



04 September 2015 Ken Walker (kwalker@museum.vic.gov.au) Museum Victoria. Edition 24.

Hi All – For me, one of the hardest tasks I have is to explain what Biodiversity encompasses. They say that humans have some unique traits. We like to define and put boundaries around ideas, concepts and things. Think of the structured order of supermarkets shelves or rather try to imagine it as unstructured! We decide side of the road we drive on and of course the complexities of our legal system to oversee our communities. These boundaries allow us to conceptualise what things are “within” or “outside” of these boundaries. I think without such a system, we would be lost.

Unfortunately, we have not yet been able to put “human” boundaries around Biodiversity. There are multiple definitions for the term and we still do not have any idea of the magnitude of the number of species there are on earth.

We can name the point in time when we began to name species. Carolus Linnaeus wrote a series of books called *Systema Naturae*. The tenth edition of this book (1758) is considered the starting point of current zoological nomenclature. That is when Linnaeus introduced the binomial system – Genus and species. Before the binominal system, species names consisted of a sentence or a paragraph that anyone could add to at any time. There were no standards and animal names were not consistent.

After 257 years of naming animals, we currently have described about 1.5 million species (that's a bit slow isn't it !); however, estimates for the true number of species on earth range from 10 to 50 million species. We still just have no idea how many species inhabit this planet. The downside to this lack of resolution is complacency. So what if 100 or more species become extinct this year or so what if we bulldoze a rainforest without knowing what's in the forest? We don't know what's there so what harm can it do "us".

It has been said that we humans have an unusual and unique trait – ***We only value what we understand.*** To me, this explains why we generally have an innate desire to conserve and protect furry cuddly animals. But a slime mould or a mosquito – why would you want to conserve that?

One of the phrases I have heard used to defend protecting what we do not know is this: "But what if the species that is lost carries the cure for cancer?" This is a motherhood statement that has "warm-fuzzies" attached but it is difficult to attach much vigour to that argument.

However, that statement's intent is what caught my attention when Lee Belbin sent me a fascinating link about new studies into cancer treatment. Here is the URL

<http://www.theguardian.com/science/2015/sep/01/wasp-study-sting-leukaemia-prostate-bladder-cancer-cells>

It seems for some reason, scientists decided to test the venom of a Brazilian wasp, *Polybia paulista* against prostate, bladder cancer and leukaemia cells.

They found the venom contains a powerful "smart" drug that selectively targets and destroys tumour cells without harming

normal cells. They also found this venom suppresses the cancer cells currently resistant to a range of known drugs.

Studies showed that the venom toxin blows gaping holes in the protective membranes surrounding tumour cells by interacting with fatty molecules called lipids. This discovery has the potential to open and explore an entirely new class of anti-cancer drugs.



Finally, there is good evidence that our future pathways and perhaps saviours lie within our own biodiversity – we just have to discover it before we destroy it.

Ask and you will receive!

At the end of the last two Bugles, I invited BowerBird members to send me their stories which would be published in the Bugle. Blow me down – this week, I received two such articles which is great and wonderful,

The first article is by Karen Retra who is a teacher in Albury and a full time naturalist with a large back yard garden that not only provides food for her table, but is Karen's "mini-zoo". She knows every long-term resident and most of the FIFO (Fly in and Fly outs) ones as well. Karen has kindly written about the first bees she has seen in her garden for this season.

Several years ago, Karen invited me to visit her region to deliver a range of BowerBird, bee and spider talks to various students and local naturalist clubs. *Karen organised my time to within an inch of my life* with several talks a day as well as newspaper and radio interviews in my spare time. I finally met Karen's partner whom I have ever since called "Poor Ralph". Actually, I had a hoot of a time in Albury .. But don't tell Karen!



“Native bees are back - four species sighted in August!

Date Tuesday, September 1, 2015

Spring may have officially started today, but my excitement for the new season kicked off several weeks ago. I'm talking, of course, of the native bee season.



The first native bee I saw this season - *Trichocolletes* sp.

Which bee will be first?

From my kitchen window I watched the first of the striking purple blooms of the *Hardenbergia violacea* (aka Purple Coral Pea, False Sarsparilla or 'Happy Wanderer') appear in mid-July, knowing that this plant is typically the first place native bees are seen after winter.

On August 11th a casual glance out the window as the kettle boiled revealed an insect zipping and darting around and between the flowers that looked different to the more sedate and predictable patterns of the usual visitors - honey bees. Quick! Grab the camera - it's the first native bee sighting of the season! I raced outside, camera in hand. I nearly skidded as I stopped in front of the flowers. But no, all I could see were honey bees. Oh dear Karen, now you're seeing native bees that aren't there? This really has got out of hand.

