





17 November 2016 Ken Walker ([kwalker@museum.vic.gov.au](mailto:kwalker@museum.vic.gov.au)) Museum Victoria. Edition 48.

Hi All – Let's begin with a bit of a pat on our collective backs! As many would know, the BowerBird dataset is uploaded weekly to ALA (Atlas of Living Australia). This process continued for about 3 years uninterrupted until ALA commenced a major upgrade of their software in late June. ALA stopped uploading all datasets while they bedded in the new ALA look and filtered all of the existing data into the new display formats. It was understandable that ALA did not want to both integrate existing data with new data. The ALA BowerBird uploads stopped in July and we have been waiting since for them to start up again. Over the past months, I have been sending emails to ALA asking when the uploads would begin again and I continued to be told "as soon as possible". Well, good their word ALA finally began the upload process but there were problems. Before the last upload in July, there were 43,677 BowerBird records on ALA. The ALA person doing the upload reported to me that he could only upload about 31,000 records which did not seem correct. Every night, BowerBird creates a data dump of all records, data and image into a single file that is overwritten each night. Both ALA and I could see that this file held over 48,000 records but when ALA tried to include this data into its database only 31,000 records would load. What was the problem? Thanks to the ALA person who meticulously went through the BowerBird data file record by

record until he found the problem. It was such a small error but one that had profound significance to a computer program. In computer program language, there are certain letters that are used to signify something special – more than what the letter itself represents. Letters such as # or \$ or & etc all have special significance and cause a computer program to react in different ways. One of these special letters is the simple double inverted comma “ ...”. When a computer program sees the first double inverted comma, it suspends what it is doing until it finds a second double inverted comma to close the loop and it considers everything inside the two double inverted commas to be a single action. Well, someone has accidentally added a double inverted comma to around the 31,000th record when they meant to type a question mark. So, everything past the 31,000th record until the end of the dataset was considered to be a single record – hence the shortfall between observed records and uploaded records. It was like looking for a needle in a haystack when you do not know what the needle even looks like. My thanks to the ALA software engineer for his persistence and diligence to find the single error in the enormous BowerBird dataset. I have since contacted the owner of the record with the error and they have removed the double inverted commas so the load problem will not happen again.

 **Can anyone help with ID please"** 

Well the new BowerBird dataset on ALA now contains 48,576 records which is a wonderful tribute to the work of all of you contributors.

