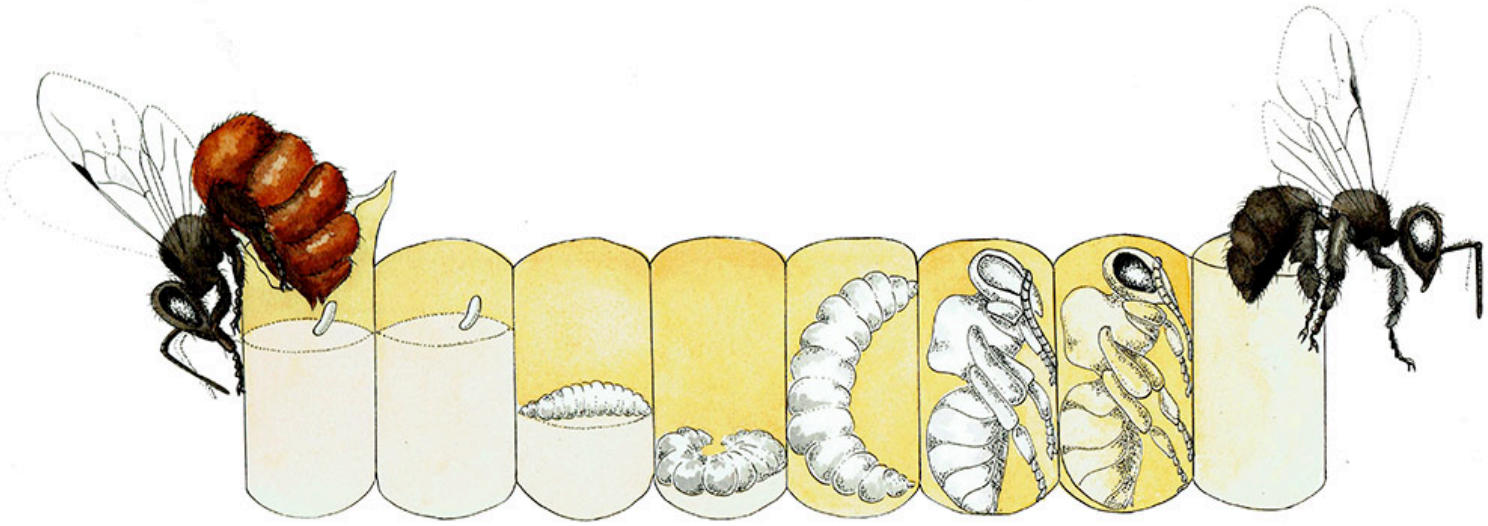
Entomological Society of Queensland

NEWS BULLETIN



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Entomological Society of Queensland

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Front Cover Illustration: This illustration by Gina Cranson represents a cross-section through the brood comb of a generic stingless bee showing the process of rearing brood. A cell is mass provisioned by nurse workers before the queen lays an egg. The cell is then immediately capped so that the larva can develop in a closed cell. This resembles the ancestral nesting behaviour of the solitary bees, which also cap cells immediately after provisioning and laying an egg, and not the highly-derived behaviour of honey bees which progressively provision their larvae.

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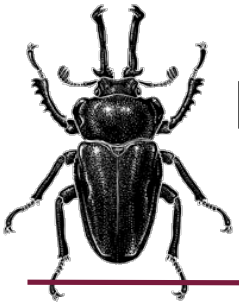

Entomological Society of Queensland

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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 50th 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.

Entomological Society of Queensland
Minutes for General Meeting

Tuesday, April 11th,2017
Held in the Seminar Room, Ecosciences Precinct, Boggo Rd, Dutton Park.
Meeting open: 1pm

Attendance (33):

Members (28): Tim Heard, Mark Schutze, Susan Wright, Penny Mills, Greg Daglish, Alisha Steward, Collen Foelz, Alison Pound, Simon Lawson, David Comben, Cate Paull, Lance Maddock, Pauline Wyatt, Michael Jeffries, Chris Lambkin, Pat Collins, Don Sands, John Donaldson, Saku Muthuthantri, Julianne Farrell, Brenton Peters, Mike Muller, Tara Wheatland, Andy Wang, Jane Royer, Kathy Ebert, Bradley Brown, Geoff Monteith

Visitors (5): Kate Hodges, Tim Page, M. Healy, N. Chan, Jorge Jaramillo

Apologies: Morris C. McKee, Ross Kendall, Des Foley, Noel Starrick

Minutes: The minutes of the last meeting were circulated in News Bulletin 45[1] March 2017. Moved the minutes be accepted as a true record: Bradley Brown; Seconded: Chris Lambkin
Carried: all

Nominations for membership approved by council:

General Members:
1. Roberta Hitchcock
2. Colleen Foelz

Students:
1. Lachlan Jones (University of Queensland)
2. Josh Jenkins Hall (Copenhagen University/ Museum and University of NSW)

General Business:

Tim Heard advised attending members that a Brisbane airport quarantine facility tour was scheduled for Tuesday 18 July 2017. More details will be in the News Bulletin. The ESQ has started a Facebook page.

