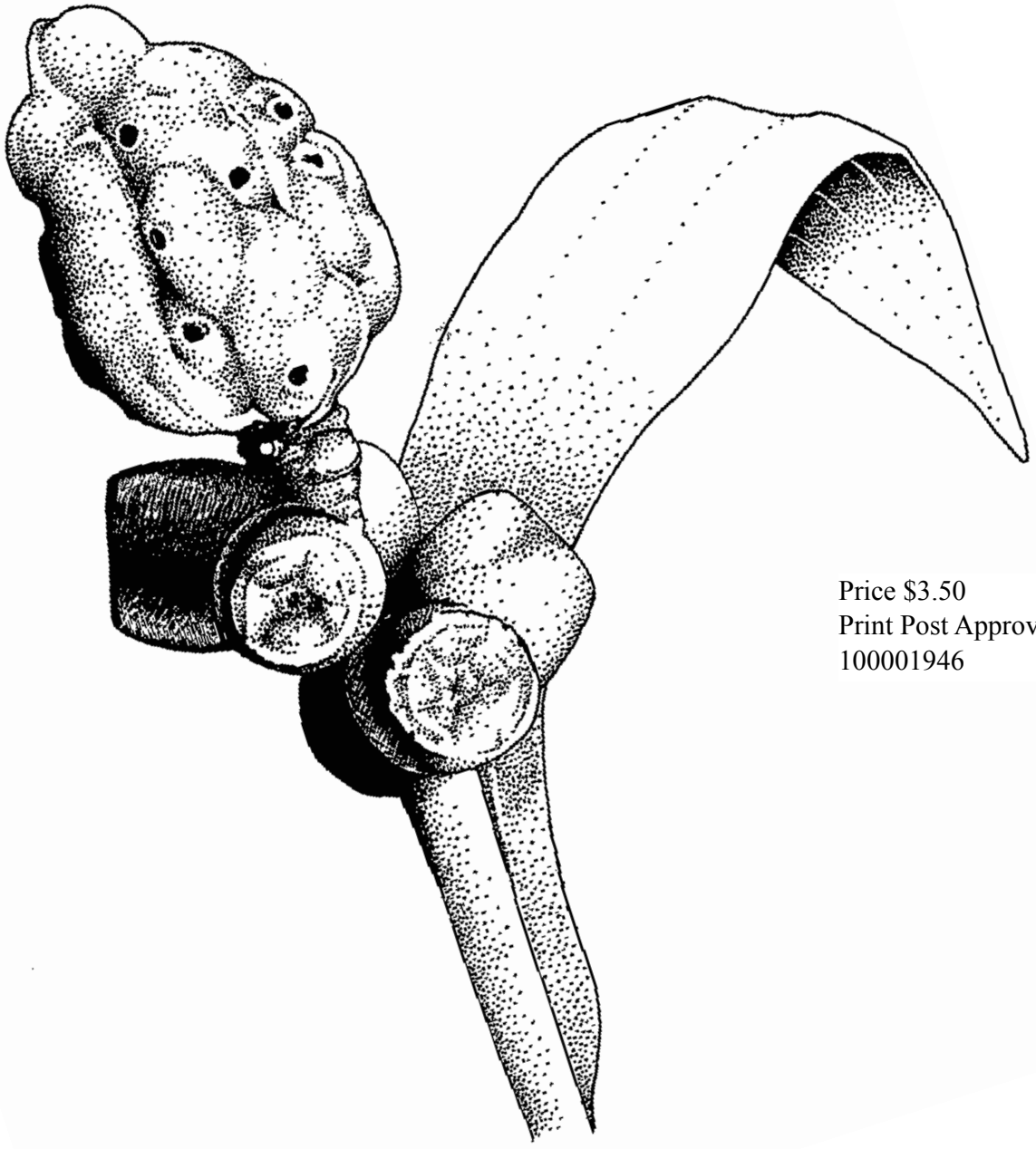
Entomological Society of Queensland

NEWS BULLETIN



Price $3.50
Print Post Approved
100001946

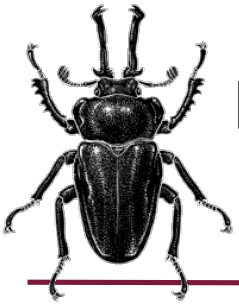
Volume 44, Issue 8, November 2016

Entomological Society of Queensland

Website: www.esq.org.au
Address: PO Box 537, Indooroopilly QLD 4068

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

Table of Contents

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. Emblem illustration by Sybil Curtis.

Entomological Society of Queensland
Minutes for General Meeting

Tuesday, November 8th, 2016
Held in the Seminar Room, Ecosciences Precinct, Boggo Rd, Dutton Park.

Meeting open: 1:04pm

Attendance (22): Chris Lambkin, Noel Starick, Kathy Ebert, Nancy Schellhorn, Jane Royer, Mark Schutze, Brad Brown, Stephen Frances, Geoff Monteith, Richard Zietek, Andy Wang, Lyn Cook, Shannon Close, Luke Barnett, Matthew Purcell, Nadine Baldwin, Brenton Peters, Tara Wheatland, Penny Mills, Brogan Amos, Andrew Maynard, Andrew Hayes

Visitors (7): Shun-Chiro Takano, Vesna Gagic, Katharina Merkel, Hazel Parry, Kumaran Naglalingam, Chamaiporn Buamas, Russel Stoodley.

