



18 September 2015 Ken Walker ([kwalker@museum.vic.gov.au](mailto:kwalker@museum.vic.gov.au)) Museum Victoria. Edition 26.

Hi All – I'll begin with a quick report on last weekend's Field Naturalists Club of Victoria symposium on the impacts of the Anthropocene. The day was great with several interesting and passionate speakers. However, the day began with a 15 minute introduction by one of the organisers of the symposium. He spoke of his interest in the subject and the studies he had made about the subject. However, he made one comment that caught me by surprise which was "When a specimen is dead in alcohol is it of little further use." I was the next speaker after these introductory remarks were made so I casually mentioned that I work at a Museum with approximately 18 million dead specimens and that Australia wide institutions hold about 60 million dead specimens and that there is quite a lot of data inherent to these dead specimens – that got quite an audience laugh. Fortunately, my talk showed species distribution maps which I commented were mostly created from distribution labels on dead specimens in museums. I also spoke of the value of our 1742 specimen from China and our 1796 hawk moth specimen with this hand written label: "Taken in the Isle of Wight on 28 August 1796 by my good friend Mrs Thompson." To me, these are invaluable biodiversity postcards from the past. These physical specimens provide us with certainty of that species occurrence at a particular time and place. If the species no longer occurs at the place then we can ask

questions as to why it has disappeared – intensive agriculture, pesticides, urbanisation, climate change etc. You cannot ask these questions and compare spatial data without a past baseline. Finally, the symposium comments reminded me of two past comments that acted as a burr under my bonnet – (1) Why do you have so many specimens of the same species in the collection? And (2) Why don't you put all of the museum specimens into one room and have just one curator to look after them all. The advent of the internet has been one way that Museums have been able to show the wealth and richness of data we hold and the internet has allowed the public to query the very data sources their taxes helped to build. Ok – I'll get off my soap box now.

Speaking of datasets, Martin Lagerwey asked me a very interesting question during the week. Martin said: "I have a question for you about discrepancies I notice between information on ALA and AFD." I wondered if people knew of these wonderful datasets, what the differences are between them and how best to use them. AFD is the acronym for the Australian Faunal Directory. It is administered by ABRS – Australian Biological Resources Study in Canberra. AFD is a taxonomist's equivalent of a phone book - as we always say about a phone book: Great set of character but has a poor plot! AFD is Australia's official animal species names checklist. It tries to list every animal that has been described from Australia and includes Christmas Island and Macquarie Island fauna. AFD provides a full listing for each valid names. That means it shows any name that has been synonymised with the valid name and it shows the complete authorship, publication date and scientific reference for every Australian species. I revised the AFD listing for Australian bees in 2006 and 2012. It's laborious and detailed work sourcing all of the information

displayed by AFD for every species but the results of the compilers work is that everything you need to know about a species taxonomic history is in one place. The AFD query URL is: <http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/home> Here you can search for any taxon name – Kingdom to species, valid or synonymised. I used AFD as the backbone to build the BowerBird MasterNames checklist which contains just over 220,000 valid species names. BowerBird does not contain synonymised names which so many people use because they are not aware of name changes to taxonomies.

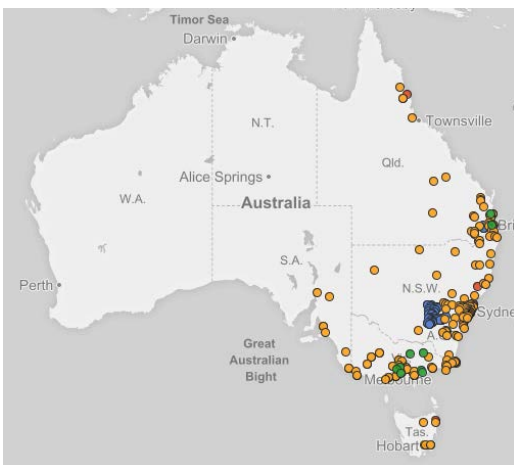
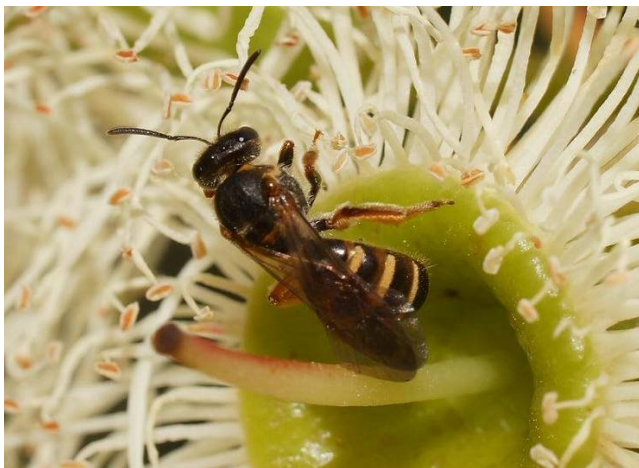
### Name Search

