WESTERN AUSTRALIAN INSECT STUDY SOCIETY INC.

COMMITTEE OF MANAGEMENT 2011 - 2012

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Web-site: http://www.insectsocietywa.org.au

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Contributions to the Newsletter by members are welcome
Tell us about your entomological activities, observations, or concerns

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The Society gratefully acknowledges the support
of the Western Australian Museum

Cover illustration: “Goodness, what big teeth you have Grandma!” This image was taken by Terry Houston at the WA Museum using a photomicrographic system and extended depth of focus software. The insect is a small tiger beetle, Cicindela (Myriochile) semicincta (family Carabidae, subfamily Cicindelinae). It was collected in Cane River Nature Reserve south of Onslow in March this year. As their common name suggests, tiger beetles are predacious. They characteristically possess long, slender legs and run down their prey (mostly other insects). See image of whole beetle on p. 10.
Coming Events

NEXT MEETING
Wednesday 13 June, 2012
commencing 7.30 pm
Kings Park Administration Centre

Main feature:
A presentation by Cathy Car from the WA Museum -
“Give ‘em some leg room: millipedes are centre stage”

Millipedes as a class have very little impact on human activities. They are found mainly in leaf litter where they lead blameless and inconspicuous lives. They are important in the decomposition of leaf litter, but have gone largely unnoticed by researchers as these little animals generally lack bright coloration and conspicuous behaviour patterns and, as a group, pose very little threat to humans. Australian researchers have been finding, however, that they are extraordinarily diverse and exhibit some interesting behaviours. Cathy has been looking at the diversity and distribution patterns of the largest family of millipedes in Australia, the Paradoxosomatidae, or so-called keeled millipedes.

Member in focus: Peter Ray

Annual General Meeting: the WAISS AGM will follow the ordinary meeting. It is expected to be very brief, as usual. All but one committee member will be renominating. Norm Pinsky has been doing a great job as WAISS Treasurer but, being a doctor and living well out of Perth, he has found it difficult to get to Committee meetings. Consequently -

WAISS is seeking a Treasurer

Duties of the Treasurer are to receive and bank subscription payments, keep basic financial records, report to the Committee and occasionally write cheques on behalf of the Society. It is not an onerous position and does not require special knowledge. Committee meetings occupy about an hour once every two months. If you could help, please contact the President or Secretary ahead of the June meeting.

Report on the April Meeting

Main feature

"Sticky, non-sticky or no orb at all: Australian orb-weaving spiders"

Our speaker was Dr Volker Framenau, Director of Phoenix Environmental Sciences and manager of their Terrestrial Invertebrate Section and Taxonomic Services Unit. Volker is a world expert on wolf spiders, including the Australian fauna, and the Australian expert on orb-weaving spiders. He also maintains an active research interest in trapdoor spiders (Mygalomorphae) and some millipede groups. Some of the interesting points from his presentation follow.

A wrap-around spider, Dolophones sp., well camouflaged on a twig. Photo: Volker Framenau.

There are an estimated 10,000 species of spiders in Australia, with about 3,400 being currently described (see link to check-list at end). The third largest family of spiders is the Araneidae (39 described genera in Australia)
and the subfamily Araneinae comprises more than half of these (21 genera in Australia). This subfamily includes the true orb-weavers. These spiders are largely nocturnal and are active and fast predators. They build typical orb-webs and exhibit limited sexual size dimorphism.

The family limits of the Araneidae have undergone some marked changes over the years and more changes are likely. Recent data suggest that some Australian groups currently listed in Araneidae would be better placed in other spider families. For example, the ‘triangular spiders’ (genus Arkys) are possibly tetragnathids (long-jawed spiders) and the cryptic Paraplectanoides possibly belongs to the Nephilidae (golden orb-weavers and allies). The most recent phylogenetic analysis of ‘Araneidae’ based on morphological characters confirmed that the golden orb-weavers (Nephila species) do not belong in the family; these are now listed in their own family, Nephilidae. The net-casting spiders (Deinopis species) were included in the study as an out-group, the web which they construct between their legs is being considered to be a reduced orb-web. In one current, simplified scheme of classification, the family Araneidae can be split into seven subfamilies; however, unpublished molecular data suggest the subfamily Araneinae consists of multiple, only remotely related lineages within the Araneidae.

The subfamilies of Araneidae are the following:

**Araneinae** - true orb-weavers, e.g. Acroaspis, Backobourkia (desert orb-weavers), Cyclosa, Dolophones (wrap-around spiders), Neoscona, Novakiella.

**Cyrtarachinae** - e.g. Poecilopachys (two-spined spiders), Celaenia (bird-dropping spiders, no webs), Mastophora/Ordgarius (bolas spiders – no webs).

