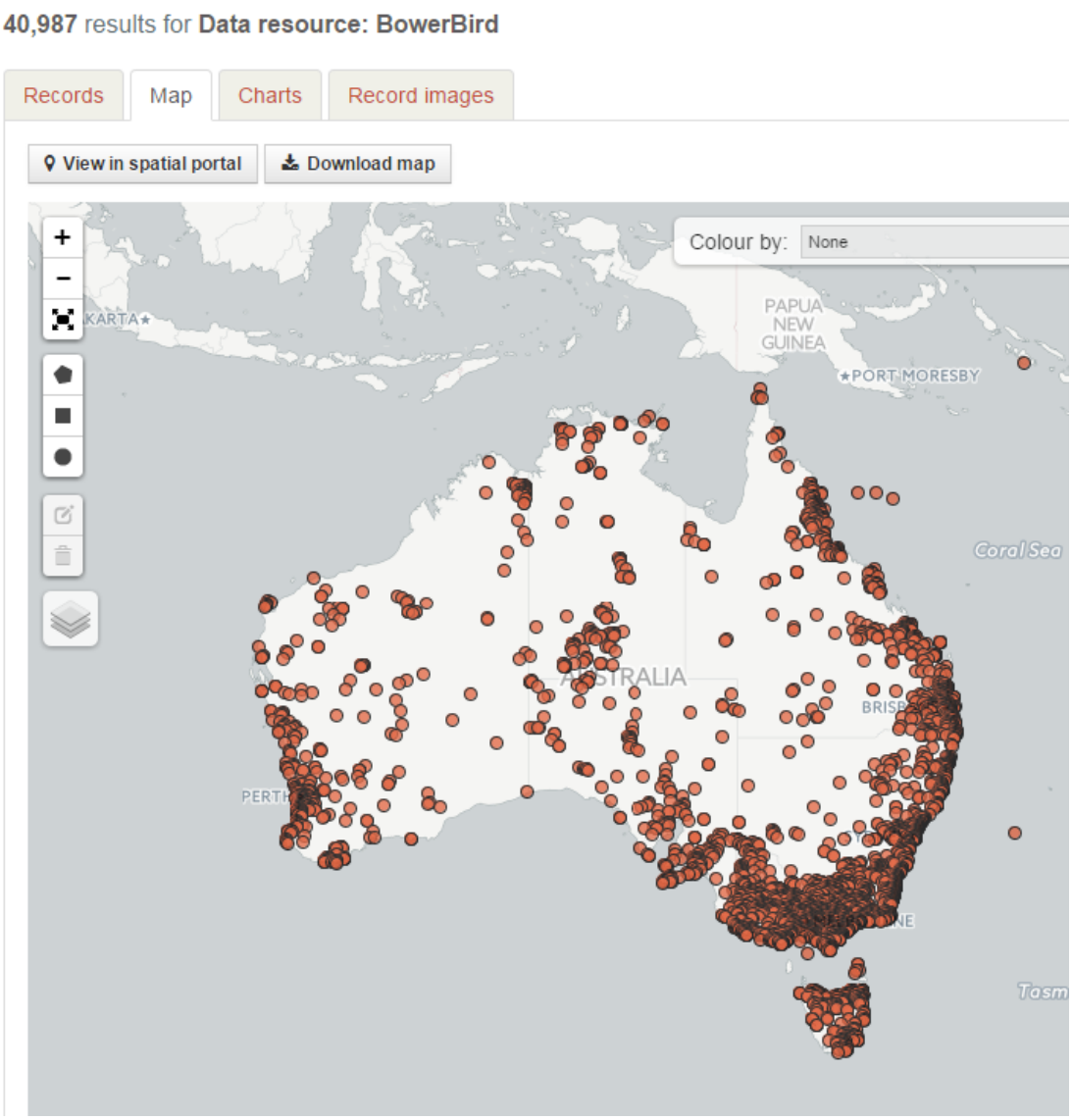
The BowerBird Bugle

13 May 2016 Ken Walker (kwalker@museum.vic.gov.au) Museum Victoria. Edition 42.

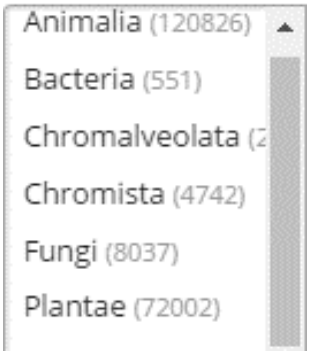
Hi All – Congratulations to everyone on BowerBird. We have reached another milestone on ALA (Atlas of Living Australia) by clicking over 40,000 identified records uploaded to ALA – yeah!



That's wonderful achievement and it comes just on the 3rd anniversary of launching BowerBird in May 2013. ALA allows you to "dissect" the data and see what patterns emerge. Let's have a look at what can be said about our records. It is easy to see that the bulk of the records have come in from SE Australia all the way from Central Queensland down into Tasmania and across in SE South Australia. But there is a nice density of records from SW Western Australia, around the Cairns area and in Central Australia. The rest of Australia is remote but there are now records from many parts of remote Australia and some very interesting records indeed.

State/Territory	Count
Australian Capital Territory	525
New South Wales	2984
Northern Territory	267
Queensland	12402
South Australia	791
Tasmania	1013
Victoria	20390
Western Australia	2483

Unsurprisingly, Arthropods (or the "other 99%) make up the bulk of the records but still with almost 4,000 bird records and over 3,000 plant records. The rest of the Classes and Phyla have "sprinklings" of records but interestingly, all of the BowerBird identification "groups" have records –



☐	Algae	52
☐	Amphibians	248
☐	Angiosperms	2247
☐	Animals	36314
☐	Arthropods	30280
☐	Bacteria	3
☐	Birds	3735
☐	Bryophytes	3
☐	Chromista	51
☐	Crustaceans	161
☐	Dicots	1421
☐	FernsAndAllies	37
☐	Fish	183

It is worth looking at the main vegetation types where records have been photographed:

	National Dynamic Land Cover	Count
☐	Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Open	14866
☐	Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Closed	10408
☐	Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Sparse	7035
☐	Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Rainfed Pasture	3605
☐	Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Herbaceous Graminoids Sparse Hummock Grasses	824
☐	Primarily Vegetated Natural & Semi-Natural Terrestrial Vegetation Woody Trees Scattered	748
☐	Primarily Non-Vegetated Waterbodies Water	577
☐	Primarily Vegetated Cultivated & Managed Lands Herbaceous Graminoids Irrigated Pasture	537

And what were the main regions for photography:

Gippsland Plain	6672
Townsville Plains	5085
Highlands-Southern Fall	3159
Strzelecki Ranges	2614
Victorian Volcanic Plain	2179
Broken River	2102
Perth	1461
Central Victorian Uplands	1239
Burringbar-Conondale Ranges	935
Pittwater	915
East Gippsland Lowlands	831
Sunshine Coast-Gold Coast Lowlands	716
Macalister	608

Insect families with over 1000 recorded were:

CHRYSOMELIDAE	1226
GEOMETRIDAE	1459
NOCTUIDAE	1016

The monthly records show a nice spread with wee a drop off over winter

	Month	Count
☐	January	3674
☐	February	3920
☐	March	3692
☐	April	2319
☐	May	1037
☐	June	770
☐	July	844
☐	August	1243
☐	September	2113
☐	October	3122
☐	November	3842
☐	December	3701

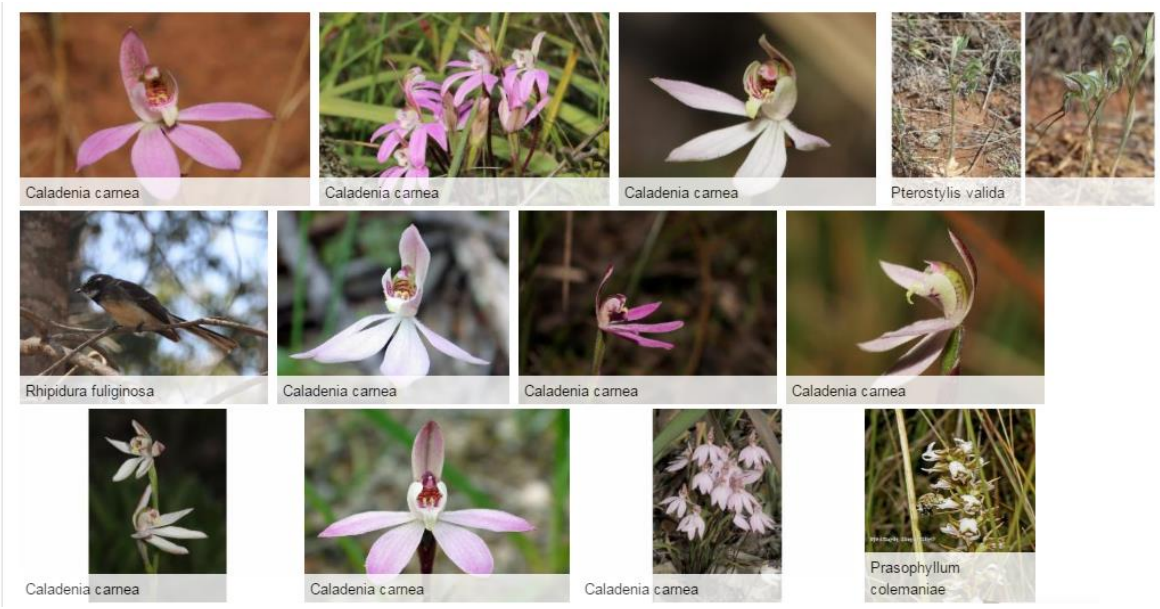
Photographers with over 1000 uploaded (identified) records:

☐	Adam Edmonds	2016
☐	Anna Lanigan	1354
☐	Daniel Heald	1585
☐	David Akers	1020
☐	Graeme Cocks	7072
☐	Ken Harris	3250
☐	Ken Walker	1519
☐	Linda Rogan	1027
☐	Martin Lagerwey	1441
☐	Reiner Richter	1572

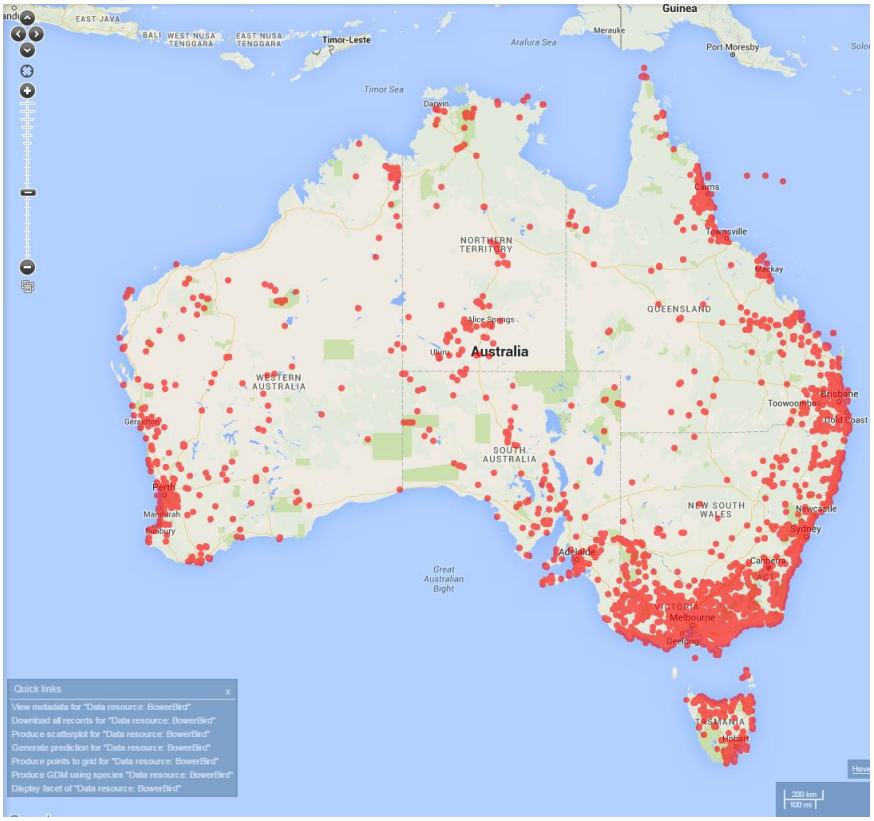
We have recorded a number of threatened species: (Note the “Extinct” status is where the species is extinct in some States but present in other parts of the country. The FFG Act is the Victorian Flora and Fauna Guarantee Legislation.)