Apologies: Ross Kendall, Chris Burwell, Susan Wright

Minutes: The minutes of the last meeting were circulated in News Bulletin 44[7] October 2016.
Moved the minutes be accepted as a true record:
Chris Lambkin
Seconded: Penny Mills
Carried: all

Nominations for membership approved by council:

Students:
Azrai Parish (QUT)
Majenta Lehr-Reid (QUT)
Jack Lane (QUT)
Liam Bromley (Primary)

General Business:

Brad Brown acknowledge the passing of Bob Winks, noting that Bob was an employee of DAF and CSIRO and was the first News Bulletin Editor of ESQ.
The ESQ Bugcatch is coming up soon, being held over the weekend of 19-20 November at Springbrook. More details are on the website and in the last Bulletin
Christine Lambkin noted that changes in the organisation of the Qld Government that new staff within the State Government will be handling the permit system. The current permits are good until the start of 2018, however, so nothing dramatic is happening right away.

Main Business:
Presentation by Dr Romina Rader on "*Understanding the mechanisms underlying effective crop pollination services".* Tim Heard provided the vote of thanks.

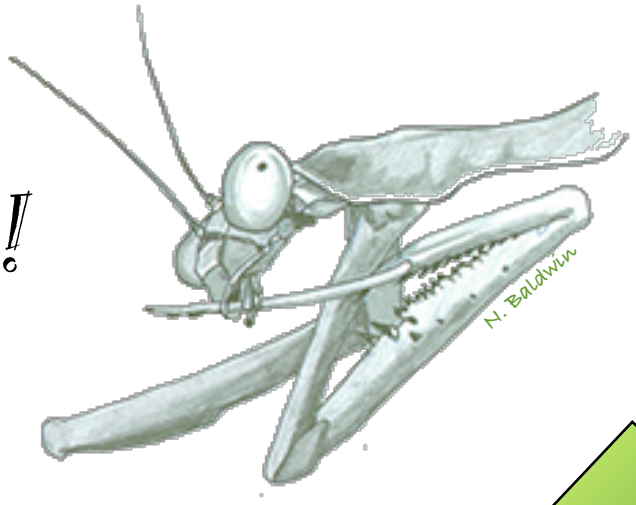
Next meeting: The next meeting will be the Christmas Meeting! This will be a Notes and Exhibits General Meeting commencing at the **later time of 4pm**. Refreshments will be served after the Meeting.

Meeting closed: 2pm

Ozphyllum nazkreckii nymph at Ankida BugCatch. Photo: A. Keto

At our next meeting...

Notes & Exhibits!!



Come along and share YOUR ento-stories. We would just love to see and hear what you have found or learned in your backyard or bushwalk or workplace! Anyone is welcome to share.

Come and see:

Andrew Hayes from University of Sunshine Coast Forest Industries Research Centre
"Just how unique are the pheromones of cerambycid beetles?

Christine Lambkin from the Queensland Museum
"New exhibition: Wild state"

Penny Mills from the University of Queensland
"Trials and tribulations of registering A.A. Girault's thrips types for the Queensland Museum"

Plus more.... any one is welcome to present a short 5 minute informal talk or demonstration! Contact Bradley Brown if you have something you would like to share at Bradley.Brown@csiro.au

Join us at 4pm!*

Please bring a plate to share!

*Note later start time at 4pm.

Tuesday, December 13th at 4pm, Seminar Room at EcoSciences, Christmas party following. All welcome!

The five step guide to optimal crop pollination by insects

presented by Romina Rader

University of New England
School of Environmental and Rural Science

What are the facts?

Insects are responsible for much of the world's biodiversity as well as the provision of ecosystem services within agriculture, such as pollination. Our demands for a diverse and nutritional diet based on a vast range of fruit and vegetables is resulting in an increase in the areas we cultivate to satisfy global demands for food (Aizen & Harder 2009; Eilers et al. 2011). At present, nearly 75% of the global food crops we use for food, fibre or biofuels, benefit from animal pollination. This service is worth between $US 200 and 600 billion to the global economy (Klein et al. 2007; Gallai et al. 2009).

So what are the general patterns?

1. Differences in efficiency

Some pollinators are better at pollinating crops than others for a given crop location. For example, wild bees can often perform better than honeybees in a bunch of global food crops (Garibaldi et al. 2013). This is because pollination results from several factors including the amount of pollen, pollen quality and the timing of the pollen transferred. These factors are themselves related to pollinator foraging behaviour, morphology and abundance. We can measure these differences in the relative contributions by different insects by using a range of methods including the amount of pollen transferred in a single visit and the frequency in which a pollinator visits a flower (e.g. Rader et al. 2016).

2. Pollinator diversity

Diverse pollinator assemblages have been shown to increase pollination services as a result of complementary resource use due to variations in morphology and behaviour among pollinator taxa (Elmqvist et al. 2003; Klein et al. 2003). For example, pollinator species visit different parts within a flower or different flowers within a plant (high versus low flowers), improving the quality or

Tetragonula carbonaria on a mango flower in north Queensland.

quantity of pollination services overall (Chagnon et al. 1993).

3. Remnant habitats are generally good for wild bees

Wild bee visits are positively associated with remnant habitats and decline sharply with increasing isolation from remnant vegetation. This is likely due to the need for nesting sites in vegetation or other remnant habitats. This pattern does not seem to hold for insect pollinators other than wild bees (e.g. honeybees and flies e.g. Rader et al. 2016), probably due to their different life histories and requirements for different larval resources.

4. Bee pollination is positively associated with fruit quality

Several studies have now shown that insect pollinated crops not only give us important nutrients (Eilers et al. 2011), but also increase fruit quality. For example, in a study on strawberries, Klatt et al. 2013, found that bee-pollinated fruits were heavier, had less malformations, were classified at higher commercial grades, had increased redness and reduced sugar–acid–ratios and were firmer.

5. Future directions

While we know a tiny bit about what pollinators like and dislike, we now need to understand exactly why pollinators perform so differently across crops and locations, what impacts their landscape scale distributions and how we can use this knowledge to manage and enhance diverse pollinator communities in agricultural landscapes. With our new work in this area starting in 2017, watch this space for more….!

The single visit: a bibionid fly visits a mango flower after the bag is removed.

