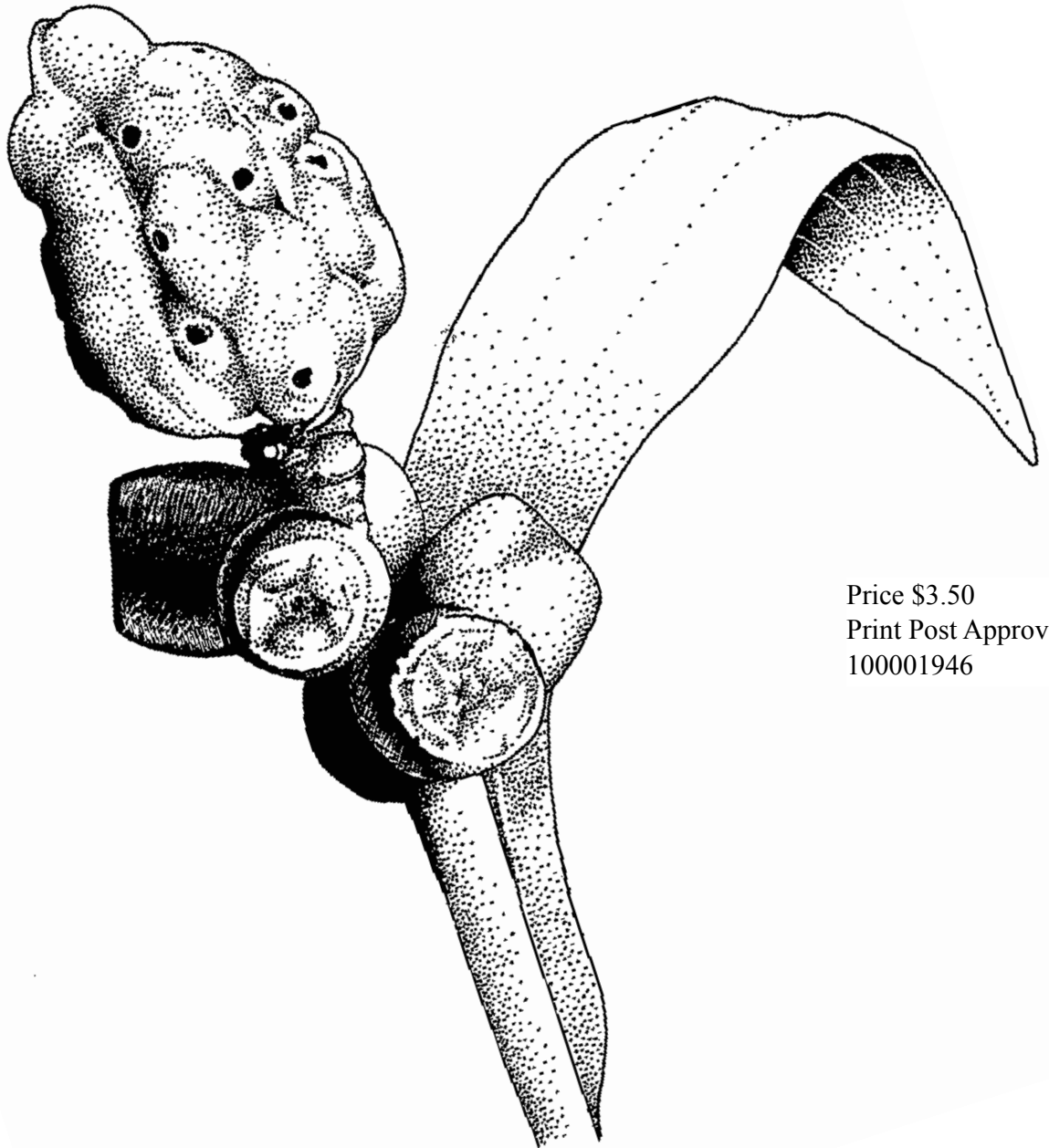


Entomological Society of Queensland

# NEWS BULLETIN



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# Entomological Society of Queensland

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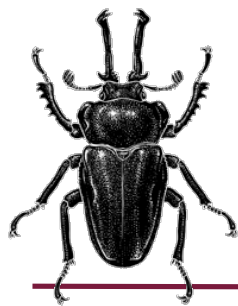
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**Front Cover Illustration:** This beautiful illustration is by Andrew Moore when he was employed with the Australian Biological Control Laboratory at Townsville, James Cook University. The Fergusoninidae gall fly, *Fergusonina turneri*, forms galls 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.

ISSN 1037-2989



# Entomological Society of Queensland

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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.

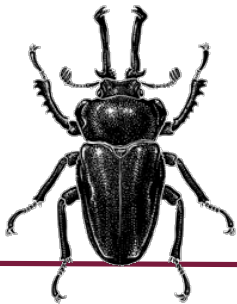
The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published in four parts annually.

**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, April 12th, 2016**

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

**Meeting open:** 13:05

**Attendance (45):** Mark Schutze, Jane Royer, Nigel Stork, David Holdom, Diana Leemon, Penny Mills, Susan Wright, Jessica Peach, Sarah Stevens, Leanne Nelson, Shannon Close, Tim Heard, Geoff Monteith, Simon Lawson, Kathy Ebert, Desley Tree, Gary Cochrane, Julianne Farrell, Lance Maddock, Nadine Baldwin, Andrew Maynard, Brogan Amos, Andy X. Wang, Michael Jeffries, Stephen Cameron, Susan Cully, Don Sands, Trevor Lambkin, Justin Bartlett, Christine Lambkin, Becca Thuell, Andrew Hayes, Graham Donnelly, Brenton Peters, Owen Seeman, Helen Nahrung, Manon Griffiths, Gunter Maywald, Claudia Schipp, Lui Lawrence-Rangger, Bill Palmer, Mike Barnett, Kathy Thompson, Bradley Brown, Justin Cappadonna.

**Visitors (9):** Hugh Paterson, Kate McGlashan, Rachel Smethurst, Ian Gilbert, Bryony Willcox, Madaline Healy, Peter Rothlisky, Russell Stoodley, Christine Goosem

**Apologies:** Morris McKee, John Lawrence, Cate Paull, Noel Starick, Richard Zietek.

**Minutes:** The minutes of the last meeting (AGM) were circulated in News Bulletin 44[1] March 2016.

Moved the minutes be accepted as a true record:  
Chris Lambkin  
Seconded: Geoff Monteith  
Carried: All

**Nominations for membership approved by council:**

Jessica Peach (student)  
Matthew Rees (student)  
Val Ryland (general)  
Anna Namyatova (general)

**General Business:**

Four submissions for the Student prize have been received. The submission deadline (April 8) is now closed. The winner will be announced in May.

**Main Business:**

Nigel Stork presented “*How many insect species are there on Earth?*” Geoff Monteith gave a vote of thanks to Nigel for his presentation.

Bradley Brown made special mention of the attendance of Hugh Paterson at today’s meeting.

**Next meeting:** The next meeting will be on the 10<sup>th</sup> of May. Michelle Gleeson will present “*Little Bug-ers: educating and inspiring the next generation of budding entomologists*”.

