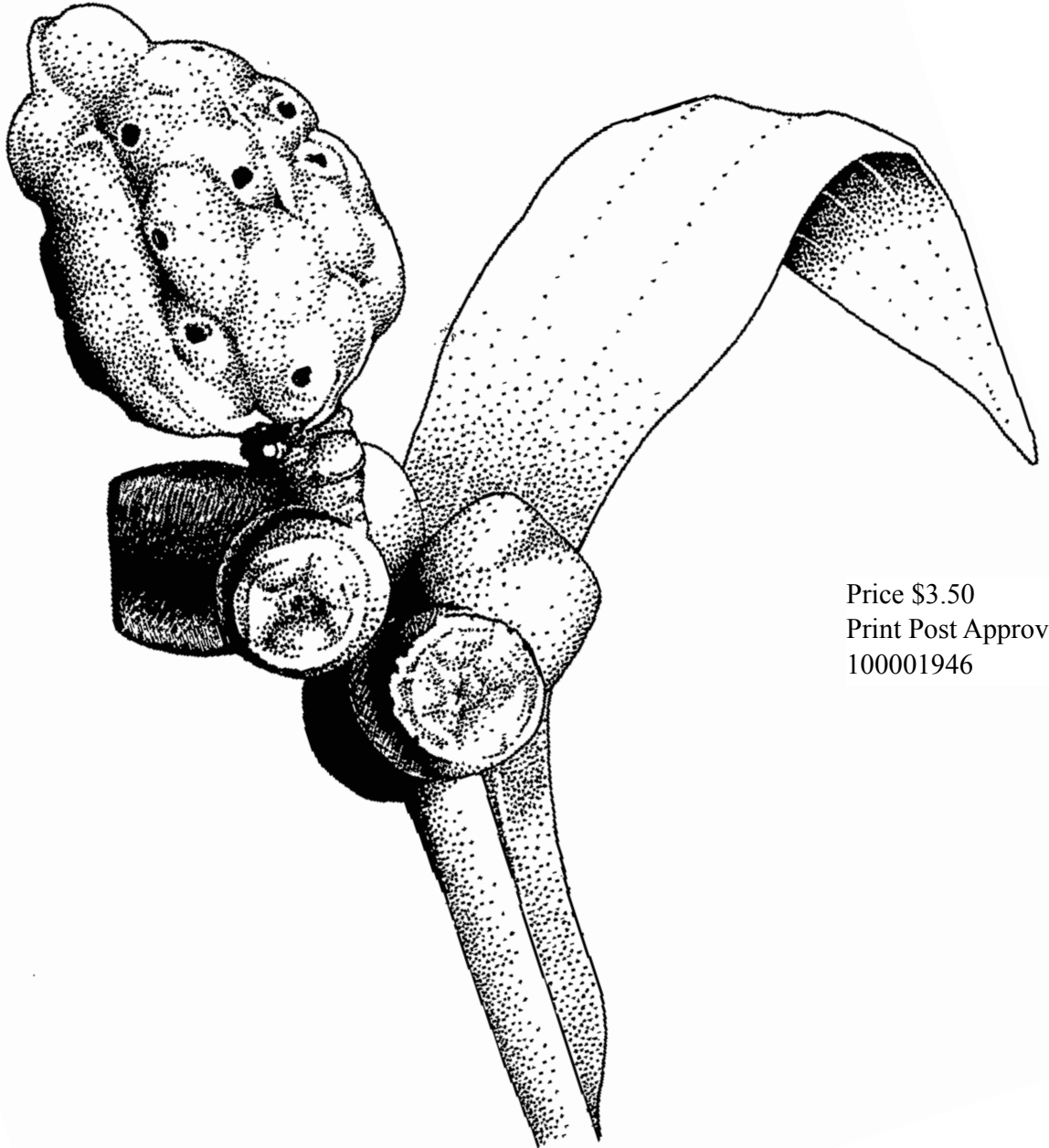


Entomological Society of Queensland

# NEWS BULLETIN



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# Entomological Society of Queensland

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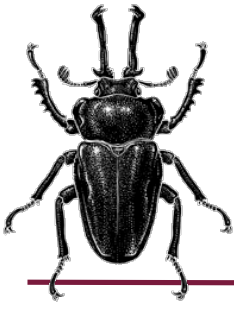
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**Front Cover Illustration:** This beautiful illustration is by Andrew Moore when he was employed with the Australian Biological Control Laboratory at Townsville, James Cook University. The Fergusoninidae gall fly, *Fergusonina turneri*, forms galls on the broad-leaved paperbark tree *Melaleuca quinquenervia* in a symbiotic relationship with *Fergusobia quinquenerviae* nematodes. The galls, located at the top of the stem, show adult fly exit holes. Although this insect was highly specific, it failed to establish after being released in Florida as a biological control agent.

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# Entomological Society of Queensland

## Table of Contents

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Minutes from the General Meeting.....	46
At our next meeting.....	47
Main Business:	
<i>"Little Bug-ers: educating and inspiring the next generation of budding entomologists"</i> presented by Michelle Gleeson.....	49
Research Feature:	
<i>"Working for Peanuts at Kingaroy"</i> .....	56
Entomology News:	
<i>Dung Beetles and dinosaurs</i> .....	60
<i>Chinese giant phasmid might be the winner</i> .....	61
The History Corner.....	62
Notices and Announcements.....	63
Conferences and Meetings.....	64

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The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND**, since its inception in 1923, has striven to promote the development of pure and applied entomological research in Australia, particularly in Queensland. The Society promotes liaison among entomologists through regular meetings and the distribution of a *News Bulletin* to members. Meetings are announced in the *News Bulletin*, and are normally held on the second Tuesday of each month (March to June, August to December). Visitors and members are welcome. Membership information can be obtained from the Honorary Secretary, or other office bearers of the Society. Membership is open to anyone interested in Entomology.

Contributions to the *News Bulletin* such as items of news, trip reports, announcements, etc, are welcome and should be sent to the News Bulletin Editor.

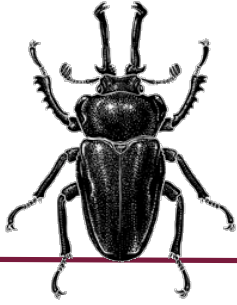
The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published in four parts annually.

**EMBLEM:** The Society's emblem, chosen in 1973 on the 50<sup>th</sup> anniversary of the Society, is the King Stag Beetle, *Phalacrognathus muelleri* (Macleay), Family Lucanidae (Coleoptera). Its magnificent purple and green colouration makes it one of the most attractive beetle species in Australia. Other common names include Rainbow, Golden and Magnificent Stag Beetle. It is restricted to the rainforests of northern Queensland.

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The issue of this document does **NOT** constitute a formal publication for the purposes of the "International Code of Zoological Nomenclature 4th edition, 1999". Authors alone are responsible for the views expressed.

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# Entomological Society of Queensland

## Minutes for Annual General Meeting

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**Tuesday, May 10th, 2016**

Held in the Seminar Room, Ecosciences Precinct,  
Boggo Rd, Dutton Park.

**Meeting open:** 13:00

**Attendance (33):** Perry Bennion, Andrew Maynard, Kathy Ebert, K. Dhilepan, Jessica Peach, Desley Tree, Raymond Chin, Geoff Monteith, Owen Seeman, Chris Lambkin, Brenton Peters, Gary Cochrane, Gio Fichera, Andrew Hayes, Cate Paull, Andrew Hulthen, Andy Wang, Penny Mills, Graham Forbes, Mike Barnett, Susan House, Don Sands, Shelly Masterson, Lance Maddock, John Neldner, Julianne Farrell, Lui Lawrence-Rangger, Claudia Schipp, Nadine Baldwin, Mona Moradi, Shannon Close, Bradley Brown, Mark Schutze.