48,576 results for Data resource: BowerBird



Records

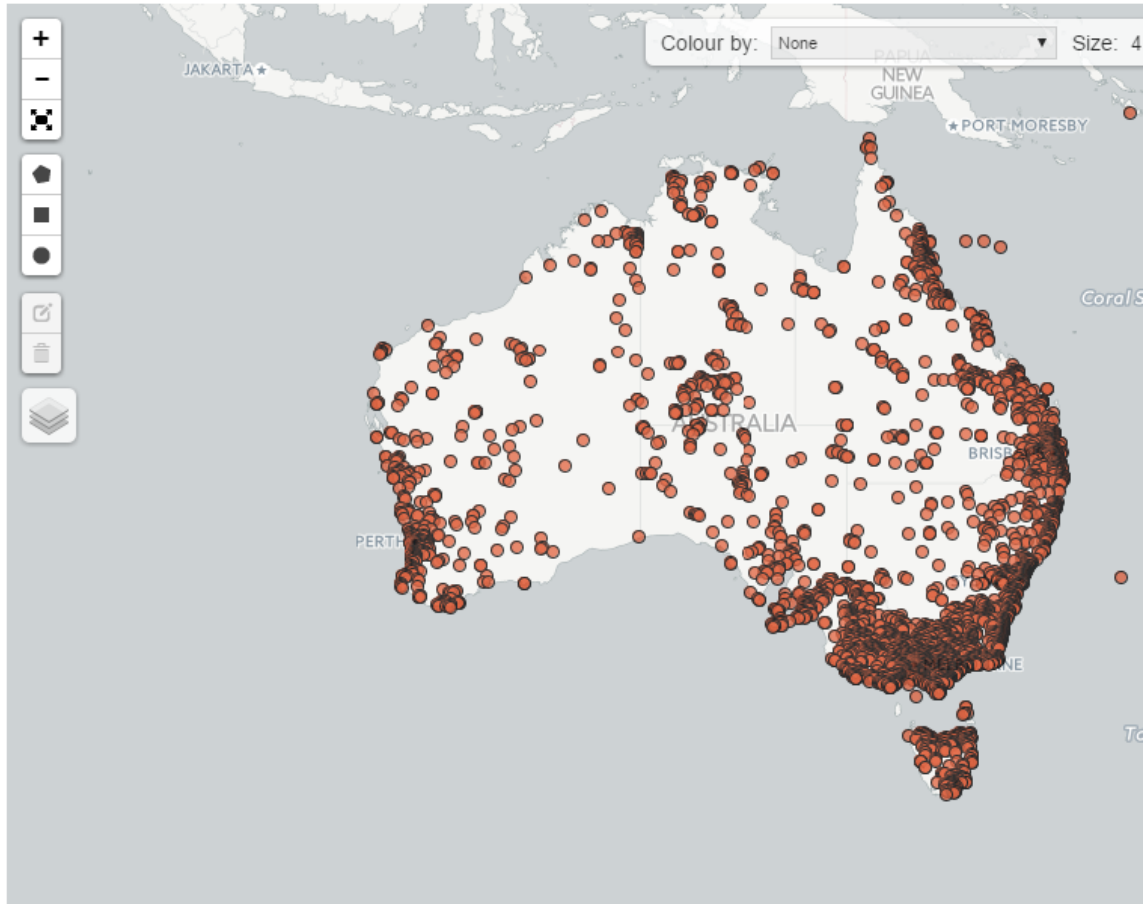
Map

Charts

Record images

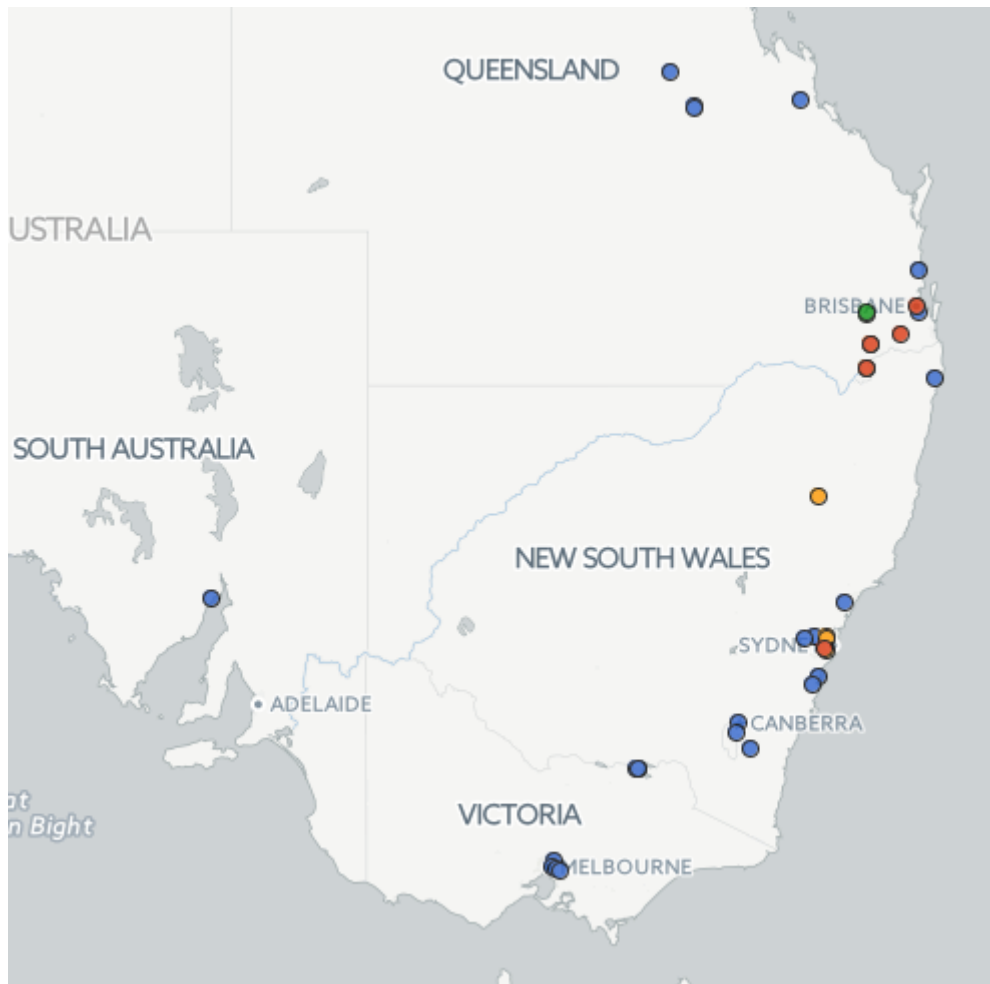
View in spatial portal

Download map



The first species I checked on ALA was to see if the new South African carder bee record was included in the recent upload. This was the first record for invasive bee in South Australia. How long before it appears in WA? This bee was first recorded around Brisbane in 2000. Museum records show the species in both the Brisbane and Sydney (in 2007) regions. All other records on ALA come from BowerBird which record the species as far north as Emerald, Qld, on the Victorian border in 2014 and in Melbourne in Dec 2015 and now finally in SA in 2016. The species build a fluffy “cotton-wool” like nest constructed

from plant fibres it collected. But, it places these nests into boxes and sliding window frames so is readily transported by humans. All of the blue dots are BowerBird records.



Here is the new SA image which is male photographed by Betty



# The Detective Story

As an insect museum taxonomist, I have always thought of myself as part detective in the way I hopefully solve the public's insect problems. Of course, the issue for me is that I rarely, if ever, actually get to see or visit the "crime scene" – it is only described to me, usually with lots of red-herrings thrown into the mix and somehow I have to come up with an answer. I had one such case recently that I thought I would relay here.

I received a 4 page letter, with images, from a concerned parent who lives in SW Victoria (names and location withheld to protect the innocent !). The first thing I do when I receive a multi-page letter is to look at the style. There is a recognised medical condition called "Delusory parasitosis" – people who think they are being bitten by something but are not. Usually, they tell me that they are the only person who can see what is biting them – and then they ask me to identify what is biting them - doh. To get to me, they have often first been to their local doctor, who sent them to a Dermatologist, who referred them to the local pest controller company and in desperation, someone says – "Try the Museum". If they write to me, the letter is often long and consists of one ever enduring sentence – no paragraphs, just a conscious stream of thought. They sometimes include skin scrapping and even pieces of clothing. I try to get them to return to their local GP with a letter from me suggesting a referral to a clinical