**Meeting closed:** 14:00



A male Titan stick insect (*Acrophylla titan* (Macleay, 1826)) with a face covered in pollen. Photo: James Dorey



**At our next meeting...**

***“Little Bug-ers:  
educating and inspiring  
the next generation of  
budding entomologists”***

*presented by Michelle Gleeson*

*Director of BugsEd*

Michelle will share her interesting journey from bug-crazed toddler to passionate insect educator and will talk about her incredibly diverse career, from working with indigenous kids in the outback, discussing the finer points of *The Very Hungry Caterpillar* to a class of preschoolers, to working on set with the likes of Sir David Attenborough. She will share her experiences on the highs and lows of the perilous job of working simultaneously with both children AND animals and will touch on various subjects such as ‘how to excite and engage moody teenagers’, ‘encouraging squeamish vegetarian biology students to partake in an insect collection’ and ‘dealing with teachers who are petrified of grasshoppers’. In conclusion, Michelle will share her thoughts and tips on how we can all educate and inspire the next generation of budding entomologists.

**A bit about Michelle....**

Michelle Gleeson (*nee* Larsen), is known around South East Queensland as ‘the bug lady’ – no matter how she introduces herself! She is an entomologist and the director and co-founder of Bugs Ed., an educational company that presents a range of hands-on insect workshops throughout Queensland. She is also an Adjunct Industry Fellow at The University of



**Interactive insect workshops for all ages**

Queensland’s School of Biological Sciences, collaborating on biological science outreach programs in remote schools and working on various field research projects.

Michelle completed a Bachelor of Science majoring in Entomology at the University of Queensland and later went on to receive first class Honours in Entomology. Rather than continuing on the traditional path of academia, Michelle decided to pursue her passion for educating those around her, especially children, about the amazing world of insects. She has just released her first book – *Miniature Lives – identifying insects in your home and garden*.

**Tuesday, May 10th at 1pm, Seminar Room at EcoSciences, afternoon tea following.  
All welcome!**



**“With beetles alone accounting for about 40% of all described arthropod species, the truly pertinent question is how many beetle species exist?”** Australian

Scarabaeidae: *Anoplognathus macleayi aurora*. Photo: Jessica Scholle, WA Museum

## *How many species of insects are there on Earth?*

*by Professor Nigel Stork*

*Dean of Research for the Sciences  
Griffith University*

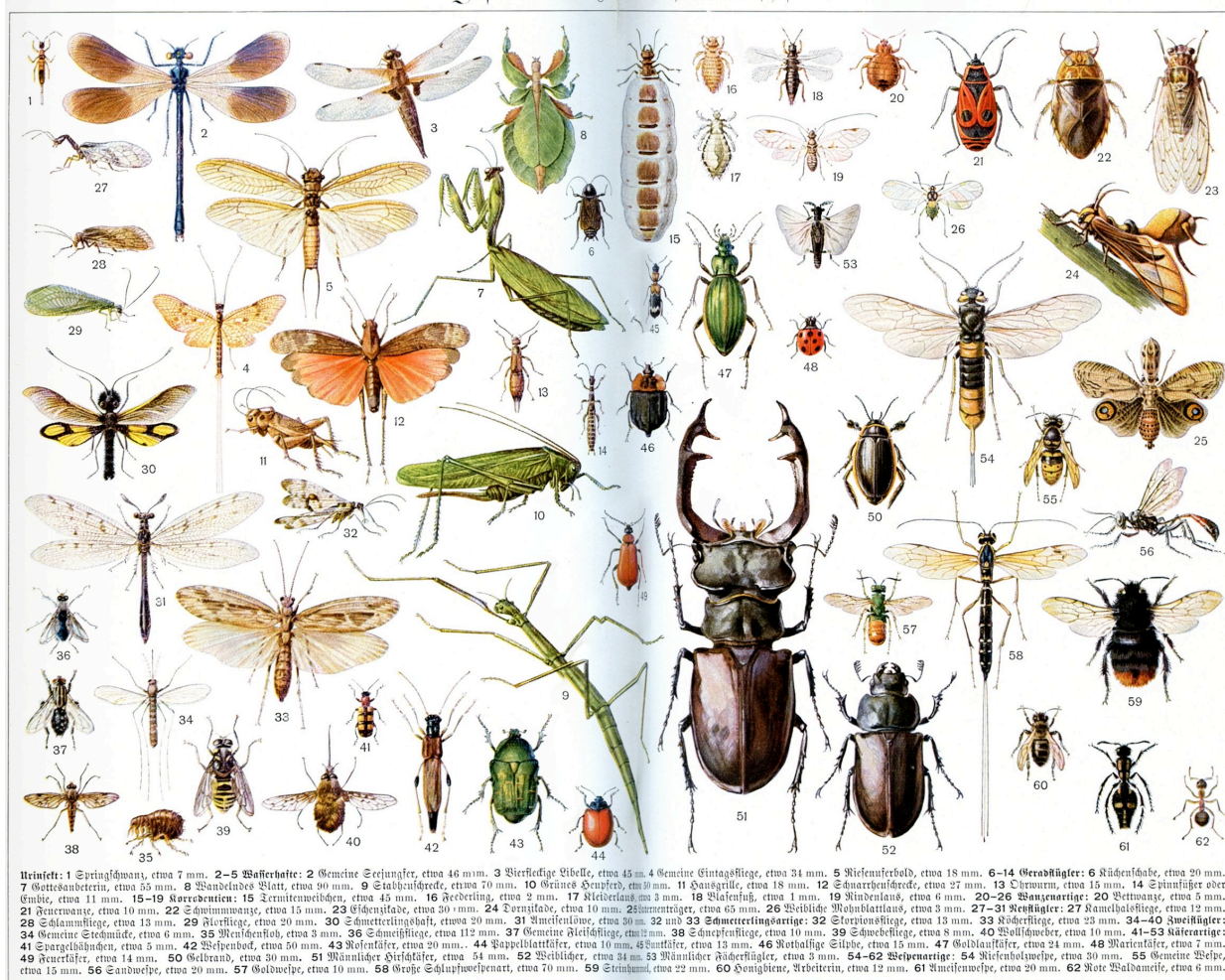
It has been suggested that we don't know, even to an order of magnitude, how many species there might be and that we have better estimates of the number of stars than of species. As Lord Robert May once remarked, to the nearest approximation all species on Earth are insects, and so determining how many insect species there might be is pivotal in determining how many eukaryote species there might be. With beetles alone accounting for about 40% of all described arthropod species, the truly pertinent question is how many beetle species exist?

In a recent paper in the Proceedings of the National Academy of Sciences (Stork et al 2015), we show that we are much closer to estimating the number of insect species than previously thought and that the figure is much less than some were suggesting in the 1980s and '90s. What we attempted to do was to bring together a review of current methods of estimating the number of species, updating some with new information, and importantly introducing a couple of new methods. We then showed how the means of estimates have dropped dramatically from 1980-1990, 1990-2000 and 2000 to present and current estimates do not vary by much. Each method has its own differently calculated measures of uncertainty and, therefore, rather than providing SEs for the means for each period, we chose to provide the upper and lower estimates as a measure of the variation.

Our four new independent estimates of beetle species richness produce a mean estimate of 1.5 million beetle species with a surprisingly narrow range (0.9–2.1 million) of these four autonomous estimates—derived from host-specificity relationships, ratios with other taxa, plant:beetle ratios, and a completely novel body-size approach—represents a major advance in honing in on the richness of this most significant taxon, and is thus of considerable importance to the debate on how many species exist. Using analogous approaches, we also produced independent estimates for all insects, mean: 5.5 million species (range 2.6–7.8 million), and for terrestrial arthropods, mean: 6.8 million species (range 5.9–7.8 million), which suggest that estimates for the world's insects and their relatives are narrowing considerably.

Why people are interested in this question is partly because of our natural curiosity about such things and partly because the rapid rate of habitat loss and change raises concerns about how many species are going extinct and what impact their loss is having on the functioning of ecosystems. There have been few novel methods for estimates backed by clear methodologies and clear statements of the assumptions that are made. Even fewer have provided measures of uncertainty. Here I explore these estimates and examine where they might be improved.