But wait, as I replaced the lens cap, there was a short dart between flowers. I leaned closer. There was a native bee! Sure enough, it was a "spring bee" as they are commonly known. One of the *Trichocolletes* species. I shot a few poor photographs before it headed off (that's one of them, above).

I noted the weather - the flowers were in patchy sunshine and the ambient temperature was 13 degrees. That's quite a way below the expected preferred minimum temperatures suggested for native bees to be out, of about 18 degrees. Interestingly, this sighting is also eight days earlier than my first sighting (of the same species, I think) last year. (You could also question whether I'm getting better at spotting them, or even looking for them, that is influencing this result, but I do tend to be looking from early August ... just in case!).

And below is another of these bees (a female?) taken later in the month when I'd had time to calm down, and there were more of these bees about.



Trichocolletes sp.

These bees are a little smaller than honey bees, with similar colouring, which can make them a bit tricky to spot. I tend to look for their darting flight pattern, and if they stop long enough on some flowers, you can notice their distinctive bands, scopa (hairs for collecting pollen) and body shape that all help to distinguish them.

After that, despite the mostly chilly weather, when the temperatures climbed even a little and the sun appeared, so too did these bees. And *Trichocolletes* aren't the only ones.

Tip off followed by next sighting

On the 15th of August, while returning from delivering a workshop in Corowa, I received an excited text from Manu, reporting that she'd seen Hylaeine bees emerging from geranium stems in her backyard.

Gee, I haven't seen any of them yet this year, I thought. (Along with, wow, what are the odds of seeing them emerge if you didn't know they had nested there!?).

I arrived home and took a quick look at the daisies on the front nature strip, and what should I see?



Species #2: *Amphylaeus Agogenohylaeus obscuriceps*

With their less hairy body and legs, and relatively slim stature, I'm sure these bees are frequently assumed to be wasps rather than bees. That was certainly my thought when I first saw them some years ago. Instead of carrying pollen on their bodies they have a crop, and carry it internally instead. They swallow pollen and nectar, then regurgitate it once at the nest.

A somewhat unexpected third species makes an appearance

August 23rd was the next milestone. Again it was a single bee that caught my eye. Again it was the front daisies that it was foraging on. Species number three joined the list.



Species #3: *Lasioglossum Chilalictus lanarium*

Wattle watching pays off

Our Snowy River wattle (*Acacia boormanii*) has yet again had a lovely display of blooms right through August. After seeing early bees on it last year, I had kept an eye on it, but had only seen honey bees, flies, bugs and beetles to date. That changed on August 28th when I spied several native bees amongst the flowers.



Species #4: *Lasioglossum (Parasphecodes) hilactum*

These 'red bees', *Lasioglossum* species, made for four species spotted in August! I'm thrilled."

Thanks Karen – These “first of the season” records are invaluable especially when compared with previous year’s record. Thanks for the article. I’ll expect another one for next week’s Bugle! I call this “Pay-back”!!

Other first bee records for the season.

Dianne Clarke reported the first bee for the season in her garden at Mapleton QLD. The record was dated 29 August 2015 and the bee was a halictid species called *Lasioglossum (Chilalictus) calophyllae*. These records are gold for further generations to have these “postcard from the past”. In 20 or so years’ time, we will be able to compare first appearance between then and now – that why they are so worthwhile making these recording.

And what fun this bee was having being out and about for the first time. Pollen over its head, legs and abdomen – it must have rolled about in the flower in sheer delight!



Photo by Dianne Clarke.

And

Dianne also recorded *Homalictus urbanus* in her garden on 29th August 2015. This was the second species she saw on this day.



Mitch Smith has just (literally at 4pm today!) uploaded his first bee for the season: *Lasioglossum lanarium* Mitch commented:



“I'm jumping of the "first bee of the season' band wagon. My 'go to' bee for my first fix for the season. Reliably there every year when the 'Native sarsaparilla" starts flowering. “

The second members' contribution comes from our "Fungi Aficionado" – Teresa Van Der Huel who wrote to share:

**Fascinating, Fabulous, Fabled, Funki Fungi
within 'The Web Of Life'.**

Fungi are a fact of life. They are present everywhere, but the majority of people know very little about them. They either appear on aged food, which triggers most of us with a desire to dispose of it as quickly as possible or they become a wonderful addition for flavouring food. (If you choose to ingest these, please leave some on your bedside table.....)

Sometimes fungi are used for medicinal purposes such as in antibiotics, others include hallucinogens and illegal drugs, yet others have been known to man for centuries, although not understood, such as the time of the witch-hunts from Salem in the 17th century.

Only some 5% of the estimated 250,000 species of fungi have been described.