psychologist. Delusory parasitosis can be either the result of a mental condition but more often it results from a change in medicine that causes urticaria (itchiness) on the skin or stress. I had it myself one time following a change of medicine and the doctor looked at me strangely when I said I had experienced some "delusory parasitosis" for the first few weeks following the change in

medicine – the doctor had not heard of this condition so I gave a consult to the doctor instead of the other way around.

However, the letter I received was structured with sentences and paragraphs and had a logical flow and was in a chronological order so I thought this is real so what is causing it.

The letter told me of a couple with several children being owner builders and how for the past few months they had been bitten relentlessly on the legs, arms and lower torso. The bites were mosquito like but the bites occurred in places where no mosquito could reach.



Initially, they suspected bed bugs so they “bombed the house”. They let off several Mortein bombs inside the house and they washed all of the bedding and tumble dried the sheets and blankets at a hot temperature. Still the bites continued. Then

they were told that it could be bird mite so they checked all of the gutters and around the roof cavity but could not find any bird nests. I had already discounted bird mite as they typically appear around or just after Christmas time. By then, the fledgling baby birds have left the nest. Without body warmth and carbon dioxide in the nest, the bird mites realise their blood meals have gone and so they smell CO<sub>2</sub> coming from humans inside the house and migrate in. Once on a human, they bite and test the blood but find it is not of avian stock so they move further down the arm or leg and bite again and “Nope – don’t like that either” and move again. This repetitive biting activity results in a skin rash and much itchiness. But last month was too early for bird mite. Then I was thrown by two red-herrings. They had been delivered a lot of straw which they spread in the garden. There is a straw-itch mite which, funnily enough, is found associated with straw. But people usually get straw-itch mite from handling straw a lot or lying on bales of straw. Again, the mites bite and cause a rash. The mother also mentioned to me that they had chickens and they also carry mites. The family had already wondered about the chicken and the poor old chooks had been repeatedly dusted and their enclosure had been treated as well.