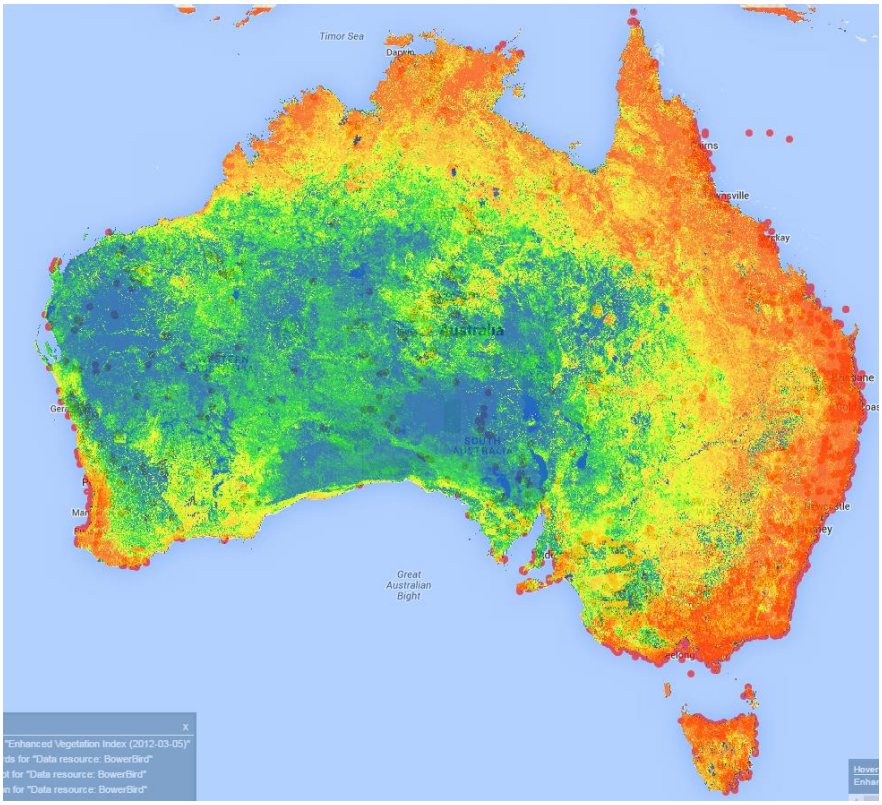
☐	Endangered	337
☐	Near Threatened	139
☐	Least Concern/Unknown	76
☐	Extinct	21
☐	Listed under FFG Act	2

These are the “Extinct” records which are wonderful to see “in the flesh” (apologies to the orchids!)



And finally, if you really want to “have fun” dissecting the BowerBird data open up Lee Belbin’s ALA Spatial Portal (see maps below) and investigate it with over 300 “layers” of information – Rainfall, Precipitation, Evaporation, Moisture, Temperature, Wind, Hydrology, Topography, Vegetation, Growth Index, Humidity, Solar Radiation to name but a few of these layers – lots of fun. Make up a theory as to why a certain animals or plants occur in a particular area and then test it yourself! The coloured map below is with a Vegetation layer.





Here is the URL to retrieve all the BowerBird dataset on ALA:

http://biocache.ala.org.au/occurrences/search?q=data_resource_uid:dr893#tab_mapView

Bee Identification – Part 2.

Thanks for the positive feedback I received from the first part of the Bee identification series. I will soldier on until you say “Enough of the bees!”

On reflection, in the first ID guide I missed the first basic questopm – What is a bee and how to distinguish from a wasp?

Well, a bee is simply a wasp that has decided to use pollen rather than live animal tissue to feed its larvae. Growing and developing wasp and bee larvae need protein to grow. Wasps (except for Sawflies – Pergidae) are either parasitise or are carnivorous on other insects. Vespid and Sphecid wasps are where the bees evolved from so let’s look at them.

Polistes paperwasp nest. Photo by Reiner Richter

Paperwasp build a nest with many cells. They capture other insects such as caterpillars and feed them to their developing young. This provides the developing wasp larvae with protein which build muscle tissue and the larvae developed into an adult.

Bees have abandoned the use of live animal tissue as a protein source and collect pollen as their preferred protein source.

Megachile punctata Photo by Erica Siegel.

To make the protein source change from animal tissue to pollen required bees to make two big changes –

- The needed to develop branched hairs to carry pollen
- The need to develop grooming behaviours to move pollen from the front of their body, where the pollen is collected, and move the collected pollen to the back of the bee

where the pollen is stored either on the hind legs or underneath the abdomen.

Wasps do not have branched hairs and cannot groom. That's the basic differences between wasps and bees! For most bees, finding branched hairs is easy and seeing pollen carrying hairs on the body (called scopae) is easy as in the photo above. However, Australia has two groups of bees that do not carry pollen on the outside of their body and therefore do not have any obvious scopae. These are the Euryglossine (euryglossine bees) and Hylaeine (masked bees) and they carry pollen exclusively in the first section of the stomach called the crop. Many people understandably mistake these bees to be flies or wasps. They are often small and almost hairless. Here is an example of a euryglossine bee in the genus *Euryglossa* – Note the lack of hair.

Euryglossa ephippiata Photo by Linda Rogan

Here is an image of a group of euryglossine bees all gathered inside the nectar cup of a eucalypt flower. Imagine how small these bees must be.

Brachyhesma houstoni Photo by Jean and Fred Hort.

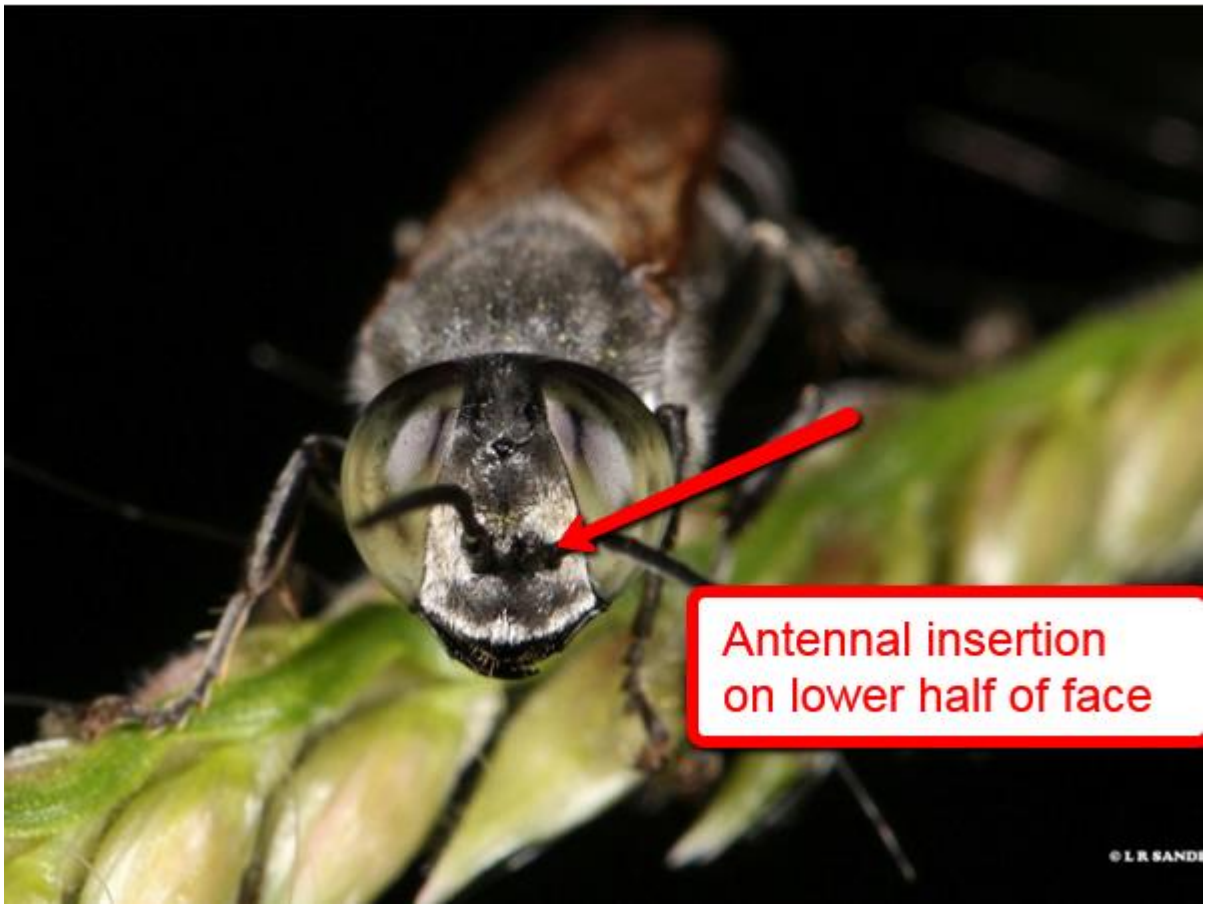
And, here is an image of a hylaeine bee. Look how hairless the bee looks – surely it “must” be a wasp! Nope! It’s a bee.

