The BowerBird Bugle

28 August 2015 Ken Walker (kwalker@museum.vic.gov.au) Museum Victoria. Edition 23.

Hi All – Spring has sprung – at least the Paropsine leaf eating beetles believe that to be the case. Yesterday, Martin Lagerwey emailed me to say that he had seen and photographed 12 species of leaf eating chrysomelids this week (5 specimens of *Paropsisterna*; another 5 specimens of *Trachymela*; 2 specimens of *Paropsis*; and, 3 specimens of *Peltoschema*.)

Insects are much better than we mere humans at determining the seasons. We tend to rely more on the day temperatures as our guide to the seasonal changes but temperatures fluctuate daily and sometimes we can have cool periods going into summer or warm spells going into winter. Insects need to predict exactly which season is coming next for the survival of their young. Let's say winter is on its way but suddenly there is a week or two of warm weather. It would be a disaster if the insects decided during this warm period to begin mating and laying eggs. Within a few weeks, the temperatures would drop, food would become scare, leaves will fall off trees and the young insects would almost certainly die. So, insects use a much better and more predictable measure of seasonal change – that is day length. As the summer approaches, the day length periods will increase and as winter approaches, the day

length periods will decrease. It’s like clockwork, it’s predictable and it’s accurate.

The heads of many insect possess three “false” eyes at the top of the head called “ocelli”. We believe ocelli have several important functions.

Flight – As an insect flies, it is the ocelli that help it fly straight. They allow the insect in flight to adjust for the pitch, roll and yaw of flight and keep it on a straight and level flight path.

Seasons – Scientists have done experiments where after 24 hours they covered up the ocelli and yet the insects reacted normally to the seasons. We all have inbuilt circadian rhythms and insects are set by their ocelli.

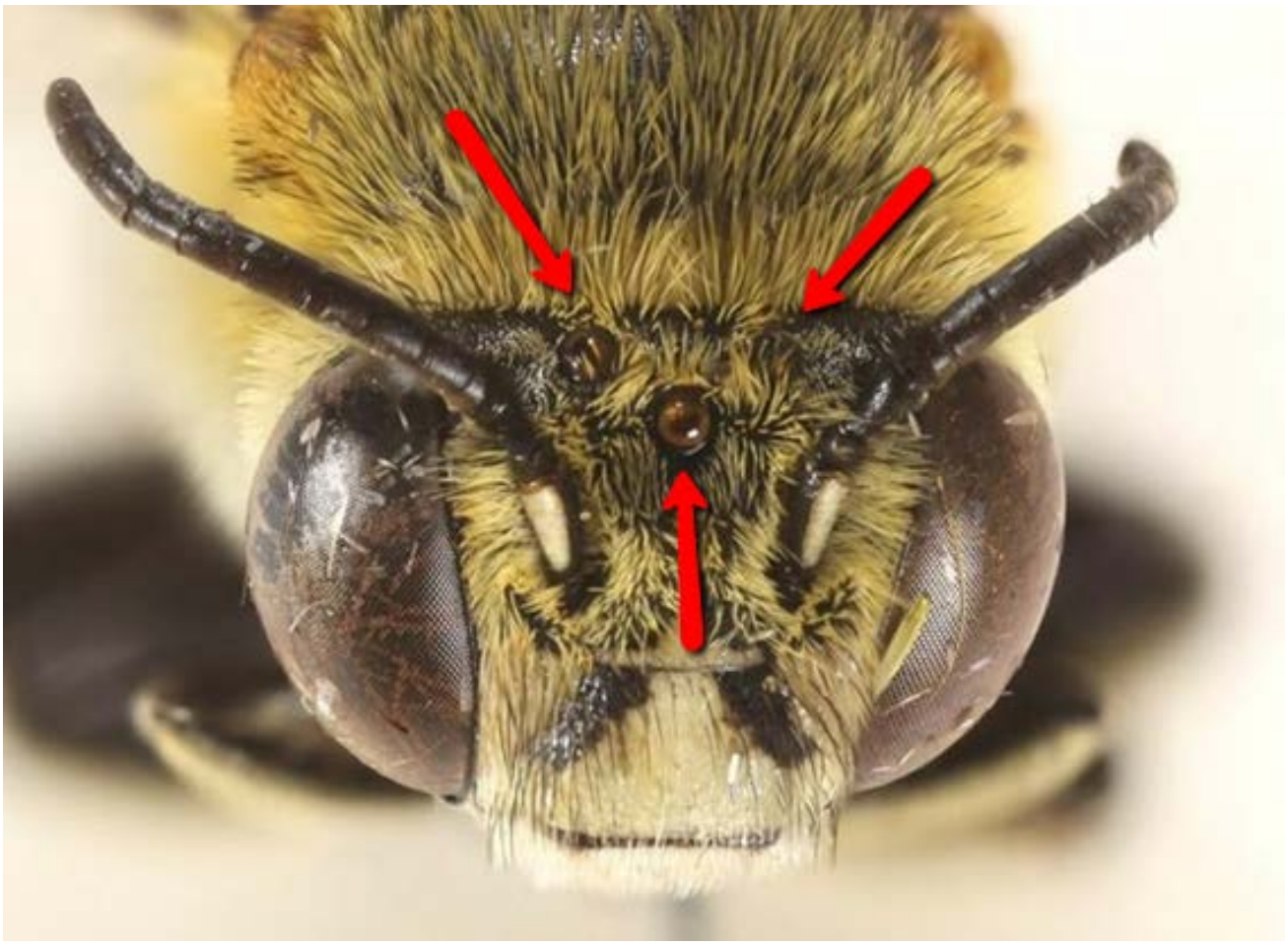

Photo by Graeme Cocks

Speaking of pitch, roll and yaw – Look at this wonderful image of a *Trichocolletes* bee in flight … from behind.