However, detailed and descriptive information has been difficult to obtain. Authors such as Dr Tony Young, Bruce Fuhrer, Richie Robinson, Katrina Syme and Neil Bougher, have been instrumental in making available to the Mr. and Mrs. Average of Australia, information on fungi, its growth and distribution, the edibility and above all, the necessity of these organisms to keep the 'Web of Life' functional and the environment in balance.

Dr Tony Young, in his book *A Field Guide to the Fungi of Australia*, made the analogy of *Challenge and Contradiction* from A.A. Milne's *The House at Pooh Corner*, relating to the study of our Australian Fungi and the lack of government funding to explore the benefits of these. How very apt it was. The fact that there is not one teaching mycologist, in a full time position at any Australian university, is shameful in this day and age. Without

fungi in the world, life on earth as we now know it, will cease to be. Governments can spend fortunes on the prevention of terrorism and ignore the tiny organisms, fungi. However, without fungi there will be no world in which to prevent terrorism.

It is my aim to assist others to understand a little about the fascination of life on earth, and why keeping a balance in nature is so important. Understanding how and why mycorrhizal, symbiotic and parasitic relationships are formed between fungi and plants, and fungi and animals, is essential to keeping a balance in our environment.

During the time I have spent on the regular visits to four areas locally, I have been able to witness the demise of an entire fallen tree, which I first noticed some ten years ago. For years it had laid there, undisturbed except for the insects that made it their home, and the various lichens & mosses that grew upon it. In March 2005, I noticed some tiny white balls appearing on the bark; closer investigation revealed that these were the fungi *Mutinus boninensis*. Over the next four months, this whole tree trunk became a sodden fibrous mass on the forest floor, and I had seen thousands of tiny fungi fruiting during this period. Then shortly after some heavy rains, there was nothing to show that a once majestic tree had ever stood there. Just how many years this process took from birth to return to the earth, I can only guess at. Far more than I will ever have the privilege of walking on this earth!

As I do not have a scientific background, this natural phenomenon was like magic. What other natural activities occur in our world? So many of us walk around with our eyes closed.

- Fungi are crucial components of virtually all ecosystems, involved in biodegeneration of dead organic material (plant and animal).

- Too little is yet known about Australia's fungi – both in terms of the number and distribution of species and in terms of their relationships with the ecologies of the areas in which they are found.
- We must obtain a much more comprehensive appreciation of the types and variety of fungi that exist in the various environments within Australia.
- With ongoing studies and the inclusion of many volunteers together with the assistance of the mycologists of Fungimap, and now our wonderful 'Bowerbird', we will be able to inform and educate all levels of government, councils and the general community on the role of fungi in the environment and their importance in land management.



Lichen moss.



Aemillaria luteobubalina



Lycoperdon pyriforme



Mutinus sp.



Mutinus habitat.



Where the Sassafras tree once lay.

Photos by Teresa Van Der huel

What a monstrous hat !

Membracidae are a wonderful group of leaf-hopper bugs that often display large and ornate pronotal processes. I have never seen a paper explaining the reason or advantage for having such over-developed “head-dresses”.

Dacre recently posted images of a membracid he spotted in Sydney. I sent the images to a bug specialist friend of mine, recently retired from the NSW Department of Primary Industries in Orange, NSW Dr Murray Fletcher, who gave me the name *Lubra spinicornis*. Murray commented: “The pronotal processes are quite variable in the expansion at the apex.”



The membracid in Dacre’s images has parallel processes but have a look at the process variation Murray showed on his website for this species.



Photos by Dacre England.



Photos by Murray Fletcher.

Yet another first for Jean and Fred over in the west.

Jean and Fred uploaded this attractive moth image photographed on 4 August 2015 at Indian Ocean Road, Wedge Island WA.

I put it to our resident “moth-ers” and they took their time deliberating on a scientific name. And well they did take time as Jean and Fred’s record is the first for Western Australia. Chock another record up for that dynamic duo – previous “finds” include a new species of flatworm and too numerous to count new records.





Photos by Jean and Fred Hort.