I did laugh out loud at one part of the letter when the mother said she had considered using a “flamethrower”. She had found an article first published in 1947 (yep! 1947) which suggested such a treatment for unknown bites. Fortunately, this technique was quickly discounted.

Being a country family, they also had a complete accompaniment of associated pets – dogs, cats, guinea pigs and rabbits .... what could go wrong????????? Sadly, the children had taken to playing inside rather than outside as they did not get bitten when inside – Ha! : A clue.

The best clue was that they all loved to work in their vegetable garden where they produced much of their own green food. For me, the question was what could be in the garden that would lead to multiple bites on multiple people.

Fortunately, the husband had placed a small, square piece of black cardboard in the vege garden overnight and had emptied several specimens into a tube of alcohol which they sent to me. I examined these specimen and found an innocuous beetle you would expect to find in a garden, a red velvet mite and finally 3 specimens which caught my attention. Somewhat unexpectedly, these three specimen were all lice – what are lice doing in a vege garden? There are two major groups of lice – one group has piercing and sucking mouthparts while the second group has biting and chewing mandible; the lice from the garden were the latter – the biting lice. The first thing any blood sucking parasite does after making the wound is to pumps in an anticoagulant to stop the tissue at the bite site from healing and stopping the blood flow. It is this anticoagulant and associated fluids that causes the host's reaction to the bite with itchiness, redness and a swollen lump at the bite site. Interesting, this is why malaria is transmitted by mosquitoes but not AIDS. When a mossie bites a host with the malarial trypanosomes, the malarial parasites are first transported to the mosquito's stomach but then the trypanosomes migrate to the salivary gland where they are expelled when the mosquito bites the next host. When a mosquito bites a host with AIDS, the blood travels to the guts but the virus stays in the gut so the AIDS virus is not able to be transmitted into the next bitten host. This was a major concern of the public when AIDS was first reported in Australia.

All lice have a characteristic body shape and these body shapes assist with their survival while their host. Lice, like fleas,



will visit a host to obtain a blood meal and then they will get off. I guess it is more dangerous to spend your entire life on a host compared to minimising your time on a host just when you need to feed.

Most families and species of lice are host specific so the key to this family's problem was an accurate identification of the collected lice and then to match the louse identification to the perquisite host.

I made a slide mount of two of the three lice. This means I placed a small amount of glycerine onto the middle of a glass microscope slide and then transferred the three lice into the drop of glycerine and arranged them side by side and I inverted one of the specimens to get a clear view of the underneath of the louse. I then carefully placed a cover slip on top of the drop of glycerine which firmly secured the louse specimens. I then placed the microscope slide under a powerful compound microscope. (Most microscope we use are called "binocular". We place a pinned insect under the microscope and shine a light on the specimen. This light is then reflect off the specimen and up through the lens and into the viewer's eyes. A "compound" microscope has much higher magnifications than a binocular microscope. You need to place specimen onto a flat glass slide and under a cover slip so the specimens must be very small. The light for a compound microscope comes from underneath the microscope and travels through the specimens on the slide and then into the viewer's eyes. We often have to clear specimens viewed under a compound microscope of muscle tissue, food or blood which would block the passage of light from underneath. We typically use liquid KOH – potassium hydroxide which dissolves soft tissue but not sclerotized tissue which forms the body structure of the insect. I did not clear the louse specimens I viewed and in the image