Notice how the position of its antennae suggest that the bee's head is at right angles to the horizon while the rest of its body has been dipped to the right so as to fly in-between the stems of this pink flowering *Hakea*.

Also note one of the diagnostic characters of this genus – a very hairy "bum"! Look at the amount of vestiture on the terminal, abdominal segment.

It always amazes me how much you can get out of any image if you look at the many aspects of the image.

Photo by Linda Rogan

Here is a selection of the paropsine beetles found by Martin this week near Wonga Park, Vic.

Paropsisterna irina

Paropsiterna decolorata

Trachymela sp.

Paropsis geographica Photos by Martin Lagerwey

Photographers following the seasons

For me, one of my joys is to watch the BowerBird record stream to see where people are at the time. One of our local Melbourne “Bee-people”, Linda Rogan, has suddenly began to post bee and other insect images from WA. And, what a great time to be in WA. The wildflower season in WA is really in September and so with the flowers follows the bees. I remember being advised by Dr Terry Houston, who was the curator of entomology at the Western Australian Museum and a bee expert, to not wait until October to collect in WA as many of the desert flowers quickly “burn off” as the heat of the desert builds. Linda’s bee images were a tonic for me as they were the first bees for the new spring season I have seen.

Linda visited the Charles Darwin Nature Reserve, SE of Geraldton, WA.

Unnamed Road, Bunjil WA 6623, Australia

Here Linda has spotted a *Leioproctus* species on pink Hakea flowers.

And here a mating pair of *Catocheilus* thynnine wasps.

Photos by Linda Rogan

Another *Leioproctus* bee from Shackleton WA.

And a bee in flight !

Photos by Linda Rogan

Speaking of bees in flight – How about this large *Trichocolletes* bee in flight.

You can hear these bees flying from several metres away.

Location: Paynes Find WA Photo Linda Rogan

This image of multiple immature crickets certainly got a response from our resident Orthoptera expert – Dr David Rentz.

Linda turned over a rock where many immature crickets were sheltering. Before they had time to disperse – Snap! And onto BowerBird.

David commented: “They live under rocks, in termite mounds and under bridges.”

Apparently David is preparing a book on Australian crickets and he asked Linda to go back and try to photograph an adult cricket. The genus is: Orthoptera: Phalangopsidae: *Endacusta.*

Location: Jibberding WA. *Photo by Linda Rogan*

A mossie we all could love.

Tony D. from Tasmania photographed this lovely female common Australian anopheline - *Anopheles annulipes.*

The material the mossie is trying to bite through is the leg of his trousers. I hope he was wearing thick trousers!

The detail in this image is amazing.

Photo by Tony D.

Another of Tony D’s detailed photography is this Eupodidae: *Linopodes* long-legged mite.

Photos by Tony D.

BowerBird records the pests – Myrtle rust

Lyn Cook from Brisbane recorded the highly destructive fungi – Myrtle rust. Myrtle rust is a disease caused by the fungus *Puccinia psidii*. It affects trees and shrubs in the Myrtaceae family of plants which includes Australian natives like eucalyptus, willow myrtle, turpentine, bottlebrush, paperbark, tea tree and lilly pilly. Left untreated, the disease can cause deformed leaves, heavy defoliation of branches, dieback, stunted growth and plant death.

The rust was first detected on coastal NSW in 2010; however, since the rust is spread by spore wind currents have now spread the pest fungus to New South Wales, Victoria, Queensland, Tasmania and on the Tiwi Islands in the Northern Territory in only a few years.

Photo by Lyn Cook.

Up Periscope!!

A Portable Waste Disposal Unit

Tony D. from Tasmania captured this remarkable "*waste disposal unit*" extending from the tail end of a Margarodidae scale insect larva. Looks a bit like a vacuum cleaner!

Photo by Tony D.

Tony commented: "Note the long waxy anal tube. Waste is voided through it - the angle of the leaf here would have allowed the sugary waste to drop to the ground, or at least away from the bug. The tube breaks regularly but is regrown quickly." What a great example of functional morphology.

Stag beetles are impressive.

By far, the most successful animal group in the world is the beetles. There are approximately 117 different families of beetles just in Australia. There are over 550,000 described species of beetles in the world and there are probably as many undescribed species. To put that number into comparison, there are about 260,000 described species of flowering plants in the world. Twice as many beetles as all of the flowering plants in the world – sobering statistics.