**Visitors (10):** Michelle Gleeson, Liz Snow, Natalie Toon, Sue Jones, Alexandra Glauerdt, Ian Gilbert, Brad Scholz, Colleen Foelz, Tracey Steinrudum, Ramona Dalla Pozza.

**Apologies:** Morris McKee, Tim Heard, Noel Starick, Susan Wright, Geoff Thompson.

**Minutes:** The minutes of the last meeting were circulated in News Bulletin 44[2] April 2016. Moved the minutes be accepted as a true record: Cate Paull, Seconded: Penny Mills, Carried: All.

**Nominations for membership approved by council:**

Ryan Shofner (student): Ryan is a PhD student in the 'Gerry Cassis Lab' at the University of NSW; he is studying the phylogenetics of a group of tingids.

**General Business:**

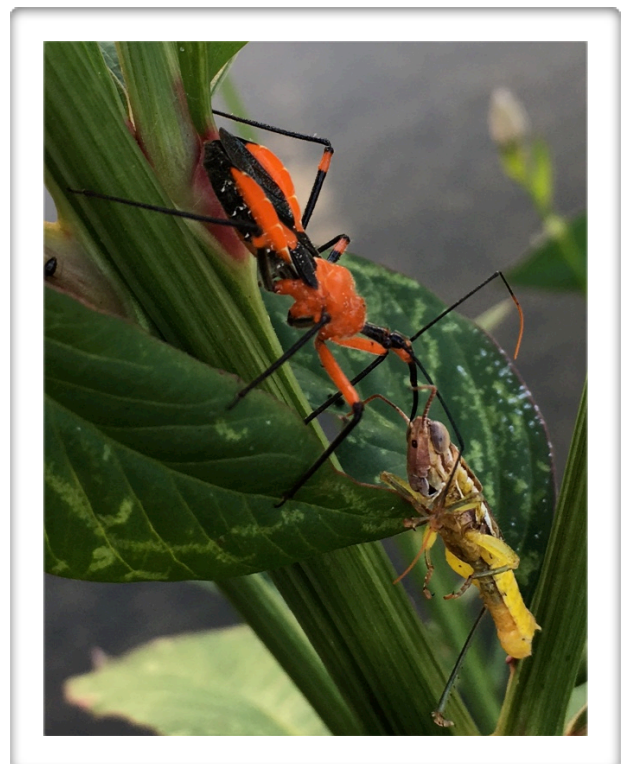
The decision to award this year's Student Award was unanimous: Marisa Stone for her thesis titled "Edge effects on insects within urban fragmented eucalypt forests". Marisa undertook her Honours project at Griffith University under the supervision of Professor Nigel Stork and Professor Carla Catterall.

**Main Business:**

Presentation by Michelle Gleeson on "Little Bug-ers: educating and inspiring the next generation of budding entomologists". President Bradley Brown called upon Christine Lambkin to thank Michelle for her entertaining presentation.

**Next meeting:** The next meeting will be on June 14th and will be a NOTES AND EXHIBITS and the STUDENT AWARD PRESENTATION.

**Meeting closed:** 13:57



A striking red and black assassin bug (Reduviidae) dining on a grasshopper nymph. Photo courtesy of Jan Williams, Woodstock, QLD



**At our next meeting...**

## **“Edge effects on insects within urban fragmented eucalypt forests”**

*presented by Marisa Stone  
Environmental Futures Research Institute,  
Griffith School of Environment  
Griffith University*

Clearing and fragmentation of forests for urbanisation or agriculture exposes their edges to wind, desiccation and altered microhabitats, with various reported impacts on insect communities. The nature of impact could be modified by forest or matrix type, biogeographic region, and vertical stratum; it could differ among target taxa or measured community attributes, and may be further complicated by spatial biotic patterning. This study considers the joint impacts of such factors. For beetle communities of dry subtropical forest across 10 sites in the south Brisbane area (375 km<sup>2</sup>), distance from edge, vertical height, local canopy openness, and macrospatial position in an urbanisation gradient had various impacts on community attributes, sampled using flight intercept traps. Ground-level beetle diversity (species richness) declined across the studied forest edge gradient from 1 to 256 m, but canopy diversity was unaffected. Species composition varied strongly between ground and canopy, and responded weakly to distance from edge at ground but not canopy level. Canopy openness influenced all community attributes at ground level. Species composition varied strongly with sites' spatial position, and correlated with distance from the city centre. A global review of spatially well-replicated forest edge



A canopy flight intercept trap. Photo: Carla Catterall

effect studies revealed that most found an increase in ground-level beetle species richness near forest edges; with less effect on total abundance, and composition. To conclude, effective planning for insect conservation in fragmented landscapes requires regionally-relevant evidence about types of impact, and both small and large fragments have potential value, for different reasons.

### **A bit about Marisa....**

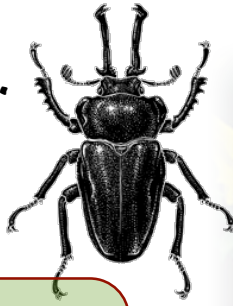
Marissa received a Bachelors Degree of Environmental Science from Charles Darwin University and her Bachelors of Science Honours degree from Griffith University in August 2015. She is the recipient of the Entomological Society of Queensland's Student Award for 2016 and will be presenting her honours thesis research.

**Tuesday, June 14th at 1pm, Seminar Room at EcoSciences, afternoon tea following.**

**All welcome!**

Also at our next meeting...

## Notes and Exhibits!



Notes and exhibits meetings are always interesting! These meetings happen twice a year, in June and December, and provide an opportunity for anyone to share a story, project or exhibit. Have YOU got something to share?? Contact Bradley Brown at [bradley.brown@csiro.au](mailto:bradley.brown@csiro.au)

## Biological control of parthenium weed in SQ and SEQ

presented by  
**Jason Callander**

*Department of Agriculture and Fisheries*

Parthenium weed (*Parthenium hysterophorus* L.) is a Weed of National Significance in Australia. Eleven biological control agents have been released to control this noxious weed. However, parthenium is spreading into south and south east Queensland, where many of the widespread and effective biological control agents are not yet present. A program to redistribute these agents from central Queensland to the south and south east of the state has been initiated. Five priority agents have been identified for redistribution; the seed-feeding weevil (*Smicronyx lutulentus*), the stem-boring weevil (*Listronotus setosipennis*), and the root-boring moth (*Carmenta ithacae*), the winter rust (*Puccinia abrupta* var. *partheniicola*), and the summer rust (*Puccinia xanthii* var. *parthenii-hysterophorae*).



Parthenium weed, Photo: Land Protection, QDNRW

## Update on the progress of the leaf-mining jewel beetle *Hedwigiella (Hylaeogena) jureceki*, a new biological control for cat's claw creeper (*Macfadyena unguis-cati*)

presented by  
**Liz Snow**

*Invasive Plant and Animal Sciences, Biosecurity Queensland, Department of Agriculture and Fisheries*

Cat's claw creeper (*Dolichandra unguis-cati*) is a serious environmental weed in Queensland and New South Wales. It presents a threat to riparian and forest ecosystems and is often found in inaccessible locations that are not suitable for chemical or physical control methods. The jewel beetle *Hedwigiella (Hylaeogena) jureceki* Obenberger (Coleoptera: Buprestidae) was approved for release in Australia in 2012 and complements two other biological control agents released in 2007 (the leaf-tying moth *Hypocosmia pyrochroma*) and the tingid (*Carvalhotingis visenda*). A brief update on the progress of this new biological control agent will be presented.