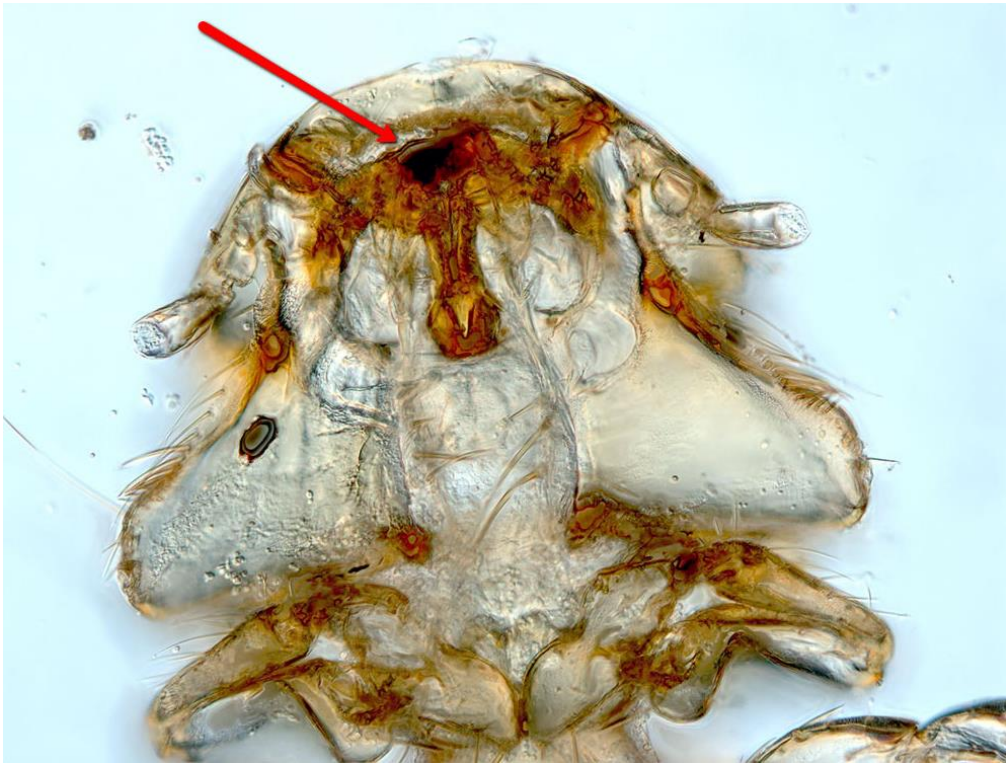
below you can clearly see blood in the gut and intestines of the louse. For the purposes of my identification, it did not matter that I could not see parts of the gut.

Using several highly diagnostic characters, I was readily able to place the louse specimens sent to me to the family Boopiidae. This is a small and unique louse family. All louse species in the family Boopiidae (there are 49 known species) are restricted to Australia and Papua New Guinea. As I said earlier, louse species are often host specific and the louse family Boopiidae has a restricted host range feeding only on marsupials – of which Australia just happens to have the highest number of any continent ... what a coincidence ????? (->!

Now to work out the logic. The Boopiidae louse specimens were found in the garden but there is nothing in the garden on which these lice could feed. That means marsupials must be visiting the garden to feed on the growing vegetables. When these marsupials visit the garden they both drop lice that are fully fed and most likely pick up lice looking for a meal.

Blood sucking parasites find their hosts using two factors. At a distance, they smell the carbon dioxide produced by a warm blooded animals. At close range, they are attracted by body warmth. Humans are not marsupials but we do produce carbon dioxide and we have body warmth – the two factors used by blood parasites to find their host.

Below are an image of the entire body of the louse collected from the vege garden and then a close up of the head to show the biting mouthparts (arrowed).



So, we have established that there are blood sucking louse parasites in the family's vege garden. And, from the identification of the lice found in the garden, we have a good idea of what animals with lice must be visiting the vege garden. I must admit that I was surprised that the husband was able to supply me with three lice collected on a small, black card and from only one evening's collection time. The garden must be thick with lice which helps to explain why all members of the family get multiple bite following working in the garden.

I emailed the family my results and conclusions and not surprisingly, I soon received a thankful phone call from the mother who wanted to discuss my email. The family were indeed relieved to finally know what was causing their bites as they had never seen anything on their skin. And, they were relieved the problem was not inside their house as they had even considered selling and moving to try to get rid of their problem. But what to do now to eliminate the problem?

To me, the best way to eliminate the problem was to find a way to stop any marsupials from visiting their garden. Now they could put a large fence around the garden but that may not be the best solution. The marsupials will be visiting the garden at night and so without someone standing guard over the vege patch all night, then they cannot be sure the garden had not been visited – even if fenced off as the animals may well burrow under the fence. For me, the best solution, though not enthusiastically accepted by the family, was to dig up the garden and to leave it bare for about 12 months. Hopefully, any visiting marsupials would lose interest in visiting this area and move on – taking their lice with them.