The flower is then viewed under the microscope to see how many pollen grains were transferred.

References

Aizen, M.A. & Harder, L.D. (2009) The Global Stock of Domesticated Honey Bees Is Growing Slower Than Agricultural Demand for Pollination.

Current Biology, **19,** 915-918.

Chagnon, M., Gingras, J. & Deoliveira, D. (1993) Complemenatary aspects of strawberry pollination by honey and indigenous bees (Hymenoptera) *Journal of Economic Entomology,* **86,** 416-420.

Eilers, E.J., Kremen, C., Greenleaf, S., Garber, A.K. & Klein, A.M. (2011) Contribution of pollinator-mediated crops to nutrients in the human food supply. *PLoS ONE,* **281,** e21363.

Elmqvist, T., Folke, C., Nyström, M., Peterson, G., Bengtsson, J., Walker, B. & Norberg, J. (2003) Response diversity, ecosystem change, and resilience. *Frontiers in Ecology and the Environment,* **1,** 488-494.

Klatt, B.K., Andrea Holzschuh, Catrin Westphal, Yann Clough, Inga Smit, Elke Pawelzik, Teja TscharntkeBee pollination improves crop quality, shelf life and commercial value. *P. Roy. Soc. B*., 281, 2103-2440, (2013).

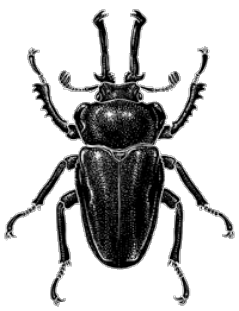
Klein, A.M., Steffan-Dewenter, I. & Tscharntke, T. (2003) Fruit set of highland coffee increases with the diversity of pollinating bees. *Proceedings of the Royal Society of London Series B-Biological Sciences,* **270,** 955-961.

Klein, A.M., Vaissiere, B.E., Cane, J.H., Steffan-Dewenter, I., Cunningham, S.A., Kremen, C. & Tscharntke, T. (2007) Importance of pollinators in changing landscapes for world crops. *Proceedings of the Royal Society B-Biological Sciences,* **274,** 303-313.

Gallai, N., Salles, J.M., Settele, J. & Vaissiere, B.E. (2009) Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. *Ecological Economics,* **68,** 810-821.

Garibaldi, L.A., Steffan-Dewenter, I., Winfree, R., Aizen, M.A., Bommarco, R., Cunningham, S.A., Kremen, C., Carvalheiro, L.G., Harder, L.D., Afik, O., Bartomeus, I., Benjamin, F., Boreux, V., Cariveau, D., Chacoff, N.P., Dudenhöffer, J.H., Freitas, B.M., Ghazoul, J., Greenleaf, S., Hipólito, J., Holzschuh, A., Howlett, B., Isaacs, R., Javorek, S.K., Kennedy, C.M., Krewenka, K.M., Krishnan, S., Mandelik, Y., Mayfield, M.M., Motzke, I., Munyuli, T., Nault, B.A., Otieno, M., Petersen, J., Pisanty, G., Potts, S.G., Rader, R., Ricketts, T.H., Rundlöf, M., Seymour, C.L., Schüepp, C., Szentgyörgyi, H., Taki, H., Tscharntke, T., Vergara, C.H., Viana, B.F., Wanger, T.C., Westphal, C., Williams, N. & Klein, A.M. (2013) Wild pollinators enhance fruit set of crops regardless of honey bee abundance. *Science,* **339,** 1608-1611.

Rader, R., Bartomeus, I., Garibaldi, L.A., Garratt, M.P.D., Howlett, B., Winfree, R., Cunningham, S.A., Mayfield, M.M. , Arthur, A.D., Andersson, G.K.S., Bommarco, R., Brittain, C., Carvalheiro, L.G., Chacoff, N.P., Entling, M.H., Foully, B., Freitas, B.M., Gemmill-Herren, B., Ghazoul, J., Griffin, S., Gross, C.L., Herbertsson, L., Herzog, F., Hipólito, J., Jaggar, S., Jauker, F., Klein, A-M., Kleijn, D., Krishnan, S., Lemos, C.Q., Lindström, S.A.M., Mandelik, Y., Monteiro, V.M., Nelson, W., Nilsson, L., Pattemore, D., Pereira, N.O., Pisanty, G., Potts, S.G., Reemer, M., Rundlöf, M., Sheffield, C.S., Scheper, J., Schüepp, C., Smith, H.G., Stanley, D.A., Stout, J.C., Szentgyörgyi, H., Taki, H., Vergara, C.H., Viana, B.F., Woyciechowski, M. (2015). Non-bee insects are important contributors to global crop pollination. *PNAS* **113**, 146-151, (2016).



View from the top of Peregrine Falls. Photo: S. Close

The Ankida Bugcatch (18-20 Nov) was a very successful event. Rains earlier in the week followed by warm, sunny weather helped bring out a variety of insects. Our Australian Rainforest Conservation Society hosts, Aila Keto and Keith Scott had the house area and lawns beautifully set up with gazebos and trestle tables for outdoor work spaces and camping. Over 35 people attended the 3 day event including families, students, artists and experienced entomologists, and all shared a common enthusiasm for insects (Fig.1)!

During the day, students were spotted throughout the property with their collecting nets and jars, collecting a wide variety of specimens for the UQ insect taxonomy course which runs over the summer semester and is coordinated by Lyn Cook. Lyn was also there collecting scale insects with visiting scientist, Chamaiporn Buamas from the Thailand Department of Agriculture.