**Cyrtophorinae** - Cyrtophora, Cyrtobill (dome or tent spiders, horizontal web).

**Gasteracanthinae** - Gasteracantha, Austracantha (Christmas, jewel or spiny spiders).

**Argiopinae** - Argiope, Gea, Telaprocera (ladder webs along trees).

**Arkyinae** – Arkys, Demadiana (triangular spiders).

**Phonognathinae** – Phonognatha, Deliochus (leaf-curling spiders).

In *Nephila* (Nephilidae), the males are tiny compared to the giant females. This sexual size dimorphism remains an evolutionary puzzle with multiple possible explanations. In *Nephila*, based on a comparison with related spiders, it is more likely that females evolved into giants rather than males reduced in size. The evolutionary advantage of male dwarfism is faster maturation and, therefore, a smaller
male may win the race for quick matings sire more offspring. In contrast, large size in females results in the production of more eggs which means better reproductive output.

There are no true Araneus in Australia. Most Australian ‘Araneus’ species were named in the late 1800s as Epeira, today a junior synonym of Araneus. They exhibit a huge variety of forms and shapes. Eventually, all will be transferred to other genera.

Other interesting snippets gleaned from Volker’s presentation included the following:

Only spiders active during the day (e.g. Argiope, Cyclosa) build a ‘stabilimentum’ (a conspicuous, sometimes zig-zag structure in the orb-web). The function of this structure has not been determined but it may provide a visual signal and suggested functions include prey attraction, predator avoidance through camouflage of the occupant spider or it may avoid accidental destruction of the web by flying birds.

Males of Christmas spiders (Austracantha, Gasteracantha) are much smaller than the females and sit in vegetation near the web.

Spiders are known to have ‘ballooned’ between continents (juvenile spiders secrete long strands of silk enabling them to be carried on air currents).

Polys species are camouflaged by their strange, irregular abdominal forms and their eye arrangement differs from that of other spiders, the two lateral eyes on either side being widely separated.

The Two-spined Spider, Poecilopachys australasia, which occurs in eastern Australia, is able to change its colours rapidly. Argiope protensa has beautiful silvery markings.

Only one species of leaf-curling spider (currently listed as Phonognatha pallida, but possibly a member of Deliochus) in known in WA.

Volker concluded his talk by reassuring members “If you are confused about Araneinae, so am I!” When asked if he could suggest a good identification book, Volker indicated that he is involved in some projects, but that we should not expect anything to be published soon.


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Member in Focus

David Pike

David in his garden with a ‘bee pole’ - a wooden post liberally drilled with 3-5 mm diameter holes which provide nesting sites for solitary native bees and wasps.
David Pike is a very well known environmentalist and photographer. He began by showing a photo of himself in year two of primary school in London. Thirty years ago, when he became a resident of Carine, he campaigned to save Star Swamp. He has been president of the Friends of Star Swamp for over 20 years and has compiled a good record of the plants there, kept from the mid 1970s. David’s initial interest was in plants but he later became interested in fauna and fungi. David is a brilliant photographer and treated members to a great show of his photographs. Not all were of insects. His subjects included slime moulds of which there are 170 known species in WA.

David has observed many more insect behaviours than less patient people would see. For example, he saw a cuckoo wasp waiting for over 30 minutes for a wasp to take prey into a hole (see image below).

In recent times, David worked at the City of Wanneroo, then the City of Joondalup. He was involved in the “Adopt a Coastline” program for school children.

Some members have heard David talk about insects and other invertebrates under the catchy title “It’s the little things that count.” David displays an impressive knowledge of the little things that count and his marvellous photographs and his passion for natural history is both infectious and inspiring.

- Marg Owen and Terry Houston

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**News, Notes & Announcements**

**New Members**
The Committee welcomes the following new members (NB. Locations and interests are included in parentheses):

- **Robyn Benken** (Cottesloe; native bees, plant pollination, butterflies, weevils, spiders)
- **Jenna Blackwell** (Bull Creek; weevils and all invertebrates in general)
Jonathan, Michelle and Rory Dalitz (East Fremantle; phasmids)

Morgan Lythe (Nollamara; insect ecology, ants, Hymenoptera in general)

Jonathan Majer (Hillarys; insect ecology, invertebrates, biodiversity, ants)

Maria (Mazé) Majer (Hillarys; insect physiology, behaviour and ecology, pest management)

Christopher Taylor (Camillo; arthropod taxonomy)

Kylie Webster (North Perth; interests not notified)

New Publication


Max has examined all 242 described Australian cicada species and has classified them into 81 genera, 34 of which are new. This means we have some new names to get used to. For example, the large genus Cicadetta is removed from the Australian fauna and replaced by a number of new genera. The common Perth Tick-tock Cicada is now Physeema quadricincta and the Red Bandit is Pyropsalta melete. Thankfully the names of some other familiar cicadas remain unchanged (e.g. the sandgrinder cicada Arenopsaltria fullo). This monograph will not be for the general reader but cicada enthusiasts will be pleased to know it includes a key to genera, illustrated generic diagnoses which list included species, distribution maps, a systematic list and two colour plates depicting many taxa.

- Terry Houston

Keeping insects as pets or trading living insects

This information is provided as a response to a request to WAISS to lobby on behalf of the commercial trade in Australian insects. Members interested in this matter should read the following notes carefully:

In Western Australia, The Wildlife Conservation act 1950 and Wildlife Conservation Regulations 1970 currently cover the importation into Western Australia of fauna from elsewhere and the keeping of Australian fauna (this includes insects, and does not distinguish between protected and non-protected fauna).