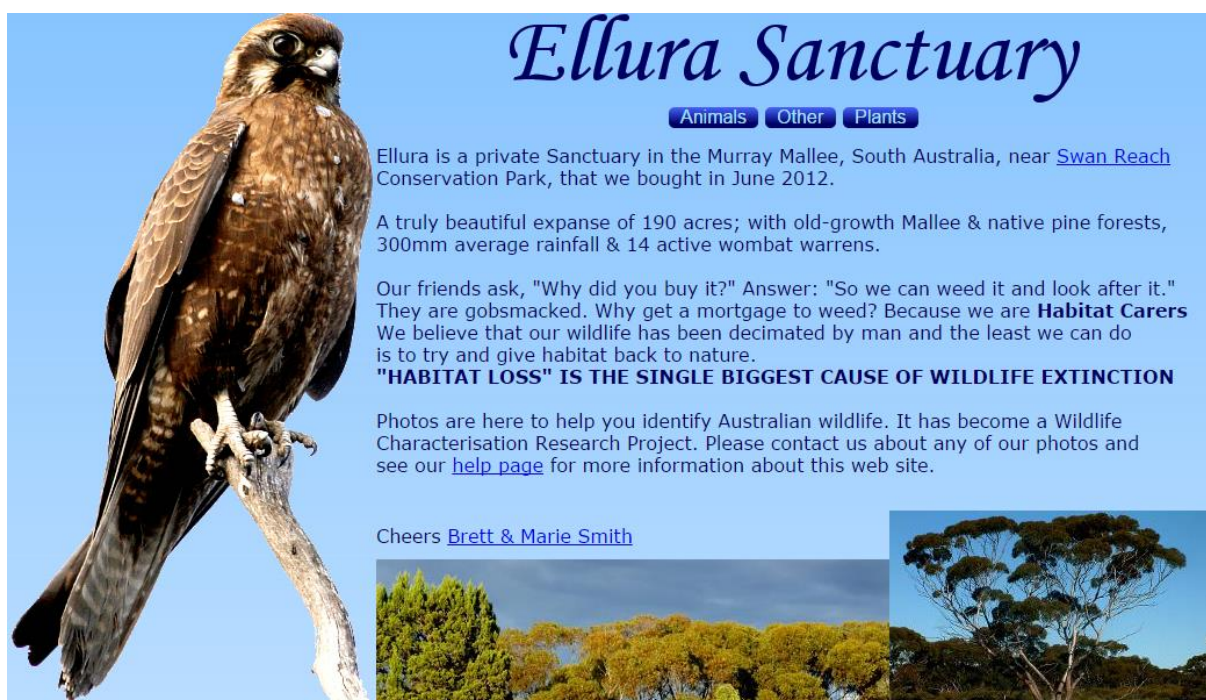
Here is the current ALA map for this species with Jean and Fred's record a first for WA.



BowerBird demonstrates its community efforts.

Last week, after some emails and discussions BowerBird received two new members – Brett Smith and his wife Marie. In 2012, they purchased 190 acres of old-growth Mallee and native pine forests. Their friends asked them: ““Why did you buy it?” The Answer: "So we can weed it and look after it." As Brett said – “Why get a mortgage to weed?”

Ellura has its own website at: <http://www.ellura.info/>



Ellura Sanctuary

[Animals](#) [Other](#) [Plants](#)

Ellura is a private Sanctuary in the Murray Mallee, South Australia, near [Swan Reach Conservation Park](#), that we bought in June 2012.

A truly beautiful expanse of 190 acres; with old-growth Mallee & native pine forests, 300mm average rainfall & 14 active wombat warrens.

Our friends ask, "Why did you buy it?" Answer: "So we can weed it and look after it." They are gobsmacked. Why get a mortgage to weed? Because we are **Habitat Carers** We believe that our wildlife has been decimated by man and the least we can do is to try and give habitat back to nature.

"HABITAT LOSS" IS THE SINGLE BIGGEST CAUSE OF WILDLIFE EXTINCTION

Photos are here to help you identify Australian wildlife. It has become a Wildlife Characterisation Research Project. Please contact us about any of our photos and see our [help page](#) for more information about this web site.

Cheers [Brett & Marie Smith](#)

Last week, Brett emailed me and asked if I could include them in the Bugle email list. Coming from a long line of Used Car Salesmen, I decided to tell Brett all about BowerBird and show him the benefits of placing his nature observations on both his Ellura website and BowerBird. So we began a “game” of email ping pong. Brett is a programmer himself so we discussed website philosophies and techniques. Finally, Brett joined BowerBird and his first upload was what he called:

🦋 Unidentified Hopping Fly (or is it a Bee?)



What happened next amazed Brett and really satisfied me. As Brett emailed me: “Good god! Daniel Heald has already kick started the id process with Chalcididae !!!!! Looks spot on to me. Now to see if it's possible to get to species. But it makes it so much easier once you have the family; let alone Genus! That was worth the time spent without a doubt. Wow, I'm blown away I got a response so quickly. Like 10 minutes.”

It didn't take long before Graeme Cocks correctly placed the images to the genus *Brachymeria*.

Bloody brilliant I say. If ever I had a website wish way back in 2011 when BowerBird was but a twinkle in our eyes, this was

the “proof of pud”. Thanks so much everyone involved with this record and all of the multiple identifications of birds, plants, fungi and insect BowerBird members assist with every day. The community peer-review system in BowerBird is amazing.