Mike Muller told attending members that Professor Brian Kay of the Mosquito Control Laboratory at the Queensland Institute of Medical Research (QIMR) sadly passed away on April 1st. A recent memorial for Brian was held at the St Lucia Golf Links, with a large and diverse group of people attending to celebrate his life and work. Notification of Brian's passing will be made in the upcoming News Bulletin.

Main Business:

Graeme Smith presenting on the topic of *"Silverfish - Who cares?!"*. **Geoff Monteith** provided a vote of thanks for Graeme.

Next meeting: The next meeting will be on 9th of May and presented by ESQ Vice President, Mike Muller on the topic of *"Mosquito management in Brisbane"*.

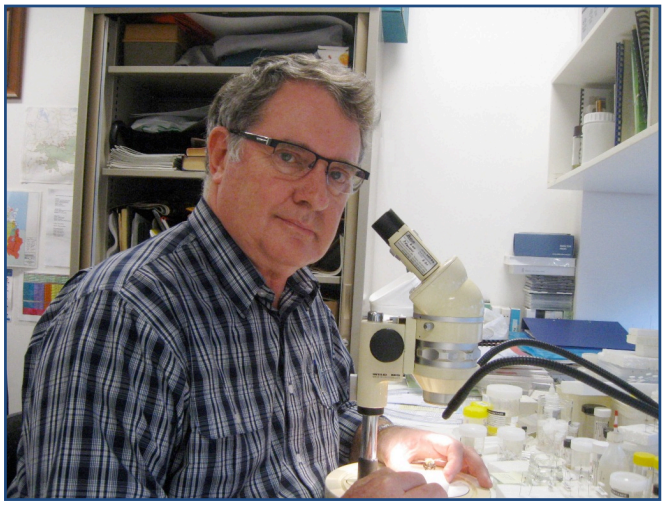
Meeting closed: 13:56

A pretty little *Ellipsidion amplum* was spotted last week at the Taringa train station. Photo: K. Ebert

At our next meeting...

"Mosquito Management in Brisbane – Past, Present and Future"

Presented by Mike Muller
Senior Medical Entomologist
Brisbane City Council



Mike Muller is the Senior Medical Entomologist with Brisbane City Council where he has been involved in mosquito management since 1995. Mike is responsible for:

- managing the helicopter spraying program of around 20,000 hectares of saltmarsh mosquito breeding habitat annually,
- responding to mosquito complaints by members of the public,
- monitoring background mosquito population levels,
- responding to requests for identification and assistance on biting insect and other insect complaints, and
- maintaining a database of Ross River virus and Barmah Forest virus disease cases in Local Government areas in Queensland, using data provided by Queensland Health.

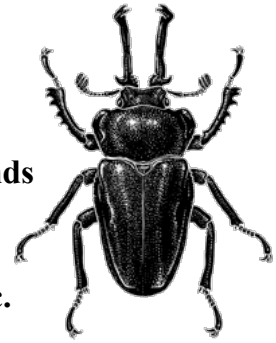
Mike's presentation will give an overview of the Brisbane City Council mosquito management program. The presentation will also provide information on mosquito-transmitted diseases in Southeast Queensland such as Ross River and Barmah Forest viruses, and look at the increasing threat of introduced mosquitoes such as the Asian Tiger Mosquito and mosquito-borne disease, such as dengue and the Zika virus, and how authorities are responding to that threat.

Aedes albopictus. Photo: James Gathany/CDC, Wikipedia

Tuesday, May 9th at 1pm, Seminar Room at EcoSciences.
All welcome!

The Society is now on Facebook!!

Check out our page at
https://www.facebook.com/EntSocQld/
Please "like" us and our posts, and invite your friends to do so, too. Regular visits will help build up a presence and make this a useful form of communication among members and with the public.



Silverfish - Who cares?!

presented by Graeme Smith

Honorary Research Associate
Australian Museum

Most people I talk to about my interest are surprised to hear that there's more than just one type of silverfish. Very few can understand why I would be interested in them. Even some of my colleagues bait me with comments about them not being real insects because they don't have wings. I've even found myself referring to them as one of the "unloved hexapod groups". But knowledge inspires interest and I hope that you too will gain some idea why I have maintained an interest for over 40 years.

Silverfish belong to the ancient hexapod order Zygentoma, previously referred to as Thysanura, a now deprecated name of no taxonomic certainty. The name Thysanura had been used for the silverfish, for the Zygentoma+Archaeognatha, at times even including the Diplura and the Collembola. One usage even excluded silverfish.

