



ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC
NEWS BULLETIN



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THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

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Front Cover Illustration: Illustrations by Bill Haseler, 1964 President of the Entomological Society of Queensland, of four leaf-mining beetles introduced for the biological control of lantana. The beetles are, clockwise from top right, *Octotoma scabripennis* Guerin-Menville, *Uroplata girardi* Pic, *Octotoma championi* Baly and *Uroplata fulvopustulata* Baly (Coleoptera: Chrysomelidae: Hispinae). All species are now established in Australia.

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NEWS BULLETIN

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The ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC., 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**: 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, 1885), 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.

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.



ENTOMOLOGICAL SOCIETY OF QUEENSLAND

Minutes for General Meeting

12 August 2014

Held in the Seminar Room, Ecosciences Precinct, Boggo Rd, Dutton Park, Tuesday, August 12th at 1:00pm

Chair: Bill Palmer

Attendance: Bradley Brown, Kathy Ebert, Manon Griffiths, Andrew Hayes, Peter James, Simon Lawson, Lance Maddoch, Penelope Mills, Mona Moradi, Helen Nahrung, Brenton Peters, Jane Royer, Desley Tree, Dave Walter

Visitors: Sel Counter, Nick Goodwin, Chris McKeown, John Ness, Ray Pearson, Martin Peron, Tracey Steinrucken

Apologies: Gary Cochrane, Julieanne Farrell, Chris Lambkin, Morris McKee, Geoff Monteith, Nancy Schellhorn, Federica Turco (see below)

Minutes: The minutes of the last meeting were circulated in *News Bulletin* 42[4], June 2014.

Moved the minutes be accepted as a true record: Kathy Ebert

Seconded: Bradley Brown

Carried: all

Nominations for membership: No nomination was received.

General Business: At council meeting today, we discussed how to best archive our minutes and bulletins, as well as some suggestions for some minor constitution amendments.

A **BugCatch** is being planned for **Saturday, the 20th of September**. Up to 50 UQ insect science students will be attending so members are encouraged to come along and share their knowledge. We are tentatively planning to go to Mt Glorious/Mt Mee, but this is not confirmed yet.

Main Business: Our guest speaker was Mr. John McKeown presenting a talk entitled *The entomologist gets the trout*.

Next meeting: Our next meeting will be Tuesday, the 9th of September 2014, at 1pm, with Dr Peter James from the UQ Centre for Animal Science presenting a talk entitled "Soft lights, black sheets and in-vitro breeding of Buffalo Flies".

Meeting closed: 2pm

Two Important Messages from the Council

1. Senior Vice-President Federica Turco and Albe had a lovely baby girl, 51.5 cm long, 3.240 kg born at 3:30 pm on Tuesday the 12th. Her name is Giulia (Italian for Julia).

2. A Special Message from the President Bill Palmer

Dear Members,

We have a somewhat unusual situation this year in that **we have a large number of members who have not yet paid their 2014 membership subscription and a dozen more who are in arrears for 2013 also**. This is, as you can imagine, causing your Council some concern because we are in the last months of the year. Possibly the situation was exacerbated when we sent out the original invoices just before Christmas. Whatever the reason, I am sure all appreciate that our very moderately set membership fees are vital for the functioning of the society and also, prompt payment of them saves our hardworking Treasurer and other councillors the onerous and sometimes embarrassing job of having to hound members.

Members may be interested to know our process for dealing with outstanding fees. Members remain in good standing until the end of the year in question. In the second year, if still unpaid, effort is made to contact the member to find out the circumstances and at some stage some services may be terminated. In some cases we find we have no current contact details for the member. The membership is terminated completely at the end of two years being overdue.

So I do ask that if you think you may be behind that you contact Brenton Peters or visit our webpage to bring your subscription up-to-date. If you think your contact details are out-dated, let us know. We most certainly do not want to lose you!

Many thanks and best wishes,

Bill



Mt Glorious Bug-Catch

Saturday, 20 September 2014

"Bug-Catch" is a program of collecting trips run by the **Entomological Society of Queensland**, in conjunction with the **Queensland Environmental Protection Agency**. The object of the trips is to utilise the specialist insect collecting and identification skills of Society members to assist EPA to compile lists of invertebrates for protected areas (national parks, forest reserves, state forests, etc). Target areas are chosen jointly by ESQ and EPA. EPA then facilitates permits for collecting during these trips. Members are asked to supply lists of species collected, and these are included by EPA in their faunal databases. This Bug-Catch Program is arranged by Ben Tidey, (EPA) and by Kathy Ebert and Christine Lambkin (ESQ).