Malaise traps were set up around the property and although they are not sorted yet, they will likely

Fig. 1. Front row kneeling L to R: Susan Wright, Olivia Wright, Darcey Brown, Matilda Brown, Kathy Ebert, Shannon Close, Chamaiporn Buamas, Jeff Wright. **Back row standing L to R:** Nadine Baldwin, Lui Lawrence-Rangger, Aila Keto, Susan Cully, Michael Cully, Lachlan Jones, Mandy Brown, Bradley Brown (behind), Geoff Monteith, Ben Kurzman, Claudia Schipp, Penny Mills, Wes Jenkinson, Noel Starick, Dylan Corner, Kempsy Ledger, Ben Archer (behind), Lyn Cook, Andrew Maynard, Christine Lambkin. Photo: K. Scott.

include a variety of Tabanidae that Christine Lambkin was hand collecting. Christine and Susan Wright also put out multiple coloured pan traps to collect a variety of flies and hymenopterans. Robber flies (Asilidae) were also very abundant.

Lindsay Popple spent a day recording the various cicada in the trees (Fig. 2), while Wes Jenkinson surveyed butterflies. Chris Burwell and wife, Claud, spent time along the creeks documenting and photographing dragonflies and damselflies. One very interesting observation was a Terrestrial Evening Darner (*Antipodophlebia asthenes*) ovipositing in leaf litter near Waterfall Creek, but well away from the water. This is a relatively uncommon species with nymphal stages that are semi-terrestrial. One of the largest dragonflies in southeast Queensland, the Southern Giant Darner (*Austrophlebia costalis*) (Fig. 4), was also spotted along the creek. Whitewater Rockmasters (*Diphlebia lestoides*) were commonly spotted along the creek, with males often displaying to each other.

Fig. 3. Banded-legged stick insect (*Candovia annulata*) Photo: N. Starick.

Fig. 2. Lindsay Popple recording cicadas in the trees around the Ankida house. Photo: K. Ebert

Fig. 4. Southern Giant Darner (*Austrophlebia costalis*) female from Waterfall Creek. Photo: C. Burwell

The dung beetle collectors, led by Geoff Monteith and Kathy Ebert, were also busy setting out and collecting up overnight baited pitfall traps at Ankida and throughout the Springbrook area (Fig. 5). A group of local residents from the local Springbrook area came to Ankida on Saturday afternoon for a dung beetle trapping demonstration and to receive their dung beetle trapping kits. They all returned on Sunday afternoon with their "catch". Several interesting dung beetles were found including *Onthophagus macrocephalus* with a long flattened horn coming off the back of its head.

We ran 5 light traps throughout the area and moth specialists, Peter Hendry, Rob Lachlan, and Wes Jenkinson collected a variety of moths over 2-3 nights. While it was a bit cool for moths, an interesting variety was still observed. Some of the larger moths seen included *Bracca matutinata*, *Donuca rubropicta* and *Ododiphtera astrophla* (Fig. 6).

Fig. 6. Moths at the light sheet. Above: Bracca matutinata
Below: Donuca rubropicta. Photos: P. Hendry

Fig. 5. Shannon Close helped place baited pitfall traps to attract native dung beetles. Photo: N. Baldwin.

Fig. 7. UQ student, Dylan Corner found an unusual stick insect during a night walk. Photo: K. Ebert

Fig. 8. UQ student and ESQ member, Lui Lawrence-Rangger pins out some of the large moths he caught at the light trap. Photo: K. Ebert

Fig. 10. The Wrights and the Browns enjoy picnic lunch at the top of the waterfall. Photo: K. Ebert

Fig. 11. Aila Keto photographs an interesting insect that Geoff Monteith has caught. Photo: K. Ebert

Fig. 9. The youngest entomologists: Olivia, Darcey and Mathilda. Photo: B. Brown.

Fig. 12. UQ students, Will Arnold, Jane McKellar and Ben Kurzman enjoying insect collecting. Photo: K. Ebert



Fig. 13. **Left**: Black tiger tail (*Eucynthemis nigra*) male from Waterfall creek. Photo: C. Burwell.
Centre: Kathy Ebert examines dung sample for day-time active dung beetles. Photo: S. Close.
Right: Scolopendrid centipede guarding eggs. Photo: P. Green.

On Saturday evening, the group enjoyed a delicious barbecue dinner cooked up by Noel, Christine and Bradley with help from many others. Before we sat down to dinner, Geoff Monteith expressed the group's appreciation to the ARCS for inviting us to survey their property, after which Aila gave us a brief history of Ankida and the plans for the future.

Aila and Keith led the group on a walk to Peregrine Falls on Sunday morning. We were rewarded with a glimpse of a Peregrine falcon and stunning views to the northwest over the Ankida property. There were also orchids in bloom and a creek full of aquatic insects.

All in all, the event was productive and enjoyed by all. Students and local people were able to learn from the more experienced entomologists and came away with increased enthusiasm and knowledge. Ankida was a beautiful location for learning and sharing! Thanks to all who helped make it a success!

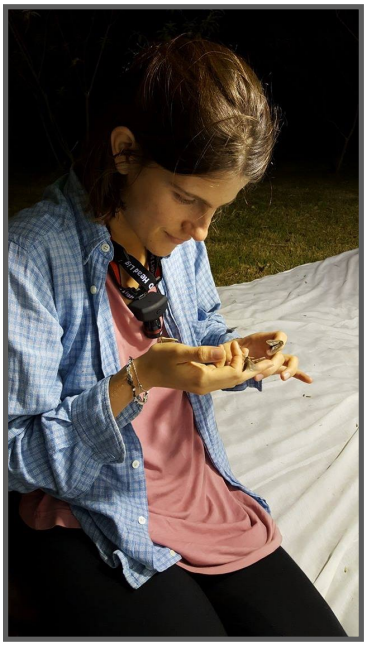
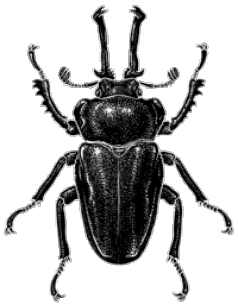




Fig. 14. **Left**: Will Arnold examines dung beetles under the microscope. **Centre**: Gaia examines moths at the light sheet. **Right**: Wes Jenkinson watches for butterflies over the escarpment. Photos: K. Ebert & P. Green



Entomology News

from Queensland and beyond...