*Hylaeogena-jureceki*-Photo:-  
Biosecurity-QLD



# *Little bug-ers: educating and inspiring the next generation of budding entomologists*

*presented by Michelle Gleeson*

*Director and presenter of Bugs Ed.,  
Adjunct Industry Fellow at the University of  
Queensland's School of Biological Sciences and  
author of Miniature Lives – identifying insects in  
your home and garden*

## **Budding entomologist**

My passion for insects started from an early age. My parents ran a small wildlife refuge from their home on the north side of Brisbane and our house was a menagerie of animals. I shared the lounge room with kangaroos, cuddled koalas and possums and took snakes to school for show-and-tell.

One of my jobs around the house was to collect food for the animals, and I spent many hours digging up worms and beetle larvae to feed lizards and catching grasshoppers and caterpillars for hungry birds. So a huge part of my childhood was spent outdoors chasing bugs and this kick started my life-long obsession with creepy crawlies.

When I was eight years old, I came across a beetle I couldn't identify and, through the Queensland Museum, was put in contact with Tony and Katie Hiller who run the Mount Glorious Biological Centre (MGBC) – a business which, among many other things, aids education in entomology. Through them I learnt that you could actually make a career out of loving insects, and so I vowed to be an entomologist when I grew up. As well as forming a solid friendship with Tony and Katie, they became my mentors and I still continue to drop in and visit them to this day.

I completed a Bachelor of Science majoring in entomology at the University of Queensland, and later received first-class Honours in entomology, working on the species status of *Orosius argentatus*,

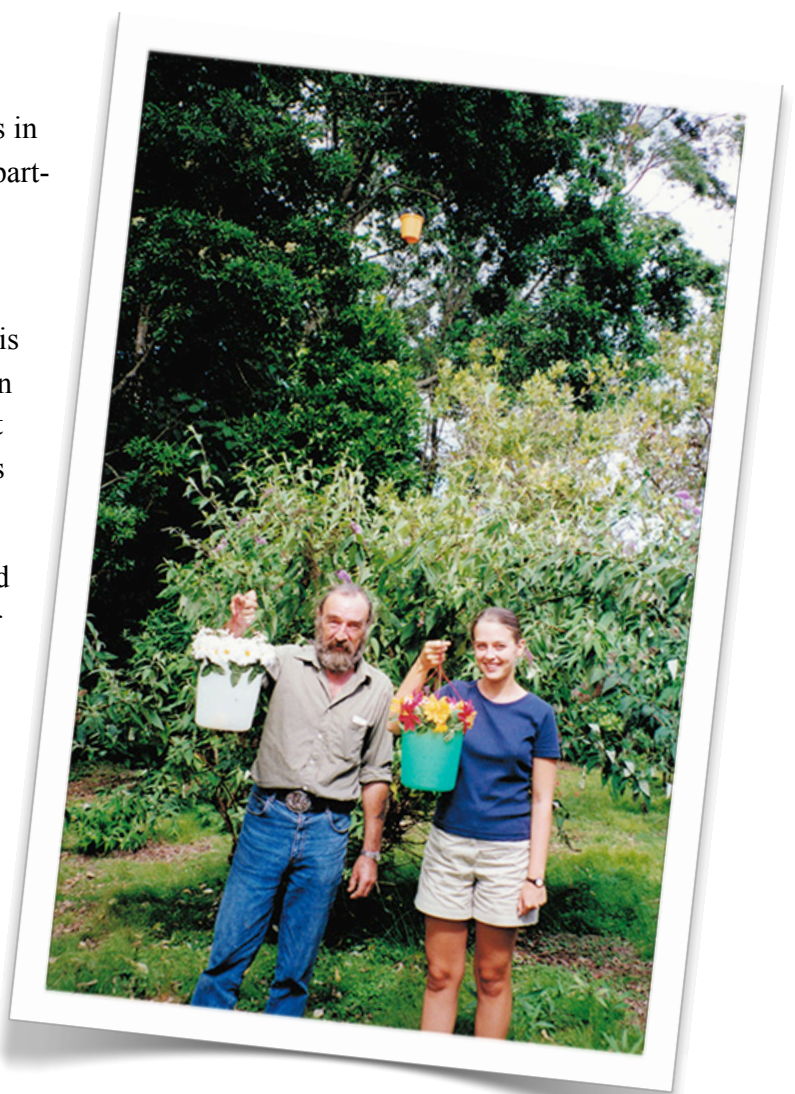


Above: Michelle with one of her Goliath Stick insects (*Eurycnema goliath* (Gray, 1834)).

Below: Michelle (age 8) with Tony Hiller from the Mt Glorious Biological Centre.

a small leafhopper which transmits plant viruses in fodder crops. While doing my Honours degree part-time, I worked at the MGBC, where I bred butterflies, stick insects and a variety of other invertebrates, carried out field work and helped maintain their enormous insect collection. To this day, I still regard my time there as the best job in my life and I learnt more there than I ever did at university (apologies to any of my past lecturers reading this)!

Although I did very well at University, I realised that the life of an academic was not for me. For starters, I loathe writing scientific papers and deeply resent having to spend time in an office. I also hated the idea of being tied to a specific insect or group of insects and therefore made the decision not to do a PhD. Instead, I threw myself into a range of projects in the University of Queensland's School of Biological Sciences (SOBS). So long have I lurked in their corridors, that in recent years they have given me the position of Adjunct Industry Fellow. I worked with Greg Daniels in the UQ Insect Collection, helping to curate and database insects. I tutored third year entomology subjects for Margaret Schneider and made my way around the entomology section of the Goddard Building, working as a research assistant for a range of people on a whole lot of different insects. I loved the diversity of this work and enjoyed designing and carrying out experiments and field work without the agony of analysing statistical data and the stress of writing scientific papers. Over the years I have bred mealybugs in the quarantine rooms which were shipped to New Caledonia to be used in the biological control of cactus. I spent several years deploying and monitoring pheromone traps for pest species of moths, such as the gum leaf skeletonizer (*Uraba lugens*), yellow peach moth (*Conogethes punctiferalis*) and grass webworm (*Herpetogramma licarsisalis*). I worked with the fabulous US Lepidopterist, J. Mark Scriber on Papilionid butterflies and their larvae and I spent 3



Michelle working with Tony Hiller at the Mt Glorious Biological Centre.

seasons studying native cycads in south east Queensland and the thrips that pollinate them, to assess how their obligate pollination mutualism may be effected by climate change.

### **The birth of Bugs Ed.**

During my time at the School of Biological Sciences at UQ, I noticed that teachers were constantly reaching out to people in the school to come and talk to children about insects. However, most post grads and lecturers had demanding workloads that ruled out any time for community engagement. I had always had a passion for educating those around me, especially children, about the amazing world of insects and knowing that there was a need for such work, I decided to go out on a limb and start my own business.