This will search valid names, common names, alternative combinations, excluded species and synonyms. It at different gender endings.

Scientific name or common name	<input type="text"/>	<input type="button" value="Search"/>
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I'll give you a practical example of how AFD works. In 1995, I published a revision of the Australian native bee group *Lasioglossum (Chilalictus)*. When I began this study, there were about 120 names in the literature that had been associated with this subgenus. At the end of this study, I synonymised 62 of these names as invalid – that means, the same species had been described under different names by different people even though it was the one species. Then I added 73 new names for species that I discovered had not been named. That gave a total of 134 valid names for this important pollinating group of bees. I stabilised the taxonomy for the subgenus. For example, one valid species is called *Lasioglossum (Chilalictus) bicingulatum*. It had been named and described by F. Smith in 1853. However, I found this species had also been redescribed and named as: “festivus” by Rayment in 1935, “haematopus” by Cockerell in 1914, “leai” by Cockerell in 1910 and “sanguinipes”

by Cockerell in 1914. Some of these names were attributed to the different sexes of the bee as they had not been recognised as being both sexes of the same species; other names were given due to carelessness. So, I placed all of these names in synonymy under the first described valid name which was “bicingulatum”. It’s a beautiful bee that occurs as far north as Cooktown then extends down the east coast of Australia into Tasmania and it scrapes into SE corner of South Australia. When Reiner Richter took the below photo, we could confidently place it to species without any confusion about the name of the species. The taxonomic nomenclature had been revised and confidently concluded. Undertaking taxonomic revisions is one of a major tasks for taxonomists. This means checking all of the old names and making a modern list and then describing new species. Revising a group of animals is a very time consuming process. Confucius said: *The beginning of wisdom comes when you call things by the correct name.*



Location: Cranbourne Botanic Gardens. Photo by Reiner Richter.

Map source from ALA

So, AFD (Australian Faunal Directory) is a names repository. It’s the best place to visit to query or check a name. The plant equivalent is APNI – Australian Plant Names Index.

ALA is an acronym for Atlas of Living Australia – [www.ala.org.au](http://www.ala.org.au). This a \$30 million website built and designed to store and display the specimen data for all Australian plants and animals. Primarily, it was conceived as a single repository for the 60 million specimens in Museums and millions more plant and fungal records stored in Herbaria around Australia. Prior to the launch in 2007 of ALA, there was no single place where you could search to find the distribution of a species. In theory, you had to go to every Museum or Herbaria, request their data (which would be in sorts of different formats) and then you would have had to create your own distribution map based on data from numerous data sources – no wonder no one ever did it. Now, ALA contains just over 10 million specimen record. Museums only began databasing their collections in the mid to late 1980s. Museum Victoria got its first computers in 1983 and we began to database our collection in 1985. Imagine starting a project with an 18 million specimen backlog. It was disheartening to say the least but we had to start somewhere. It will take another few decades before all Museum and Herbaria specimen records have been databased and uploaded to ALA. As I said to Martin – *The data is only as good as the data itself is good*. We have a long way to go but we are moving forward.