Hylaeus Euprosopoides perplexus Photo by Kristi Ellingsen

How do you easily separate bees from wasps? There are two ways available:

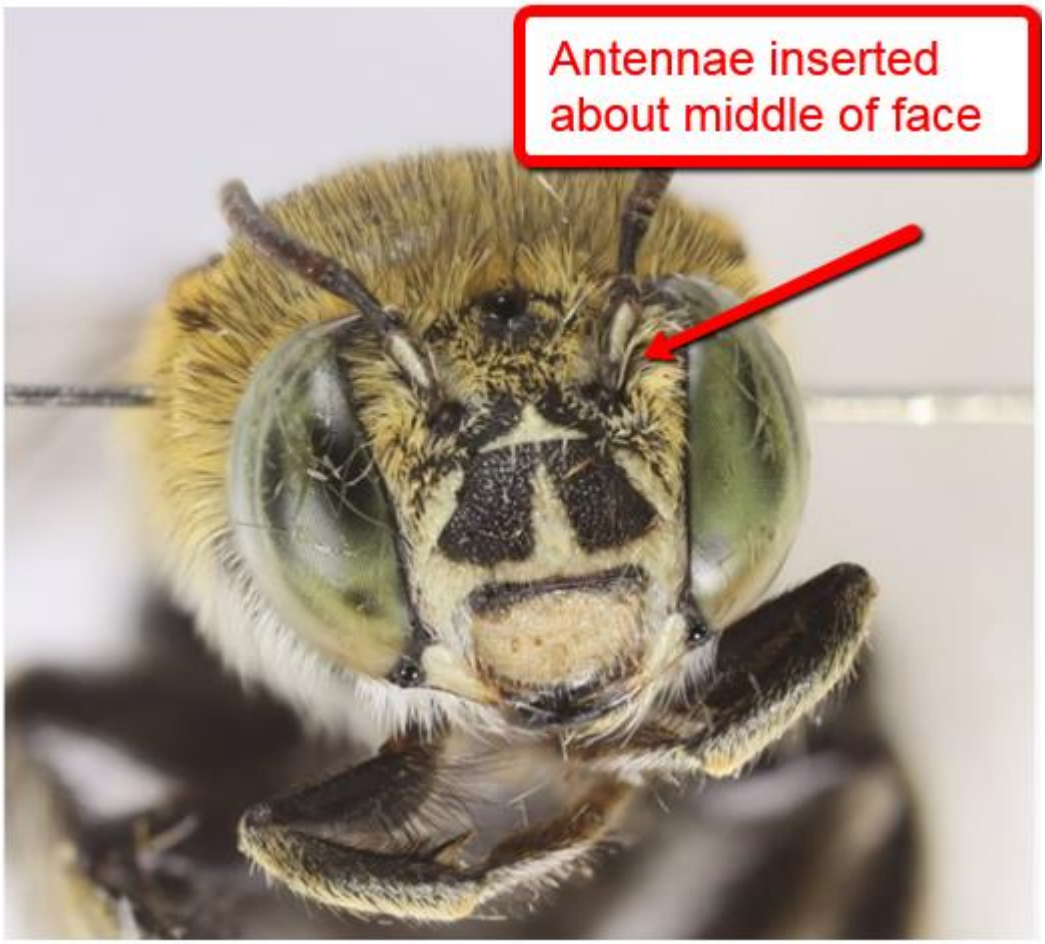
1. Look for hairy hind legs or underneath the abdomen
2. Look at where the antennae are inserted on the face.

The antennae of bees are inserted about half way up the face of a bee whereas the antennae of wasps are inserted on lower half of the wasp face.

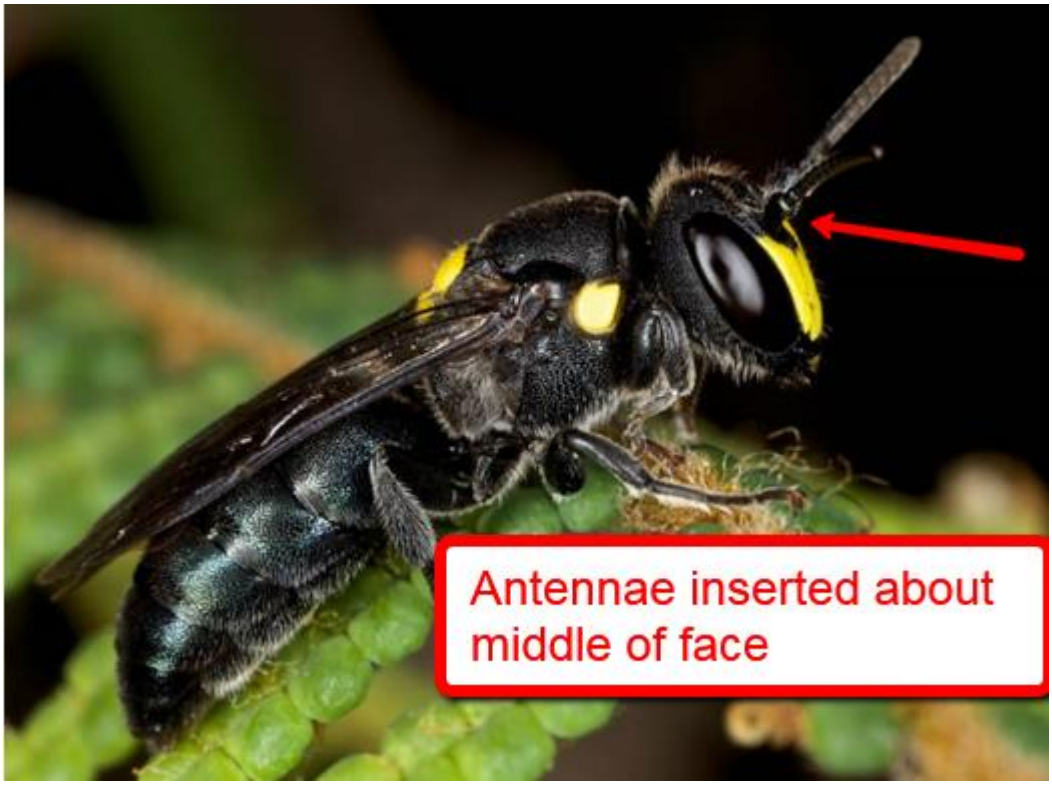


Tiphiidae flower wasp. Photo by Laurence Sanders.

Compare the antennal insertion point with those on bees which is near or above the middle of the head.



Amegilla cingulata Photo by Graeme Cocks



Hylaeus Euprosopoides perplexus Photo by Kristi Ellingsen

I also want to add a useful character to help separate *Homalictus* and *Lasioglossum* bees – look at the T1 which is the first abdominal segment (more correctly called metasomal segment. The difference is simple – The T1 of *Lasioglossum* is pitted whereas the T1 of *Homalictus* is smooth and unpitted.

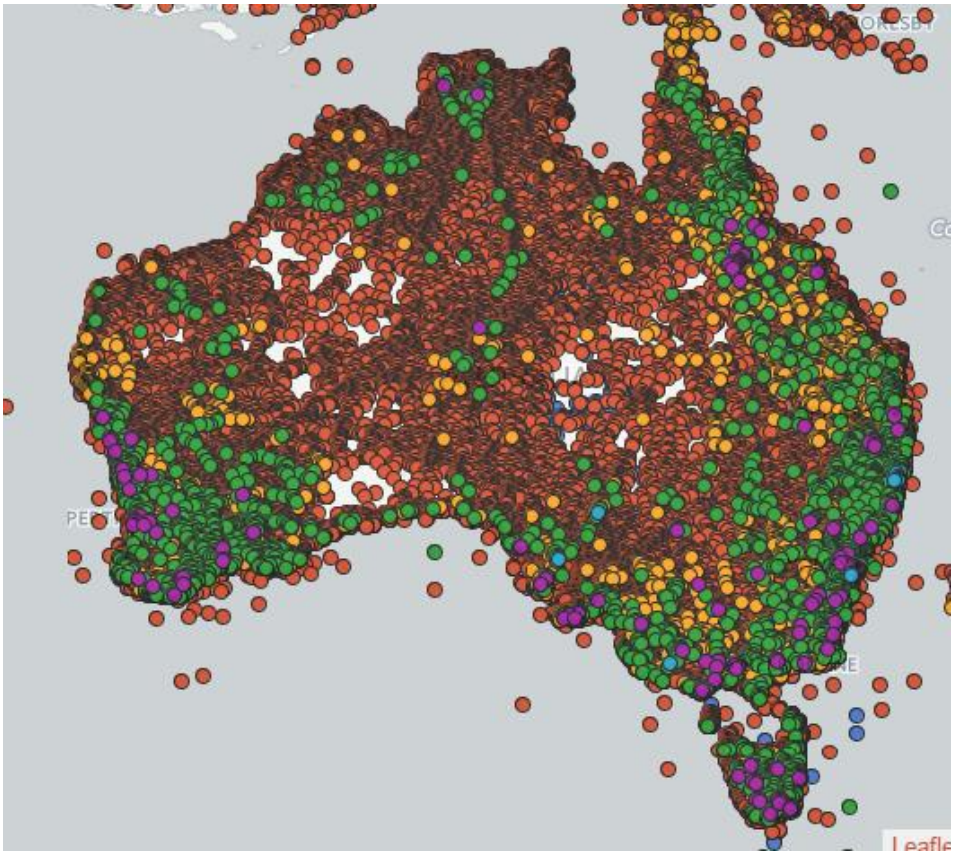
Lasioglossum chapmani T1 - punctate

Homalictus punctatus T1 - smooth

So, this week's bee guide is to one of my favourite bee groups, the Euryglossinae bees. At the beginning of my bee-career (many many years ago!), I cut my eye-teeth with these bees. I become a technical assistant to Australia's Euryglossinae expert Dr Elizabeth Exley. It was a baptism of hardship and frustration. The Euryglossinae is the largest subfamily of Australian bees containing almost 400 species split into 15 genera – that's a lot of bees. Euryglossinae bees almost exclusively visit flowers of the Myrtaceae plant family – these are the myrtles which include *Eucalyptus, Corymbia, Angophora, Leptospermum, Melaleuca* etc. The Myrtaceae and Acacias are the two dominant native Australian plant groups.

- Family COLLETIDAE
  - Subfamily COLLETINAE
  - Subfamily EURYGLOSSINAE
    - *Brachyhesma* Michener, 1965
    - *Callohesma* Michener, 1965
    - *Dasyhesma* Michener, 1965
    - *Euhesma* Michener, 1965
    - *Euryglossa* Smith, 1853
    - *Euryglossina* Cockerell, 1910
    - *Euryglossula* Michener, 1965
    - *Heterohesma* Michener, 1965
    - *Hyphesma* Michener, 1965
    - *Melittosmithia* Schulz, 1906
    - *Pachyprosopis* Perkins, 1908
    - *Sericogaster* Westwood, 1835
    - *Stenohesma* Michener, 1965
    - *Tumidihesma* Exley, 1996
    - *Xanthesma* Michener, 1965

ALA has almost 1.4 million records for the Myrtaceae and these are just from plant records in Herbaria. This plant family occurs in abundance throughout Australia and provides huge amounts of food to the Australian native bee fauna.



Tackling the euryglossine was a labour of love and passion for me. They are such a diverse group of bees and the sheer diversity of species, shapes, sizes and characters captured my attention then and up to now – almost a 40 year journey.

One of the problems with euryglossine bees is catching and pinning them. Gum trees are usually not small trees so getting up to the flowers at the top of the trees where the bees are flying is no mean feat. I built my own set of collecting poles using hollow aluminium lengths of pole. I made 6 separate 2 metre length poles that would slip onto the end of the each pole with an insert which gave me about a 12 metre foot collecting pole. Then I could add my height and as you can see in the

photo below - I sometimes even got on top of the vehicle just to reach the flowers.

There is a trick to seeing if there are euryglossine bees flying around flowers. You stand beneath the flowers and put blue sky just off to the side of the flowers. If you see a shimmering or flickering of light, then these are euryglossine bees flying around the flowers. Try it out yourself. Some people use binocular to peer at the flowers but I just use the blue sky technique.

There is another trick we use with catching euryglossine bees is your net. Most insect nets have a mesh size suitable to collect butterflies. It's a wide mesh so that there is little air resistance when you swing the net when chasing a butterfly. However, a butterfly mesh size net will allow euryglossine bees to simply walk out of the net so you need a very fine mesh net.

I use a figure of 8 swinging motion to "brush" the flowers several times to extract the bees from the flowers and into the net.

The picture below shows me collecting on the lower flowers of a massive *Eugenia* tree (Myrtaceae) tree in Cape York Peninsula at a remote location called Rocky River. I had all 6 extension poles together, my height and I was standing on the bonnet of the 4WD car. The year was 1978. My first trip to the Cape and I was hooked!