Diversity of insects from Brockhaus, 1937, Wikimedia Commons [https://commons.wikimedia.org/wiki/File:Insects\\_in\\_Brockhaus\\_1937.jpg](https://commons.wikimedia.org/wiki/File:Insects_in_Brockhaus_1937.jpg)



My interest in this question was sparked first by my appointment to the Natural History Museum in London as a curator in the Entomology Department in 1979 and second collaboration with Terry Erwin from the Smithsonian on sampling tropical insects using canopy fogging. We both collected such samples, he from south and central America, and I from south-east Asia, and found 1000's of species of beetles in our samples. From fogging samples of 1,200 beetle species from one species of tree, Erwin calculated in 1982 that there might be 30 million species of insects on Earth, making assumptions about the level of host-specificity, proportions of other insect species to beetle species, and the proportion of species found in the canopy compared to the ground. This somewhat flimsy method, but not the original estimate of 30 million, gained more credibility in a study lead by Andrew Hamilton (Hamilton, et al., 2010) who sourced a range of data testing Erwin's assumption and accounted for the



uncertainty in these parameters by replacing point estimates with probability distributions with medians of 6.1 and 7.8 million species. Furthermore, Erwin's estimate of 30 million was way outside the 90% confidence intervals.

Of the other methods of estimating global species richness discussed in our PNAS paper one new one is perhaps notable. Almost 30 years ago Robert May suggested that looking at body size distributions of organisms also might be useful in estimating global species richness. We tested this by examining new data on the body size distributions of British beetles and of the 170,000 species of beetles in the Natural History Museum in London. It has been previously shown that in general larger species of beetles are described earlier than smaller ones. So plotting the mean body size of the described beetles in Britain over time shows that it drops quite quickly in the early 1800s and then the decline slows down in the 20<sup>th</sup> century. We made two assumptions: i) that the body size distribution of British beetles should be similar to that for the world's beetles and ii) and that the Natural History Museum's collection is a representative sample of the of the world's described beetle species. We found that the 95% confidence intervals of the median body size of a sample of the Museum's beetle species fitted at points on the British beetle body size plot, described above, when 352 and 437 species had been described – roughly a tenth of the British beetle fauna. In brief, this indicates that what the Museum's collection represents is just one tenth of the world's beetle species or 1.7-2.1 million species.

The question of how many species exist is complicated by the possibility of cryptic species, with many new species being revealed only through genetic analysis. Although molecular methods are at the forefront of resolving the problem of cryptic species, recognizing synonyms where species are



British beetles: Geotrupid beetles in Cairngorm National Park. Photo: Julia Ebert

accidentally described more than once is also a problem in all groups and arguably has the potential to inflate estimates considerably, especially for insects. The net effect or balance of such considerations is far from being resolved.

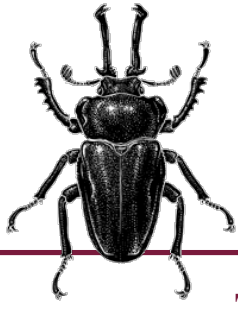
So can such methods be used to provide more scientifically-based estimates of how many species of beetles and other insects there are in Australia? The answer is yes, but no one has so far attempted it. Any one up for the challenge?

--Nigel Stork

## REFERENCES

Stork, N.E., McBroom, J., Gely, C., and Hamilton, A.J. 2015. New approaches narrow global species estimates for beetles insects and terrestrial arthropods. *PNAS* 112(24): 7519-7523.

Hamilton, A.J., Bassett, Y., Benke, K.K., Grimbacher, P.S., Miller, S.E., Novotny, V., Samuelson, G.A., Stork, N.E., Weiblen, G.D., Yen, J.D. 2010. Quantifying uncertainty in estimation of tropical arthropod species richness. *American Naturalist*. 176(1): 90-95.



# Entomology News

## Termite gut microbes might help iron mine remediation

Iron ore deposits are often protected by a crustlike iron layer called canga which provides a tough surface that is resistant to erosion and protects the softer iron ore below. During the mining process, canga is removed to access the iron ore. A research team, which includes Dr. Emma Gagen and Professor Gordon Southam (geomicrobiologist) from the University of Queensland School of Earth Sciences, and Professor Gene Tyson (microbial ecologist) from the Australian Centre for Ecogenomics (UQ), is looking into ways to quickly re-establish and re-form the canga after mining. The canga supports a unique and endemic plant community of herbaceous shrubs and hemicryptophytes that are especially adapted to the high iron concentrations. To enhance the re-establishment of the canga, the researchers are looking into various microbe-mineral interactions. One of their projects is to investigate the guts of termites that build their nests in and over the canga because their gut microbes are able to dissolve and reform iron oxides. These unique biogeochemical studies will hopefully lead to identification of biotechnologically important organisms that will help improve mine site remediation. Read more...

<https://www.uq.edu.au/news/article/2016/04/tiny-microbes-could-help-mining-remediation>  
<http://www.mining.com/insects-guts-key-mining-remediation/>



Canga mineralisation. Photo: <http://www.sablemining.com/gallery/iron-ore.html>

## Red Imported Fire Ant

Biosecurity Queensland is always seeking new ways to educate residents about fire ants (*Solenopsis invicta*) and to ask community members to report suspicious ants on 13 25 23, so that nests can be treated and destroyed. We are aware that many families relocate to the region and may not be aware of these small, yet dangerous, ants. We appreciate any assistance people can offer to spread the word about fire ants through communication networks, with the aim of gaining public participation in the eradication program.

Although small, fire ants are one of the worst invasive species to hit Australia's shores. Fire ants can ruin our lifestyle, and have serious environmental and agricultural impacts. They inflict a terribly painful sting and can restrict everyday activities, such as barbecues, picnics and sporting events.

The National Red Imported Fire Ant Eradication Program could not have achieved its success to date without the ongoing awareness and vigilance from local communities. Seventy per cent of fire ant sightings in South East Queensland are reported by



Fig. 1. A typical fire ant nest showing the mound of loose dirt.





Fig. 2. Fire ants are small, coppery-brown and vary in size from 2-6 mm.

the general public. We urge people to continue checking yards, local parks and recreational areas for fire ants.

The top five spots for fire ants on residential properties are lawns, footpaths, garden beds, outside taps and sprinklers and utility pits. On rural properties: dams and irrigation lines, edges of cultivated land, cropland post-harvest, fence lines and piles of organic matter.

A typical fire ant nest looks like a mound of loose dirt, with no visible entry or exit holes. Nests can also be found under logs, rocks or gardening materials (Fig. 1). Fire ants are small, varying in size between 2-6mm and are coppery-brown with a



Fig. 3. Biosecurity officer checking for fire ant nests.

dark abdomen. They are aggressive and inflict a painful sting which can be life threatening.

Take a look around your property and if you see a mound of dirt that could be a fire ants nest, stand well back and poke the nest with a long stick. Never use your hand. If it's a fire ant nest you'll notice ants of varying sizes swarming out to attack. It's important that you don't attempt to disturb or destroy the ant nest yourself because if it's not done correctly the worker ants will simply evacuate their queen to a safe location and start a new nest.