The venue for this Bug-Catch will be in the rainforest and wet sclerophyll area of Mt Glorious (in the old forestry barracks clearing). We will be arriving at 10AM, to spend the day collecting, and set up light traps in the evening. Malaise traps and pitfall traps will be set up several days prior. There will be a group of university students (and possibly a film crew from *Totally Wild*) attending so members are urged to come and share their knowledge, skills and tricks. The site has power, bbq and shelter. A flyer with all the details and directions will be emailed to all members. If you do not receive the email flyer, you can download it from our webpage (<http://www.esq.org.au/index.html>) or if you need more information, please contact Kathy Ebert (k.ebert@uq.edu.au). Hope to see you all there!



WANT TO JOIN THE SOCIETY ?

Visit our website at:

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

where you will find nomination forms and full details of fees and addresses.

There are also forms for existing members to use to pay their subscriptions. Coming meetings and excursions are listed.

Procedures for publishing in our journal, *The Australian Entomologist*, are explained with a full *Guide to Authors* plus forms for taking out a subscription to the journal.

NOTICE OF NEXT MEETING

Tuesday 9 September 2014

Soft lights, black sheets and in-vitro breeding of Buffalo Flies

Dr Peter James
UQ Centre for Animal Science

BIOGRAPHY.

Degrees: Agriculture
(Animal Science),
University of Adelaide;
Masters (Pest
Management) **Simon
Fraser** (Vancouver);
PhD (Entomology)
**University of
Minnesota.** Formally at
SARDI in Adelaide and
University of Adelaide,
Roseworthy Campus.
Peter was then Leader
of the Integrated
Parasite Management



Group at the **Animal Research
Institute**, Yeerongpilly and now a
Research Fellow at, **QAAFI**, UQ,

at the Eco-Sciences
Precinct.

One of the few
livestock entomologists
left in Australia, Peter's
main area of interest is
in new technologies
and integrated
approaches to the
control of
ectoparasites and
nuisance insects
associated with
livestock, especially
sheep and more
recently cattle.

TALK SUMMARY. Buffalo flies (*Haematobia exigua*) are one of the main health issues for beef and dairy production in northern Australia and in recent years have dispersed southwards and westwards into areas where infestations have not previously been seen. Their range is projected to extend significantly with climate change.

Research into buffalo fly control has been limited by the need to maintain live cattle hosts, an expensive and ethically problematical requirement. We have recently developed methods enabling the establishment of a persisting colony of buffalo flies that can be reared through all life stages in the laboratory. This talk will review some aspects of animal-insect interactions and the difficulties of rearing insect species that are obligate parasites.

**Venue: Seminar Room
Ground Floor, Ecosciences Precinct
Boggo Road, DUTTON PARK. BRISBANE.
More venue details available at
<http://www.esq.org.au/events.html>**

THE ENTOMOLOGIST GETS THE TROUT!

John McKeown, Chelmer



Proof of a good trout fly.

All fly fishermen lucky enough to fish in New Zealand owe a debt to the late Norman Marsh (*Trout Stream Insects of N.Z.* 1983). This work was based on the author's fish post mortems and stream sampling plus his fishing experience over many years, mainly in the Southland. At the heart of the sport is the thrill of stalking a wild animal in its natural environment and attempting to deceive it into taking a self-tied artificial fly. To do this, one must have an appreciation of the insect life available to trout. This paper reflects my experience of some 10 years fishing the Southland. Brown trout, introduced into New Zealand in 1868, are opportunistic feeders and their behaviour has been honed over many generations and their instincts sharpened by increasing angling pressure. Their food comprises both aquatic and terrestrial insects and availability is determined by a combination of all or some of habitat, time of year, stream state, time of day and weather. Trout occupy habitats ranging from lowland rivers to high country rapids. Having rods and cones like ours, their eyes detect colour, contrast and movement. They have a slightly broader

bandwidth than humans. Their window of vision has a diameter twice their depth of water that is broadened somewhat by refraction of light. They have a blind spot immediately behind them (a vector of 30 degrees). They have a lateral line which detects low frequency vibrations and are part of the salmonid family, i.e. they spawn in fresh water. They have a keen sense of smell.

AQUATIC INSECTS

These are dominated by the various species of mayflies and caddisflies in their pre-adult forms.