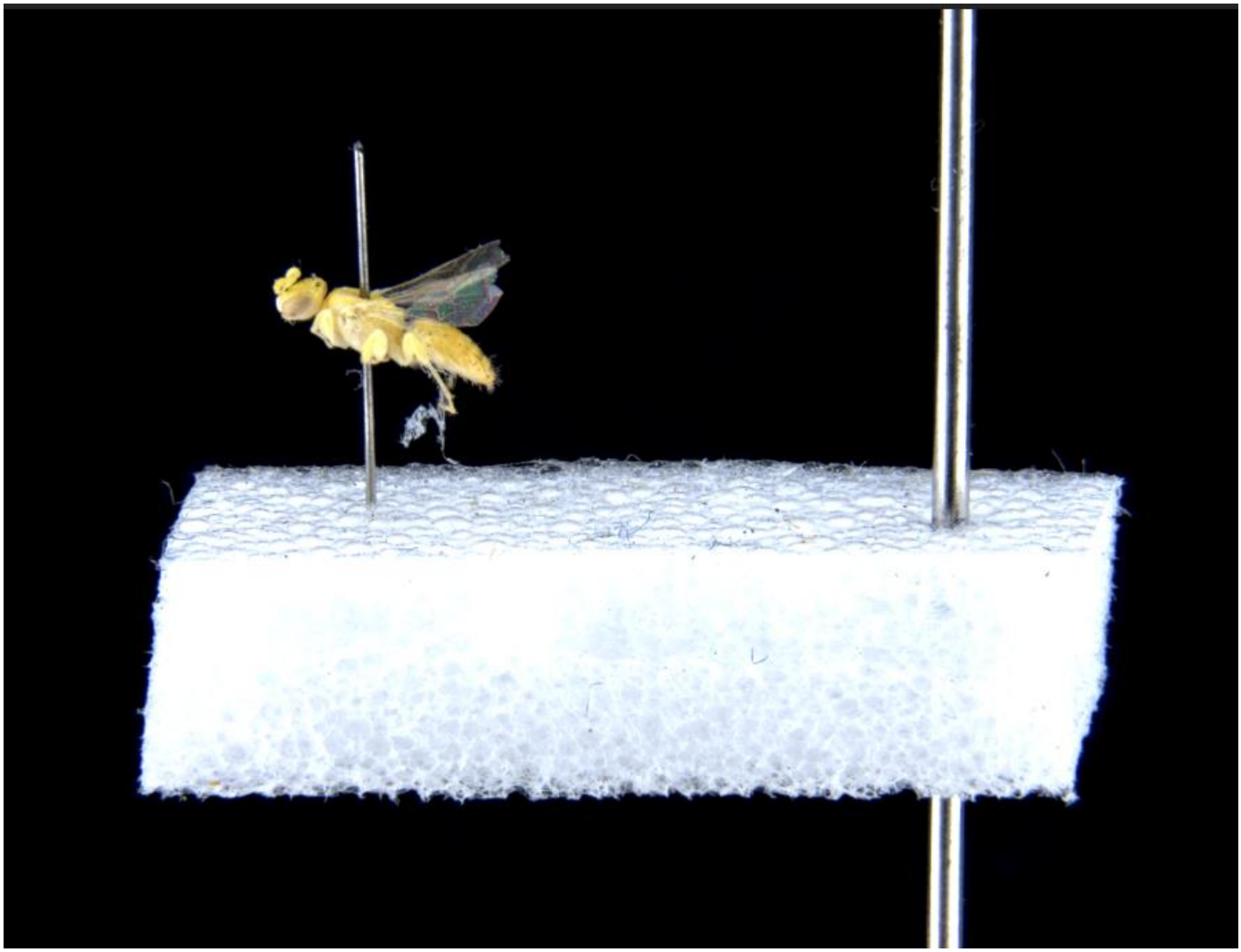
I collected a new euryglossine species that day on that tree. Dr Exley was so impressed with my persistence to get to the eugenia flowers that she named this new species after me – *Euryglossina (Quasihesma) walkeri*.

These *Quasihesma* bees have a unique beak like clypeus.

Another “problem” with these bees is pinning them. Some of the Australian Euryglossinae are the smallest bees in the world measuring a mere 2mm in body length. You cannot put a usual No.3 stainless steel pin through such a small bee – it would destroy it completely. So with these bees, you use “minuten” pins that are about 11mm in length but only 0.142mm in diameter. If you look hard in the image below, you can just see one of these minuten pins that we use to pin euryglossine bees. They are difficult to use and take much practice to pick up, find which is the pointy end and then hold while you pin the bee.

Of course, such a small pin means that you cannot hold the pinned specimen using this minuten pin. So, you must “stage” the minuten onto a piece of pith and then the pith has the usual No. 3 large pin. You hold and manipulate the pinned specimen by holding the No. 3 pin which is also where you all the required collecting and naming labels. Below is an example of

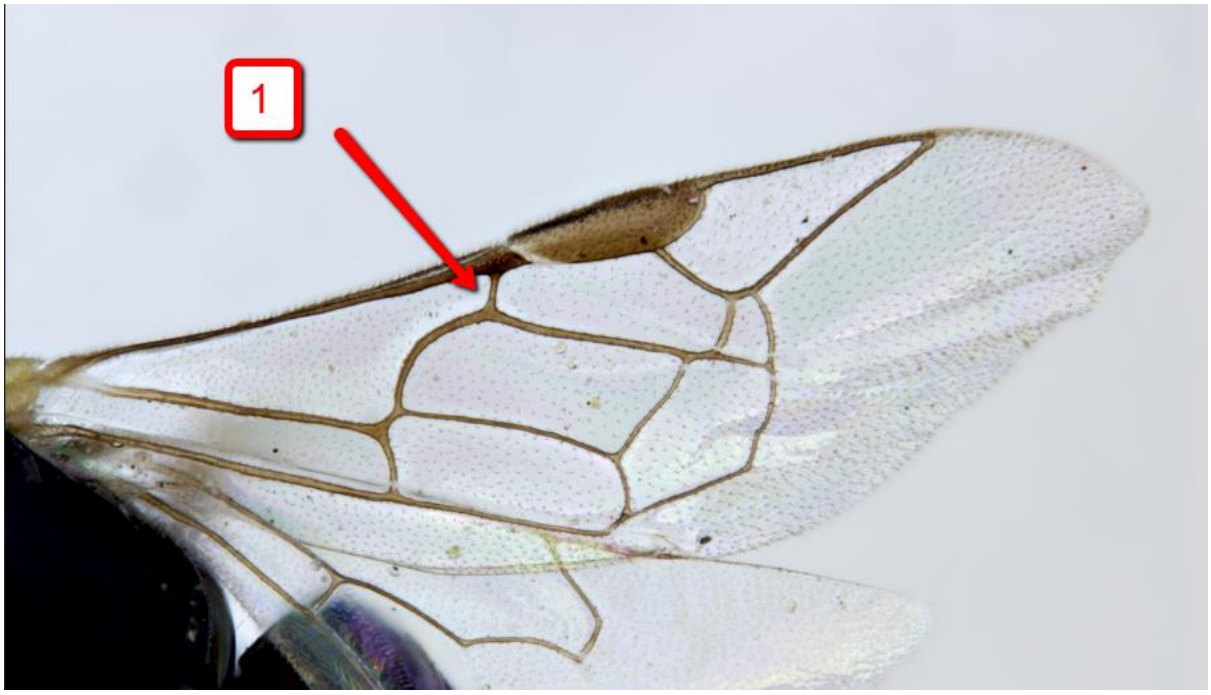
a staged minuten pin with a specimen of the *Brachyhesma* bee. The large pin on the right is the No. 3 pin used to handle the specimen.

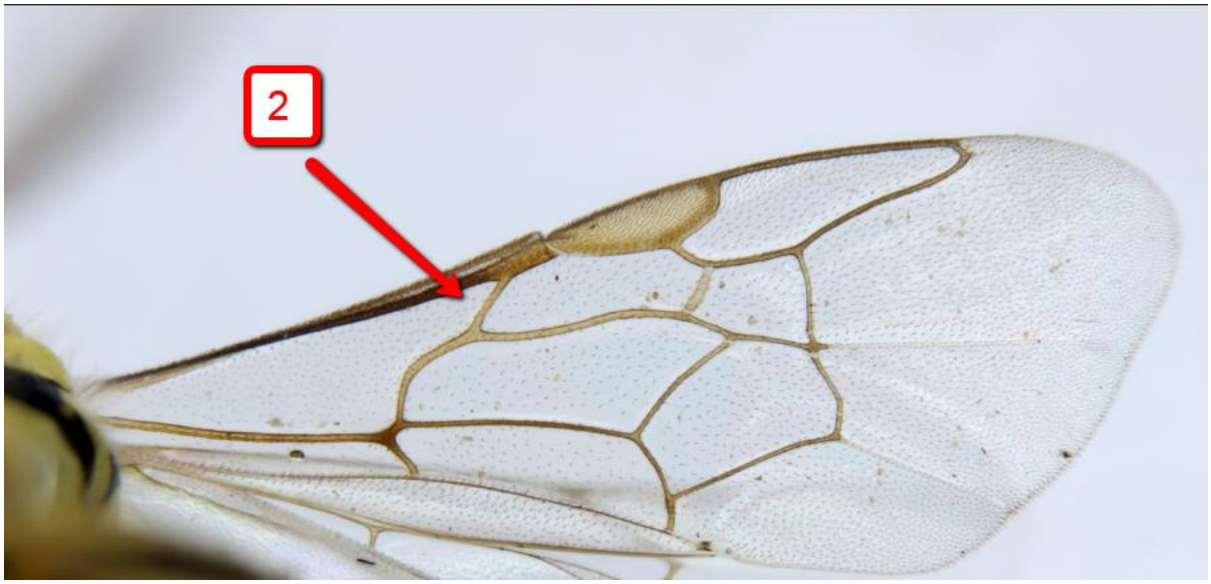


But, the efforts required to collect and pin these unique Australian bees is all worth it when you finally get to examine the specimens under the microscope. That's when they begin to reveal their taxonomic and diagnostic secrets!

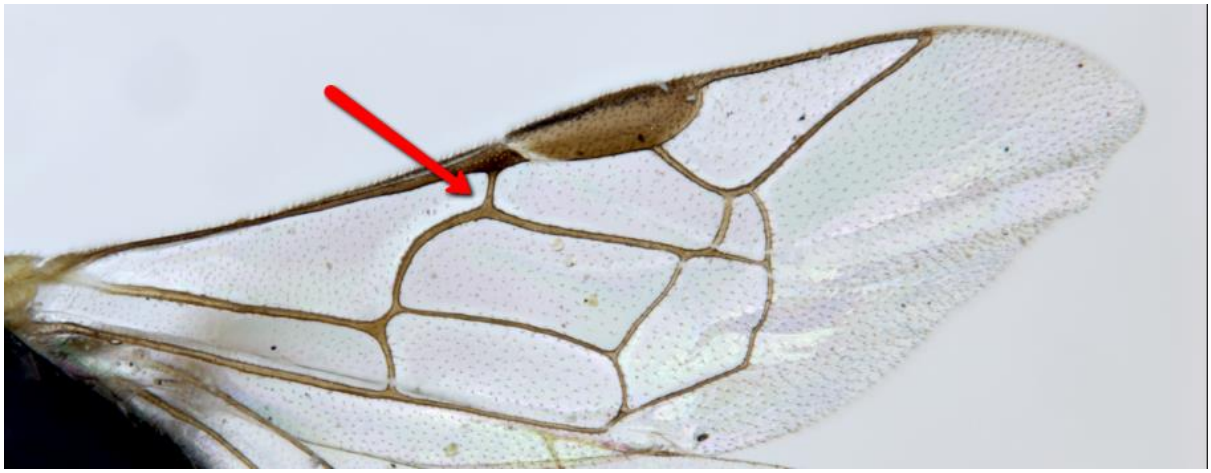
As I said earlier, Euryglossinae are divided into 15 genera, 35 subgenera and 393 species – the most speciose of any Australian subfamily. Getting your head around such a group is no easy matter and I will try to teach you what to look for at the generic and subgeneric levels.