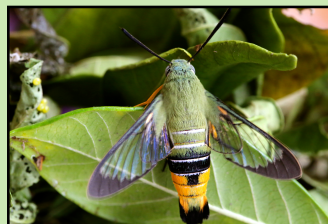
If you think you've spotted fire ants, take a photo if possible and upload it to the website

[www.anthunt.daf.qld.gov.au](http://www.anthunt.daf.qld.gov.au), or call Biosecurity Queensland on 13 25 23. Qualified Biosecurity Queensland technical officers will come and treat the ants using a combination of bait treatment and direct nest injection. The bait comprises corn grit that is soaked in soybean oil and insect growth regulator that sterilises the queen ant. Since the queen is unable to reproduce, the colony dies out. The insecticide has low toxicity and poses no negative health effects for humans or animals. The high level of support we've received from the South East Queensland community in identifying and reporting fire ants has assisted in the containment of this serious pest. With continued public vigilance we will eradicate them once and for all.

For more information about the National Red Imported Fire Ant eradication program, visit [www.daf.qld.gov.au/fireants](http://www.daf.qld.gov.au/fireants).

## Cadence Page

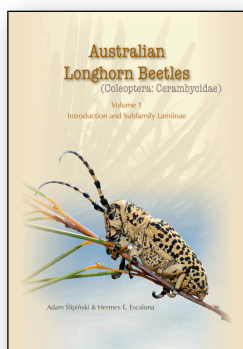
*Communication and Stakeholder Engagement Officer  
National Red Imported Fire Ant Eradication Program  
Biosecurity Queensland Control Centre*



*Have YOU got some news, a story or photo to share??*

*Next bulletin deadline is the 18th of May!*

## Australian Longhorn Beetle book wins prestigious medal for excellence in taxonomy



Dr. Adam Ślipiński and Dr. Hermes E. Escalona have won the 5th J.O. Westwood Medal for Excellence in Taxonomy from the Royal Entomological Society and Natural History Museum in London for their recent

book, *Australian Longhorn Beetles (Coleoptera: Cerambycidae) Volume 1: Introduction and Subfamily Lamiinae*. The award is given biennially for a comprehensive taxonomic work on a group of insects or related arthropods. The award honours the 19th century British entomologist, John Obadiah Westwood, an author and illustrator of many insect books. Westwood also named several of our Australian insects, including some of the native dung beetles.

<http://www.royensoc.co.uk/awards/>

[J\\_O\\_Westwood\\_medal.htm](http://www.esq.org.au/J_O_Westwood_medal.htm)

<http://blog.csiro.au/longhorn-beetles-win-a-medal/>



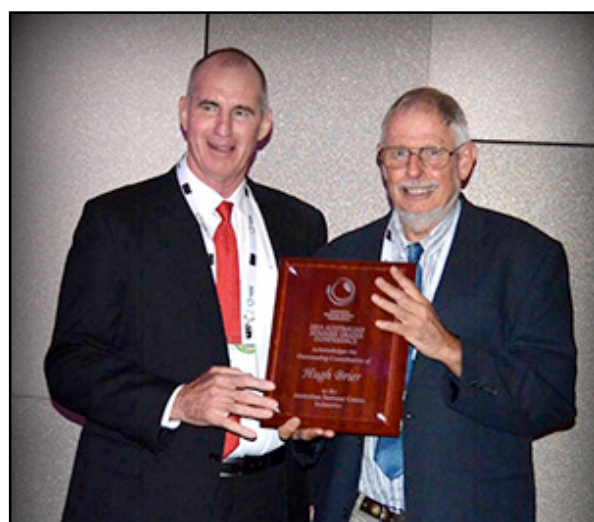
### The ESQ 2016 Council

ESQ Council members from left to right: Julianne Farrell (UQ), Brenton Peters (retired DAF), Kathy Ebert (UQ), Geoff Monteith (QM), Penny Mills (UQ), kneeling: Mark Shutze (QUT), Bradley Brown (CSIRO), Tim Heard (retired CSIRO), back row: Federica Turco (ANIC), Cate Paull (CSIRO).

## Industry award for Hugh Brier

Hugh Brier, Senior entomologist with the Department of Agriculture and Fisheries at Kingaroy, was recently recognised at the recent Australian Summer Grains Conference in March for his outstanding work to aid the summer grains industry. His recent work has included developing economic thresholds for pests of mung beans and soybeans. He has produced many publications to assist growers to identify and manage insect pests in pulses, including the *Good bug? Bad bug? Identification guide*.

Dr. Liz Williams and Trevor Volp have recently joined Hugh at the research station as research entomologist and technical officer-entomology, respectively. Both of these new positions were made possible by the Grains Research and Development Corporation.



Paul McIntosh from Pulse Australia presents the summer grains industry award to Hugh Brier. Photo: <http://thebeatsheet.com.au/general/industry-award-for-hugh-brier/>





## Does Queensland have the longest insect in the world? Well, perhaps....!

Geoff Monteith  
Queensland Museum

In March 2014, I wrote of the final capture by Maik Fiedel, from the Melbourne Museum, of a female of an enigmatic giant phasmid from North Queensland that had been described in 2006 by Paul Brock and Jack Hasenpusch under the appropriate name of *Ctenomorpha gargantua* (Monteith, 2014). It was only known then from male specimens which in phasmids are always much smaller than females. However, there had been two photographs of females come to light, both reproduced in that article, which showed enormously long creatures with estimated overall lengths of 525 mm and 615 mm. The first was from Mt. Fisher near Millaa Millaa and the other was from Kuranda. These sizes placed the species within possibility of being longer than the officially-claimed longest insect in the world which was a phasmid from Borneo in the Natural History Museum in London.

The female of *C. gargantua* that Maik Fiedel collected while head-lighting late at night in the mountains behind Cairns was 500 mm in overall length, smaller than either of the photographed females. She was christened “Lady Gaga” and taken back to the Melbourne Museum Live Exhibits Unit where she lived for a few weeks and, most importantly, laid 12 eggs (Fig 1). They were entrusted to Maik to incubate and rear as he has wide experience in rearing phasmids both overseas and in Australia and he has sent these notes and photographs of subsequent happenings.

The eggs were incubated on an equal mix of sand and coco peat and sprayed now and then to keep the moisture up. After a long wait,

and with great relief, the first nymph hatched on 7 September 2014 which showed the eggs were fertile (Fig 2). It was known that nymphs would feed on eucalypt because Jack Hasenpusch of the Australian Insect Farm in north Queensland had had some success with partially rearing a nymph of *C. gargantua* from eggs he had collected in giant suspended funnels on his rainforest property. Sure enough, the Melbourne hatchlings fed readily on eucalypt. By 9 October seven nymphs had hatched but none since so the remaining eggs are probably infertile.

The nymphs were set up in a mesh cage inside a melamine reptile enclosure set to 28°C and misted frequently to keep humidity at 85-95%. Browse plants were chosen that would be available in Melbourne and the growing nymphs ended up feeding readily on *Euc. mammifera* (Brittle Gum), *Euc. regnans* (Mountain Ash) and *Syzygium australe* (Lilly Pilly).

The nymphs grew well until the third moult when they became sluggish and wouldn't move around the cage to feed. Maik started to hand feed them leaves directly into their mouths but after four days most wouldn't even accept leaves in that way, even after being drip-fed glucose. A radical decision was made to move them out of the controlled environment reptile enclosure into a non-stable room environment where they were misted only once a day. They took hand-fed thin slices of apple and within a day all seven were back feeding normally on Mountain Ash foliage.