Daniel Heald
28 August 2015



Chalcididae
(family)

Taxonomy: Animalia: Arthropoda: Insecta: Hymenoptera: Chalcididae



Daniel Heald says

Parasitoid wasps well known for hopping rather than flying. These seems to be *Brachymeria* sp., but I'll leave that ID up to the experts



Graeme Cocks
28 August 2015



Brachymeria
(genus)

Taxonomy: Animalia: Arthropoda: Insecta: Hymenoptera: Chalcididae: Brachymeria



Graeme Cocks says

Yes this is *Brachymeria*. You can see in the 3rd picture that the apex of hind tibia ends in a spine. As Ken pointed out recently, shots from various angles can help with the ID.

And so, last Sunday Brett's first record was uploaded to ALA where it became the 111th record for the genus.

111 results for

Records [Map](#) [Charts](#) [Record images](#)

Downloads

Alerts

per page

Genus: *Brachymeria* Date: 2015-08-26 State: South Australia

Data Resource: BowerBird Basis Of Record: Human Observation [View record](#)

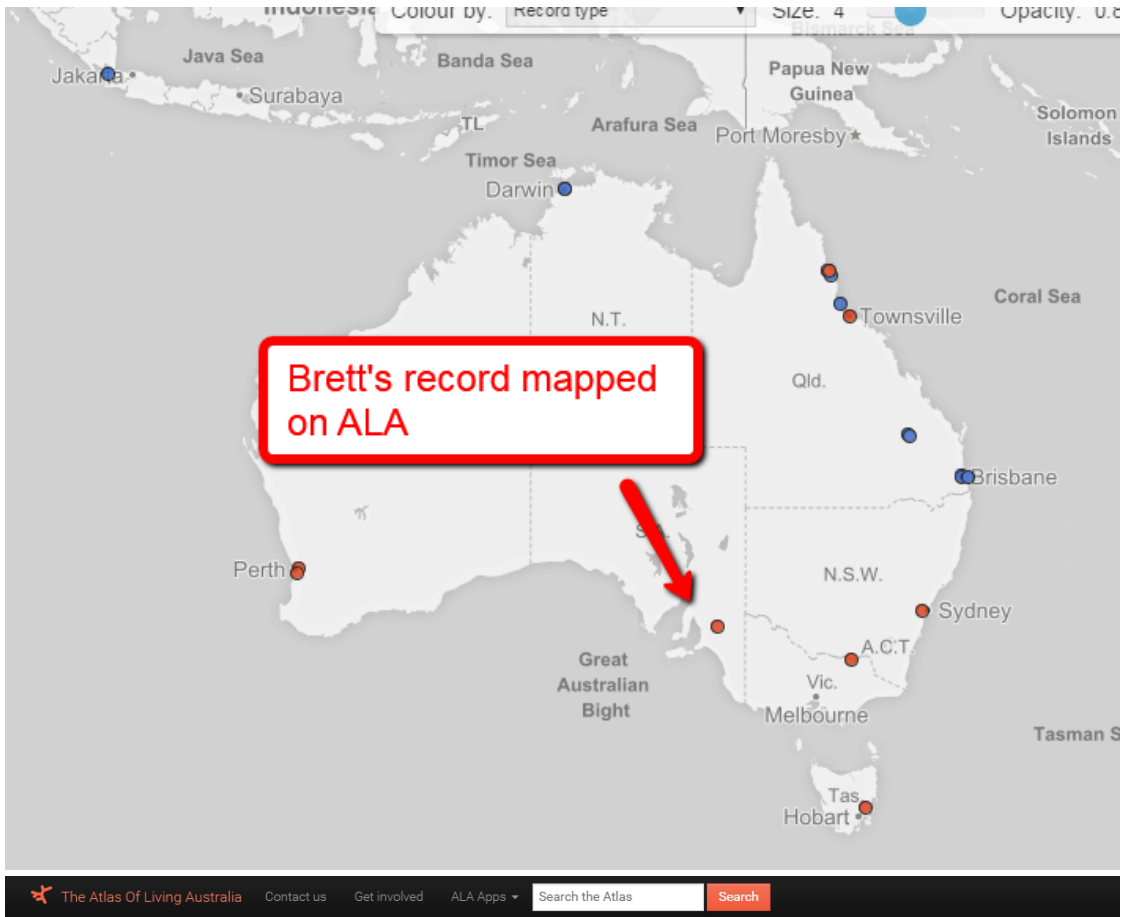
Genus: *Brachymeria* Date: 2015-07-21 State: Western Australia

Data Resource: BowerBird Basis Of Record: Human Observation [View record](#)

Genus: *Brachymeria* Date: 2015-05-01 State: Queensland

Data Resource: BowerBird Basis Of Record: Human Observation [View record](#)

Then the record was mapped and the full dataset (Image, GPS and Temporal data) was displayed on ALA.