Silverfish are really quite common in drier environments but have been poorly studied, probably because they are of little economic importance and there are no iconic species. The literature is very scattered and most of the early papers are in Latin, French, German or Portuguese. It is difficult to find a mentor to ease entry into the field. On top of this, silverfish are morphologically challenging with no defined adult stage, no wings and fertilisation is external so they lack the diagnostic male genitalia important for so many other groups.

The ancestors of today's silverfish probably emerged not long after vascular plants first appeared on land. Misof *et al*., 2014 and Grimaldi, 2010 using molecular clocks and the limited fossil record, respectively, suggest their first appearance some 465-421 Ma, well before winged insects appeared. The current families were believed to have been around since the Jurassic (~160 Ma), around the time Pangea was breaking up. As soil dwellers of fairly low mobility, this offers an interesting chance to postulate on the zoogeography of the group. Any theories however are somewhat compromised by the availability of good data in much of the world. The absence of a particular taxon is as much likely to represent an absence of effort. Even my limited efforts in the last few years have described native species of three subfamilies, previously considered to be absent, so similar efforts in under-studied Asia or South America could change the zoogeographic picture.

White-tailed *Acrotelsella* : an undescribed *Acrotelsella* sp. from western Victoria, with mottled scales and very white tail filaments.

For the sake of simplicity, there are three basic groups of silverfish based on their phylogeny and biology. One group, the Lepismatidae, has eyes and is covered with scales and often with dense combs or bushes of bristles. This family more or less looks like and includes the peridomestic species. The Nicoletiidae on the other hand have no eyes and only some species have scales and these are usually hyaline or yellowish in colour. One nicoletiid subfamily, the Atelurinae, have become adapted for life with ants or termites. Two other subfamilies, the Subnicoletiinae and Coletiniinae, are similar in appearance to the non-expert and are soil or deep subterranean dwellers.

Work on the silverfish biology is largely limited to the peridomestic lepismatids (e.g. Adams, 1933, 1937; Sweetman, 1938: Lindsay, 1940; Laibach, 1952; Sturm, 1956, 1987, 1997; Dougherty Picchi; 1972; Janet, 1896). Silverfish lay small oval eggs into cracks. Eggs are laid singly or in groups of up to 25 over several days. The eggs darken and may deform to the shape of the crack. They are quite tolerant of heat and dessication and will hatch after 2-8 weeks.

The 1st instar larva has short appendages and lacks scales and styli. It probably does not feed and moults a few days later. Scales and styli appear by the 4th instar and the other styli appear during the 7th-9th instar or even later. Sexual maturity is achieved by the 8-13th instar. Moulting continues after reaching sexual maturity and females may double in size during their fertile life.

The number of moults in a lifetime is not fixed. Life expectancy varies with species and between individuals but may be as long as 7 years in *Ctenolepisma* and may undergo more than 50 moults. Moulting is a hazardous procedure and most deaths occur at a moult.

Silverfish will regenerate lost appendages as well as scales and macrochaetae at each moult, as long as the damage did not occur too close to the moulting time. The scale covering gets progressively more damaged between moults giving the insect a somewhat mottled or even almost white appearance towards the end of an instar.

Silverfish are extremely agile, with long legs held folded almost horizontal beneath the body. The initial burst of speed is almost “explosive” but it

often doesn't run far before stopping. They may also choose to "play dead" and can be very hard to see.

The lepismatids are incredibly tolerant of dry conditions, living in the driest of deserts, in soils of less than 1% moisture content. They can absorb moisture from sub-saturated atmospheres (ca. 45% relative humidity) (Edney, 1971) through their rectum (Noble-Nesbitt, 1970). Many Nicoletiidae have eversible abdominal vesicles which are probably used to absorb moisture from damp surfaces as has been demonstrated for the Archaeognatha.

Some species are very tolerant of high temperatures. One species, the firebrat (*Thermobia domestica*) is free-living in the Middle East but has become a pest of bakeries where it lives right beside the hot ovens. Its preferred temperature is 37°C but can survive a few days in 47°C. It will not breed below 32°C. *Ctenolepisma longicaudata* prefers lower temperatures but populations do not develop in parts of Australia where indoor temperatures are below 16°C.

Mating is indirect. The male and female engage in a "dance" with the male depositing a spermatophore onto a silken thread. With encouragement from the male, the female positions the base of her ovipositor

The eyeless *Australiatelura tasmanica* lives with ants in Tasmania (Nicoletiidae: Atelurinae).

onto the spermatophore and takes up the contents. Females need to mate between each moult and there is an indication that males and females need a degree of synchrony in their moulting cycle for successful mating.

An undescribed lepismatid (*Acrotelsella* sp.) from Nyngan, NSW.