Max Moulds receives Australian Natural History Medallion

Our esteemed ESQ honorary life member Max Moulds (right), from Kuranda, travelled to Melbourne to receive the Australian Natural History Medallion from the Field Naturalists Club of Victoria (FNCV) on November 7. The club is one of the oldest natural history organisations in Australia. The award was made on the basis of a nomination submitted by the Entomological Society of Queensland. Max received the award from the FNCV President, Max Campbell (left), and then delivered an outstanding presentation on cicadas based on his research spanning five decades. Congratulations, Max!

Photo by Joan Broadberry

70 years of friendship

Friends, Ken Harley and Murray Upton recently met up in Palm Cove, Cairns. David Rentz kindly sent this photo of the two of them enjoying time together celebrating 70 years of friendship! Ken worked with a group at CSIRO Long Pocket on weed biocontrol, especially the water weed, *Salvinia*. Ken has also been a past president of the ESQ and currently lives on the Atherton Tablelands. Murray has been an Honorary Fellow at CSIRO Entomology in Canberra and is best known to students as the author of *Methods for collecting, preserving and studying insects*.

Ken (left) and Murray at Palm Cove. Nov. 2016. Photo: D. Rentz.

Robert (Bob) Gordon Winks

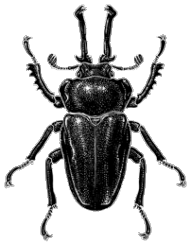
23 January 1937 – 10 September 2016

Bob Winks was a Queensland born and trained entomologist who left Queensland at an early age to go on to an important career in stored product entomology with CSIRO in Canberra. He was a member of ESQ for 57 years from 1959 until his death this year.

He was born in Kingaroy and schooled there and in Maryborough, Pialba, Nundah and Buranda, winning awards that enabled him to pursue secondary education at Brisbane State High School with matriculation via the Brisbane Technical College. He liked chemistry and found a job as a technician with Mobil Oil Co, enrolling as a part-time evening student at UQ, dreaming of a career in industrial chemistry. To be able to go full-time he gained a cadetship in the Department of Agriculture and Stock and was assigned to the Entomology Branch which inclined him towards entomology and he graduated in 1961 with a major in that area. He worked on pest control of field crops and, because of his chemical background, he was also involved with grain quarantine issues, especially the use of methyl bromide in railway wagons. His expertise in grain pest control led to his taking a position with the Commonwealth DPI in Canberra from 1963 to 1967 implementing standards for pest-free grain exports which were required in the growing global grain market. In 1967 he returned to the Qld DPI Entomology Laboratory at Indooroopilly and worked until 1970 on application of phosphine to pest control in stored grain, tobacco and peanuts, as well as resistance studies on *Tribolium*. During this period he was on the Council of the Entomological Society of Queensland as its News Bulletin Editor and implemented the change of format from simple foolscap sheets of meeting minutes to a booklet format with added material. He collaborated closely with fellow stored product entomologist Bruce Champ and later followed him from Qld DPI to CSIRO in 1973 after completing an MSc at UQ in 1971 and a PhD from University of London in 1974. Bob was appointed as a researcher in the newly set up Stored Grains Research Laboratory in Canberra and later became head of the laboratory. His major achievement was the development of the SIROFLO® system of application of fumigants, particularly phosphine, to large bulk storage silos of grain and other products. In 1990 he relinquished his headship of the laboratory so he could concentrate on commercialisation of SIROFLO® and the method is now widely used around the world. Bob received the CSIRO Medal for Research Achievement in 1993 for this work. He retired from CSIRO in 1997. This summary has been drawn from extensive information on Bob's career and his role in development of SIROFLO® at the following websites:

https://csiropedia.csiro.au/siroflo/

https://csiropedia.csiro.au/winks-robert-gordon/



Research News

Ants farming the seeds of Fijian ant plants

The plant family Rubiaceae has a specialised subfamily, the Hydnophytinae, which grow as epiphytes on the trunks of trees. Their swollen bases are filled with anastomosing chambers in which ants live. This gives them their common name of "ant plants". Australia has two genera of ant plants (myrmecophytes) in northern Queensland, the prickly *Myrmecodia* and the smooth *Hydnophytum,* each with several species. Both genera extend through islands north of Australia almost to SE Asia. They are well known to have a symbiotic relationship with the ants where the ants protect the plant and feed on its nectar while the plant absorbs the nitrogenous wastes of the ants through the walls of certain specialised "warty" chambers. Butterfly collectors know them because the rare coppery lycaenid, *Hypochrysops apollo,* has larvae which appease the ants with its secretions and lives inside the chambers of the ant plants.