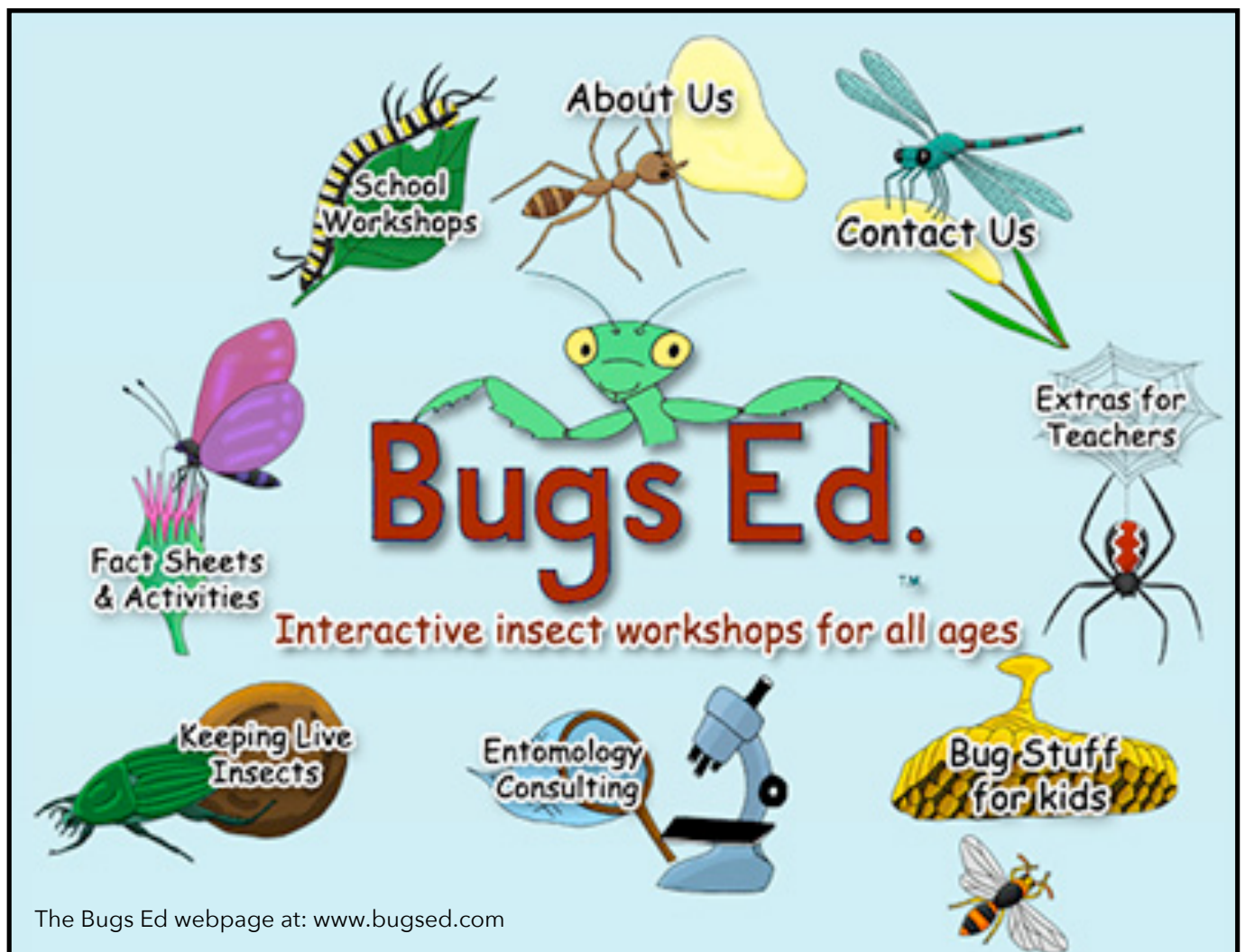
Together with Tony and Katie Hiller, I launched Bugs Ed. in 2003 to provide a range of interactive insect-based workshops for people of all ages. Initially running out of the MGBC, it wasn't long before the business expanded to a point where it moved to its own premises at The Gap. Over the years I have been lucky enough to employ an army of "bug ladies" including, Dr Claire Baker (a glow worm specialist), Megan Beltramelli (who also has a Graduate Diploma of Education), Dr Leeane Heslin (who did her PhD on *Trichogramma*) and ESQ's very own Kathy Ebert.

There is no such thing as an "ordinary day" at Bugs Ed. because every day is different. We visit kindergartens, where 3 and 4 year olds hold stick insects and marvel at cases of preserved insects and arachnids from around the world. At primary schools we use props and an array of cocoons, egg cases and

larvae to teach children about metamorphosis. We even tackle moody teenagers, travelling to high schools where (often squeamish) biology students learn how to classify insects and present them in an insect collection. Weekends are often spent at environmental open days and festivals, science displays, gardening expos or engaging with community groups such as Land for Wildlife.

### On the road

Each year Bugs Ed. educates around 10,000 children across south-east Queensland on the wonderful world of insects. However, we also get the opportunity to take our program further afield. For several years, Dr Claire Baker (who until recently ran the far north Queensland branch of Bugs Ed.) toured around the Gulf of Carpentaria, visiting remote rural schools and indigenous communities. I was lucky enough to join Claire on one of these trips





Kids viewing insect display cases.

and travelled to places such as Normanton, Burketown, Doomadgee and Mornington Island. Working in these communities was an emotional but rewarding experience. All around were examples of poverty, violence, drug and alcohol addiction and poor health and hygiene, yet the bright, inquisitive faces of the children watching our shows made it all worthwhile.

One of the most rewarding programs I have been involved with is an ongoing outreach program through my role as an Adjunct Industry Fellow in the School of Biological Sciences at UQ. Since 2007 we have been running a program at Cunnamulla State School with the goal of raising aspirations to higher education through environmental science. This work involves coming up with interactive, hands-on activities designed to excite and engage students while introducing them to biological concepts and ideas. We also run a 2- 3 day biology camp at the nearby Currawinya National Park where students have the opportunity to analyse soil and

water samples, collect and preserve plant and insect specimens, radio track lizards and generally gain a better understanding of the ecology of the area. While this project has since run out of funding, we are determined to keep it up and running.



Michelle running programs with Cunnamulla State School students at Currawinya National Park.





Michelle meets with Sir David Attenborough to help film rhinoceros beetles.

### **Bugs in the spotlight**

Through my work with Bugs Ed. and the MGBC, I have had the opportunity to work on film and television shoots, both on and off camera. I have presented insect stories for *Totally Wild*, *Toasted TV*, *Scope* and *Wurrawhy*. Behind the scenes I have worked as an insect wrangler on film shoots, often for TV commercials. I remember one for Pantene shampoo which involved throwing butterflies in front of models whose luscious locks were being tossed around by wind machines – great for making hair look beautiful, but no so great for a few unfortunate butterflies who were sucked into the fans.

The highlight of my career was when I had the amazing experience of working with wildlife guru Sir David Attenborough during his trip down under

to film a series about early life on Earth. I was initially contacted by the producers to supply male rhinoceros beetles for the shoot, but I managed to convince them that the beetles were very difficult to work with and so guaranteed myself a job on set. My clever manipulation of film producers who didn't know any better meant that I got to spend the entire day at Australia Zoo, wrangling rhinoceros beetles alongside the very charming Sir David and the equally charming DJ., a 2 tonne African Rhinoceros!

### **Engaging and exciting the next generation of entomologists**

Over many years spent working with children and insects, I have learnt a lot. Things that jump or fly do not mix well with young children. Make sure your insects are kept in secure enclosures during transit, otherwise they will escape and crawl up the

back of your neck while you are doing 100 km/h down the highway. Never EVER turn your back on an open case of specimens and a kindergarten class. But perhaps the most important lesson I have learned is that we, as adults, are almost entirely responsible for a child's attitude towards insects.

Educating children about the wonderful world of minibeasts should be easy – mostly kids love bugs and are keen to know more. But a combination of entomophobic teachers, a society that believes insects are dangerous and disgusting and parents who discourage children from exploring the great outdoors means that, at times, it can be challenging. Visit a class of students with a teacher who hates or fears bugs, and the children show a similar attitude. On the flip side, there are many teachers who enjoy and embrace the world of minibeasts, setting a wonderful example to their students.

I love visiting kindergartens as the children (usually aged 4 years) are completely fearless when it comes to bugs. You can hand them an enormous stick insect, say “hold this” and they will without hesitation. It is because these children have no yet endured years and years of society telling them that insects are bad. Getting older children, especially teenagers, to hold a stick insect is much more of a challenge and it takes a lot of hard work to change their perceptions about the world of insects.

The other major challenge I face is how to take complicated concepts of ecology, biology and entomology and explain them to children in a way that is interesting, insightful and easily understood. With many years of trial and error, this is something I think I have finally mastered. There is a fine line between getting an audience to understand what you are talking about and dumbing things down to a



Michelle working with high school students in a pinning and mounting workshop.

point where you lose their attention and fail to impart any real knowledge. On the flip side, many academics fail to take the age of their audience into account and present, albeit with gusto, a talk that flies well over the heads of the children. My first point of action is always to ask questions to see how much the children already know. I have been completely gobsmacked by 5 year olds who know what spiracles are and how they work. On the flip side, I've had teenagers who don't know what herbivores eat!