Parthenogenesis has been demonstrated for some Nicoletiidae and populations of some Australian species are known only from females.

Most Atelurinae and some Lepismatidae live in the nests of ants or termites. They are considered to be "tolerated guests" rather than symbionts. The silverfish survive due to their speed and agility and at least one species acquires the hydrocarbon profile of their host through regular

body contact with the host ant workers (Witte et al., 2009). The silverfish probably simply scavenge spilled food.

My PhD project aims to examine the Australian fauna at the level of genus, to estimate the abundance, diversity and preferred habitat of each genus. Some 4000 specimens were collected by the author, borrowed from museums or collected during environmental surveys. They were collected in caves, in leaf litter, under stones, in pitfall traps, by suction sampling, by trapping or netting mining exploration bore holes and from within termite colonies. Pyrethrum sprays to the bark of trees have demonstrated how important this habitat is for some species, especially of the genera *Heterolepisma* and *Acrotelsella*. The inability of silverfish to climb smooth surfaces makes it easy to contain them for photography before they go into alcohol. Scale patterns are not easily discernible once in alcohol. Specimens are usually stored in 70-80% ethanol but with the trend towards molecular systematics, many specimens now go into 100% ethanol, at a cost of appendages becoming brittle. Type specimens are usually dissected and mounted onto slides using Tendeiro mounting medium.

Important morphological characters for sorting the lepismatid genera include whether the bristles are smooth or pectinate, whether there is a collar of bristles behind the head, whether the thoracic sterna consist of a plate covering the coxae or whether they are just small raised areas between the coxae, the number and arrangement of dorsal and ventral bristlecombs or isolated macrochaetae on a segment by segment basis, whether the trichobothrial areas of the nota are "closed" (=surrounded by scales) or "open" (in contact with the margin of the nota), the shape of urotergite X and the presence of parameres in the males. In the Nicoletiidae you need to look for a short, tapered vs elongate parallel-sided body shape, the presence or absence of scales and the degree to which their ribs extend beyond the membranes, the number of pairs of abdominal styli,

Above: The eyeless *Subtrinemura anemone* lives in caves at Bungonia, NSW (Nicoletiidae: Subnicoletiinae). Below: Adult males of *S. anemone* have elaborate structures on the cerci.

the number of pairs of vesicles, whether those on VI carry a row of setae, the shape of urotergite X, the chaetotaxy of the head, nota and abdominal tergites, whether one or more of the urosternites has sutures dividing it into a median sternite and 1+1 lateral coxites and whether urosternite IX is entire or divided into two separate coxites in the male. Males often have diagnostic secondary sexual characters on the antennae, on the underside or urotergite X and along the medial faces of the terminal filaments. A paper including a key to the genera and details of their abundance, habitat and distribution is currently in press.

We now know that two of the five families of Zygentoma are represented in the Australian fauna; the three relic families (Tricholepidiidae, Protrinemuridae and Maindroniidae) have not been reported. Within the Lepismatidae, four of the six subfamilies are represented by native species (Acrotelsatinae, Ctenolepismatinae, Heterolepismatinae and Lepismatinae) and within the Nicoletiidae three of the five subfamilies are represented (Atelurinae, Coletiniinae and Subnicoletiinae). All genera of the Atelurinae belong to the tribe Atopatelurini, with the possible exception of *Wooroonatelura lenta* known from two female specimens collected near Cairns. It has features reminiscent of some Dionychellini (Afrotropical and Neotropical) but males are required for confirmation.

Molecular data using *COI*, *28S* and *16S* sequences of the species *Heterolepisma sclerophylla* has shown a similar picture to that seen with other hexapod groups such as the Collembola and Protura, with quite large differences within species, but also several distinct lineages within the species, suggesting cryptic speciation issues.

Twenty three genera are now represented in the Australian fauna (two of them introduced). Seventy-two species are described (with another two in press) including the six introduced species. Eighty-eight percent of the species and 52% of the genera are known only from Australia. An analysis based on known world distribution of the Zygentoma suggest we have lineages that could be considered as Pangean in origin, others early Gondwanan with strong African links and others of late Gondwanan origin. There is little to indicate much in the way of an Asian element to the fauna and there are no widespread global species within the Zygentoma other than those suspected of being associated with the activities of man.

In addition to the discovery of genera and subfamilies new to the Australian fauna, this work has also shown the deep subterranean habitat to be surprisingly rich in species, many probably relics of an earlier moister climate. An even more surprising finding was that of "inquiline" Atelurinae, apparently abandoning their inquiline lifestyle to return to the subterranean habitat of their presumed forebears. The sheer numbers of silverfish collected from the bark of some trees has taken me by surprise and makes me wonder what impact such a biomass plays in the wider ecology.