•**Mayflies:** Fossilised specimens of these attractive insects date back to the dinosaurs and have changed very little. There are about 25 species in New Zealand. The last three stages of their life cycle (nymph - dun - spinner) play a major role in trout diet. Nymphs can take some months to mature. As they grow they discard their protective outer skin. They cling to stones but are thought to regularly migrate short distances, perhaps in search of food. On reaching maturity they ascend with the aid of gas trapped in their skin which they discard

Entomological Society of Queensland

on reaching the surface. A fly raised in a subtle way through the water column will often trigger a feeding response. The nymphs then emerge as a mayfly in the sub-imago phase. They then float for some time while their wings expand before flying to nearby vegetation where they take on their final moult as a spinner before mating (in the case of females, flying upstream and then laying eggs on the water) and dying. At all these stages, they represent food. In their various stages, most are 10-15mm long plus tails of similar length and in drab colours ranging from grey to brown to black.



•**Caddisflies:** The larvae of four species which cling to stones are staple trout food, two of which are cased and two uncased. They thrive in well oxygenated water although the uncased can be found in slower flow areas. They are easily disturbed during flood. On maturity they ascend to the surface and/or crawl to the stream edge after a transition during a

dormant pupal stage. The adults swarm to mate and lay eggs on the water but don't die over the water afterwards like mayflies. The larval stage is most important to trout. The adult form is of similar length to a mayfly but looks like a moth.

•**Stoneflies:** The nymphal form is mainly sought by trout. They are found clinging to stones in good flow areas and particularly in higher country streams. Their tubular body and prominent wing case distinguishes them from mayfly nymphs. They come in colours of brown, green and black with the first two dominating. Their body length ranges from 10-30mm excluding tails that are one quarter to one half body length.



TERRESTRIAL INSECTS

•**Willow Redgall Sawflies:** Willow trees dominate streamside vegetation in many of the lowland rivers. Their foliage is home to a sawfly whose larvae develop from eggs laid in the leaf by the adult which in turn feeds on the leaf causing a red or orange blister. Adults of a yellow/green colour and about 4mm long hatch mainly in January and February and, at peak, provide a conveyor belt like food supply along stream margins. Getting a fly to these fish feeding under willows can be a challenge.

•**Water boatmen** are found in silty margins and weed beds with little or no flow. Although bottom feeders, they often swim to the surface for air. Trout cruise slowly over the bottom looking for movement. Length is about 8mm. Their back is olive green.

•**Crane flies** have both terrestrial and aquatic derivations but are fished for with an imitation of their adult form (i.e. winged insect) only. They are awkward flyers and are active both at night and day time. Their light body and spider-like legs give buoyancy and present a prominent target for trout in backwaters.



•**Ants** are a popular meal particularly in high country streams wherever trees are suspended over water. A floating imitation in brown or black should feature the narrow 'waist' between body segments.

•**Brown Chafer Beetle:** This agricultural pest emerges from lowland paddocks for a month in November-December. Many deposit on the water at night when they swarm to mate. Trout may disregard an imitation unless presented early evening or early morning.



•**Blue Blowfly** is NZ's largest. Their maggots can live on mountain tops and are not dependent on carrion. They therefore have a wide presence from lowland paddocks to high country tussock plains. With a body of iridescent deep blue, they sit on streamside rocks during summer (December to March) and no doubt find their way onto the water. A fly works well in all weather and times of day.

•**Cicadas** are a mid-summer presence, active on warm days. As erratic flyers they are easily blown onto water and exist in all grassland areas, feeding on plant sap.

MAYFLY HATCHES & FISH RISEFORMS

During a hatch, fish tend to lock in and feed on a particular stage of the insect. One looks at the riseform (i.e. surface disturbance made by the fish) to identify the stage. Trout observe a food vs energy equation. So they will often prefer to take an emerger, particularly one having trouble extricating from the surface film, to a dun already afloat and about to escape. An emerger pattern will feature a wing above the surface with a body hanging below it. Likewise, spent spinners present an easy meal particularly as many drift into slow flowing water. Having identified the insect stage preferred by the trout one must identify the mayfly species and size. Often hatching insects will be of a similar size. Thought to be a survival response, mass hatching often occurs on warm overcast days and in the early evening. The dominant species in the Southland are *Deleatidium vernale* and its close

relation *D. myzobranchia*.