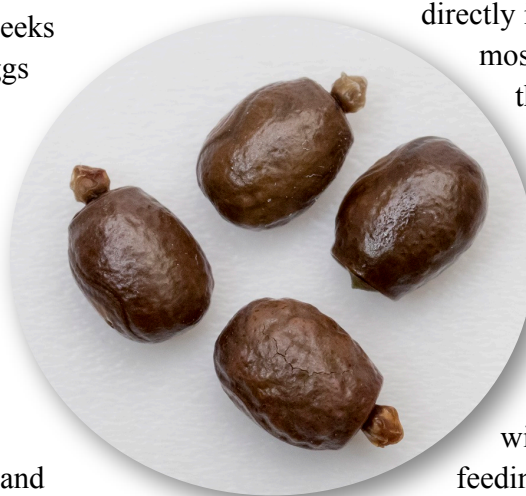


Fig. 1. Eggs of *Ctenomorpha gargantua*.



Fig. 2. First instar nymph of *Ctenomorpha gargantua* with its feeding marks on lilly pilly foliage.

They all moulted to the next instar okay, and at this stage three slimmer males with a bulging subgenital plate and four females with noticeably longer cerci were distinguishable. Some phasmids can reproduce without mating but the mixed sexes in this brood indicated that “Lady Gaga” had mated before Maik collected her and thus her children carry the full genetic complement.

Due to lower room temperatures (and much lower in Melbourne compared to Cairns!) the nymphs grew slowly and it wasn't until October 6, 2015, that the first, a male, moulted to an adult. Within a month all seven had their final moult. All four females have now been mated with all the males and are already producing eggs. Maik Fiedel and the Melbourne Museum are to be congratulated on this great success. Live specimens were place on temporary display at the Museum in January and the long row now starts to get the third generation through to maturity. Maik handles and talks about them at the following

video link: [http://www.abc.net.au/news/2016-01-07/melbourne-museum-rears-first-captured-](http://www.abc.net.au/news/2016-01-07/melbourne-museum-rears-first-captured-gargantuan-stick-insect/7074140)

[gargantuan-stick-insect/7074140](http://www.abc.net.au/news/2016-01-07/melbourne-museum-rears-first-captured-gargantuan-stick-insect/7074140)

The thorny question now arises: is our Queensland *Ctenomorpha gargantua* the longest insect in the word? All four females that Maik reared were larger than their 500 mm mother, with the largest being 565 mm in overall length, including its outstretched front legs plus the very long cerci which are a feature of females of the genus *Ctenomorpha*. The longest of the two females for which only photographs exist was from Kuranda and was purportedly measured at 615 mm overall length before it was released, but we don't have the specimen as evidence.

The present official world record holder is documented in the London Natural History Museum's fabulous book of statistics of giant insects, called *Big Bugs Life-size*, by London Natural History Museum (NHM) orthopterist, George Beccaloni. It's a female phasmid from Sabah on the island of Borneo, called *Phobaeticus chani* Bragg (in Henneman & Conle, 2008), illustrated life-size in a centre fold-out of George's book. It was awarded a Guinness

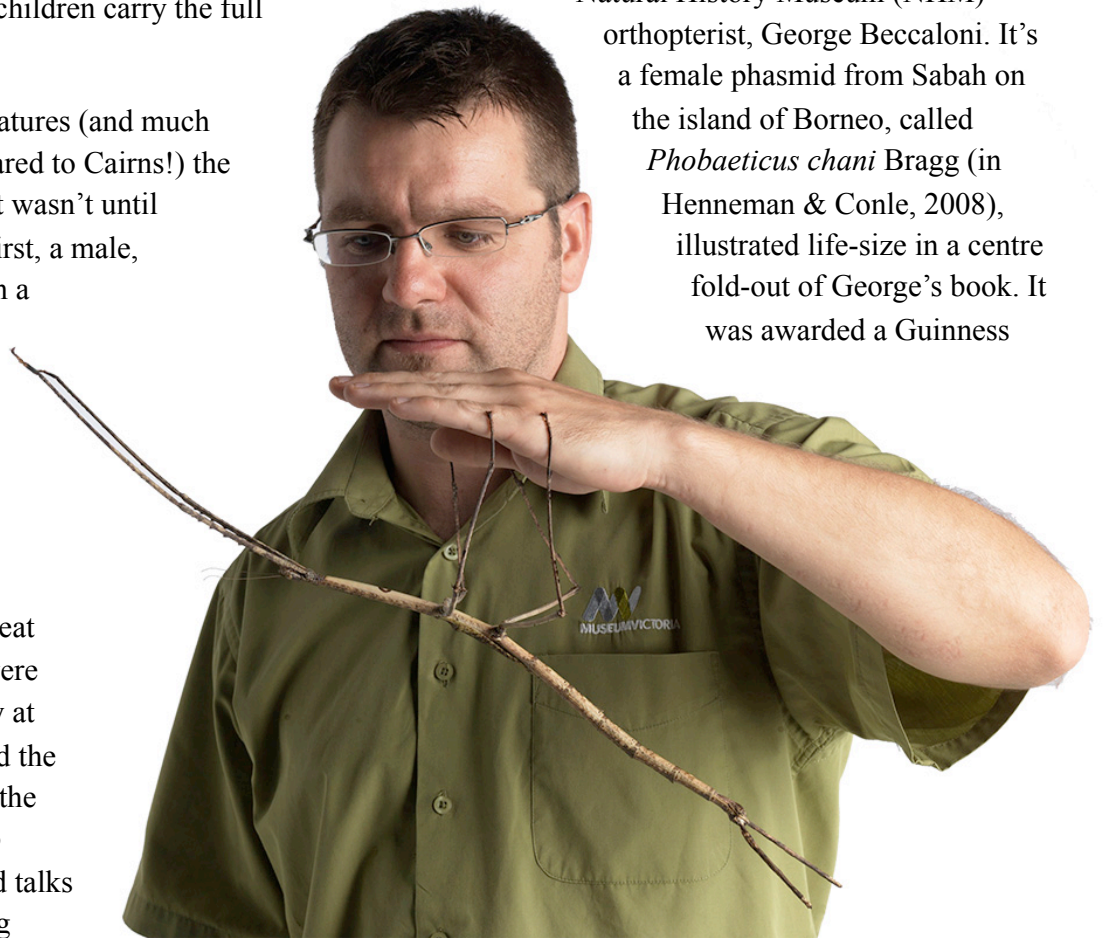


Fig. 3. Maik Fiedel, insect keeper at Melbourne Museum, with one of the large females he raised in Melbourne from the first field-caught female of *Ctenomorpha gargantua*. Note the very long cerci at the tip of the abdomen.





Fig 4. The 567 mm record Sabah specimen of *Phobaeticus chani* at the award ceremony at the Natural History Museum, London. From left: Philip Bragg, who named the species in 2008, Datuk Chan Chew Lun, after whom it is named, and who donated the specimen to the Museum, and George Beccaloni, who received it on behalf of the NHM.



Fig 5. The official Guinness World Record Certificate.

## REFERENCES

World Record Certificate at a function at the NHM and George has sent me a historic photo of the event and the certificate (Figs 4 & 5). The species is named after well-known Sabah identity Datuk Chan Chew Lun who is Managing Director of Natural History Publications (Borneo) ([www.nhpborneo.com/](http://www.nhpborneo.com/)) and who donated the specimen from his collection to NHM. It is named by British entomologist, Phil Bragg, who had earlier published his book on Borneo phasmids with NHB (Bragg, 2001). It has an overall length of 567 mm but is missing perhaps 5mm off the end of its fore legs, so this means the photographed Kuranda specimen would have beaten it and Maik's biggest female comes very close but fails by less than 10 mm. However the official maximum length is based on just the head/body length (excluding appendages) and the Borneo specimen stands at 357 mm. Since the cerci of the Australia species are perhaps 60mm long this means that it is unlikely to qualify on this basis. But let's see what the next generation of Melbourne breeding stock throws up!

Beccaloni, G. 2010. *Big Bugs Lifesize* 84pp, Natural History Museum, London.