There is still much opportunity for exciting new discoveries within the Zygentoma. Many specimens lie undescribed in my own collection and I haven't yet examined the collections of museums other than

Some species of *Xenolepisma* have patterns of hyaline scales and are found with ants (Lepismatidae: Lepismatinae). Courtesy C.-Y. Lee.

those at the Australian Museum and ANIC. Much of the country still has not been surveyed and habitats such as sand dunes, gibber plains and in bird nests have not been sampled even though they are known as prime habitats in other parts of the world. More new finds are likely to come from within termite and ant nests so I hope that workers in this field will not overlook my silverfish as they dash off once disturbed.

Some species thrive in the driest of climates: two species were collected under stones near the pyramids.

So while, most people don't really care about silverfish, I have found much fascination. My interest has justified travel to some wonderful locations and I know that there is still so much to be discovered. Molecular data is opening up new and totally independent parameters against which I can compare my own theories based on morphology. Hopefully I will be able to describe many more species and to understand just a little bit more about these long term survivors.

Graeme Smith

Email: le_gbsmith@optusnet.com.au

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Meet the new ESQ President for 2017:

Dr Tim Heard

I cut my teeth as a laboratory cadet in the Zoology department at the University of Queensland in the 1970s, a wonderfully diverse job that included climbing into storm water pipes to collect cockroaches for student pracs. I enrolled in an Ag Science degree at UQ and within the first weeks of the first entomology subject I realised I had found my calling and specialised in entomology under the tutelage of Myron Zalucki and Elizabeth Exley. I joined a cohort of postgraduates that included David Merritt, David Yeates, Judy King, Scott O'Neill, Greg Daglish and Bronwen Cribb. In this period, I enjoyed field work in macadamia and cashew orchards in which I determined the important pollinators of those crops and their ecology and efficiency. This is when I first kept stingless bees as it was apparent that these are excellent pollinators of macadamia. The prospect that these native insects could be developed as managed pollinators was intriguing but this would have to wait.

Working for the entomology branch of the Qld DPI at Indooroopilly, I learnt to operate a strange machine that allowed us to determine how much heat was needed to kill tephritid larvae without harming their commercial fruit hosts. This vapour heat treatment is now used to disinfest mangoes before export to Japan.

I moved to another field of plant-insect interactions, that of herbivory when I secured a position at CSIRO at Long Pocket, in the weed biocontrol program. Wendy Forno encouraged me to study the finely tuned relationships between plants and their specialist herbivorous insects. Biological control was in its golden years. Many weed problems were solved, but also much was learnt about the underlying mechanisms of how insects find, utilise and manage the populations of their host plants, a satisfying marriage of pure and applied research.

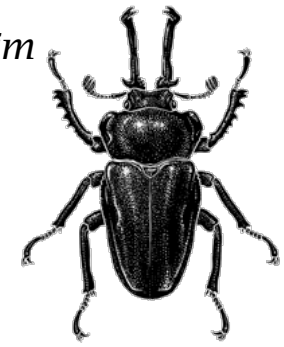
I managed the CSIRO Mexican field station from where we undertook exploration work in the native range of the plants that had colonised Australia and threatened our ecosystems. I made Latin America my second home for two decades, a rich biological and cultural experience. The rewards were great including the privilege of seeing faraway places that even the most intrepid tourists may not reach. Eating was an ethnobotany classroom. Favourites include tripe tacos and cactus fruit juice. Oddities - jungle rodents and llama.

My trips to Latin America coincided with disasters at an alarming frequency. I was in Mexico for hurricanes Dean and Stan, both of which passed right over me, and in Peru for the Ica earthquake. I was in Venezuela right near the mudslide that killed 10,000 in 1999. I was held up in Ecuador by an erupting volcano. I was in Mexico during the swine flu epidemic, not to mention several near misses in vehicles crossing the Andes.

After 22 years in weed biocontrol, I made a change from public service to small business. We do a range of activities so in any week I find myself propagating native stingless bees, writing science communication articles, providing technical services to farmers, and presenting seminars and workshops. I squeeze in a bit of scientific investigation through my honorary position at Sydney University and with many other colleagues. I am working toward that vision splendid of hives of stingless bees as commercial crop pollinators and am optimistic that it will be soon realized.

The Entomological Society of Queensland is a strong organisation with a proud history run by a dedicated committee. I am honoured to be elected President for the second time (last time was in 2002). I will maintain the course, but introduce some modest initiatives in the social media realm to ensure we remain relevant. I encourage members to help this along by supporting our online presence.