When explaining concepts such as metamorphosis to young audiences, analogies, role playing and props go a long way. Why do insects moult their exoskeletons? Well, it's like us having to loosen our belts when we eat too much food at an all-you-can-eat restaurant. Having trouble remembering the different parts of an insect's body? Let's sing “heads and shoulders, knees and toes” but substitute in the words “head, thorax and abdomen”. Resource partitioning between butterflies and their larvae can be explained through props of fake flowers and leaves, caterpillar masks, and a few keen volunteers



from the audience. And yes, while the book *The Very Hungry Caterpillar* implies that butterflies emerge from a cocoon rather than a chrysalis and that caterpillars eat sausages and pickles, it is still one of the best resources to explain metamorphosis to toddlers.

## Miniature Lives

Dealing with the public on a regular basis, means that I get bombarded with dozens of emails from people wanting me to identify insects that they have found. People are naturally curious about the insects they share their homes and gardens with, but the average person knows little to nothing about the different types of insects and lacks the skills needed to accurately identify them. And so I came up with the idea to write an insect identification guide to provide simple strategies everyday people (i.e. gardeners, nature-lovers, science students, and teachers, parents and grandparents of bug-crazed kids) can use to identify and learn more about the insects around them.

The book is quite unique in that the reader has the option to choose from a range of strategies the most

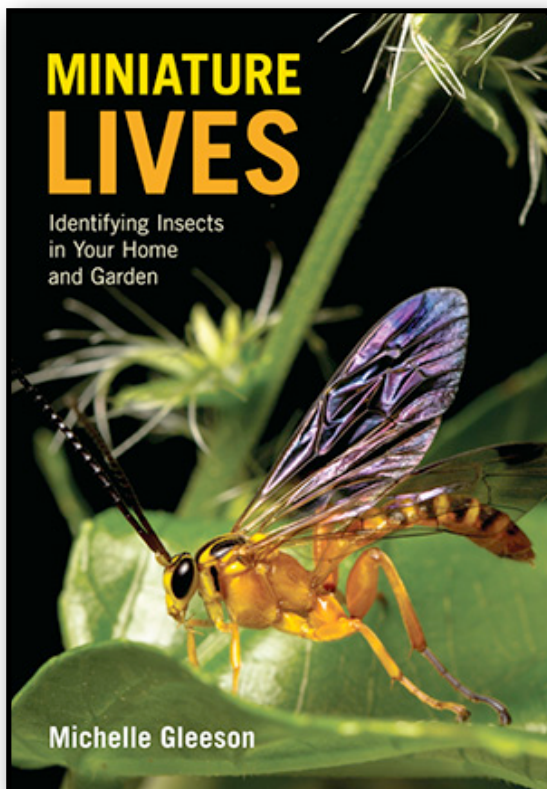
effective way to identify the insect they have found. *What insects look like* involves a step-by-step, illustrated identification key which allows the user to assign insects to Orders with nothing more than a photograph of their mystery critter. *Where insects live and occur* is a section where the reader can look up a range of common habitats around the home or garden (such as in the bathroom, on citrus plants, or on the bodies of other animals) and discover information about the species most commonly encountered there. *Clever Clues* delves into the strange structures and evidence that insects leave behind, such as markings on leaves and bark, lumps and bumps on plants, nests and hideouts and cocoons, cases and eggs.

*Miniature Lives – identifying insects in your home and garden* is out now through CSIRO Publishing and I hope that it will make the wonderful world of insects more accessible to every day people.

## Conclusion

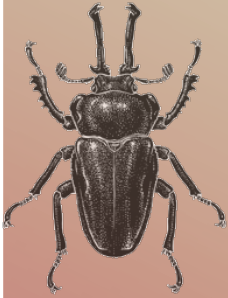
I often receive letters and emails from bug-crazed children asking me questions and looking for advice and this makes me realise that, in my life, I have come full circle. I would not be where I am today without people such as Tony and Katie Hiller and patient scientists from the Queensland Museum and University of Queensland giving their valuable time to answer questions, offer advice and nurture my enthusiasm for insects. It takes a lot of time and patience to respond to the correspondence I receive from children (some with questions as simple as “are Christmas beetles cool”?) but I realise how a little encouragement can go a long way.

My favourite part about working with children is that I am constantly reminded of my own childhood obsession with creepy crawlies. People often comment on how passionate I am about what I do and how obvious it is that I love my job. How can I not? I’m lucky enough to make a living out of playing with kids and bugs and it’s something I hope I can continue to do so for many decades to come.



This month's

# Featured Research



*a focus on entomology-related research  
happening in Queensland*

## Working for peanuts at Kingaroy DAF

*by Dr Liz Williams, Entomologist  
Queensland Department of Agriculture and Fisheries  
Kingaroy, QLD*

The Queensland Department of Agriculture and Fisheries (DAF) entomology team at Kingaroy is a small team of 3.2 staff members: Hugh Brier, (senior entomologist), Liz Williams (entomologist), Trevor Volp (technical officer) and Joe Wessels (part time technical officer - supposedly retired). Despite this, they are responsible for providing advice, conducting training and undertaking research on summer grain and pulse crops (predominantly peanuts, mungbeans, soybeans) from northern Queensland to central New South Wales. This is an outpost from the rest of the DAF crop entomology team, which is based in Toowoomba, who oversee sorghum, sunflowers, winter cereals and pulses, canola and cotton crops in the same NSW-Qld region. Expertise in these areas is particularly significant, as agriculture contributes more than 36 billion dollars to the Australian GDP (World Bank 2014 data), making it an important part of the Australian economy.

The team are primarily involved in Integrated Pest Management (IPM) research and extension and are mandated to develop strategies to

reduce growers' sole reliance on pesticides, and particularly 'hard' pesticides that indiscriminately kill all invertebrates – good or bad. These IPM strategies can be chemical, cultural and/or biological.

One example of IPM research at Kingaroy is the evaluation of new pesticides against target pests, and also their impact on beneficial invertebrates



Liz and Hugh (both left) at a Mungbean IPM course in Ayr, Feb 2016



(‘beneficials’) that naturally inhabit crops. These beneficials provide growers with free biological control, predated on and parasitising pest insects. Pesticides that have less impact on beneficials, and typically target only one or few pest types (e.g. pod-sucking bugs, or *Helicoverpa* species), are called ‘soft’ pesticides and are recommended as the first point of call when those pest species are identified in large numbers. The use of these softer pesticides are not only advantageous to retaining beneficials, but also in the arms race of reducing the risk of pest resistance to particular pesticides. They also decrease the risk of flaring secondary pests such as whitefly. An example of current research in this area at Kingaroy involves the evaluation of a seed dressing in soybeans to reduce the incidence of Lucerne crown borer, *Zygrita diva*, which has caused substantial plant deaths in recent years from coastal northern NSW to south-east Qld. Initial results are very promising, with marked reductions in pest densities in plots planted with treated seed, but not in plots where non-selective foliar sprays targeted the adult beetles.

Knowing how many pests are required to cause economic damage and only spraying when pests are above threshold (where likely damage is > the cost of sprays) is a key IPM strategy. Much Kingaroy research has focused on developing thresholds for a range of common pests in both soybeans and mungbeans, with Hugh’s Masters Thesis focused on Green vegetable bugs, *Nezara viridula*, in soybeans. These economic thresholds are used routinely by growers and crop consultants to determine at what point the cost of damage caused by pests will be greater than the cost of spraying. In

addition to greatly reducing pesticide use, such thresholds have also gone a long way in promoting the IPM message that having a ‘totally clean crop’ (where there are zero invertebrates) is not desirable or essential to maximise yield.