Perhaps, after a 12 month period they could re-establish their garden but if it again attracts the local marsupials, then their biting problems will start again.

I did wonder about the flamethrower technique aimed at the garden – it may well be a suitable solution! Ha!

Public identifications are always “fun” and you need to approach each different situation as a detective would to solve the “crime”. You can only work with the information supplied – sometimes you have specimens. In my mind, I have to use the information I know and I (such as an identification) and build a reasonable scenario. Along the way, there will be red-herrings which at the time you do not know they are in fact red-herring. In this case, there were lots of red-herrings – was the problem inside or outside, what was in the supplied straw, why there something in the garden patch – if so what? Have you ever corresponded with someone over a considerable amount of time without ever meeting the person? You develop an image of that person based on their voice or the way they write. So often I develop a minds-eye view of a person that so often completely wrong when you finally do meet the correspondent in person. This is why in science you need to be as objective as possible. Weigh the evidence and present a conclusion/resolution

Anyway – the family now knows what was has been biting them and the source of what is bringing in the lice that have been biting them. They have several solutions they can try.

Personally, I think they will first build a high fence because their garden is the pride and joy of the family and that would be the last thing they would wish to go. I wished them good luck and said that old expression – “*Sleep tight – don’t let the bed bugs (or lice) bite.*”

## **A brilliant and extremely rare find – “A hen’s tooth”**

I really do enjoy watching when BowerBird produces extraordinary results and new science. Brett Smith of Ellura Sanctuary recently posted images of what at first looked like an orange and black potter wasp or spider wasp– but it was a fly! And the image showed a pair of these flies mating. What’s all the fuss about I hear you say? Well .....

There is a well-known group of spider hunting Pompilidae wasps. These wasps are large, orange and black coloured and they target huntsman spiders. These wasps dig a hole in the ground, catch and paralyse a huntsman spider. The wasp then literally drags the spider back to the hole in the ground, puts the spider in the hole and the female wasp lays an egg on the still living spider and seals up the hole in the ground. The wasp egg hatches and the wasp larva eats the spider alive making sure not to kill the spider until it has completed development. Nice!



*Cryptocheilus* sp. Location: Tynong North VIC Photo by: Tamara Leitch,

There is another group of large, orange and black Vespidae (Eumeninae) wasps called “Potter Wasps”. As their name suggests, these wasps build mud pots on the sides of trees, rocks or houses and provision each mud pot with several paralysed spiders which they also use to feed their young. Like the spider hunting wasp, the female potter wasps lays a single egg inside each mud pot and the wasp larva eats the paralysed spiders one by one until it has completed its development. Nice was well. (PS. I hope my Karma is not to return as an insect!)



*Abispa* sp. Location: Swan Reach SA Photo by Ellura Sanctuary.

Below is another image of a large *Abispa* wasp this time building a mud nest.



*Abispa ephippium* Location: Allenstown QLD Photo by Geoff Lotton

And, Walking on water!



*Abispa splendida* Location: Mount Cotton QLD Photo by Erica Siegel



However, Brett's image initially resembled one of these orange and black wasps – which is of course exactly why the fly has the wasp mimicking colours. By resembling the colours of a wasp, predators will hopefully leave the fly alone. The below image shows a male and female of this wasp mimicking fly which belongs to the family Tabanidae commonly known as “Horse or March flies.” The identification was done by Tony D.



*Palimmecomomyia pictipennis* Location: Swan Reach SA Photo by Ellura Sanctuary.

A quick look on ALA showed it has no records or images for this species.

# *Palimmecomyia pictipennis* (Mackerras, 1960)

JSON

species Accepted Name authority: Australian Faunal Directory

Overview Gallery Names Classification Records Literature Sequences Data partners

## Online Resources

- [ALA occurrences](#)
- [GBIF](#)
- [Encyclopaedia of Life](#)
- [Biodiversity Heritage Library](#)
- [Google search](#)
- [Google scholar](#)



## Occurrence records

No records found for **SPECIES: Palimmecomyia pictipennis**

Australia has a Tabanidae fly expert, Dr Bryan Lessard, who is currently doing a Post-Doc at the CSIRO Australian National Insect Collection in Canberra. I sent the image and identification to both for confirmation but also to alert Bryan to this rare find. His reply was classic: (Note the upper case

excitement!: “KEN! THEY ARE *PALIMMECOMYIA PICTIPENNIS!*

This is an extremely rare genus that I have searched tirelessly during my PhD for them with no luck. There are only a handful of specimens spread throughout the State museums and the males are completely unknown, so this photo is outstanding! “

Brett has now seen these flies two years running at his sanctuary. This year the photo date was 2 November 2016 whereas the 2015 photo date was 18 October 2015. Here is a photo of the fly in flight he took last year. I think I know where Bryan will be next year between late October and early November.