~ *Tim*



The 2017 ESQ Council members

We managed to get all of our 2017 council members together for a quick photo after our April meeting. In the front row from the left stands Geoff Monteith as Business Manager and Assistant Editor of the Australian Entomologist Journal, Mike Muller as Vice President, Mark Schutze as Secretary, Tim Heard as President, Bradley Brown as Past President, Julianne Farrell as Councillor and Brenton Peters as Treasurer.
In the back row is Kathy Ebert as News Bulletin Editor, Penny Mills as Councillor and Assistant Bulletin Editor, Cate Paull as Councillor and Christine Lambkin is continuing as our Permit Officer. Thank you to all of these people who donate their time to help our Society run smoothly!

Entomology News

from Queensland and beyond...

Name changes for two species within *Apiomorpha*

A recent article published in *Zootaxa* has made several nomenclatural changes within the gall-inducing scale insect genus *Apiomorpha*. The literature on several species from the 1860s and 1890s was re-examined, which resulted in *Apiomorpha minor* Froggatt being synonymised with *A. ovicola* Schrader, and *A. floralis* Froggatt has become the replacement name for specimens that incorrectly were called *A. ovicola* by W.W. Froggatt and subsequent authors. The article is co-authored by Penny Mills, Penny Gullan and Lyn Cook, and can be accessed at http://www.mapress.com/j/zt/article/view/zootaxa.4250.5.6

Mills, P. J., Gullan, P. J., & Cook, L. G. (2017). Nomenclatural changes in the Australasian gall-inducing genus *Apiomorpha* Rübsaamen (Hemiptera: Coccomorpha: Eriococcidae). *Zootaxa* 4250(5): 484–488.

Figure: Two galls of adult females of the species previously known as *Apiomorpha minor*; this name has now been synonymised with *A. ovicola*.

A New Name for a Common Katydid

Adult male *Ducetia antipoda* Photo: D. Rentz

Recent discoveries necessitate a name change for a common katydid that lives in Australia's tropics. *Ducetia japonica* (Thunberg) was known as the Pacific Ducetia because it was thought to have a very broad range in Asia and the Pacific. A few years ago it was discovered that the Australian examples had very different song features from "*D. japonica*" from elsewhere.

With most katydids the male and female genitalia are species-distinctive. As such they are of primary importance in taxonomy. With the so-called *D. japonica*, the male genitalia were nearly identical in the tens of specimens studied over its extensive range. However, when the singing characteristics were examined, a different picture began to emerge. Not only were the songs different, but the stridulatory file and features of the wing were very different from one taxon to another. As a result, a number of name changes were necessary. (See Heller *et al*., 2017).

It was soon determined that the Australian katydids were without a name. *Ducetia antipoda* Rentz and Heller is the new name for this widespread katydid

and its common name is the Australian Ducetia. The species was described in the paper below.

--Dave Rentz

Heller, K-G, Ingrisch, S, Liu, C-X, Shi, F, Hemp, C, Warchalowska-Sliwa, E, Rentz, D. 2017. Complex songs and cryptic ethospecies: the case of the *Ducetia japonica* group (Orthoptera: Tettigonioidea: Phaneropteridae: Phaneropterinae). *Zoological Journal of the Linnaean Society*, **20**: 1-22.

Vale
Professor Brian Herbert Kay, AM

At the General Meeting of the Entomological Society of Queensland on April 11, Mike Muller advised of the passing on April 1 of Professor Brian Kay, who retired from QIMR Berghofer Medical Research Institute in 2014. From 1992 until November 2013, Brian was the President of the Mosquito and Arbovirus Research Committee, and Mike has been Secretary of this group since 1997. Mike provided the following Valedictory Notice that was posted on the QIMR Berghofer web site.

The staff and students of QIMR Berghofer Medical Research Institute have paid tribute to entomologist Professor Brian Kay, who died recently. Professor Kay worked in QIMR Berghofer's Mosquito Control Laboratory for 51 years and retired in 2014.

He obtained a Bachelor of Science with Honours from The University of Queensland (UQ), and went on to obtain his PhD at UQ. Professor Kay's research focused on the surveillance and control of mosquito-borne diseases, including dengue fever and Ross River virus disease. His research made a crucial and lasting contribution to mosquito control, both in Australia and abroad.

During his extensive and highly successful career, he published more than 270 peer-reviewed scientific papers and became one of Australia's most pre-eminent entomologists.

He was part of the Eliminate Dengue team, which pioneered the use of the Wolbachia bacteria to inhibit mosquitoes' ability to spread dengue fever. Professor Kay served as a consultant and advisor to governments, The United Nations, and industry. He also served as the head of the World Health Organisation's Collaborating Centre for Environmental Management for Vector Control, and as the Director of the Australian Centre for International and Tropical Health.

He received a number of honours and awards during his extensive career. In 2005, Professor Kay was made a Member of the Order of Australia. In 2006 he was elected as a Fellow of the Australian Academy of Science. He also received the prestigious Australian Museum Eureka Award for Excellence in Science, and the DI Ivanovsky Centenary Medallion.