Occurrence record: 92c30331-02f0-4e32-a01e-246e504ce001

Brachymeria

Data quality tests

failed: 0
 warnings: 2
 passed: 22
 missing: 14
 unchecked: 47

[View full data quality report](#)

[Flag an issue](#)

[Original vs Processed](#)

Images



[View image details](#)

Location of record



Dataset

Data resource	BowerBird
Basis of record	Human observation
Observer	Smith, B. Brett <i>Supplied as "Brett Smith"</i>
Record number	http://www.bowerbird.org.au/observations/42311
Record date	2015-08-26 <i>Supplied date "2015-08-26T00:00Z"</i>
Occurrence remarks	Hopping Wasp
Occurrence status	present

Taxonomy

Scientific name	<i>Brachymeria</i>
Taxon rank	Genus
Kingdom	ANIMALIA
Phylum	ARTHROPODA
Class	INSECTA
Order	HYMENOPTERA
Family	CHALCIDIDAE
Genus	<i>Brachymeria</i>
Taxonomic issues	No issues
Name match metric	Exact match The supplied name matched the name exactly.
Name parse type	wellformed

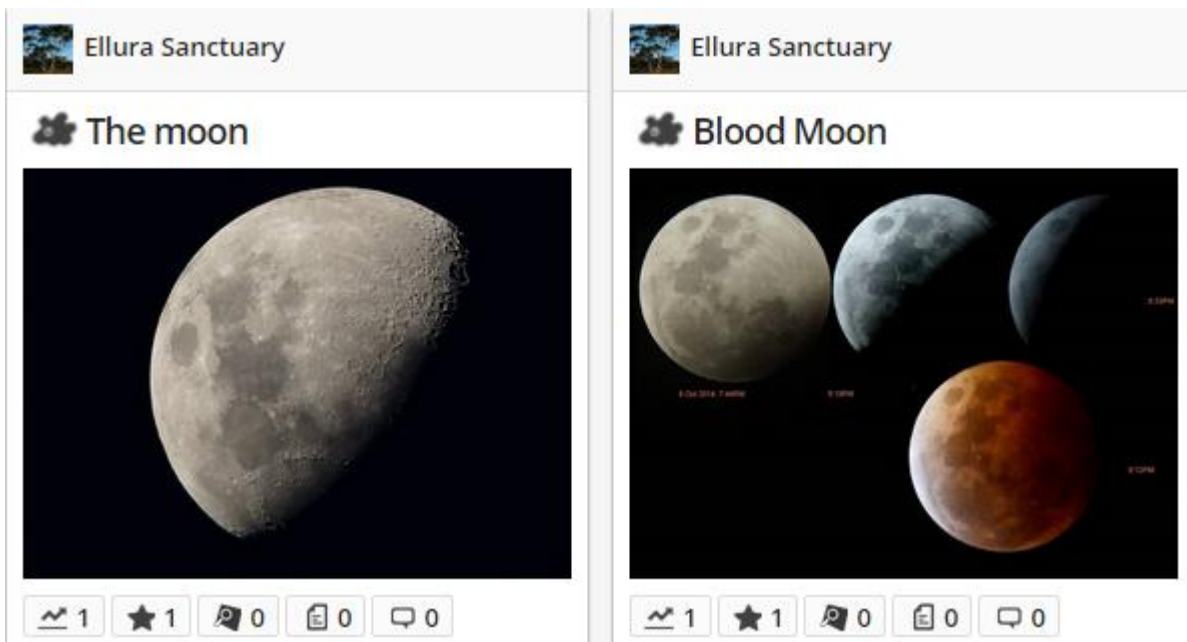
Geospatial

Country	Australia
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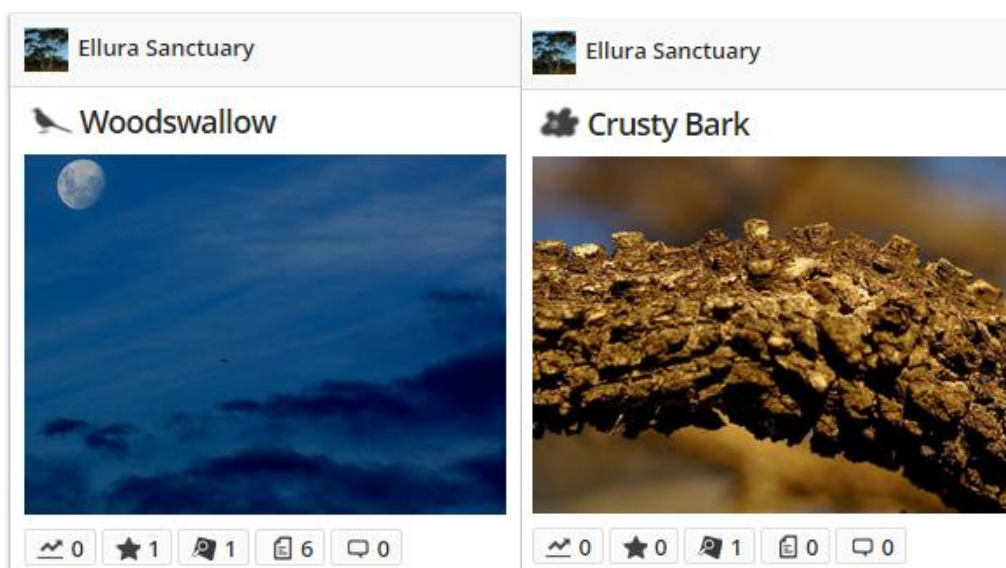
Brett has now created a new BowerBird project called :