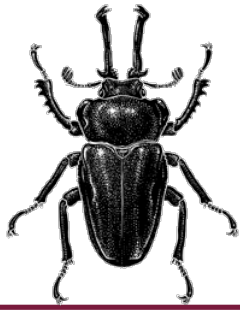
Bragg, P. 2001. *Phasmids of Borneo*. 772pp, Natural History Publications, Kota Kinabalu.

Hasenpusch, J. and Brock, P.B. 2006. Studies on the Australian stick insect genus *Ctenomorpha* Gray (Phasmida: Phasmatidae: Phasmatinae), with the description of a new large species. *Zootaxa* 1282:1-15.

Hennemann, F.H. & Conle, O.V. 2008. Revision of Oriental Phasmatodea: The tribe Pharnaciini Günther, 1953, including the description of the world's longest insect, and a survey of the family Phasmatidae Gray, 1835 with keys to the subfamilies and tribes (Phasmatodea: "Anareolatae": Phasmatidae). *Zootaxa* 1906:1-316.

Monteith, G.B. 2014. Female of Australia's enigmatic giant phasmid finally captured. *News Bulletin Entomological Society of Queensland* 42(2):33-35.





## A Queenslander in the ACT

by Dr Robert Mesibov

Honorary Research Associate

Queen Victoria Museum and Art Gallery

Launceston, Tasmania, Australia

Some of our native millipedes have become exotics in their own country. They've successfully established in new Australian homes far from their native ranges.

The most disjunct of our native exotics is *Solaenodolichopus pruvoti*. Its native range is the Brisbane area, but *S. pruvoti* is now common in Perth, WA and its suburbs (Mesibov, 2014).

A recently described New South Wales millipede is also spreading — to Melbourne parks and gardens and a highway rest area in northern Tasmania (Mesibov and Car, 2015).

The latest addition to the native exotic list is another *Solaenodolichopus*, undescribed. It was photographed last February in a recreation reserve in the ACT by local naturalist Michael Bedingfield, who posted his images on BowerBird. Michael then collected a male for me, and the species-diagnostic character states (in the male genitalia) looked a lot like those for another undescribed *Solaenodolichopus*, known from a single male specimen pitfallen in Ravensbourne National Park near Toowoomba in 1992.

In March, my friend Craig Reid, a former Tasmanian now resident near Toowoomba, sent me a fresh *Solaenodolichopus* male from Ravensbourne, this time with a female companion. *Solaenodolichopus* n. sp. "Ravensbourne" is very close to the ACT *Solaenodolichopus*, but isn't quite the same.

So is the ACT millipede a newly discovered species, or just a variant of "Ravensbourne"? I don't know, and won't know until the genus is methodically mapped over a few thousand square kilometres in

the Toowoomba area. What I'm now pretty confident about is that another Queensland *Solaenodolichopus* has left home and is living 1000 km to the south in the colder, drier ACT.

### References

- Mesibov, R. 2014. The millipede genus *Solaenodolichopus* Verhoeff, 1924 (Diplopoda, Polydesmida, Paradoxosomatidae). 1. New genus diagnosis and redescription of named species. *European Journal of Taxonomy* 83: 1-36.
- Mesibov, R. and Car, C.A. 2015. A new genus and species of native exotic millipede in Australia (Diplopoda, Polydesmida, Paradoxosomatidae). *ZooKeys* 498: 7-16.



*Solaenodolichopus* sp. from Pine Island Reserve in the ACT, photographed by Michael Bedingfield (from BowerBird: <http://www.bowerbird.org.au/observations/55880> )

# Believe it or not, spider eats snake!

Darwin rock-climbers Sam Riley and Jonno Brunton have sent down pictures that are worth sharing. There is a popular climbing cliff behind the little hamlet of Hayes Creek which is about 160 km south of Darwin along the Stuart Highway. Access to the climbing wall is via a narrow cleft in the sandstone known among the climbers as “Spider Gully” (13.589°S X 131.458°E) because it often has numerous strong webs of Golden Orb spiders (*Nephila* spp) stretched across it. These make traversing the gully a little tricky. During a visit on April 9, Sam and Jonno discovered one of the spiders had trapped and killed a small snake which was securely fastened in its web well off the ground. There are occasional records of skinks, frogs and small birds being trapped by *Nephila* spiders but this capture of a snake might be a first.

Steve Wilson, author of the definitive field guide to Australian reptiles, has examined the photo and is almost certain the snake is a juvenile of the common green tree snake, *Dendrelaphis punctulatus*. By comparison with the spider’s size, which Sam estimates to have been about 250mm across the outstretched legs, the snake may have been around 500 mm in length. Robert Raven, arachnid curator at the Queensland Museum, confirms the spider is *Nephila pilipes* (Fabr.) the largest of several *Nephila* species in Australia. It is fairly widespread across the north and down the east coast of Australia and is sometimes seen in Brisbane. These spiders often build up in numbers in such places where air movement is funnelled through a narrowing space across which the spiders can build their immensely strong webs to capture insects moving with the airflow. *Nephila pilipes* has a bizarre habit. Species of *Nephila* usually spin an egg cocoon of yellow silk which they guard in the web. However observers realised that egg cocoons were never seen in webs of *N. pilipes*. Comparatively recently it has been discovered that gravid females descend to the



A female *Nephila pilipes* feeding on a dead green tree snake in its web.



Detail of spider with the snake.

ground, dig a hole with their jaws, deposit their egg mass in it, cover the hole in and return to their web. A remarkable spider, and truly worthy of a snake yarn!





## Obituary

**Barry Philip MOORE**

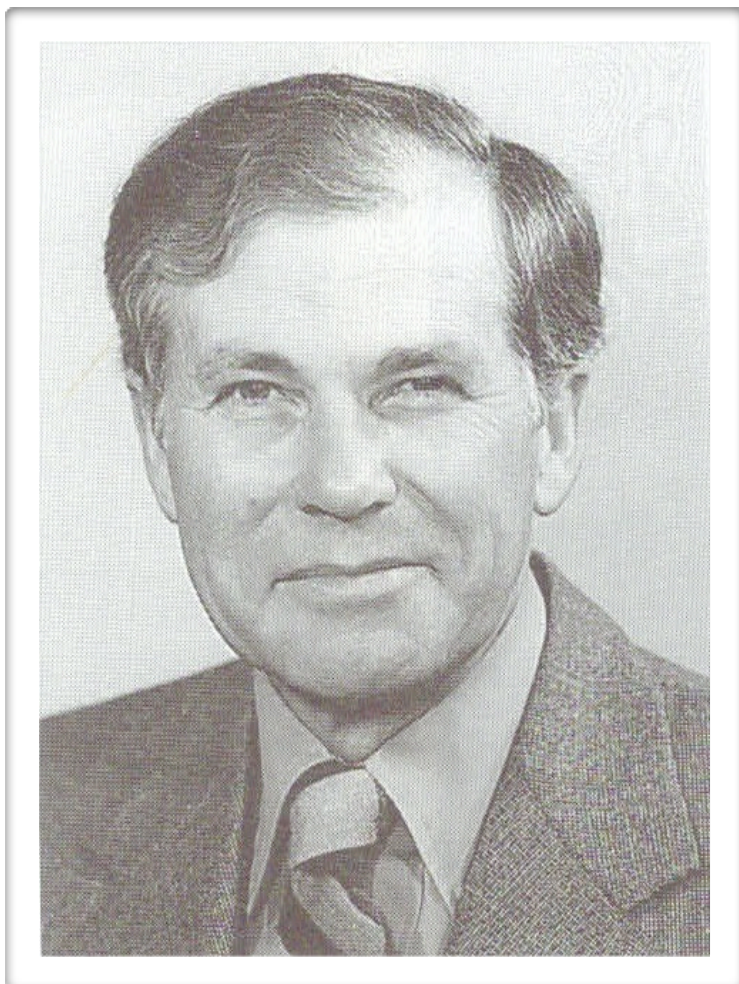
*2 May 1925 – 21 November 2015*

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Long term ESQ member, Barry Moore, died late last year at the age of 90 in the NSW town of Bermagui, to where he had retired after a long career with CSIRO Entomology in Canberra. Barry was born in the UK and studied chemistry at Universities of Sheffield and Oxford, gaining B.Sc., Ph.D. and D. Phil. After a short period of postdoctoral research in Canada he took up an appointment with the DSIR in England working on chemical pest control. In 1958 he migrated to Australia to work at CSIRO Chemical Research