Wings are always the best place to begin when identifying bees and euryglossines are no different. The first character to observe is the angle of the basal vein of the first submarginal cell (called the “first abscissa of vein Rs transverse”) which is either at almost right angles (1) or is slanted (2) to the wing margin. It is quite easy to see the two angles in the different wings below.

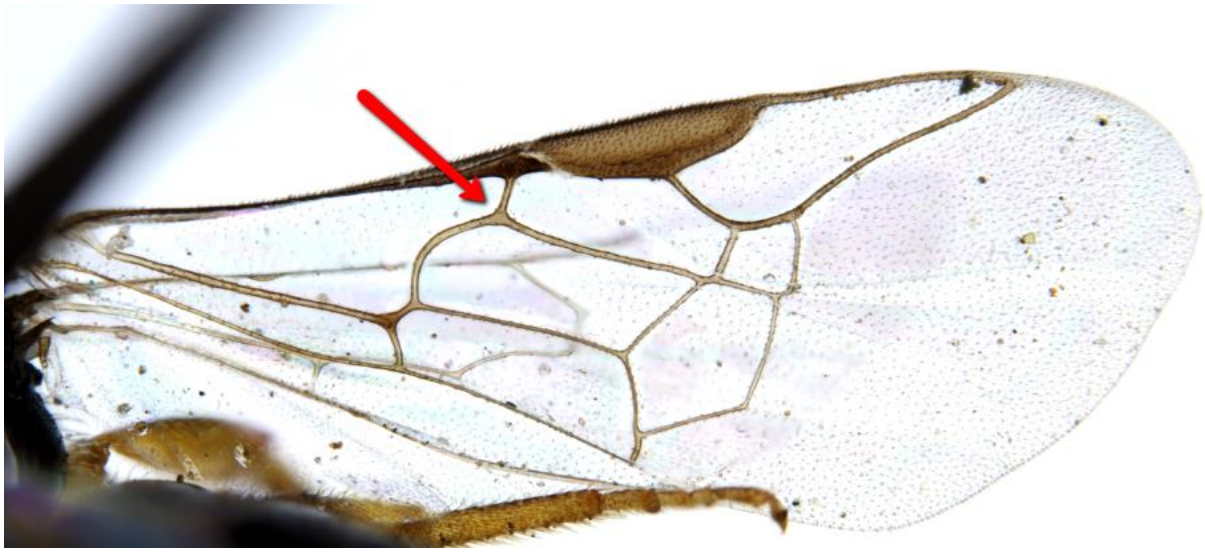




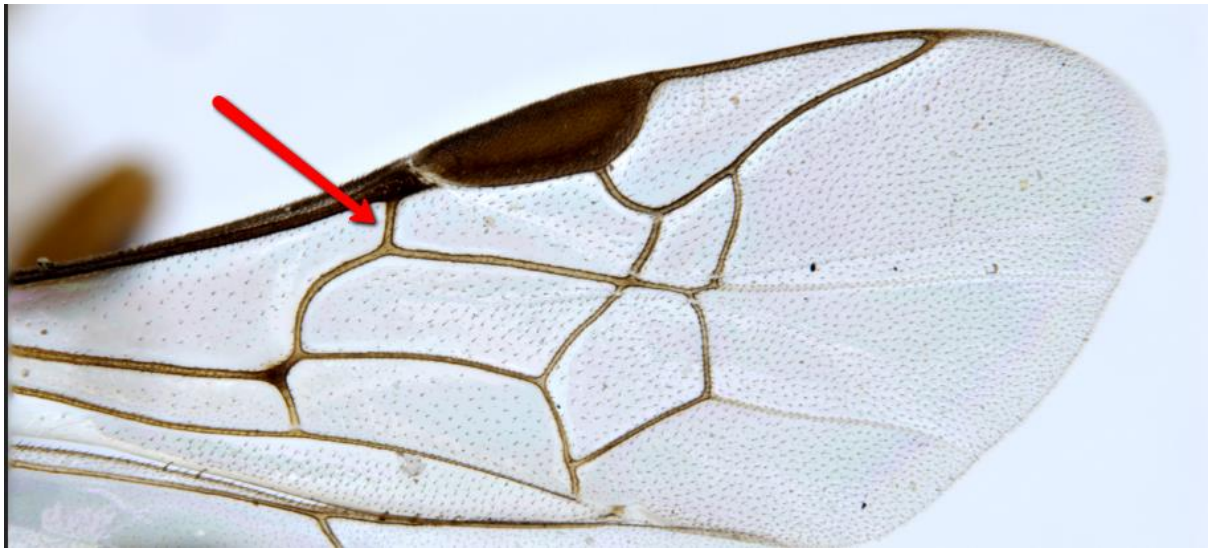
Of the 15 euryglossine genera, 3 genera have the 90 degree angle vein – *Euryglossina, Euryglossula* and *Pachyprosopis.*



Eurglossula wing

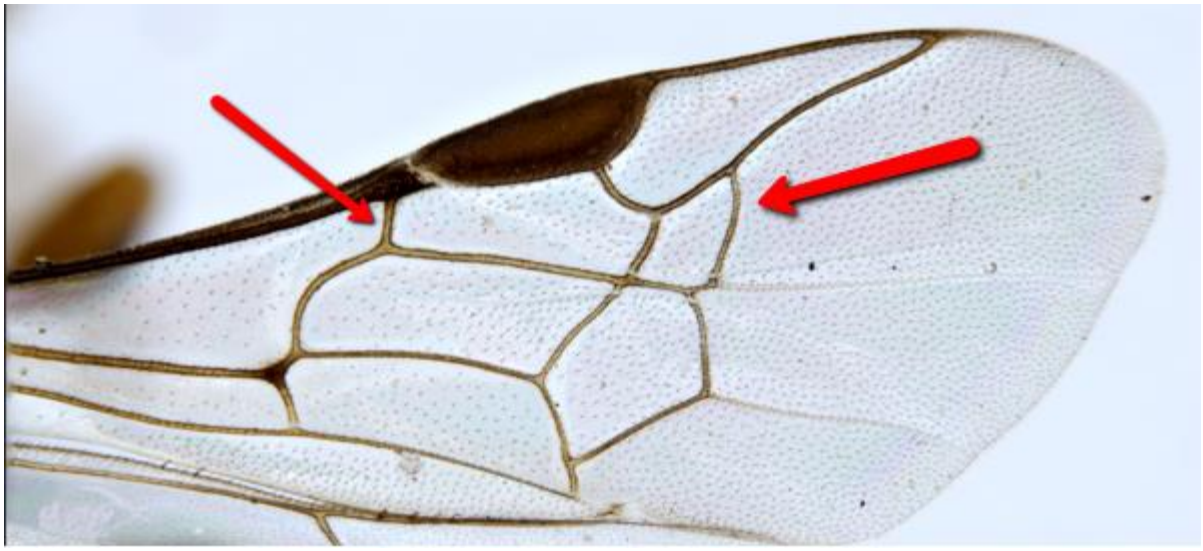


Euryglossina wing

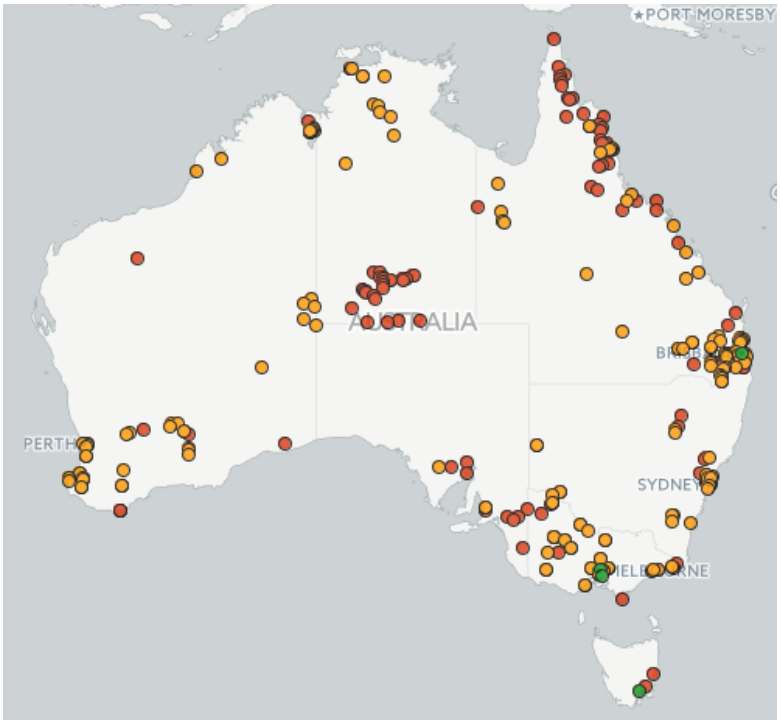


Pachyprosopis wing

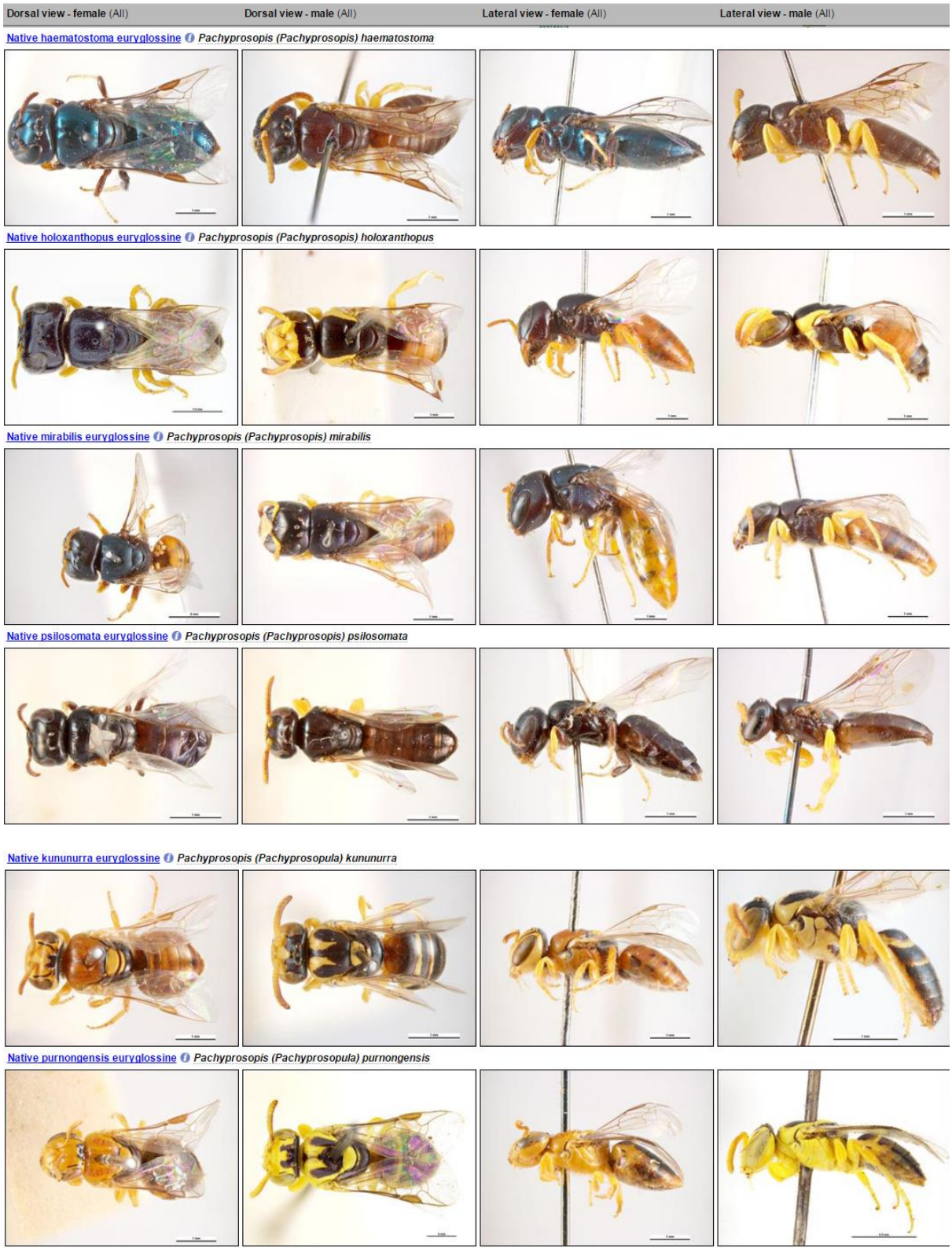
The wing venation of *Pachyprosopis* further defines that genus. The second submarginal cell (right arrow) outer vein is about one third longer than the inner view. You can see how much higher it joins the marginal cell than the first vein. This is a nice character to easily distinguish Pachyprosopis from other genera that have the 90 degree angle basal vein of the first submarginal cell.