One of the most easily recognisable and charismatic of beetles is the Stag beetle family - Lucanidae. There are about 1,500 stag beetle species worldwide and 98 species in Australia.

BowerBird is now acquiring a wonderful range of Australian stag beetle images. Only males have wonderfully extended mandibles. Stag beetles breed in rotting wood so the best place for a male to meet a female is on a lovely piece of rotting log.

A male takes up a prime position on top of a log and waits for a female. However, other males will also spy that rotting log as a great place to meet females and decide that is where they want to position themselves. Of course, this situation can only be resolved by fisty-cuffs or in the Stag beetle world – a wrestling match. Male lock “horns” with their mandibles and the beetle that turns the other beetle onto its back is the winner. Thinking about the mechanics of such a tussle, the male with the longer “horns” has a greater fulcrum advantage to turn over its opponent. Faced with a challenge, evolution favours the individual which is better suited to the challenge which has led to the spectacular and ornate development of the male stag beetle mandibles.

Photo by Michael Bedingfield

Photo by Ken Harris

Photo by Mark Norman

Photo by David Rentz

A female beetle – Note the small mandibles. Photo by Amy Akers

Photo by Suzanne Jones

The most famous of Australian stag beetles is King stag beetle or rainbow stag beetle, *Phalacrognathus muelleri* – it also used to be known as the $80 beetle as back in the 1970s as it was the most expensive Australian beetle (that's all Australian beetles) to purchase.

The body length of males is impressive. Males range from 24 mm to 70 mm in body length, whereas the smaller females ranging from 23 mm to 46 mm in body length.

This species is restricted to the rainforests in north Queensland from Cairns south of Innisfail and inland just to the coastal leading edges of the tablelands.

Naturally, the larvae breed in rotting wet, rainforest timber but the larvae are only found in wood in close proximity to white rot fungi.

Even today, it is a rarity and the gem to find in the rainforest.

Photo by David Rentz.

We have a long way to go to truly map Australian species distributions.

This was brought home to me this week, almost in shock, when I identified this sawfly wasp. It’s the Ironbark sawfly *Lophyrotoma analis.*

I identified the image from our 50 or so Museum specimens. But then I checked on ALA the distribution map for this species and I was surprised to see how little databased data there is for this species.

Location: Longford, Vic. Photo by Gippsland Lakes - Mountains to the Sea

Below is the ALA map for this species showing only 2 records (both from BowerBird) and both records from SW WA.

I went back in and rechecked our 50 or so Museum specimens and all were from Vic and southern NSW.

We began databasing in 1983 and the natural sciences collections had a 16 million specimen backlog. In entomology, we began with a 3 million specimen backlog. To date, we have databased almost 500,000 ento specimens, but obviously, we have not yet reached the Pergidae (sawfly specimen drawers). We estimate it costs $7 to database a specimen and we have received no external funding to assist with databasing. In the meantime, BowerBird is offering something for location and image data for this species. Next week, the first record for Victoria will appear on ALA.

But – we have a long way to go.

Mud dauber wasp

Sometimes the imagery on BowerBird takes away my breath. Look at the detail in this image of a mud dauber wasp build a nest. Note the folded wings which places the wasp in the Family Vespidae: subfamily Eumeninae: *Paralastor*.

Location: Brisbane. Photo by Jenny Thynne.

Your fungal fix for this week.

Enjoy them while you can.

Donna Gibbs uploaded two unknowns. *Peziza austrogeaster*?

Location: Daylesford. *Trametes gibosa*? Photos by Donna Gibbs

The colours in this photo are amazing! Matt commented: “Tiny little 'spiky' emerging *Coprinus* sp. Found on a large lump of wombat dung. These are different to the other poo inhabiting Coprinus species I've found on the property, they tended to be more soft and furry looking where as these look like little 'anti-ship mines'. The biggest were 4mm in diameter.”

Tiny white cups to 3mm in diameter. Furry and white on the outside and smooth and dull yellow on the inside. Attached to wood by a small stipe. Growing on a dead and mossy section of a fallen but still living Olearia argophylla (Musk Daisy-bush).

Photos by Matt Campbell

Location: Mt Baw Baw. *Melanotus* or *Crepidotus*?

Location: Holey Plains State Park, Stradbroke VIC. *Inermisia fusispora*

Photos by Tamara Leitch.

Above and below. Location: Stradbroke VIC**.** ***Postia pelliculosa***

Photos by Tamara Leitch.

So many people have uploaded “white fluff” images. What is it?

Photo by Tamara Leitch.

Photo by Reiner Richter

Photo by Matt Campbell

Location: Dromana *Austropaxillus infundibuliformis* Photo by Euan Moore

Location: Inglewood, Vic. *Rickenella fibula* Photo by Hermit.

Now – I have a lot of fun writing the Bugle each week and I would like to share that fun. If anyone has a BowerBird related story they would like to tell, please send me your story and I will include it in the next Bugle.

As always ….. from BowerBird .. that's your lot for this week.

Haveagoodweekend all …. Happy photographing …

Cheers – Ken

(If you wish to leave this email list, please contact me directly at kwalker@museum.vic.gov.au – else share with your friends)