There is increasing interest in Australia and overseas on incorporating beneficials in this decision making. Although it is theorised that greater numbers of beneficials will likely mean that a crop can tolerate a higher number of pest insects (particularly when pests are at nymph or non-damaging stages), there are currently few species for which their benefit is quantified. Current research by the Toowoomba



Liz and Hugh Brier inspecting a well grown mungbean crop in the Burdekin.

DAF entomology team is examining just how many aphids ladybirds and lacewings consume, in an attempt to quantify their value in the crop system.

Cultural IPM strategies aim to change agronomic practices to reduce pest outbreaks. Examples include the reduction of weed host plants (to decrease sources of pest infestations), partial cultivation in stem borer prone crops (to disrupt overwintering pupae in stalks), planting into standing stubble to reduce aphid landing and virus

transmission in chickpeas and predetermined crop rotations (to reduce the survival of soil dormant pest stages). Liz is currently conducting research on the role of narrow crop row spacing on pest distribution and scouting accuracy. Specifically, there is a push in some growing regions to use narrow rows (<50 cm) to improve yield; however, preliminary results suggest that the present economic thresholds

contribution to the Australian Summer Grains industries in 2016. Liz joined the team in November 2015 as the GRDC-funded successor for Hugh when he finally decides to make his hobby of steam train-riding more permanent. Liz's background is in applied environmental science, in both entomology and wildlife ecology, most recently working as a researcher at UQ. Her rural upbringing means Liz



communicates easily with growers and consultants, a key attribute that will serve the Kingaroy team well in future years. Trevor hails from Cairns where he worked with Lori Lach at James Cook University on invasive ant species and completed an Honours on ant-plants. He is the most recent member to join the Kingaroy bug team, starting in February this year. In contrast, Joe is the longest serving team member (albeit part time now), having served as a research assistant in the Kingaroy ento team for 44 years. Joe has made a major contribution to Australian entomology through the thousands of insect photos he has taken, many of which are

Lucerne crown borer (*Zygrita diva*) feeding on coastal mungbean flowers.

(developed in wider rows) and traditional sampling methods may not be appropriate in these circumstances.

As for the staff at Kingaroy, Hugh has been working with DAF (or its many other previous names) for 42 years, firstly in Toowoomba and then in Kingaroy. Due to his passion for all things small and creeping, and being out in the field giving growers real world solutions, he has been presented with various industry awards for his contributions. These include the 2014 Grains Research and Development Corporation's (GRDC's) 'Seed of Light' award for significant contribution to communicating the outcomes of research, and for his outstanding

published in the CSIRO Bailey book "Pests of Field Crops and Pastures", as well as on the web.

Updates on the Kingaroy and Toowoomba DAF entomology team can be followed by subscribing to [thebeatsheet.com.au](http://thebeatsheet.com.au)

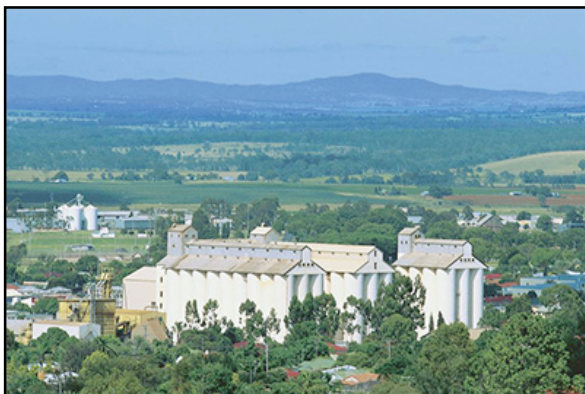
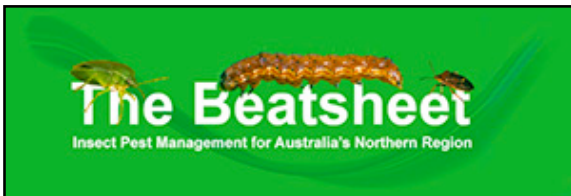
For further information on IPM in Queensland, please see:

- Brier et al. (2008) An overview of integrated pest management (IPM) in north-eastern Australian grain farming systems: past, present and future prospects, Australian Journal of Experimental Agriculture, 48: 1574-1593.



- Brier H. and Miles M. (2015) Emerging Insect Threats in Northern Grain Crops. GRDC Grains Research Update Jondaryan Q. August 2015.

Finally, the Kingaroy team acknowledges the invaluable funding support from the Grains Research and Development Corporation (GRDC).



Kingaroy peanut silos and surrounds. Photo: Tourism Queensland



All smiles in the Kingaroy ento lab. Joe and Trevor's reaction to being told they will have to dissect 5 freezer-loads of plant samples for Lucerne crown borer.



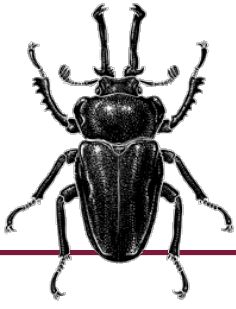
Joe and Liz getting ready for the row-sampling trial in the western Darling Downs, Feb 2016.

### *From the Editor...*

I hope to make *The Featured Research* a regular feature in our News Bulletins to keep members informed of the great variety of entomology-related research that is happening around Queensland and beyond.

Let me know what you think! If you are part of a research group or know a particular researcher that you would like to have featured, don't hesitate to let me know!





# Entomology News

## Dung beetles and Dinosaurs

New research by an international team of scientists has provided molecular evidence that the dung beetles (Scarabaeidae:Scarabaeinae) may have evolved and diversified about 115 to 130 million years ago in the Lower Cretaceous, 30 million years earlier than previously thought. Up until now, it has been thought that the origin of dung feeding scarabs occurred with the rise of mammals. However, in this new study led by Dr. Nicole Gunter, who until recently was working at the Australian National Insect Collection, and Dr. Stephen Cameron (QUT), they analysed data from 125 Australian species along with previously published data to create a dataset of 450 beetle species in order to propose a molecular phylogeny of scarab beetles. They analysed both herbivorous and saprophagous scarabs, including the dung feeders. The results showed that the herbivorous scarabs evolved along with the rise of the flowering plants (Angiosperms) in the