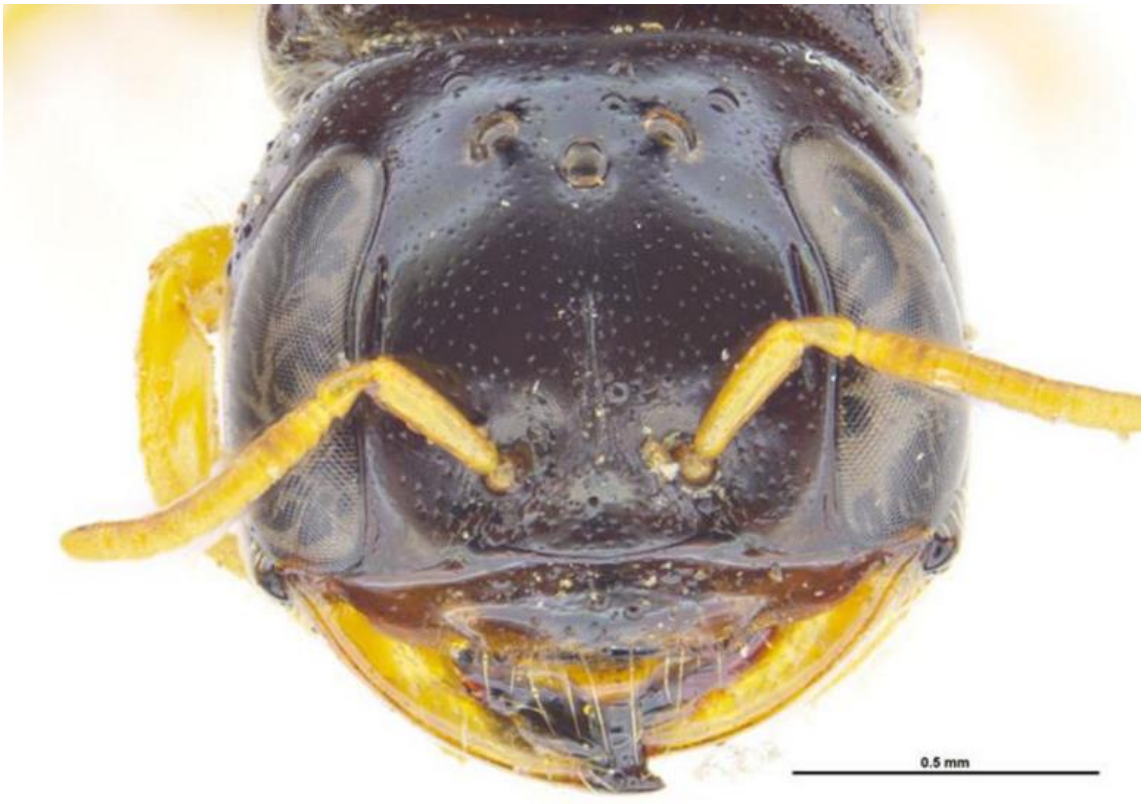
There are three subgenera of *Pachyprosopis* and 23 species and group occurs throughout Australia:



To me, these are “bulky” bees – short but thick set in nature .. if that makes sense.

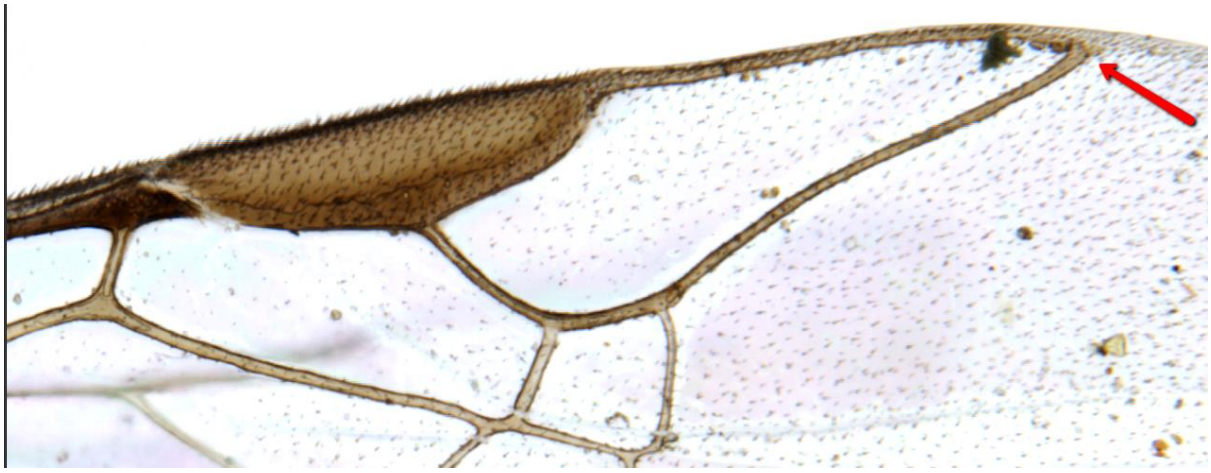


Here is the female of *Pachyprosopis holoxanthopus*. Can you see the “bulky” nature of the bee I mentioned? Check out its head – not something to meet on a dark night in an alleyway!



Euryglossula and *Euryglossina* can also be distinguished by a wing character – In *Euryglossula* the tip of the marginal cell is on the wing margin – the costa; whereas with *Euryglossina* the tip of marginal cell is off the wing margin. Easy hey! These bees are so small that you must use a microscope to distinguish them.

Euryglossula wing marginal cell tip position.

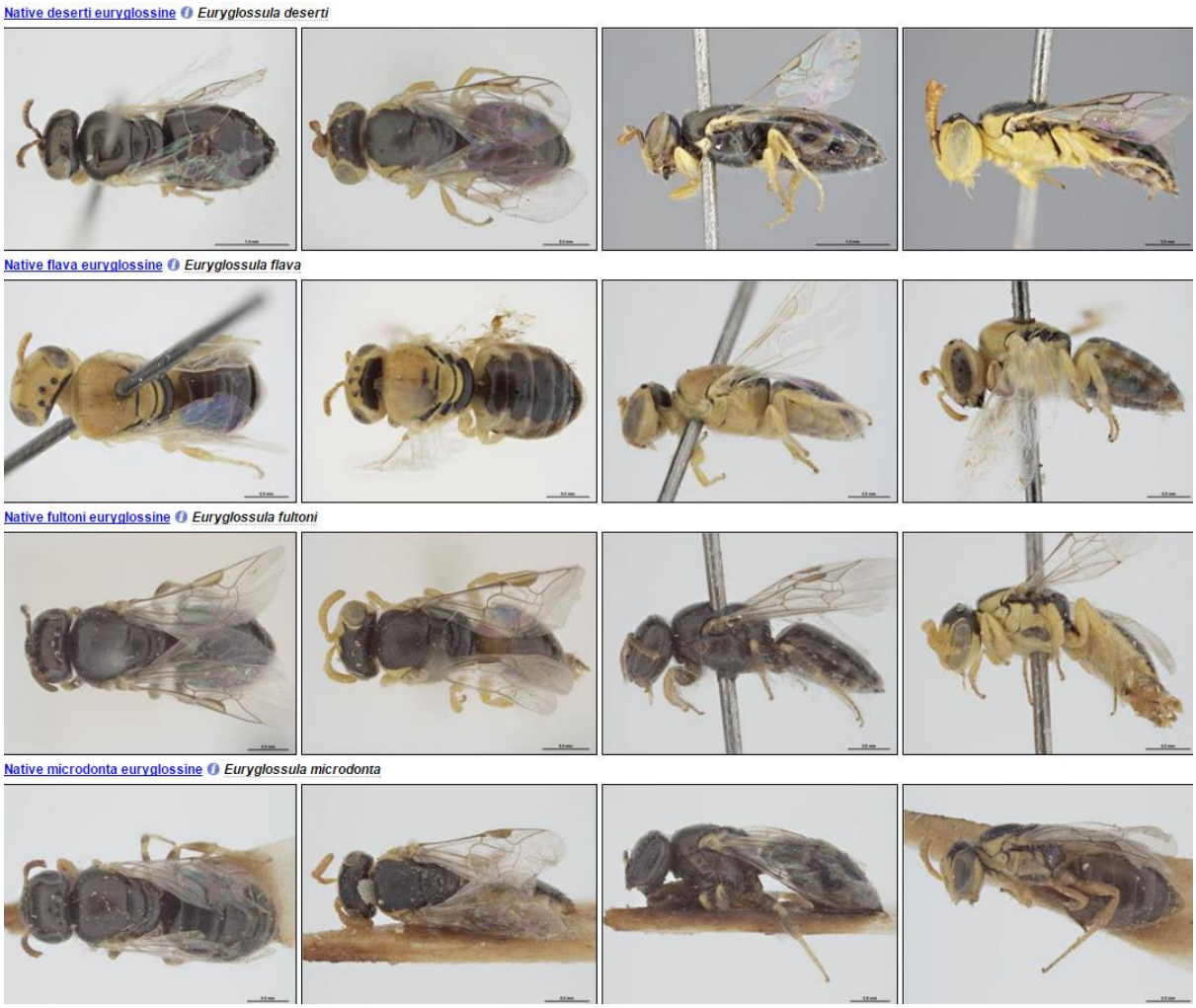


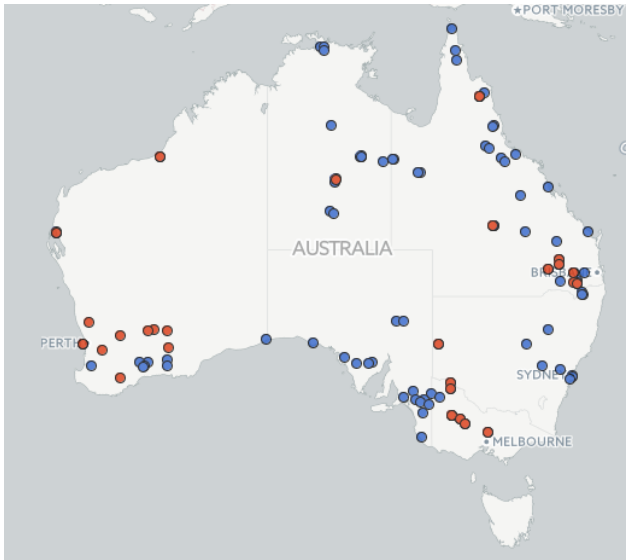
Euryglossina wing marginal cell tip position.