FLY TYING

The essentials remain unchanged since Isaak Walton published *The Compleat Angler* in 1653 although new materials such as closed cell foam, plastics and rubber now supplement the use of animal hair and bird feathers. A trout's eyes consist of rods and cones like ours and they detect colour, contrast and movement. Flexible materials are used to good advantage to replicate natural movement (e.g. legs on nymphs and terrestrials). Tying to scale and size is important. Nymphs can be weighted using heavier gauge hooks and with metal beadheads or wire to allow them to be fished at various depths as trout cannot be relied to expend energy to lift in the water column.

THREATS TO AQUATIC INSECTS

With rapid conversion of farms from sheep to dairy over recent years due to the advent of commodity demand from China, a threat to stream quality from dairy effluent and siltation has been identified. In addition, attention is being directed to excessive irrigation use. The algae didymo or 'rock snot' appeared in 2004 on the South Island. Studies post 2004, including drift dives, have indicated an increase in the variety of stream invertebrates in affected streams but lower proportions and lower mean sizes of 'trout friendly' invertebrates such as mayflies. The spread of didymo may be ameliorated by regular flood events but there is no known cure. Anecdotal evidence suggests the alga is worse in some streams than others while some have escaped this intrusion.



Notes & Exhibit July 2014

Dining on the Army Worm

Noel Starick & Christine Lambkin, Queensland Museum



Figs 1-2. Caterpillar (above) and adult (below) *Callopietria maillardi*. Photos Noel Starick QM



Noel collected a noctuid caterpillar feeding on ferns in April 2014 that fed for a week before pupating. The adult moth emerged a week later: *Callopietria maillardi* (Guenée, 1862) (Noctuidae: Acronictinae). Common (1990: 460) discusses the fern feeding habit of the genus.

A couple of weeks later Noel collected 98

a similar looking noctuid caterpillar feeding on what may be the Asteraceae *Conyza* - a fleabane. This caterpillar did not eat the ferns supplied, but fed successfully and voraciously on the weed for around a week. It disappeared for few days, reappeared, only to feed poorly. And then- the caterpillar had some company. Twelve tiny flies were removed from the rearing chamber. However of most interest, the caterpillar stayed alive and continued to feed well for several days, before dying.

No surprises that the flies were Tachinidae, keying out as Goniinae: Siphonini: *Peribaea* - a genus of extremely small tachinids currently

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Figs 3-4. Host Caterpillar Photo Noel Starick QM. *Peribaea* parasite Photo Geoff Thompson QM

containing four described species for Australia. Up to 12 *Peribaea orbata* (Wiedemann, 1830) have been recorded as emerging from a single full-grown army worm, *Spodoptera litura*, and some host larvae survived the emergence of the parasites (Jayanth & Nagarkatti 1984). Interestingly some tachinids are able to leave their host alive by feeding on non-vital tissues and retaining metabolic wastes within their bodies (Cantrell 1986). The second caterpillar appears to be the same as those of *Spodoptera litura*.

References

Cantrell, B.K. (1986) Descriptions of the partial life histories of some Australian Tachinidae (Diptera). *Journal of the Australian Entomological Society*, **25**, 215-21.

Common, I. (1990) *Moths of Australia*. Melbourne University Press, Carlton, Vic.

Jayanth, K.P. and Nagarkatti, S. 1984. Record of true parasitism in *Peribaea orbata* (Wied.) (Diptera: Tachinidae). *Entomon* 9: 77-78

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Bugs & Bugcatchers in the News

University of Queensland

School of Agriculture and Food Sciences - Neil Heather

Recent successful PhD students are **Yusup Hidayat** (*Effect of essential and other plant oils against Queensland fruit fly*) and **Purwatiningsih** (*Effect of some plant essential oils against Plutella xylostella and its natural enemies*) both now returned to Indonesia together with **Teshale Degefu** (*Efficacy of micro-encapsulated phytochemicals against Helicoverpa*) formerly of Ethiopia. Yusup previously completed a successful M.Phil in 2008 before returning to his home country for a time. All three undertook their candidature at the Gatton Campus advised by **Neil Heather** and **Errol Hassan**.

Queensland University of Technology Mark Schutze

While the cooler weather has slowed down the flies, the **QUT fruit fly research group** (QUT-FFRG) hasn't dropped pace as its members are busy with lab work, writing, conferences, and overseas jaunts forging new international collaborations.

In early May, **Tony Clarke**, **Mark Schutze**, **Paul Cunningham**, and PhD student **Owen Webb** attended the Plant Biosecurity CRC (PBCRC) 'Science Exchange' conference on Queensland's Sunshine Coast. Owen swiftly made friends with other PhD

students in attendance, and presented on his PhD project investigating odour deterrents for Queensland Fruit Fly. Tony, meanwhile, talked about the group's latest PBCRC-supported research, especially on progress made towards better understanding visual and olfactory responses of Queensland Fruit Fly to traps; this research is being undertaken in collaboration with **Bronwen Cribb** and **Mike Furlong** at the University of Queensland.