*Palimmecomyia pictipennis* Location: Swan Reach SA Photo by Ellura Sanctuary

When ALA next uploads the BowerBird dataset, Brett’s record will fill this species gap on ALA with a location and importantly an image showing for the first ever time the male of this species.

## A beetle that had us all confused.

Glenda Walter keeps turning up wonderful insects from SE Qld. This image of a fungus beetle looked so distinct but had us all wondering. The curiously patterned beetle was about 5-6mm in body length and was found on the underneath of a bracket fungus, probably *Ganoderma* species. This series of images shows the beetle's habitat and distinctive markings.





Coleoptera: Erotylidae: *Episcaphula* Location: Bellthorpe QLD Photo by Glenda Walter

Glenda initially identified the beetle simply as Coleoptera. Then a New Zealand entomologist, Stephen Thorpe, claimed the beetle belonged to the Family Erotylidae. Finally, the now retired former curator of entomology of the Queensland Museum, Geoff Monteith, was able to name it to the genus *Episcaphula* – but he couldn't think of the species.

What a team effort to finally get the image down to genus!

Our Museum Victoria collection has a number of named Queensland species but unfortunately, none of our material matched Glenda's image. When I looked at our collection of this genus I saw some remarkably patterned beetles.

Currently, there is nothing like this beetle on the ALA images for the genus *Episcaphula* so it will be a welcome addition.

## 22 years of waiting .....

Teresa and John just posted this beautiful picture of a Scarlet Honeyeater - *Myzomela sanguinolenta*.

Interestingly, they commented that this species of bird had not been seen in this area for 22 years – well worth the wait though Teresa !



*Myzomela sanguinolenta* Location: Dalmeny NSW Photo by Teresa & John

## There is mimickery and down right deception!

Frank Prinz recently posted the images below and asked the question: "Native bee or wasp". I love it when the mimic is so good that it makes us look twice and still to be confused.



Wasp - *Paralastor vulpinus* Location: Uleybury SA Photo by Frank Prinz

There is a native Australian colletid bee that mimics this wasp and the mimic is almost as good as the master.



Bee - *Hyleoides concinna* Location: Strangways VIC Photo by Patrick Kavanagh



The differences are subtle and here is how to distinguish the bee from the wasp.

1. The wasp's thorax is hairy while the bee's thorax is almost hairless



2. The bee has a broad orange band across the first dorsal abdominal segment whereas the wasp has only a narrow band.



3. The base of the wasp's antennae (called the scape) is yellow while on the bee the base of the antennae is black.



4. The yellow on the wasp's clypeus (lower face) covers the entire clypeus whereas on the bee it is a narrow stripe.



5. Finally, the wings of the wasp are folded longitudinally whereas the wings on the bee are unfolded.



The differences between the native mimic bee and native wasp easy to spot when you know what to look for!

## Annual Caper white butterfly migration is on.

The annual southerly migration of the caper white butterfly, *Belenois java teutonia*, has been happening over the past few months and there has been a wonderful array of butterfly images and recorded arrival dates on BowerBird.



*Belenois java teutonia* Location: Gordon ACT Photo by Michael Bedingfield

Tony Eales had the earliest record from Blackall in central Queensland on 16 September 2016, then Kim Tarpey had the earliest Victorian record from Healesville on 16 October, Jenny Thynne from Brisbane on 19 October, Gordon Claridge from Toowoomba on 29 October, Ellura Sanctary from Swan Reach, SA on 31 October, Manu Saunders from Albury on 12 November, Michael Bedingfield from the ACT on 17 November. These are just some of the wonderful records of this migration.