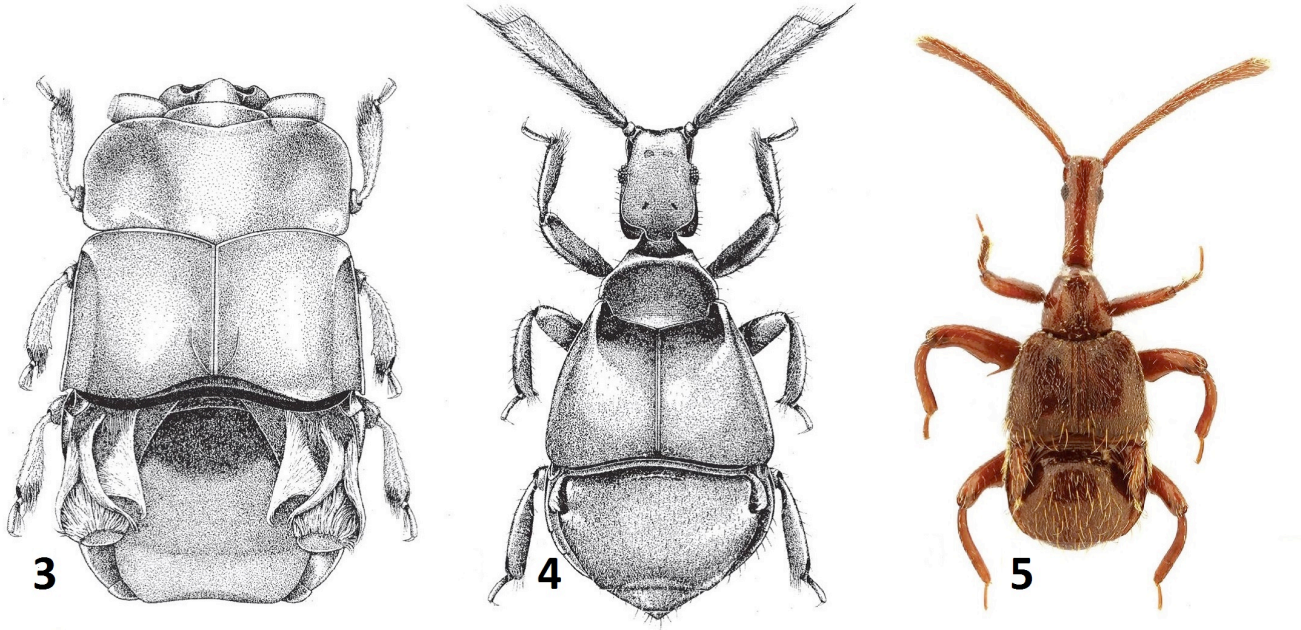
In Fiji, a related genus of ant plants occurs called *Squamellaria* (Figs 1 and 2) and a remarkable study has recently been published by Guillaume Chomicki and Susanne Renner from the Biology Department at Munich University (Chomicki & Renner, 2016). Their work is featured in New Scientist at https://www.newscientist.com/article/2113410-fijian-ants-grow-their-own-plant-cities-and-farm-tropical-fruits/#.WDONQA7J5go.facebook. *Squamellaria* has nine species. In a detailed study over several years, they showed that three of the species have a simple facultative relationship with ants of several species that also lived independently of the plants, and when

Figs 1-2. Two unidentified species of *Squamellaria* on the Fijian island of Taveuni, both held by ESQ member Doug Cook in 1987. 1. A whole plant of a smooth species. 2. A species with hair-like surface processes, cut open to reveal the ant chambers (Photos: Geoff Monteith).

nesting in the ant plants, the ants existed in separate independent colonies in each plant. However, it was found that the other six species of *Squamellaria* have a rigid obligate relationship with a single ant species, *Philidris nagasau,* and neither the ant nor the ant plants ever occurred independently. In the obligate species a single ant colony occupied all the plants on a single tree, with the single queen usually in a gallery of the largest ant plant. Molecular methods showed that all the plants on a single tree were usually siblings and this was explained by the most astonishing discovery made which was that the ants actually culture the plants which provide their shelter and much of their food. Seeds were harvested by the ants from their host-plants and "planted" in nearby bark crevices of the supporting tree. The resulting seedlings were defended by the ants and fertilised by the ants' own faeces. The end result of this was that each host tree became covered with a monoculture of closely related ant plants being used by a single giant colony of *Philidris nagasau.* This is the first instance recorded of an animal farming a higher plant for its own benefit. This close mutual association between ant and plant in Fiji is only about 3 million years old. The whole study is a masterwork of integration of field and laboratory studies and we can expect to see more publications emerge on this truly remarkable discovery.

Beetles live in ant plants, too!

Queensland entomologists have also made insect discoveries concerning the Fijian *Squamellaria* ant plants. The Claverigini is a specialised ant-inquiline group of the beetle family Staphylinidae. There are many strangely modified species and most have secretory pits (trichomes) on their dorsum which provide sweet secretion for ants which lick it from hair tufts that surround the pits. They are widespread in ant nests in Australia but none have been taken with ants in Australian ant plants. In July 1987, Geoff Monteith and Doug Cook from the Queensland Museum found *Squamellaria* of two unidentified species festooning trees between 400m and 700m on the ascent trail to the remote crater lake of Tagimaucia on the Fijian island of Taveuni. Several were opened and the contents of the chambers shaken on to a beating sheet. Among the swarming ants and frass were numerous bizarre clavigerine beetles. Many were collected and subsequently sent to Claude Besuchet, the expert on Clavigerini at the Geneva Museum in Switzerland. After 25 years these were published in collaboration