Tony and **Yuvarin Boontop** (Rak) then promptly departed Queensland to attend the *9th International Symposium on Fruit Flies of Economic Importance* held in Bangkok mid-May (see photos); they were part of a strong Australian contingent (including **Bernie Dominiak**) at this large, four-yearly meeting. Tony presented an oral paper summarising a manuscript currently under review, first authored by Mark Schutze, which synonymises *Bactrocera papayae* and *B. invadens* with *B. dorsalis*. The proposed synonymy was well received by the international community, particularly the Africans for whom *B. invadens* has already wreaked havoc across most of the continent. Rak presented a poster on a component of her PhD on regional variation in the melon fly, *B. cucurbitae*, as well as kindly playing local tourist guide for Tony and Linda Clarke for the days either end of the conference week.

Mark recently returned from leave abroad, with new projects waiting for him on his return. One of his priorities is to collaborate with regional colleagues, particularly **Alvin Hee** of Universiti Putra Malaysia, to reinvigorate the TAAO (Tephritid workers of Asia, Australasia and Oceania) regional fruit fly network and work towards a meeting to be held in Kuala Lumpur 2016. While on leave, he snuck in a meeting with colleagues at the UN/FAO-International Atomic Energy Agency in Vienna to discuss the TAAO and other fruit fly projects. Once back in Brisbane, Mark met up with **Yves Basset** of the Smithsonian (Panama), to discuss potential projects in collaboration with Yves and his fruit fly biodiversity research programme in Papua New Guinea.

Paul Cunningham has recently returned from a visit to Stockholm University, Sweden, where he has initiated a research collaboration that will link fruit fly olfactory behaviour to odour processing in the antennal lobes of the insect brain. The cutting-edge neurophysiological technique they will be using (called optical imaging) was pioneered in honeybees, and this is the first time it will have been used on tephritid fruit flies. The collaboration hopes to shed new light on how these insects perceive host odours, and how we might design better lures to attract and kill female flies. Paul's visit was funded by the Plant Biosecurity CRC. PhD student **Thilini Ekanayake** has finished field cage studies for the

season and has delved into preparing for her upcoming confirmation of candidature in the second half of 2014; but not before taking a well-earned break back in her home country of Sri Lanka. **Ayad M Abdelnabi Muhmed**, PhD student working on Qfly parasitoid behaviour, also has a confirmation to look forward to, for which he is also busily preparing for.

The QUT FFRG welcomes the news that **Jaye Newman** (former QUT honours student) has been officially appointed as research assistant to work with the group for the next 2 years.

But it's not all about fruit flies! Congratulations go to **Li Xin Eow** for publishing the first paper from her PhD project under the supervision of **Stephen Cameron** (Eow, L.-X., Mound, L.A., Tree, D.J. & Cameron, S.L. 2014. Australian species of spore-feeding Thysanoptera in the genera *Carientothrips* and *Nesothrips* (Phlaeothripidae: Idolothripinae). *Zootaxa* 3821: 193-221.) Li Xin is now busily finishing the molecular phylogeny section in her thesis.

And congratulations also to **Carrie Hauxwell**, who has successfully secured funding from the Grains RDC. These grants will support a second phase on two projects: one developing biological controls for Diamondback moth (with AgBiTech in Toowoomba); the other developing applications for biopesticides to control grain storage pests (with UK company, Exosect).

Mechanisms of subtle wing shape variation in Queensland Fruit Fly

by J. D. Newman

School of Earth, Environmental and Biological Sciences, Queensland University of Technology, G.P.O. Box 2434, Brisbane, Queensland 4001.



Fig 1. *Bactrocera tryoni*

Subtle changes in morphology may significantly impact insect fitness, and the relative contribution of genes, environment, and their interaction to such variation is the subject of ongoing research. The true fruit flies (F. Tephritidae) are a group for which subtle morphological

variation is well documented, especially the shape of wings which are functionally important for flight and, for many species, courtship. However, mechanisms governing variation in tephritid wing shape remain to be fully understood.

We tested if Queensland Fruit Fly, *Bactrocera tryoni*, wing shape significantly changed following larval rearing on: i) different diets at a single temperature (guava, avocado, or tomato; 27°C); or ii) different developmental temperatures on a single diet (17°C, 22°C, or 27°C; guava). Wings of 30 males and 30 females were subjected to geometric morphometric shape analysis to evaluate differences in wing shape among treatments.