Laboratories in Melbourne. In England he had always been a keen amateur naturalist with a special interest in the Coleoptera and had taken up the taxonomy of the Carabidae as his focus. This interest blossomed in Australia where he found a new and exciting fauna and he collected widely in Victoria. After three years in Australia his interests in entomology and chemistry merged when he moved to CSIRO Division of Entomology, Canberra, in 1961 to start a research program on chemical communication in insects which lasted until his retirement. He explored the chemistry of many aspects of defence and trail chemicals including those of termites, carabids, lycids, buprestids and longicorns. His private taxonomic work also expanded and he wrote important revisionary papers on pterostichine and trechine carabids as well as many lesser works. He joined speleological expeditions hunting cave insects in both Australia and New Caledonia and he developed a secondary interest in the taxonomy of stag beetles. He also published a semi-popular book on beetles of south-eastern Australia as a series of fascicles in the *Australian Entomologist*. This is where his talent as an illustrator emerged and the book has scores of Barry's own scraper board drawing of beetles. Barry longed to be closer to nature and bought a 40-acre bush block outside Canberra in 1970 which became his home and the subject of a delightful, self-illustrated 1978 book, *Life on Forty Acres*, which ranges across every aspect of its natural history. When he retired he bought another block of virgin rainforest at Julatten in tropical north Queensland and lived there for part of each year, calling it his "field station" and making a detailed survey of its Coleoptera. The portrait of Barry accompanying this notice was taken in his "field station" by his Julatten neighbour Esther Brooks, daughter-in-law of George Brooks who was one of NQ's pioneer coleopterists. Barry's collection of Coleoptera is lodged in ANIC, Canberra. Barry served the Australian Entomological Society as its Vice-President and Chairman of its Executive for 1972-74 during the early and difficult years of its establishment. His life will be celebrated in a special memorial issue of the *Australian Entomologist* planned for late 2017. This will have an extended biography of Barry plus papers on Australian Coleoptera dedicated to his memory. If you have a small planned paper that you feel would be appropriate to this volume please get in touch with Geoff Monteith in the next couple of months at [geoff.monteith@bigpond.com](mailto:geoff.monteith@bigpond.com).

*Geoff Monteith  
Queensland Museum*



## Obituary

**Edgar Frederick RIEK**

1920 – 9 February 2016

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Edgar Riek died in Canberra hospital at the age of 95 on February 9 this year, following a fall. He was a man of many parts: entomologist extraordinaire, palaeontologist, master gardener, plant breeder, raconteur, elite trout fishermen, author, wine grower, national wine judge, bridge master, gourmet, cook, iconoclast, and perhaps even anarchist. Everything he did was done with erudition and style. He was born on a vegetable farm at Caboolture, just north of Brisbane and went to Brisbane Grammar on the long daily steam train commute. His family couldn't afford university fees so in 1939 he got a lowly job as a laboratory assistant in the UQ Geology Department so that he could attend free part-time night classes and graduated B.Sc. in 1944 with majors in both Geology and Zoology. During his degree studies he had been encouraged in

entomology by UQ's Athol Perkins. Thirty-three years later, Edgar was to be ESQ's inaugural Perkins Memorial Lecturer at a gala night at UQ in 1977 to launch our successful series honouring Perkins. During his student years at UQ he joined ESQ, was a regular exhibitor at meetings, and served on Council as Secretary in 1944.

University graduates in 1944 were rare and desirable fish, and of the six job offers that he received, ranging from NG geologist to Queensland government bacteriologist, Edgar chose to join CSIRO Canberra in 1945 to work as a biocontrol entomologist. The next year he submitted a thesis on the freshwater fauna of Queensland for a M.Sc. at UQ. The thesis covered not only insects and crustacea but made preliminary reviews of groups such as rotifers, sponges, bryozoa and gordian worms that had never been tackled before. He maintained an interest in freshwater crayfish and not only revised the whole Australian fauna but invented recipes for eating them. At CSIRO, constant problems with identification of the microwasps he worked with in biocontrol turned him more to taxonomy and within a few years he became part of that elite group of taxonomists who worked to form what is now the Australian National Insect Collection. He published widely on many insect orders and travelled around the world studying fossils insects as a means of understanding the evolutionary origins of insects. His fossil insect work earned him a geology D.Sc. from UQ in 1971. His immense breadth of knowledge is illustrated by the fact that when CSIRO published the landmark first edition of *Insects of Australia* in 1970 Edgar wrote the chapters on fossils, mayflies, stoneflies, dobsonflies, lacewings, stylops, scorpion flies, caddisflies and wasps.

In 1978, Edgar had tired of the bureaucratic changes happening in CSIRO and science generally. He retired at 58 and ceased all entomology. For his swan song he returned to Brisbane and his last sole publication in



entomology is his address to ESQ in August 1978 when he spoke on “Thoughts on the origin and evolution of insects” (*News Bull. ESQ* 6(5):51-64). But Edgar didn’t retire from life. He became a pioneer of the Canberra wine industry, growing his own wine on land he bought at Lake George and supplying his superb wines to better bottle-shops across Australia. But that’s another story. In 1996 he was awarded an OAM for services to the wine industry and entomology. In 1998 the National Library recorded three hours of interviews with Edgar on his life in science and viticulture. It’s fascinating listening and is freely available as audio or transcript on the web at <http://nla.gov.au/nla.oh-vn255039>

Geoff Monteith  
Queensland Museum

## The History Corner...



### John George BROOKS (1910-1975)

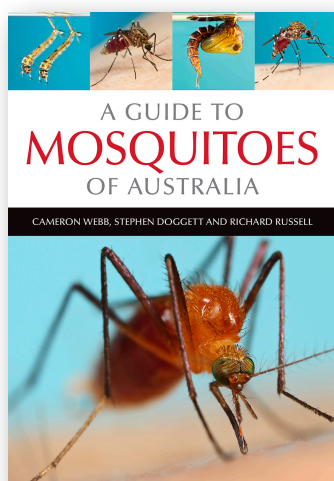
George Brooks was born in Townsville. His father, John T. Brooks, was a customs officer and naturalist and encouraged George’s interest in Coleoptera as a boy during service in Geraldton, WA. Moved to Mackay in 1923 and was schooled in Charters Towers. He began serious collecting and joined ESQ in 1930 while studying dentistry in Brisbane. After service in Dental Corps in WWII, he practised dentistry in Cairns until 1969 and lived until his death in Edge Hill. Collected Coleoptera extensively in north Queensland and had special interests in buprestids, helminthids, dung beetles and food plants. Published many notes in *North Queensland Naturalist* and news bulletins of both ESQ and the Australian Entomological Society. Became an Honorary Life member of ESQ in 1973.