Butterfly feeding



0 0 1 1 0

Butterfly feeding



0 0 1 1 0

Caper white on antignon vine



0 0 1 1 0

Gordon Claridge

Caper White Butterfly - Bele...



0 0 1 1 0

Kim Tarpey

Caper White



0 1 1 0 0

Tony Eales

Caper White Butterfly - Bele...



0 0 1 0 0

Judy & Rob Peters

Caper White Butterfly at Mt ...



0 0 1 2 0

Michael Bedingfield

Butterfly, white, black & yell...



0 0 1 0 0

Michael Bedingfield

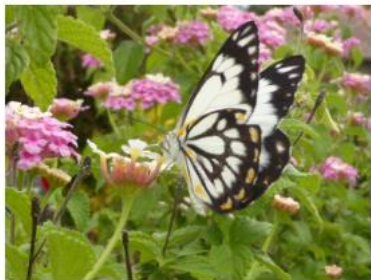
Butterfly, white, black & yell...



0 0 1 0 0

Manu Saunders

Caper white migration



1 0 1 1 0

Ellura Sanctuary

Caper White (male)



0 0 1 0 0

David Evans Walter

Caper white



0 0 1 0 0

# Orchids

If ever you have a spare hour, week or month ... I strongly recommend you do a search for "Orchid" and then sit back and enjoy what orchid records have been uploaded to BowerBird. Here's one I loved!

Judy and Rob Peters uploaded a series of images of the appropriately named Large Duck Orchid - *Caleana major*. Doesn't the flower look just like a duck!



*Caleana major* Location: Frenchs Forest NSW Photo by Judy and Rob Peters



And this is the Mallee Spider orchid from .... the mallee!



*Caladenia stricta* Location: Nhill-Harrow Rd, Little Desert VIC Photo by Richard Hartland

✧ Spotted Sun-orchid



👍 1 ★ 0 📷 1 📄 0 💬 0

David Francis

✧ Caladenia transitoria



👍 1 ★ 0 📷 1 📄 2 💬 0

Richard HARTLAND

✧ Bow lip spider Orchid



👍 1 ★ 1 📷 1 📄 1 💬 0

David Francis

🦋 Bee pollinating threatened/...



👍 0 ★ 0 📷 1 📄 3 💬 0

✧ Durius Orchids



👍 0 ★ 0 📷 1 📄 1 💬 0

Tamara Leitch

✧ Purple Beard-orchid



👍 0 ★ 0 📷 1 📄 0 💬 0

Daniel Heald

✧ Microtis sp. - Mignonette Or...



👍 0 ★ 0 📷 1 📄 1 💬 0

Richard HARTLAND

✧ Pallid Sun Orchid



👍 1 ★ 0 📷 1 📄 1 💬 0

✧ unknown Sun Orchid



👍 0 ★ 0 📷 1 📄 0 💬 0

Russell Stanley

✧ Lowly Greenhood - Pterostyl...



👍 2 ★ 1 📷 1 📄 0 💬 0

David Francis

✧ Diuris punctata



👍 1 ★ 0 📷 1 📄 0 💬 0

Linda Rogan

✧ These Caladenias were the ...



👍 0 ★ 0 📷 2 📄 0 💬 0

Speaking of orchids, here are some more images from Rudie Kuitert showing bees with orchid male anthers stuck to them. The quote: "All dressed up and nowhere to go!" comes to mind.



And, here is a male bee (*Hylaeus quadriceps*) sitting at an orchid flower waiting for a female to arrive.



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

# Nature Place

*They came in their millions, these butterfly guys.*

*Dressed in white, red, blue and ... on.*

*Dancing across the garden, supping as they went.*

*In waves, one week then two, they filled the air.*

*Some said it was an accident of the wind they came.*

*There was no food where they go. A terrible waste.*

*As with the Jacaranda flowering, right across the country.*

*I saw a dusting of the world by the magical, celebration earth.*

*It was east they danced and whirled, to the mystery.*

*Not west to the mapped mechanical.*

*There's a world of difference.*

*Inside, that inner sense.*

*Of significance ...*



© Mark Berkery



© Mark Berkey

The Caper Whites were the most numerous by far. It was their migration.



© Mark Berkey











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](mailto:kwalker@museum.vic.gov.au) – else share with your friends)