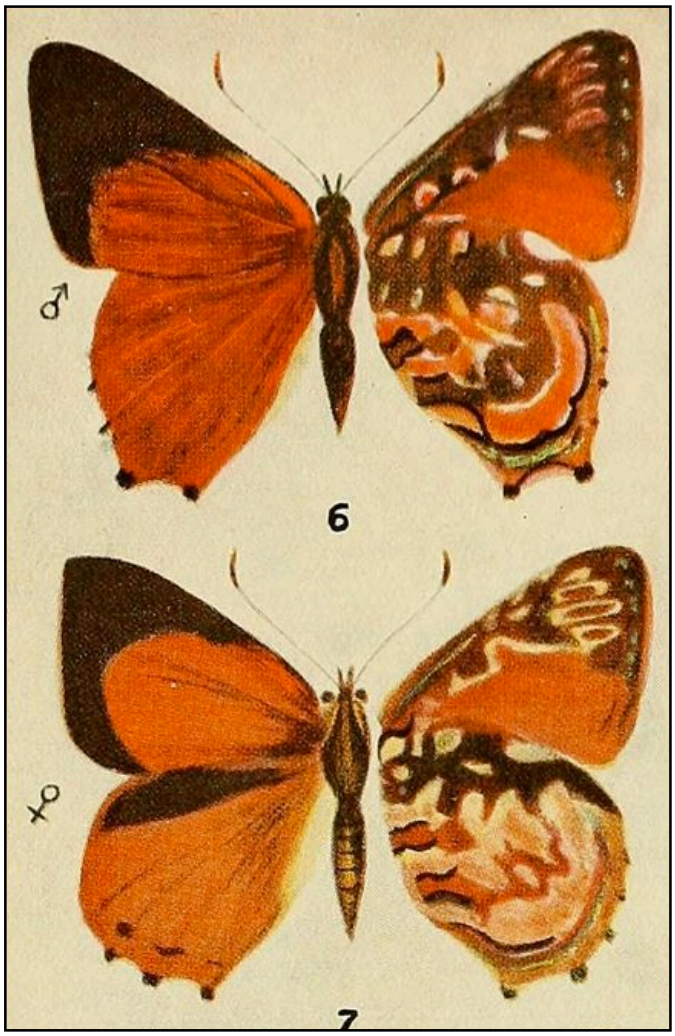
Figs 3-5. Three new genera of inquiline pselaphine beetles collected from chambers of *Squamellaria* ant plants on Taveuni Island, Fiji, in 1987. 3. *Clavister deplanatus.* 4. *Microconilon acuticollis* 5. *Macrotrachelos longiceps* (Figs from Besuchet & Hlaváč, 2011).

with the Czech worker, Peter Hlaváč (Besuchet & Hlaváč, 2011) and there were three completely new genera in that single batch from a single locality (Figs 3-5) including one so strangely shaped that it was named *Clavister* to signify its resemblance to the family Histeridae. Each species has the secretory trichomes visible just behind the rear corners of the abbreviated elytra. One wonders how many species would turn up from a thorough investigation of the *Squamellaria* and just where these creatures fit into the strange union between ants and ant plants in far off Fiji.

REFERENCES

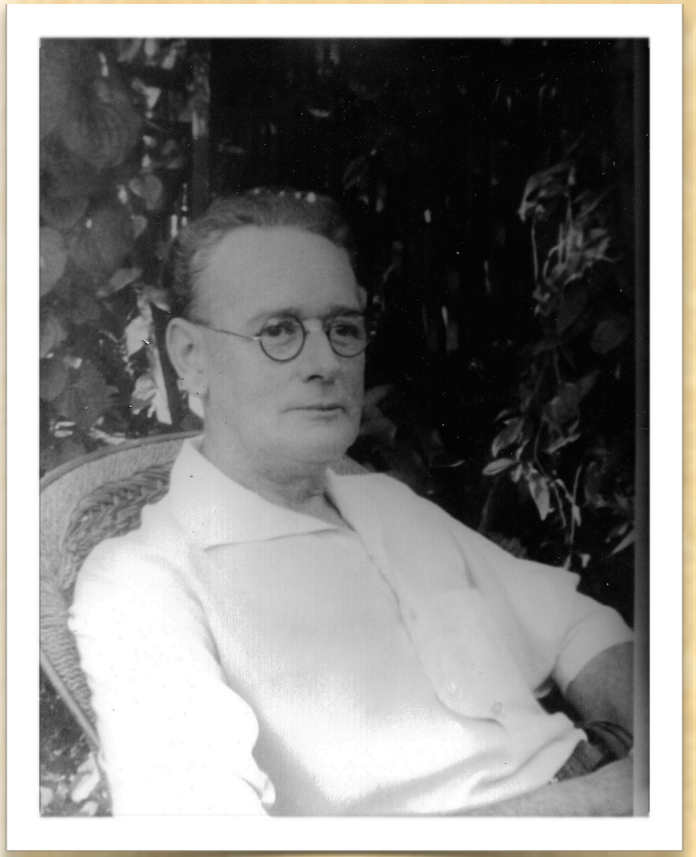
BESUCHET, C. & HLAVÁČ, P. 2011. Contribution to the knowledge of Clavigeritae (Coleoptera: Staphylinidae: Pselaphinae) from Fiji and Vanuatu, with the catalogue of Clavigeritae of Oceania. *Acta Entomologia Musei Nationalis Pragae* 51(2); 5017-5028.

CHOMICKI, G. & RENNER, S. 2016. Obligate plant farming by a specialized ant. *Nature Plants* **2:**16181 (http://dx.doi.org/10.1038/nplants.2016.181)



Hypochrysops apollo phoebus, male and female, from original description by Waterhouse - Proceedings of the Linnean Society of New South Wales, 1928. from Wikimedia commons. Their larvae also live in the ant plants.

The History Corner...



Iwan Wassil HELMSING (1884-1940)

Born in England. Did clerical work in England and Germany before moving to Patagonia and later New Zealand to pursue farming. He became an instructor in horticulture. Moved to Australia and became a successful banana grower in NSW Tweed River district. Always interested in microscopy and art and travelled with his own microscope since boyhood. Joined Queensland Department of Agriculture and Stock as an illustrator in 1924 and prepared water colour and black & white illustration of insects used in research papers and advisory leaflets. Also pioneered photomicroscopy in the Department. A keen leisure bushwalker. Published detailed study of biology and distribution of newly discovered Gondwanan moss bug (Peloridiidae) at Lamington National Park in 1937, illustrated with his own drawings and photographs.

Obituary: Anon. 1940. *Queensland Agricultural Journal* 53:413.

Remembering 1967

Morris ready for field work on Horn Islet, 1967.

Long time ESQ member Morris McKee shares his story...

I had finished a Masters Degree in Zoology from UCLA in 1964, then spent 2 years with the army including time in Korea where I met some Australians. After I finished my stint with the army I was at loose ends about what to do next when I saw an employment advertisement for a research assistant in entomology at the University of Queensland. Having met some Australians, I applied, and to my surprise, was hired by Dr. Eric Reye to start my new job in early 1967.