Cretaceous period. However, results also showed a similar pattern of

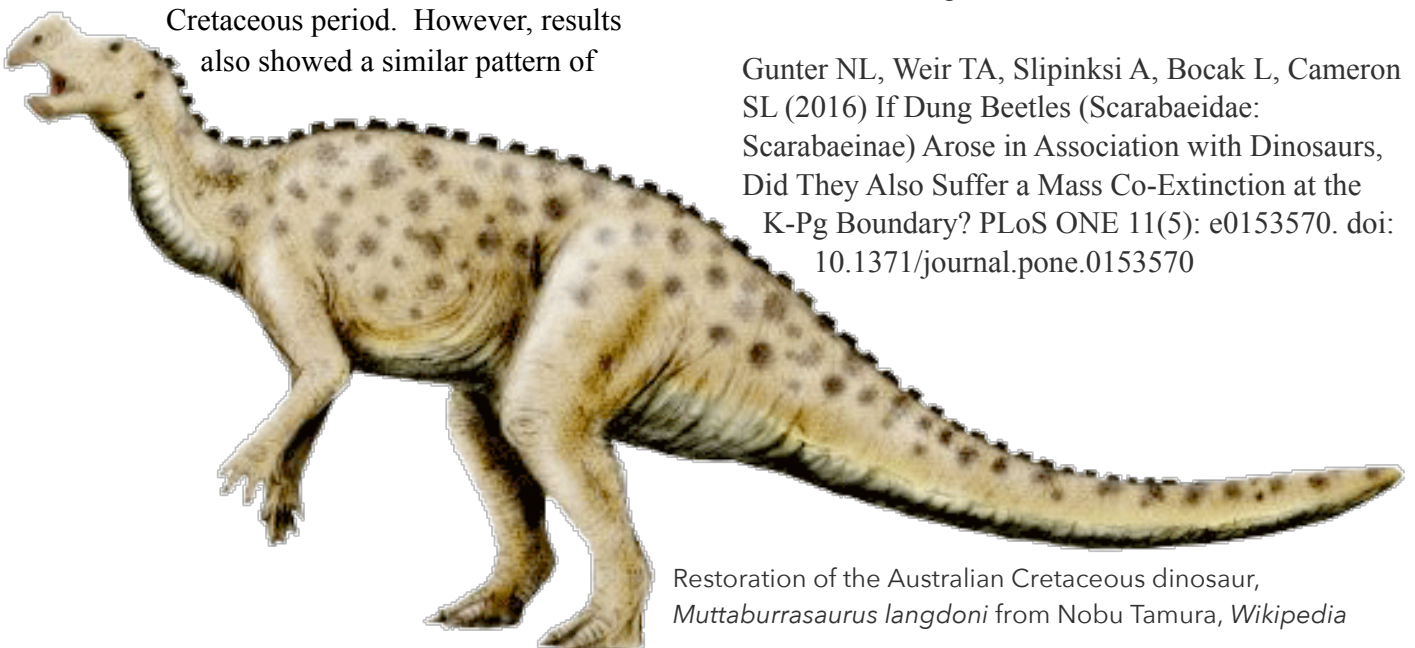


Australian native dung beetle, *Cephalodesmius laticollis*. Photo: K. Ebert

diversification occurred in the dung beetles at the same time. They hypothesize that the more nutritious and less fibrous flowering plant diet of the Cretaceous dinosaurs provided a more palatable dung source, and created a new niche which allowed some scarabs to diversify into dung feeding.

This implies that the dung beetles may have also suffered from a mass extinction along with the dinosaurs 60-70 million years ago. Fortunately, some dung beetles managed to survive the extinction event and continued to diversify while feeding on mammalian dung. To read more see:

Gunter NL, Weir TA, Slipinksi A, Bocak L, Cameron SL (2016) If Dung Beetles (Scarabaeidae: Scarabaeinae) Arose in Association with Dinosaurs, Did They Also Suffer a Mass Co-Extinction at the K-Pg Boundary? PLoS ONE 11(5): e0153570. doi: 10.1371/journal.pone.0153570



Restoration of the Australian Cretaceous dinosaur, *Muttaborrasaurus langdoni* from Nobu Tamura, Wikipedia



## Chinese giant phasmid might be the winner

In the last issue of the News Bulletin (Vol 44, Part 2, pp.34-36) I described and gave photographs of the first rearing by the Melbourne Museum of Australia's newly discovered giant phasmid, *Ctenomorpha gargantua*, and discussed its measurements compared to the Guinness Record holder for longest insect in the world, a phasmid from Sabah called *Phobaeticus chani*. Our Australian challenger came close to, but couldn't beat, the the record holder's overall length of 567mm and head/body length of 357mm. Within a week of that article appearing, claims from China appeared on the internet of the discovery of a giant phasmid from the Guangxi Zhuang region of southern China with an overall length of 624mm. A photograph, reproduced here, was given of the specimen beside a tape measure in a display case of other large insects from various parts of the world. The specimen was said to have been captured on August 16, 2014, by Zhao Li, from the Insect Museum of West China and named *Phryganistria chinensis* Zhao. Estimate of its head/body length (the standard for the world record according to

Guinness Records) from that photograph would make it about 360mm. So, if genuine, this specimen may very well be the longest. We've been unable to confirm that the taxonomic name has yet been actually published but the genus has eight other species in India, southern China and SE Asia.

Geoff Monteith  
Queensland Museum



*Phryganistria chinensis*. Photo from: [http://news.xinhuanet.com/english/2016-05/05/c\\_135336786\\_2.htm](http://news.xinhuanet.com/english/2016-05/05/c_135336786_2.htm)



A photo of the stick insect specimen with other large insects from the Museum of West China.

Image from: [http://news.xinhuanet.com/english/2016-05/05/c\\_135336786.htm](http://news.xinhuanet.com/english/2016-05/05/c_135336786.htm)



## The History Corner...

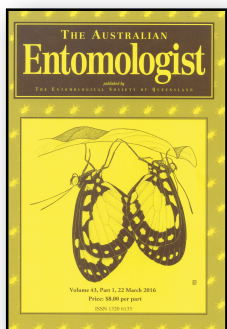


### Neil GOUGH (1946-1992)

Neil was born and grew up in Ipswich, attending Ipswich Grammar School. Began collecting butterflies as a boy. Joined CSR in 1965 and worked at Condong Sugar Mill near Murwillumbah as Junior Field Officer. Collected rare Australian fritillary there. Started BSc at UQ in 1966, graduating in entomology in 1968. Completed Honours in insect ecology at Waite Institute, Adelaide 1969. Spent most of 1970 (with future wife Mary) collecting and breeding mosquitos for the Bishop Museum in remote parts of PNG. Returned to Waite 1971 to undertake PhD on ecology of eriococcid scale insects, awarded 1975. Spent 1976 travelling and collecting through Indonesia, Malaysia and overland to England, where worked briefly at Imperial College's Silwood Park field station. Appointed as Entomologist to Queensland DPI in 1977, stationed first at Mareeba to work on white-fringed weevil in peanuts and a silvanid pest of sorghum, later named *Silvanolomus goughi*. Assisted Ross Storey in

building the Mareeba reference collection. Transferred to Indooroopilly Laboratory, Brisbane in 1982 to work on pests of floriculture and ornamentals. Good collaborator with boundless enthusiasm who combined classical training in ecology with strong natural history background. At the time of sudden death in 1992 was progressing studies on orchid beetles, Geraldton Wax pests and use of predatory mites in rose culture. Served on ESQ Council 1982-90 and was President in 1989. Instigated ESQ Student Award and recommenced ESQ field trips.

**Obituaries:** Anon. 1992. *News Bulletin of the Entomological Society of Queensland* 20:73-75, 98-99; Monteith, G.B. 1993. *Myrmecia* 29(1): 6-7.



## AN INVITATION TO SUBSCRIBE

**"The Australian Entomologist":** A quarterly scientific journal devoted to entomology of the Australian-Pacific Region. This journal was commenced in Sydney in 1974 by Max Moulds and is now published by the Entomological Society of Queensland. It is one of the leading outlets for research on native insects in Australia and adjacent areas. For subscription forms and Price list for 2016 see:

<http://www.esq.org.au/publications.html>



# Announcements and Notices

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## Attention honours and postgrad students: **Phil Carne Prize 2016!**

The upcoming Australian Entomological Society Conference to be held in Melbourne this November (<http://www.aesconferences.com.au>) will feature a Phil Carne Prize symposium, so chances of receiving travel sponsorship (up to \$1000!!) to the conference are greater than in the past! On top of that, the best speaker at the symposium wins a further \$1500 cash prize!!

The prize is open to any honours or postgraduate student enrolled in an Australian University, either full-time or part-time, who has not submitted their thesis by the closing date of August 31st.

Entrants must be members of the Australian Entomological Society.

Entries for the prize should be in the form of a scientific paper that deals with research on any entomological topic (or allied group of terrestrial organisms such as mites or spiders). The paper can be in the form of a scientific manuscript ready for publication, a paper that has been accepted for publication or a paper published since the beginning of the previous year to the closing date, but must result from the student's higher degree studies.

Please check [AES website](#) under Awards for further details and for your copy of the application form.

I highly encourage you to take advantage of this exciting opportunity, and should anyone need any clarification please do not hesitate to get in contact with me.