Which has his interesting images of the Moon



Silhouette of a Wood swallow against a night sky and crusty bark



But of course, my favourite Brett image is this bee on a chocolate lilly. Brett identified the lilly (*Arthropodium strictum*) and I identified the bee (*Lasioglossum (Chilalictus) lanarium*). Brett created two separate records for this one image so that both bee and lilly identifications could be accepted by ALA.



Ellura Sanctuary
2 Sep 2015



So welcome Brett to BowerBird and thank you for bringing your unique Project flavour to BowerBird and for sharing with us your Ellura Sanctuary nature gems!

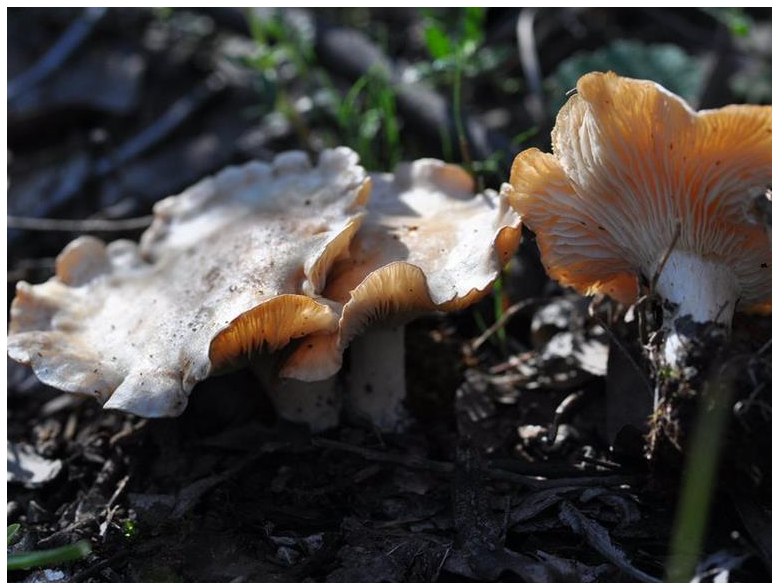
Your fungal fix for the week.

From the unknown ...



Photos by Matt Campbell who says

“Found on a thick sheet of *Eucalyptus obliqua* bark on a grassy firebreak between forest and pasture. I'm assuming something had turned the bark over as I can't imagine this lasting long in such an exposed position. The main patch was around 6cm long by 3cm at the widest point. Other patches were starting to develop. Very large pores forming a honeycomb like pattern.”



Maybe a *Laccaria* sp Location: Chiltern Photo by Friends of Chiltern Mt Pilot National Park

To the known population explosion!



Morchella elata Location: Chiltern Photo by Friends of Chiltern Mt Pilot National Park who commented: "There were over 200 Morels growing in a 50m by50m area on the forest floor. I have ever seen so many together in all my forays. Astounding. Wonder what triggered this explosion. It is an area frequently visited."



Mycena albidocapillaris Location: Jeeralang Junction VIC Photo by Matt Campbell. For some reason, the top image makes me think of the Mikado's "Three Little Maids" but missing one!



Resupinatus cinerascens Location: Cranbourne South VIC Photo by Reiner Richter.



Yellow Fungus Location: Wycarbah QLD. Photo Geoff Lotton. I liked Teresa's comment: "Another suggestion is *Heterotextus* species. Try collecting some and air dry them on a sunny windowsill. If they are this species they will dry to an orange-red colour and will rehydrate easily when you apply water to them."



Amanita Possibly *ochrophylla*? Location: Ararat VIC 3377 Photo
by Russell Stanley



Schizophyllum commune (Common Split-gill) Location:
Jeeralang Junction VIC. Photo by Matt Campbell

Just for the fun of it!

Another of Mark Berkery's wonderful imagery.

“The simple elegance and beauty in the form and being of ...
a beetle.”

Enjoy.