QIMR Berghofer's Director and CEO, Professor Frank Gannon has expressed his condolences.
"We have been deeply saddened by Brian's passing. He was a QIMR Berghofer stalwart and a giant of the tropical diseases research community," Professor Gannon said. "He dedicated most of his life to trying to eliminate insidious diseases like dengue and Ross River fever and he leaves behind a great legacy.
While he has been lauded for his many research achievements, he will also be remembered for mentoring and developing the careers of many young researchers. On behalf of the staff and students of QIMR Berghofer, I would like to express my deepest condolences to Professor Kay's family and loved ones. Our thoughts are with them at this very sad time."

Article reprinted with permission from the QIMR.

Recent Cape York Bush Blitz finds a wonderful diversity of spiders

Photo: Robert Whyte

The recent Bush Blitz expedition to the Quinkan region, about 50km west of Cooktown, found a surprising diversity of arachnids. Some of the more interesting spiders discovered included a new species of peacock spider, a new ant-eating spider and a tarantula that swims and can stay underwater. ESQ members, Robert Raven and Robert Whyte were part of the arachnid team. To read a bit more about their adventures and see some photos see:

http://www.australiangeographic.com.au/news/2017/04/new-spider-species-found-in-queensland?adbsc=social_20170411_71488626&adbid=10154498147198339&adbpl=fb&adbpr=100614418338

http://www.abc.net.au/news/2017-04-13/spider-species-discovery-far-north-queensland/8443024

ESQ Member, Martin Steinbauer, receives Mackerras Medal

Congratulations to Martin Steinbauer, ESQ member and Associate Professor at LaTrobe University in Melbourne, who was recently awarded the Ian Mackerras Medal. The award is given every two years by the Australian Entomological Society to a mid-career entomologist who has demonstrated excellence in entomology. Martin was recognised for his research on insect-plant interactions. The award is named in honour of Ian Mackerras, who led research programs in many areas of entomology including mosquitoes. You can read more about Ian Mackerras in the historical archives on the ESQ webpage http://www.esq.org.au/archive/HIstoricalPages/MackerrasIM.html.

Tawny Coster moves eastward

The Tawny Coster, a butterfly which has been expanding its range from India into southeast Asia over the past several years, was first seen in Australia in 2012, near Darwin. In August of 2016, its range had extended into the Kowanyama area on the Gulf of Carpentaria in Queensland (see *ESQ News Bulletin 44[6]:121-122*). Recently, it has been sighted at Talaroo Station (18°05'S, 143°52'E) between Georgetown and Mt Surprise in Queensland's Einasleigh Uplands Bioregion in north Queensland. Caterpillars and pupae were found on the Lilac Spade-flower, their main food plant. A recent publication in the *North Queensland Naturalist* has the details plus some beautiful photos.

Franklin DC, Morrison SC, Wilson GW. 2017. A colourful new Australian reaches Talaroo: the Tawny Coster butterfly, *Acraea terpsicore*. *North Queensland Naturalist* 47: 10-13.

The History Corner...

Martin Joseph MANSKI (1897-1989)

Joe Manski was born Maryborough to immigrant German parents who settled there in 1885. Schooled in Maryborough. Career with Post Office from age of 15 until retirement 1962. Served in WW1. Interested in butterflies from childhood. Began rearing species and recording butterfly hostplants after transfer to Innisfail, later Cairns, in 1926. Founding member of North Queensland Naturalists Club and published many articles in *North Queensland Naturalist.* Active in Entomological Society of Queensland and Queensland Naturalists Club after 1941 transfer to Brisbane. Collected with Ludwig Franzen and became interested in Neuroptera through him, naming one new species after his fellow collector Stan Brock in 1948. Returned to Maryborough 1945. Published a final life list of 250 foodplants of 136 spp of Qld Lepidoptera in 1960 in *Queensland Naturalist.* His collection passed to the University of Queensland in 1963 and is now in the Queensland Museum.

Biography: Dunn, K.L. 1989. *Victorian Entomologist* 19: 9-13, 61-64; Dunn, K.L. 1989. *Myrmecia* 25(4): 157-158.

You are invited...save the date!