A new, proposed Biodiversity Conservation Act will address the issue of keeping fauna as part of the pet trade. In the meantime, the following caveats apply:

- Insects and other terrestrial invertebrates such as spiders and scorpions are not regarded as part of the pet trade (unlike avian, reptile and amphibious fauna) and cannot be commercially traded or kept as pets. Aquatic invertebrates, such as hermit crabs, come under the Department of Fisheries.

- This prohibition will continue until adequate regulations are set in place.

- Insects can be imported into Western Australia and kept for licensed scientific or public display purposes only. The Department of Environment and Conservation will consider proposals to participate in approved and properly managed captive breeding programs.

Further queries should be addressed to Wildlife Licensing, the Department of Environment and Conservation (see link at http://www.dec.wa.gov.au/content/view/864/1218/)

Brian Heterick (WAISS Secretary)
Bug-Eye
(Observations of insects in the field. Members’ contributions welcomed)

Plant-hopper egg-laying
Story and photographs by Geoff Byrne
On a recent collecting trip to Boondi Rock, east of Southern Cross, Ruth and I found many wax egg-cases on the bronze trunks of Gimlet, Eucalyptus salubris. We observed and photographed a plant-hopper (family Eurybrachyidae: order Hemiptera) laying eggs adjacent to these cases.

Following oviposition, the female covered her eggs with wax from her abdomen and made a complex wax pattern around the case before disappearing up the trunk. The process took about five hours and the significance of the wax pattern isn’t known. I tentatively identified our plant-hopper as Platybrachys leucostigma.

Female plant-hoppers secrete wax from abdominal glands (see image below).

Underside of a female eurybrachyid showing white waxy excretion on the abdomen.

Nymphs of Eurybrachyidae typically possess a pair of long, erect, wax filaments arising from the abdomen (see image below).

While the plant-hopper was still working on its wax pattern, a tiny parasitic chalcidoid wasp flew onto an adjoining egg-case and attempted to insert it’s ovipositor through the wax covering. I later keyed the specimen to the family Encyrtidae and perhaps it belongs to
the genus *Fulgoridicida*, members of which are known to parasitise eurybrachyid eggs.

![The chalcidoid wasp on a plant-hopper egg-case.](image)

**Mt Claremont Jezebels**

Story and photos by Jan Taylor

In December 2010, I saw several Spotted Jezebel (*Delias aganippe*) butterflies laying eggs on foliage of a bitter quondong (*Santalum murrayanum*) in my garden.

![Egg cluster laid by spotted jezebel butterfly.](image)

I watched the eggs, hoping to follow their lifecycle through, but, within days of the caterpillars emerging, they had all disappeared. The culprits, I'm sure, were paper wasps (*Polistes*) which were constantly searching for prey all over the vegetation. So, when I saw more jezabels laying eggs in December last year, I took the precaution of bringing some into the house to rear. They went through all stages very successfully and five adults emerged in late January.

![Newly emerged spotted jezebel caterpillars (top) and mature caterpillar.](image)

The newly emerged adults were strikingly colourful, brazenly exhibiting the reason for their common name. Jezebel was wife of King Ahab and an important queen of Israel but, when old, her life was ended when she was thrown out of her palace window. It is recorded that she painted her eyes and did her hair before her execution. Over the years, the story has been embellished to make her use
excessive cosmetics and dress up in refinery. In modern usage a jezebel is a woman of ill-repute, promiscuous, controlling, a painted lady! The name ‘painted lady’ is already in use for another butterfly, Vanessa kershawi, so we have jezebel instead.

Newly emerged spotted jezebel

**Orchard Swallowtail Butterfly in Perth**

In April, Matthew Williams received two butterfly images with an enquiry from Vernon Bower of Bayswater (Perth). Matt forwarded the images to the WAISS newsletter editor with the following message.

“These images were sent in by Vernon Bower. They are of an Orchard Swallowtail (Papilio aegeus), taken in his garden in Bayswater on 17 April. As you know, this is an eastern states species and a minor pest of citrus. Just where this one came from is a mystery. As you know, some escaped from the Perth Zoo butterfly house many years ago (as reported in the WAISS Newsletter) but I find it hard to imagine that such a large, distinctive butterfly has been breeding in the Perth suburbs for several years without being noticed.

Also, the crumpled hind wings show that it did not expand its wings fully after emerging from the pupa. This is very unusual in wild-bred specimens, but fairly common in captive-bred individuals. I strongly suspect it was bred in captivity somewhere quite close to where Vernon lives.

Perhaps readers of the WAISS newsletter might be able to shed some light on this mystery.”

The Orchard Swallowtail butterfly from Bayswater. Photo: Vernon Bower.

If any member knows of anyone breeding and releasing this species in Perth or has any further sightings then Matt would like to be informed. Matt’s e-mail address is - (Matthew.Williams@dec.wa.gov.au).

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Tiger beetle, Cicindela semicincta - subject of this Newsletter’s cover image. Scale bar = 10 mm. Photo: Terry Houston