Dr. Reye had organised funding from Shire Councils and the Mount Isa Mining Corporation (MIM) to study the life cycles of biting midges along the coast of Queensland and Centre Island in the Sir Edward Pellew Islands in the Gulf of Carpenteria. Mount Isa Mining was interested in developing the lead and zinc deposits in the Northern Territory and Horn Islet was planned to be the port where the ore could be loaded onto ships to be transported to processing facilities. The biting midge populations were a concern for the labour forces which would be working at the port facilities once the ore deposits were mined.

Work area on Horn Islet, 1967.

My new job entailed visiting Centre Island periodically for 4-6 weeks to try to locate the breeding sites of biting midges (Ceratopogonidae). The midge larvae were isolated from intertidal beach sand using treacle. The larvae were scooped up with a sample of intertidal sand, then the treacle was poured over the sample and stirred a bit. The wriggling larvae would float to the top. While I was able to learn to identify the adults of several of the species, I was not able to connect the larvae directly to the adult stage. The goal was to locate the most prolific breeding sites and to develop some way to interrupt the life cycle at a vulnerable point. During my tenure in the position, we were not successful in finding a control method.

Dr. Eric Reye and his car. 1967.

It was during that year that I joined the Entomological Society of Queensland. I also met Geoff Monteith and Bryan Cantrell who graciously allowed me to share a residence with them in Taringa. However, over time, I missed family and decided to return to the USA in May of 1968. After that, I married and pursued various paths but ended up in optometry and the army again. I retired from the army in 1995 and look forward to retiring for real in the near future.

--Morris

Work station and accommodation on Horn Islet 1967.

Announcements and Notices

Attention Permit Holders!!!

Permit reports are due by the 15th of December! All permit holders must submit a return form. If you have not collected anything, you still need to report a nil return. The forms and guidelines were sent to you when you received your permit, however, they are also available from our website at www.esq.org.au/permits.

There have been some problems with the permits recently on some of the lands which are also part of native title agreements. Please contact the ranger in charge of the area where you wish to collect as well as complete the usual online forms for these areas to make sure there are no issues. If you have any queries, please contact Christine Lambkin, our permit officer.

Nominations for 2017 Council

The end of the year is nearly upon us! It's time to start thinking about nominations for 2017 council members. Are you interested in getting more involved in the Society? Nomination forms will be available on the website. Like to know more about what council does and what it involves? Contact Mark Schutze, ESQ secretary at m.schutze@qut.edu.au

Membership Renewal 2017

Membership renewals are due at the end of the year. Reminder notices have been sent out. Renewal forms are available on the website.

Student Awards for 2017

Are you finishing up your Honours degree this year or did you finish earlier this year? Is your project entomology related? The student awards for 2017 will be open in November. Deadline is April 2017. Details will be in the bulletin and on the website. You don't need to be a member to apply.

New ESQ Small Grants Scheme starting in 2017

The new society small grant scheme will be available next year. Have you got a project idea? Applications due in March. For more information contact the Contact Mark Schutze, ESQ secretary at m.schutze@qut.edu.au

Meetings & conferences

MALARIA – from innovation to eradication
February 19–23, 2017
Kampala, UGANDA
https://www.keystonesymposia.org/17B5

Gordon Research Conference SPECIATION 2017
February 19–24, 2017
Renaissance Tuscany Il Ciocco Lucca (Barga), ITALY
https://www.grc.org/programs.aspx?id=16903

German Zoological Society meeting in Evolutionary biology
19-21 April 2017
Ploen, Germany
http://web.evolbio.mpg.de/coevolve/

3rd FAO-IAEA International Conference on area-wide management of insect pests: Integrating the sterile insect and related nuclear and other techniques
May 22–26, 2017
Vienna, AUSTRIA

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

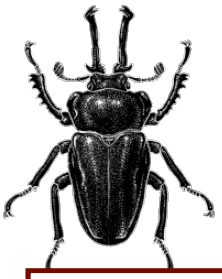
The 5th International Forum for Surveillance and Control of Mosquitoes and Mosquito-borne Diseases
May 22-26, 2017
Nanjing, Jiangsu Province, China.
www.asiansvemc.org or www.mosquitoforum.net

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

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/



Diary Dates for 2016

Meetings held on the second Tuesday of the respective month

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

SOCIETY SUBSCRIPTION RATES

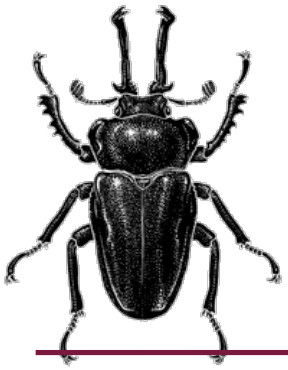
GENERAL	Person who has full membership privileges	**$30pa**
JOINT	Residents in the same household who share a copy of the *News Bulletin*, but each otherwise have full membership privileges.	**$36pa**
STUDENT	Student membership conveys full membership privileges at a reduced rate. Students and others 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, December 13th, 2016, 4:00 pm

Notes and Exhibits Meeting followed by our end of year Christmas party

(some catering by Café Eco but please bring a plate to share!)

Program includes a variety of short presentations and exhibits:

Come here about pheromones in cerambycids, the new exhibition at the Queensland Museum, trials and tribulations of registering thrips, plus more...

Anyone is welcome to be a part of this "show and tell" meeting. We would just love to see and hear what ***you*** have found or learned in your backyard or bushwalks or workplace!

Please contact Brad (Bradley.Brown@csiro.au) if you have something to share so we can add your name to the agenda.

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

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 44, Issue 9 (Jan/Feb 2017)

CONTRIBUTIONS WELCOME

Deadline Thursday, February 8th, 2017.

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