Euryglossula is a small genus with only 7 species but found all over Australia.

Euryglossina is a significant genus with 5 subgenera and 74 species – it too occurs throughout Australia.

To me, *Euryglossula* are not striking bees. They all have the same overall shape and size and it can be a difficult group to recognise without the two diagnostic wing character. Note – they are absent from Tasmania.





Here is the female of *Euryglossula deserti*.

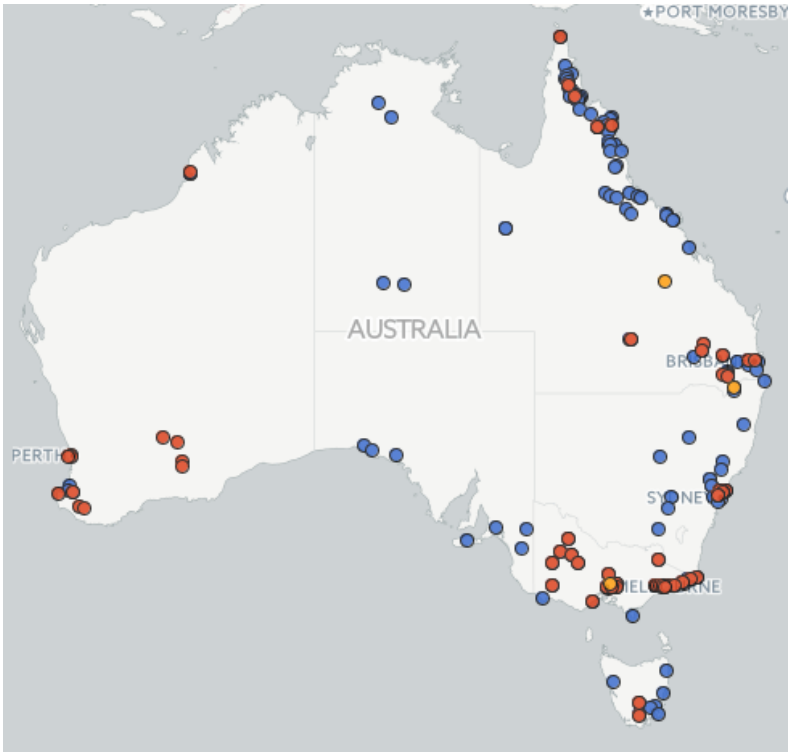
Euryglossina are delightful bees with so much variety – obviously with 5 subgenera. The subgenus *Quasihesma* radiation occurred primarily in Cape York and above I showed you the unique beak like clypeus of these bees. These are the smallest bees in the world but under the microscope they take your breath away! Interestingly, in *Quasihesma* the females all look much the same and only males can be placed to species.

Here is the male of *Euryglossina (Quasihesma) leucognatha* – one of the world's smallest of bees. Look at the scale bar in the bottom right corner. Also notice the almost complete lack of external hair on these bees.

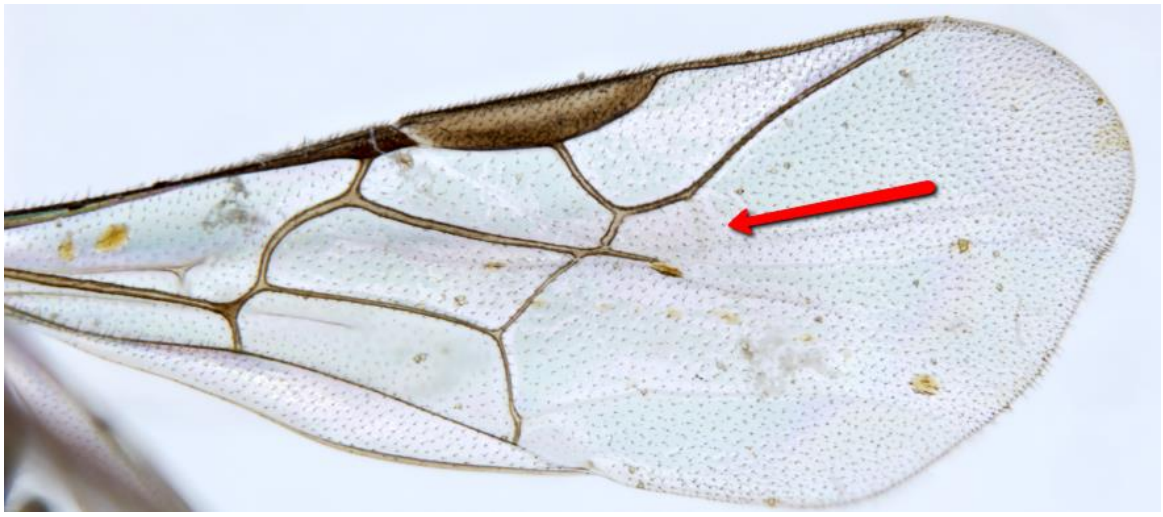
The *Euryglossina* subgenus *Microdontura* has only one species called E. *mellea* which is a honey-brown colour.

The species was originally only known from Queensland and when I arrived in Melbourne I collected the species on a tree in Royal Park Melbourne! I was stunned. And, then I collected the species again just north of Lakes Entrance.

The nominate subgenus, *Euryglossina (Euryglossina*) is the largest with 54 species and occurs across mainland Australia and Tasmania. The large number of records from Cape York are from my 1978 trip and another I trip I did in 1988.



There is a massive about of variety in this subgenus. There used to be another subgenus called *Turnerella* which had a unique wing venation of an open second submarginal cell but Michener decided to synonymise *Turnerella* into *Euryglossina*.



Turnerella wing venation.

Here is a small selection of *Euryglossina (Euryglossina)* bees.

One of the strangest of *Euryglossina* species is *E. leyburnensis* – named after the SE Qld town near where it was first collected. It is a long and lanky species with a unique tridentate mandible – all other Euryglossines have only two teeth on each mandible whereas this species had three teeth. The species had been collected nowhere else than Leyburn, SE Qld when I collected it in eastern Victoria in the forests just north of Lakes Entrance! Intriguingly, specimens are either end of the huge distance

between Leyburn and Lake Entrance showed “clinal” variation. In general, as you move further south and into cooler climes, species get larger to cope with the cooler temperatures. Well, this species shows extremes of clinal variation. The two specimens below were photographed together. The top specimen was collected in Leyburn, SE Qld while the bottom specimen was collected just north of Lakes Entrance, Vic. What a body length size difference!

And *Euryglossina leyburnensis* has a most unique head of with its tridentate mandible and elongate head – just weird.

As we say, It must have been designed by a committee !!

Well, that's an introduction to the massive subfamily Euryglossinae – these bees are unique to Australia. I have dealt with only 3 of the 15 genera in this subfamily. Next time, I will deal with more genera. I want to take time to tell you about these bees which are so special to Australia and its local bee fauna. Most people know little to nothing about them so let's go slow and get to know them. Perhaps the next time you see eucalypt blossoms at eye height, you will recognise these bees.

A relatively new member to BowerBird is Mark Newton who lives in the deserts of South Australia. 70% of Australia is arid or semi-arid so much of Australia is a desert. If you want to see and learn something about the fauna of South Australia's deserts then look or follow Mark Newton on BowerBird. He specialises in scorpions, jumping spiders and ants and wasp mimicking wasps and his photographs are superb! I first met Mark on Facebook and it is great to see some of his Facebook imagery now migrating to BowerBird. Enjoy just this snippet of Mark's records!

Araneae: Salticidae: *Sandalodes scopifer* Location: Inneston SA Photo by Mark Newton.

Araneae: Salticidae: *Breda jovialis* Location: Woomera SA Photo by Mark Newton.

Araneae: Salticidae: *Opisthoncus* sp. Location: Highbury SA Photo by Mark Newton

Just a sprinkle of Mark’s scorpion images –

Mark Newton

Urodacus armatus Small inla...

0 0 1 0 0

Mark Newton

Urodacus hoplurus

0 0 0 0 0

Mark Newton

Cercophonius species

0 0 1 0 0

Mark Newton

Cercophonius kershawi

0 0 1 0 0

Mark Newton

Lychas truncatus

0 0 1 0 0

Mark Newton

Hemilychas alexandrinus

0 0 1 0 0

Mark Newton

Urodacus manicatus

0 0 1 1 0

Mark Newton

Urodacus hoplurus

0 0 0 1 0

Mark Newton

Urodacus novaehollandiae

0 0 1 0 0

Mark Newton

Isometroides angusticaudus

0 0 1 0 0

Mark Newton

Lychas spinatus pallidus

0 0 1 0 0

Mark Newton

Lychas spinatus papuanus

0 0 1 0 0

Mark has documented the remarkable co-existence of an ant and its predatory wasp mimic. The ant is *Iridomyrmex lividus*

And it's wingless wasp mimic predator is Pompilidae: *Iridomimus violaceus*.

Location: Morgan SA Photos by Mark Newton

Mark has a keen eye for variation as seen in these two images of the same species photographed at the same location:

Variants of Araneae: Zoridae: *Argoctenus* sp. Location: Morgan SA. Photos by Mark Newton

The wonderfully coloured male of Araneae: Actinopodidae: *Missulena occatoria* Location: Morgan, SA, Photo by Mark Newton.

The summer autumn season is now almost over and the leaf cutter bees are preparing for the winter by making nests which will survive the winter and be ready to produce bees in early spring. We have a number of superb images of leaf cutter bees recently uploaded and I would like to share them with you.

The first is a series of image taken by Jenny Thynne in Sunnybank, Brisbane.

Wow! That was magnificent to see. Thanks Jenny.

Leaf cutter bee. Location: Narracan VIC Photos by David Mules.

Leaf cutter bee. Location: Sunnybank, Qld. Photos by Jenny Thynne.