© Mark Berkery

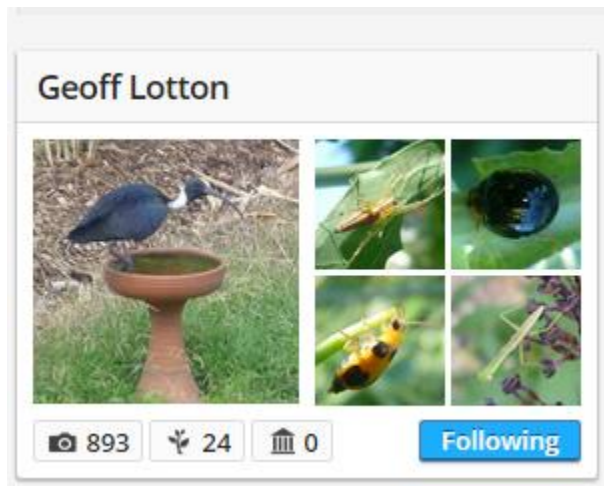
A loss to ALA staff and BowerBird.

On Monday morning, I was surprised and saddened to receive an email from Peter Doherty – the deputy director of ALA. Peter advised us that he was moving on from ALA to take up new career challenges.

Peter was the person, who back in 2011 approved the ALA grant to fund and build BowerBird. I remember well that moment - one of those moments when you get what you want but then think “But heck - What do I do now?”

Peter has been a strong supporter of BowerBird over the years and we have sat together at several citizen science workshops and meetings – Peter talking about ALA and me talking about BowerBird.

Not long after BowerBird launched, Peter forwarded me an email from an electrician based in Rockhampton who was looking for help to identify insects that he saw and photographed in his front yard. Geoff Lotton is his name. Geoff had little natural history experience or background but had developed a keen interest in nature and wanted to learn more about it. In those early days, I was relatively new to the selling techniques of Used Car Salesmen, but whatever I said was enough to convince Geoff to join BowerBird. We soon got to know Geoff’s front yard flora and fauna very well. Geoff has now managed to upload 893 records to BowerBird giving us and the Biodiversity community a wonderful insight to the animals, plants and fungi from his local area. What an amazing effort.



But it was Geoff's photo on 22 March 2014 that made me sit bolt upright. You can see that Geoff simply recorded his image as "Bee" but this was a significant record as it was the first confirmed sighting of the South African Carder bee, an invasive species, well north of Brisbane. The exotic species was on the move and Geoff had recorded its northern advance.



Sighted 22 Mar 2014



50-52 Upper Dawson Road, Allenstown QLD 4700, Australia

Being an electrician, Geoff was the perfect person to find where these bees love to nest – inside electrical meter boxes. While on the job, Geoff took this image and uploaded it to BowerBird.

🐝 Carder Bee nest?



Over the past 2 years, Geoff has sent me wonderful 15 emails. Please allow me to share some of Geoff's comments with you:

"I spend a lot of time standing in the garden observing. Believe me, a lot more fun than crawling thru a tight roof space.

I know Bowerbird was set up to record the biodiversity of Australia. I tend to lead a pretty busy life but try to log on often to just have a look at what people are seeing. Like anything to do with nature, no one can foresee the many side effects from a single action. As for me, I have gained so much knowledge. I know what a fly is (apart from annoying). I have learnt the word Odonata. I have got my mother looking under her pot plants.

She has taken the time to find out about the barred doves that visit her unit. Bowerbird is more like a flint that ignites a flame.

The fuel needs to be there but creates no light or energy without an ignition source. I have an advantage because my work takes me to lots of places and is often outdoors. I am sure customers think I am being rude when, while talking to them, an insect of some sort lands on the wall and I am more interested in trying to identify it than answering their questions but, hey, got to get priorities right. I see more of the world around me now than I have for a long time. Bowerbird, along with other projects, is that ignition source. I don't get enough time to research identifications. I do get excited when I see those special sightings. A fly on a windscreen. Any child can make a special discovery."

One of Geoff most recent email warmed my cockles when he said: "I can now actually understand what you are saying."

Did I tell you that Geoff's Mum is also a member of BowerBird!

Geoff is the kind of person we had in mind when we developed BowerBird. How can we reach and inform non-scientists about the beauty, the wonder and the excitement of nature. How can we get them to show us what occurs in their own backyard? How can we ask people to be the eyes and hears of Biodiversity around Australia. Two years later and we now have over 25,000 records on ALA from people yards and travels. Turning over a rock and finding an animal or seeing something land on a flower. You can photograph it but where can you go to find out what it is? Facebook and Flickr are possible places but for me the trouble with these websites is that after all of the efforts to photograph and identify the image that value is lost as the importance of record "dies" with the record itself as it is not on-shared with Australian and overseas biodiversity aggregating websites such as ALA (Atlas of Living Australia) and GBIF (Global Biodiversity Information Facility).

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)