Prolific correspondent and exchanger with other collectors. Helped many collectors visiting north Queensland. Organised annual gathering of beetle collectors at Paluma for some years. Collection eventually contained 92 families and over 3700 identified species and is now in ANIC, Canberra.

**Obituary:** E.B.Britton 1975. *News Bulletin of the Australian Entomological Society* 11:75-79







### A Guide to Mosquitoes of Australia

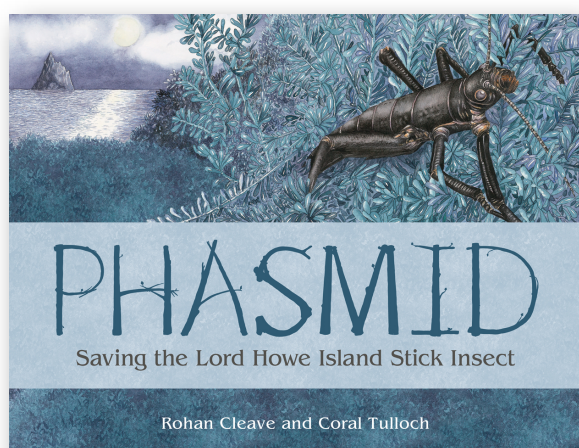
By Cameron Webb, Stephen Doggett and Richard Russell. 2016. 216 pp, 215 x 148 mm, paperback, ISBN 9780643100305. CSIRO Publishing. Price \$49.95.

Also available as an e-book. Available from: <http://www.publish.csiro.au/pid/6391.htm>

Mosquitos are a high profile topic in Australia these days as human populations grow in tropical areas and mosquito-borne diseases such as dengue, malaria and encephalitis become a real and growing threat. Sydney University and Westmead Hospital have long been centres for research in this area under the leadership of entomologist Professor Richard Russell. This attractive book is a product of three authors who have based much of their work in that productive unit. *A Guide to Mosquitoes of Australia* provides a pictorial guide to 81 of our mosquito species and includes notes on their biology, habitats and association with disease. They are found in almost every type of environment, from pristine wetlands to polluted drains and from coastal saltmarshes to snow melt streams. This book provides information on how to reduce the risk of mosquito-borne disease through tips on keeping your home free of mosquitoes and reducing their bites when you are out and about in the Australian environment. In close-up detail many mosquitos are quite beautiful animals with striking scale patterns. The book is illustrated with high-quality photographs of adults and larvae of most of the 81 species presented as well as distribution maps of their occurrence in Australia.

### Phasmid – Saving the Lord Howe Island Stick Insect

By Rohan Cleave and Coral Tulloch CSIRO Publishing, 2015, hardcover, 220 X 285 mm, 32 pages. ISBN: 9781486301126 , \$ 24.95. Available from: <http://www.publish.csiro.au/nid/18/pid/7226.htm>



If you are looking for an insect book for a child in the 5-9 age bracket this might be the book for you. In read-aloud, picture-book style it tells the amazing story of the large flightless Lord Howe Island phasmid, *Dryococelus australis*, which was common on Lord Howe at the time of discovery but rapidly disappeared when rats invaded the island from a shipwreck in 1918. It was presumed extinct until a tiny population was discovered on an offshore island in 1964 and recollected in 2001. The Melbourne Zoo has bred a thriving colony from these and there is now talk of restocking the main island if rats can be eliminated. The text is by Rohan

Cleave, one of the zoo keepers working with the phasmid, and the delightful illustrations are by professional artist, Coral Tulloch. A teachers' guide to help explain the story and its implications to children is available for free download from the CSIRO Publishing website: [http://www.publish.csiro.au/samples/Phasmid\\_TeachersNotes\\_FINAL.PDF](http://www.publish.csiro.au/samples/Phasmid_TeachersNotes_FINAL.PDF)



# Announcements and Notices

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## Photos of Lepidoptera larvae needed!

Together with Groff Walker I have been contracted to do a field guide to Australian Butterflies for New Holland Publishers. This will be with all live images of butterflies, not the usual paintings or pinned specimens. To make it quite different from any current publication I intend to include as many images of early stages and host plants as possible.

I have most of the larger and more common species covered but am sadly lacking images of larvae etc. for Lycaenidae and Hesperidae. If anyone has any images that I could use or can possibly take photographs of any of these please contact me and I will send a list of wants. Southern species are especially wanted.

The images need to be taken with a DSLR camera and be completely in focus. Two sample images of the quality required are below.

The deadline is January 2017 so there is quite a lot of time.

Garry Sankowsky  
[garry.sanko@westnet.com.au](mailto:garry.sanko@westnet.com.au)



*Cressida cressida*

## Australian Biological Resources Study National Taxonomy Research Grant Program – Student Travel Grants are now open!

The ABRS Student Travel Grants round for 2015-16 is now open. The ABRS Student Travel Grants offers financial support to postgraduate students studying at Australian institutions to travel to national or international conferences or workshops relevant to both the student's research programme in taxonomy or systematics and the ABRS [Priority Areas for Research Grants](#).

Amounts of either \$750 (GST exclusive) for domestic travel or \$1,500 (GST exclusive) for international travel are available.

For more information regarding the Student Travel Grants or for an application form, please see the ABRS website: <http://www.environment.gov.au/topics/science-and-research/australian-biological-resources-study/grants/bursaries>.

Applications close at **2pm Wednesday 4 May 2016**  
Please contact the ABRS on  
[abrs.grants@environment.gov.au](mailto:abrs.grants@environment.gov.au) with any questions.



*Pachlioptera polydorus*



# 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



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

July 28–August 3, 2016

Exeter, UNITED KINGDOM

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

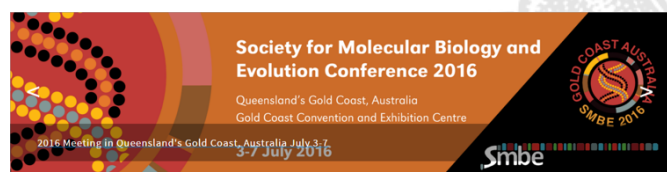


## XXV International Congress of Entomology: Entomology Without Borders

September 25–30, 2016

Orlando, Florida, USA

<http://ice2016orlando.org/>



## 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>



## 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/>

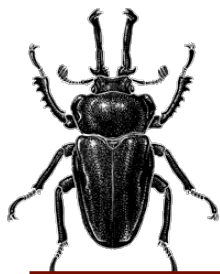
## 18th International Conference on Entomology

1-2 December 2016

Penang, MALAYSIA

<https://www.waset.org/conference/2016/12/penang/ICE>





# 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>To be announced</i> ” on <i>Fruit flies</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

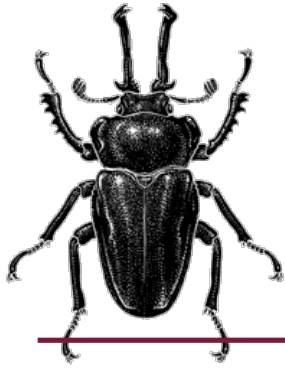
|                |   |               |
|----------------|---|---------------|
| <b>GENERAL</b> | Person who has full membership privileges   | <b>\$30pa</b> |
| <b>JOINT</b>   | Residents in the same household who share a copy of the <i>News Bulletin</i> , but each otherwise have full membership privileges.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



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## Notice of next meeting:

*Tuesday, May 10th, 2016, 1:00 pm*



Business will include:

***Michelle Gleeson***

Director of BugsEd

presenting

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

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 3 (May 2016)

CONTRIBUTIONS WELCOME

Deadline Wednesday, May 18th, 2016.

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