There was a difference in wing shape among flies reared on different diets and temperatures. For the diet study,

the greatest difference in wing shape was observed between guava reared males and all other diet treatments, especially between guava and avocado. For the temperature study, wing shape of *B. tryoni* reared at 17°C was significantly different to those reared at 22°C and 27°C. We conclude that wing shape in *B. tryoni* is affected by conditions experienced during larval development. This outcome has implications from research on population structure in the wild to pest management approaches such as the SIT where wing shape may affect mating capability.



A Long-nosed Net-winged Beetle *Porrostoma rhipidium* (MacLeay, 1826), presumed model for a mimicry complex that includes other net-winged beetles (Lycidae), blister beetles (Meloidae), jewel beetles (Buprestidae), moths (Erebidae) and more. One particularly striking mimic is the Red Weevil (Belidae) *Rhinotia haemoptera* Kirby, 1819, which also possess a snout. Photos: DE Walter, Pie Creek, Qld, 20 August 2014, at light.



Meetings & Conferences



Australian Entomological Society 45th AGM & Scientific Conference

September 28–October 1 2014

Shine Dome, Canberra, AUS

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



XXV International Congress of Entomology: Entomology Without Borders

September 25–30, 2016

Orlando, Florida, USA

<http://ice2016orlando.org/>

University of Illinois, Urbana-Champaign, US



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November 16–19 2014

Oregon Convention Center, Portland, Oregon,
USA

<http://www.entsoc.org/entomology2014>



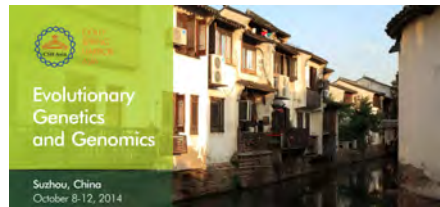
Central European Meeting of the International Union for the Study of Social Insects

March 26–29 2015

Schloss Schney "Castle", Lichtenfels, GERMANY

<https://www.bayceer.uni-bayreuth.de/iussi2015/>

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12th Annual Ecological Genomics Symposium

October 31–November 2 2014

Kansas State University, Kansas, USA

<http://ecogen.ksu.edu/>

11th Arab Congress of Plant Protection

November 9–13 2014

Amman, JORDAN

<http://acpp.bau.edu.jo/default1.htm>



2015 Society of Systematic Biology conference

June 26–30 2015 Guarujá, BRAZIL

<http://systbio.org/>

Entomological Society of Queensland

DIARY DATES FOR 2014/2015

Nine general meetings held per year on the 2nd Tuesday of the respective month

MAR 2014-Tuesday 11th	Dr Simon Lawson	AGM and Presidential Address <i>Australians abroad: eucalypts and their insects</i>
APR 2014-Tuesday 8th	Mike Barnett	<i>Butterfly species and habitats in Africa</i>
MAY 2014-Tuesday 13th	Dan Papacek	<i>Confessions of a Commercial Entomologist</i>
JUN 2014-Tuesday 10th		Student Award Presentation/ Notes & Exhibits
AUG 2014-Tuesday 12th	John McKeown	<i>The Entomologist gets the trout!</i>
SEP 2014-Tuesday 9th	Dr Peter James	<i>Soft lights, black sheets and in-vitro breeding of Buffalo Flies</i>
OCT 2014-Tuesday 14th		
NOV 2014-Tuesday 11th	Dr Jeff Skevington (tentative)	
DEC 2014-Tuesday 9th	Xmas BBQ/ Notes and Exhibits	
MAR 2015-Tuesday 9th	Dr Bill Palmer	AGM and Presidential Address

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**THE
ENTOMOLOGICAL
SOCIETY
OF
QUEENSLAND**



NOTICE OF NEXT MEETING

Tuesday 9th September 2014, 1:00 pm

***Soft lights, black sheets and
in-vitro breeding of Buffalo Flies***

Peter James

Venue: Seminar Room
Ground Floor, Ecosciences Precinct
Boggo Road, DUTTON PARK. BRISBANE.

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

ALL WELCOME

NEXT NEWS BULLETIN

Volume 42, Issue 6 (September 2014)

CONTRIBUTIONS WELCOME

DEADLINE - Wednesday 17 September 2014

Send your stories/notices/complaints to
dwalter@usc.edu.au