**Gurion C.K. Ang**

*PhD Candidate / Graduate Teaching Assistant  
School of Biological Sciences, University of Queensland  
Director (Student Representative)  
Australian Entomological Society*

## 'May is Honey Month' Exhibit

"*May is Honey Month*" is being presented by the Queensland Beekeepers Association. The exhibit runs until the end of May at the Redlands Museum. See their website for more information:

<https://www.redlandmuseum.org.au/honey-month/>

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## Logan Eco Action Festival (LEAF)

LEAF is a free community festival welcoming everyone from all ages to attend and be actively involved in a fun and inspiring program. This interactive and educational event is designed to stimulate awareness about the environmental issues we face as a community, and through education, empower festival attendees to make a positive change.

- What: Logan Eco Action Festival (LEAF)
- Where: Griffith University, Logan Campus
- When: Sunday 5 June 2016
- Time: 10am - 3pm

Insect displays from BugsEd and Bee Aware Brisbane will be there.

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## Moggill Creek Catchment Kids Day

The Moggill Creek volunteer community action group works to conserve and improve the natural environment of the Moggill Creek catchment. Their Kids Day at the Cottage will be Sunday, June 12th. See their website for upcoming details:

<http://www.moggillcreek.org>.

ESQ members will be there with insect displays!

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## Native Bee Identification

Great photos and identification tips for native bees from Dr Ken Walker from the Museum of Victoria! See the April Edition 41 of the Bower Bird Bugle:

[http://researchdata.museum.vic.gov.au/BowerBird\\_Bugle/BowerBird\\_Bugle.html](http://researchdata.museum.vic.gov.au/BowerBird_Bugle/BowerBird_Bugle.html)

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# Meetings & conferences



## 5th International Conference on Quantitative Genetics (ICQG)

12-17 June 2016

Madison, Wisconsin, USA

<http://www.icqg5.org>

## XIV International Symposium on Scale Insect Studies

June 13–16, 2016

University of Catania, Sicily, ITALY



## Joint Conference with the Society for Molecular Biology and Evolution and Genetics Society of AustralAsia Conference 2016

July 3–7, 2016

Convention and Exhibition Centre, Gold Coast, AUSTRALIA <https://www.smbe.org/smbe/>

## International Symposium on Phlebotomine Sandflies IX (ISOPS IX)

June 28–July 1, 2016

Faculties of Pharmacy and Medicine of the University of Reims, Reims, FRANCE

<http://www.univ-reims.eu/site/event/isops-ix-18817.html>



## 4th National Postgraduate Training Workshop in Systematics

July 11–15

The University of Adelaide, Adelaide, AUSTRALIA

Please send expressions of interest (including name, year PhD started, Department/ School/ Uni and project title) to [Professor Andy Austin](mailto:andy.austin@adelaide.edu.au).

([andy.austin@adelaide.edu.au](mailto:andy.austin@adelaide.edu.au))



## 16th Congress of the International Society for Behavioural Ecology (ISBE)

July 28–August 3, 2016

Exeter, UNITED KINGDOM

<http://www.isbe2016.com/>

## XXV International Congress of Entomology: Entomology Without Borders

September 25–30, 2016

Orlando, Florida, USA

<http://ice2016orlando.org/>



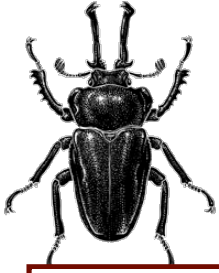
## Australian Entomological Society and Entomological Society of New Zealand 47th AGM and Scientific Conference

27-30 November 2016

Melbourne, AUSTRALIA

<http://www.aesconferences.com.au/>





# Diary Dates for 2016

Meetings held on the second Tuesday  
of the respective month

MARCH 8	Federica Turco	AGM and Presidential Address: “ <i>Not only darkling beetles: a professional and personal journey among Tenebrionoidea beetles</i> ”
APRIL 12	Nigel Stork	“ <i>How many species are there on Earth</i> ”
MAY 10	Michelle Gleeson	“ <i>Little Bug-ers: educating and inspiring the next generation of budding entomologists</i> ”
JUNE 14	Notes and Exhibits	Student Award Presentation/ Notes & Exhibits
AUGUST 9	Julianne Farrell	“ <i>Processionary caterpillars: their ecology and relationship to equine foal deaths</i> ”
SEPTEMBER 13	Kumaran Nagalingam	“ <i>Functional role of male lures of Bactrocera fruit flies: potential to maximise their use in pest management</i> ”
OCTOBER 11	Madaline Healey	“ <i>Barefoot entomology – working as an entomologist in Laos</i> ”, <i>ACIAR Biocontrol in the Mekong</i>
NOVEMBER 8	Romina Rader	“ <i>To be announced</i> ” on <i>Community Ecology</i>
DECEMBER 13	Notes & Exhibits	Notes and Exhibits/Christmas Afternoon Tea

## SOCIETY SUBSCRIPTION RATES

<b>GENERAL</b>	Person who has full membership privileges	<b>\$30pa</b>
<b>JOINT</b>	Residents in the same household who share a copy of the <i>News Bulletin</i> , but each otherwise have full membership privileges.	<b>\$36pa</b>
<b>STUDENT</b>	Student membership conveys full membership privileges at a reduced rate. Students and others at the discretion of the Society Council.	<b>\$18pa</b>

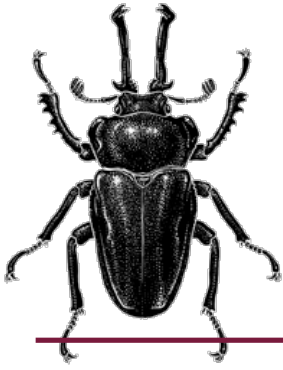
ESQ membership subscriptions should be sent to the Treasurer, PO Box 537, Indooroopilly, QLD 4068  
<http://www.esq.org.au/membership.html>

## THE AUSTRALIAN ENTOMOLOGIST SUBSCRIPTION RATES

<b>AUSTRALIA</b>	Individuals/Institutions	<b>AU\$33pa/AU\$37pa</b>
<b>ASIA/PACIFIC</b>	Individuals/Institutions	<b>AU\$40pa/AU\$45pa</b>
<b>ELSEWHERE</b>	Individuals/Institutions	<b>AU\$45pa/AU\$50pa</b>
<b>ELECTRONIC</b>	Individuals/Institutions	<b>AU\$25pa/AU\$30pa</b>

Journal subscriptions should be sent to the Business Manager, PO Box 537, Indooroopilly QLD 4068  
<http://www.esq.org.au/publications.html>





# Entomological Society of Queensland



Notice of next meeting:

*Tuesday, June 14th, 2016, 1:00 pm*



**A Notes and Exhibits meeting:**

*Marisa Stone*

2016 ESQ Student Award winner from Griffith University

will present

*Edge effects on insects within urban fragmented eucalypt forests*

other items will include:

*Biological control of parthenium weed in SQ and SEQ*

*Update on the progress of the leaf-mining jewel beetle  
Hedwigiella (Hylaeogena) jureceki, a new biological control for  
cat's claw creeper (Macfadyena unguis-cati)*

*Have you got something to share?*

contact Bradley Brown ([bradley.brown@csiro.au](mailto:bradley.brown@csiro.au))

**All welcome! Join us for tea and coffee following the meeting.**

**Ground floor Seminar Room, Ecosciences Precinct, Boggo Road, DUTTON PARK**

*More venue details available at <http://www.esq.org.au/events.html>*

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## **Next News Bulletin:**

Volume 44, Issue 4 (June/July 2016)

CONTRIBUTIONS WELCOME

Deadline Wednesday, June 29th, 2016.

Send your news/stories/notices to the editor at: [k.ebert@uq.edu.au](mailto:k.ebert@uq.edu.au)