Come celebrate

Queensland Entomology

at the inaugural

Perkins Memorial Dinner

September 12, 2017

Meetings & conferences

3rd Hemipteran-Plant Interactions Symposium
June 4–8, 2017
Madrid, SPAIN
http://www.hpis2017.csic.es/

10th Arthropod Genomics Symposium and Arthropod Bioinformatics workshop
June 6–11, 2017
Eck Institute for Global Health, University of Notre Dame, Indiana, USA
http://globalhealth.nd.edu/10th-annual-arthropod-genomics-symposium/

EVOLUTION 2017
Joint Congress between the American Society of Naturalists (ASN), The Society of Systematic Biologists (SSB) and the Society for the Study of Evolution (SSE)
23-27 June 2017, Portland, OR
http://www.evolutionmeetings.org/future-meetings-2017.html

16th International symposium on insect-plant interactions (SIP2017)
July 2–5, 2017
Tours, France
https://sip2017.sciencesconf.org/

Joint Genetics Society of Asutralasia and New Zealand Society for Biochemistry and molecular biology Conference 2017
July 3–6, 2017,
University of Otago, Dunedin, NEW ZEALAND
http://www.genetics.org.au/

3rd BioSyst.EU meeting
August 15–18, 2017
University of Gothenburg, SWEDEN
http://www.conferencemanager.se/BiosystEU2017/

16th Congress of the European Society for Evolutionary Biology
20-25 August 2017
Groningen, the Netherlands
http://www.eseb2017.nl/

IV International Congress on Invertebrate Morphology (ICIM4)
18-23 August 2017
Moscow State University, Moscow, RUSSIA
http://www.icim4.com/

A Collections Meeting With a Difference: Genomics, Collections, Adaptation and Phylogeny
12 – 14 September 2017
CSIRO, Canberra ACT
http://cba.anu.edu.au/news-events/genomics-and-collections-adaptation-macroevolution

Science Protecting Plant Health
26-28 September 2017
Brisbane Convention and Exhibition Ctr
Brisbane QLD
www.sciplant2017.com.au

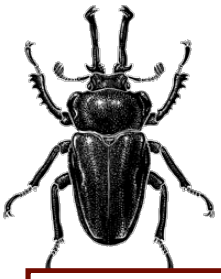
Australian Entomological Society Scientific Conference and 48th AGM 2017
September 17–20, 2017
Crowne Plaza, Terrigal, NSW
http://www.aesconferences.com.au/

21st Evolutionary Biology Meeting
September 26–29, 2017
Marseilles, FRANCE
http://sites.univ-provence.fr/evol-cgr/

Ignite. Inspire. Innovate. Entomology 2017
November 5–8, 2017
Denver, Colorado, USA
http://www.entsoc.org/am/fm/index

Society of Australian Systematic Biologists / Australasian Systematic Botany Society
26–29 November 2017
Adelaide, SA
https://systematics.ourplants.org

Ecological Society of Australia / New Zealand Ecological Society
26 Nov - 1 Dec 2017
Hunter Valley, NSW
http://ecotas2017.org.au



Diary Dates for 2017

Meetings held on the second Tuesday of the respective month

MARCH 14	Bradley Brown	AGM and Presidential Address: " *Exploration in biological control - a US perspective"*
APRIL 11	Graeme Smith	*"Silverfish - Who cares?!"*
MAY 9	Mike Muller	*"Mosquito management in Brisbane"*
JUNE 13	Notes and Exhibits	Notes & Exhibits
AUGUST 8	Paul Ebert	*Topic: Stored product insect management*
SEPTEMBER 12	Perkins Memorial Lecture: Madeline Beekman	*Topic: Insects as model systems*
OCTOBER 11	Roger Kitching	*"New molecular tools for gut content analysis"*
NOVEMBER 14	Jon Marshall	*Topic: Aquatic insects*
DECEMBER 12	Notes & Exhibits	Notes and Exhibits/Christmas Afternoon Tea

SOCIETY SUBSCRIPTION RATES

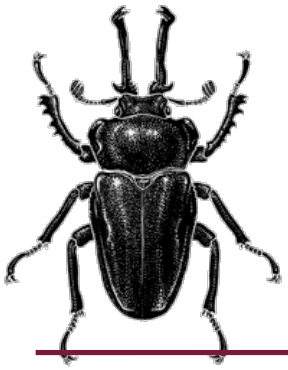
GENERAL	Person who has full membership privileges	**$30pa**
JOINT	Residents in the same household who share a copy of the *News Bulletin*, but each otherwise have full membership privileges.	**$36pa**
STUDENT	Student membership conveys full membership privileges at a reduced rate. Students and others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

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

AUSTRALIA	Individuals/Institutions	**AU$33pa/AU$37pa**
ASIA/PACIFIC	Individuals/Institutions	**AU$40pa/AU$45pa**
ELSEWHERE	Individuals/Institutions	**AU$45pa/AU$50pa**
ELECTRONIC	Individuals/Institutions	**AU$25pa/AU$30pa**

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, May 9th, 2017, 1:00 pm

Mike Muller

Senior Medical Entomologist
Brisbane City Council

will present:

Mosquito Management in Brisbane – Past, Present and Future

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

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

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

Next News Bulletin:

Volume 45, Issue 3 (May 2017)

CONTRIBUTIONS WELCOME

Deadline Thursday, May 18th, 2017.

Send your news/stories/notices to the editor at: k.ebert@uq.edu.au