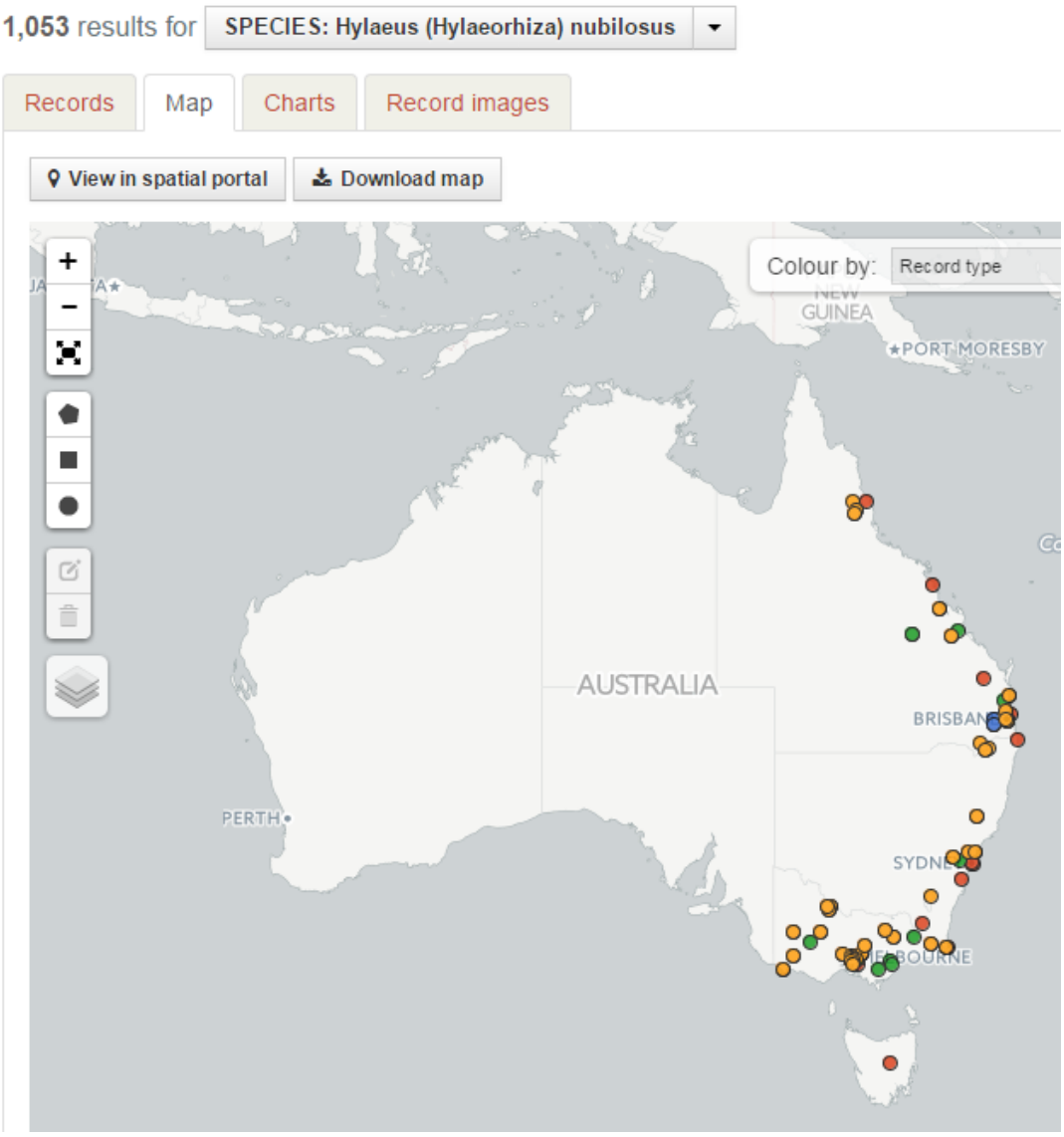
And finally on bees, you just never know what you will discover in your backyard. A member who joined BowerBird only this week has added the first record of a bee species to Western Australia! That's quite a feat. Faye Arcaro visited me earlier this year when she and her husband travelled to Melbourne to attend the Grand Prix and visit the Museum's new Jurassic Park exhibition. We chatted and Faye said that she had some images of bees and I soon signed her up to join BowerBird. Faye joined this week and what a start. Faye put up a record with 11 images showing a bee nesting in the mortar between bricks. I could not recognise it as a Western Australia bee.

Some of Faye's photos showed the head markings of the masked bee (*Hylaeus* sp.) but I failed to notice the bits of mud edging around where the bee was nesting.

Nothing I had in PaDIL for WA matched Faye's images so I contacted the WA bee expert Dr Terry Houston who wrote: "The bee is *Hylaeus* (*Hylaeorhiza*) *nubilosus*, female. This species makes its nests in abandoned nests of mud-daubers

and potter wasps. It appears to be a relatively recent introduction to WA as there are no old records of it here."

So, I did a check on ALA for records of *Hylaeus* (*Hylaeorhiza*) *nubilosus* in WA and there are none. Faye's record will uploaded on Sunday and will add the first dot on the map for WA. Yeah – what a start! The bee was most likely accidentally transported to WA in building material where it had nested in abandoned mud-dauber nests. There are 1,053 records on ALA for *H. nubilosus* but none for WA – until today! Thanks for joining Faye – we look forward to more of your finds.



13 May 2016. ALA map for *Hylaeus nubilosus*. No record in WA

And, with the end of autumn comes an end to the bees and suddenly the Fungal photos begin to appear! I always look forward to the return of these surreal photos! Enjoy!!

Graeme Cocks

Caloplaca

0 1 1 0 0

Dianne Clarke

Yellow fungi

0 0 1 2 0

Graeme Cocks

Liverwort

0 0 0 0 0

Dianne Clarke

Crepidotus sp?

0 0 1 2 0

Dianne Clarke

Mycena leaiana sp and Eula...

0 1 1 1 0

Dianne Clarke

Cymatoderma elegans

0 0 1 0 0

Dianne Clarke

Boletus sp

1 0 1 0 0

Dianne Clarke

Morganella purpurascens

0 0 1 0 0

Dianne Clarke

Ceratiomyxa fruticulosa

0 0 1 0 0

Dianne Clarke

Hymenoscyphus sp.

0 0 1 1 0

Dianne Clarke

Mycena viscidocruenta

0 0 2 3 0

Dianne Clarke

Mycena viscidocruenta

0 0 2 0 0

Dianne Clarke

Phillipsia subpurpurea - can'...

0 0 1 0 0

Dianne Clarke

Hygrocybe bolensis

0 0 1 0 0

David Akers

Amauroderma rude

1 1 1 1 0

David Akers

Entoloma aromaticum

0 1 1 0 0

Torbjorn von Strokirch

Mycena marangania

0 1 0 3 0

Torbjorn von Strokirch

Red Fungi all over log

0 0 0 2 0

Steve Young

Tiny Mushrooms on almost d..

0 0 1 5 0

Torbjorn von Strokirch

Some sort of stinkhorn

1 1 1 3 0

Teresa and John

??? Laetiporus portentosus

0 0 0 3 0

Taken 3 May 2016. *Ceratiomyxa fruticulosa* Location: Kianga NSW Photo by Teresa & John

Taken 14 April 2016. Trametes sp. Photo by Steve Young.

And finally, what's a Bugle without Mark Berkery's

Nature Place

These pictures are of the odd ones that aren't often posted these days. There is something remarkable about each, in their way. It's nature's common variety of weird and wonderful we don't often see.

It is a form of meditation to really look at something, an image for instance. If you focus on seeing without thinking you'll see what I mean. Thinking is in most cases always trying to get in on the act.

See the colour, the form, look into the detail. See or sense the space it all happens in. That's all sense. And you can do this in any situation, any time or place that doesn't actually require thinking for it to be or happen.

The way to keep thinking out is to keep coming back to seeing.

Focus on seeing.

Look, don't think, by constantly returning to seeing or sensing.

After a while thinking fades as a compulsion and in time it becomes a pleasure to do this.

Looking at these images is one form of meditation. Another is smelling the flowers, feeling the breeze, hearing the birds – or anything that requires the focus of attention on one sense or another, that you can exercise 'not thinking' in.

This focusing of attention on sense, on the 'outer', is the reciprocal of and complimentary to the focus of attention on the 'inner' sensation of the body. The tingling or pressure that is

always there, which you probably already observe to some degree.

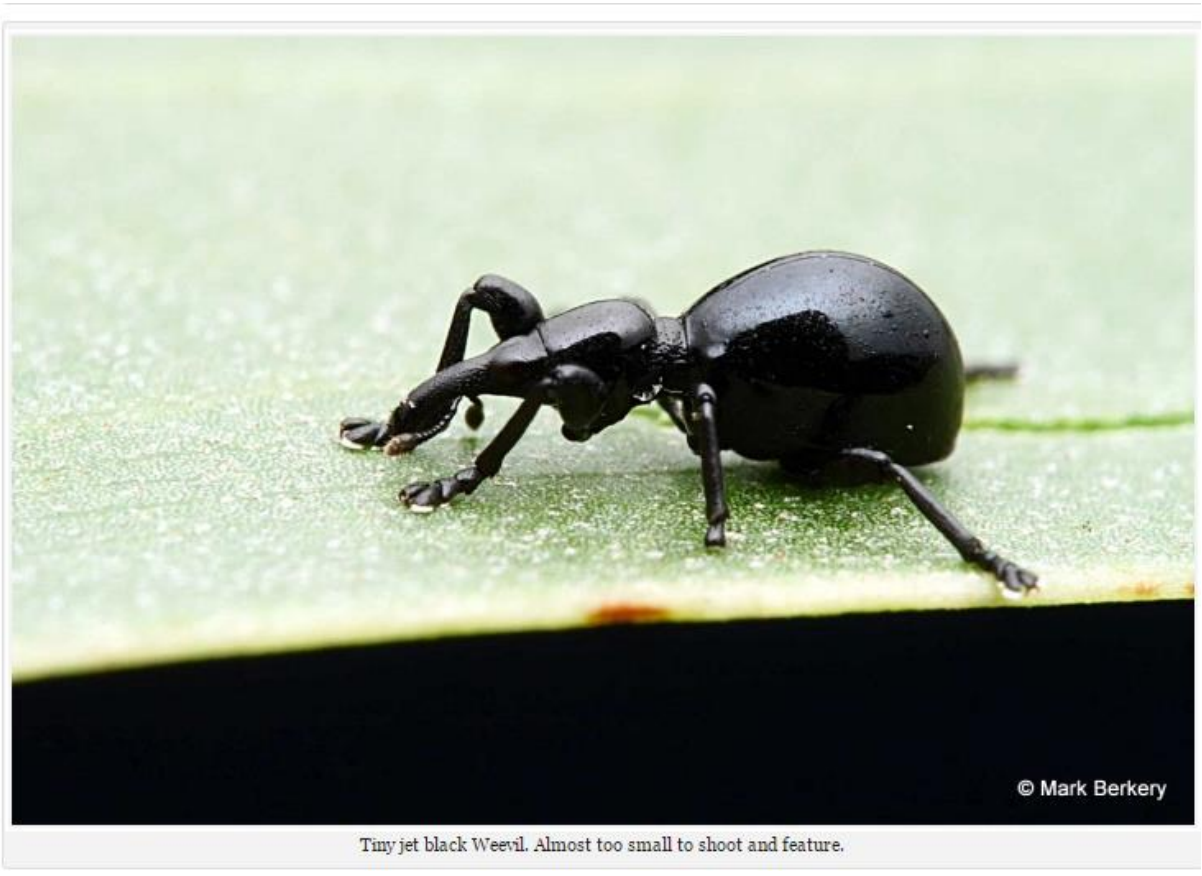
It is this focus on the inner that eventually, in time, amounts to sustainable peace of mind. Peace from the thinking mind and the emotion thinking stirs.

What other peace is there a need of, really. If there is inner peace then surely the outer must follow.

Once you get the idea you've got it, it never leaves you so you never have to depend on another to be able to do it again.

Though, until you master the practise, it does help to be guided by someone who has done it before you.

As in all things …



Tiny jet black Weevil. Almost too small to shoot and feature.

A niche Orb Spider with a web where no fly would find it, between high ridges of bark on a tree.

*Remember to click the pictures for a better sense ...

Nature knows best for nature. Or something's not right ... don't believe that for a minute.

An unusual find in the long grass, a Flower Beetle at rest at end of day, at end of season.

Tiny Jumping Spider, lives and hunts on the vertical, usually found on trees often stalking wandering ants.

Surprise, a piece of forest fruit against the darkening sky through the oof (out of focus) forest canopy.

This will be a Ladybird soon, still forming inside her shell.

A giant Robber Fly resting in the afternoon. Time enough for 2 shots and it was away.

Larva of some kind, can't recall now, munching away on gum tree leaf.

They flick that tail when disturbed. Probably as well not to cuddle it.

Cockroach, shy and elusive. Not the kind to enter the house and eat your food.

Mother Shield Bug. Hiding her brood from me. Maternal instinct at work in the smallest creatures.

And back in the garden, a Harlequin Fly – yes, just made it up.

Now – I have a lot of fun writing the Bugle each month 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)