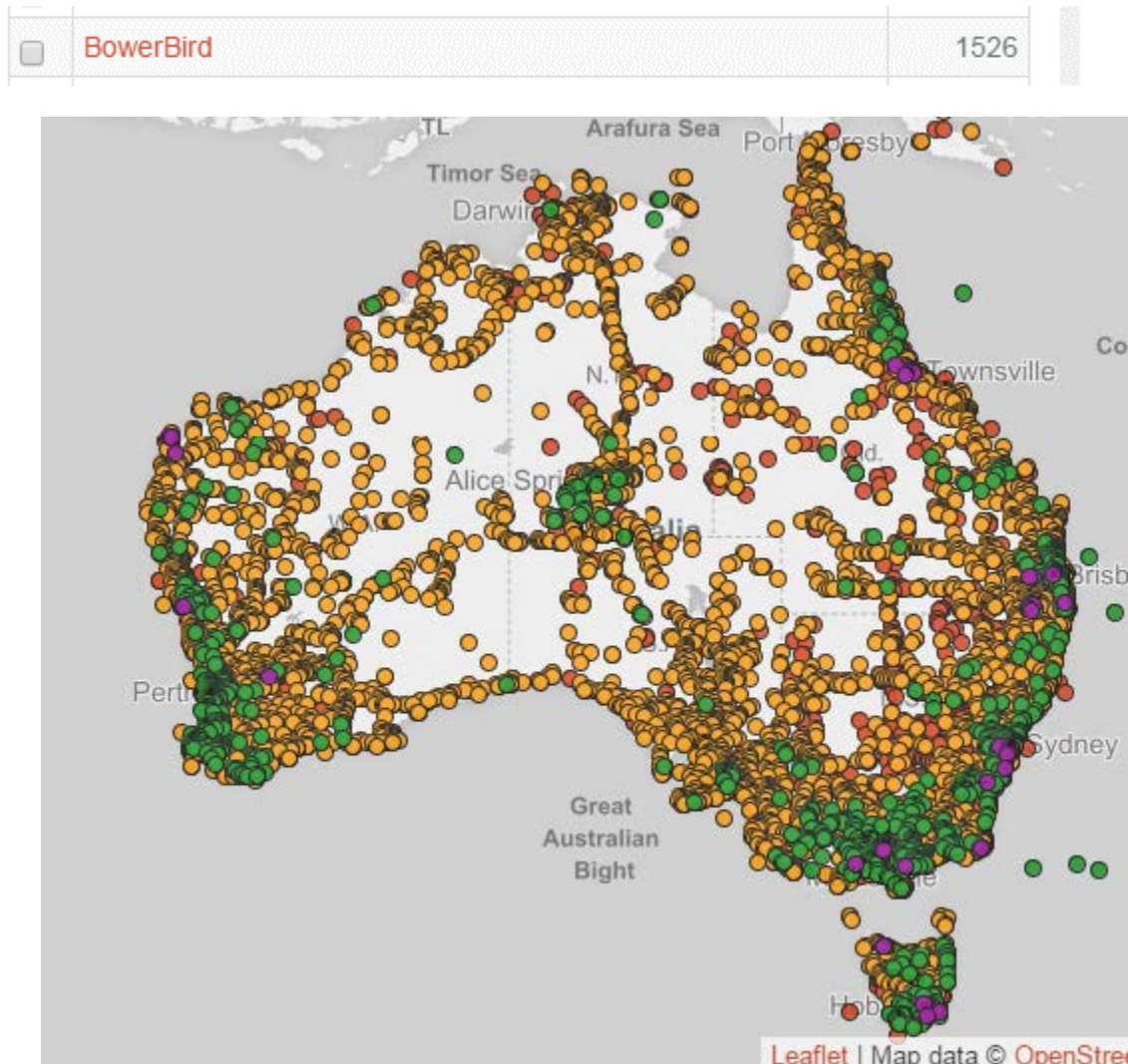
A good example of the progress we have made is to ask ALA for the specimen records on a map of Australia for the Apoidea – that's the group name for all bees in Australia. An Apoidea query on ALA will return 201,817 specimen records:

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201,817 results for  ▾

And the map will look like this. It's always interesting to see how nice it is of the bees to occur mainly along the main roads

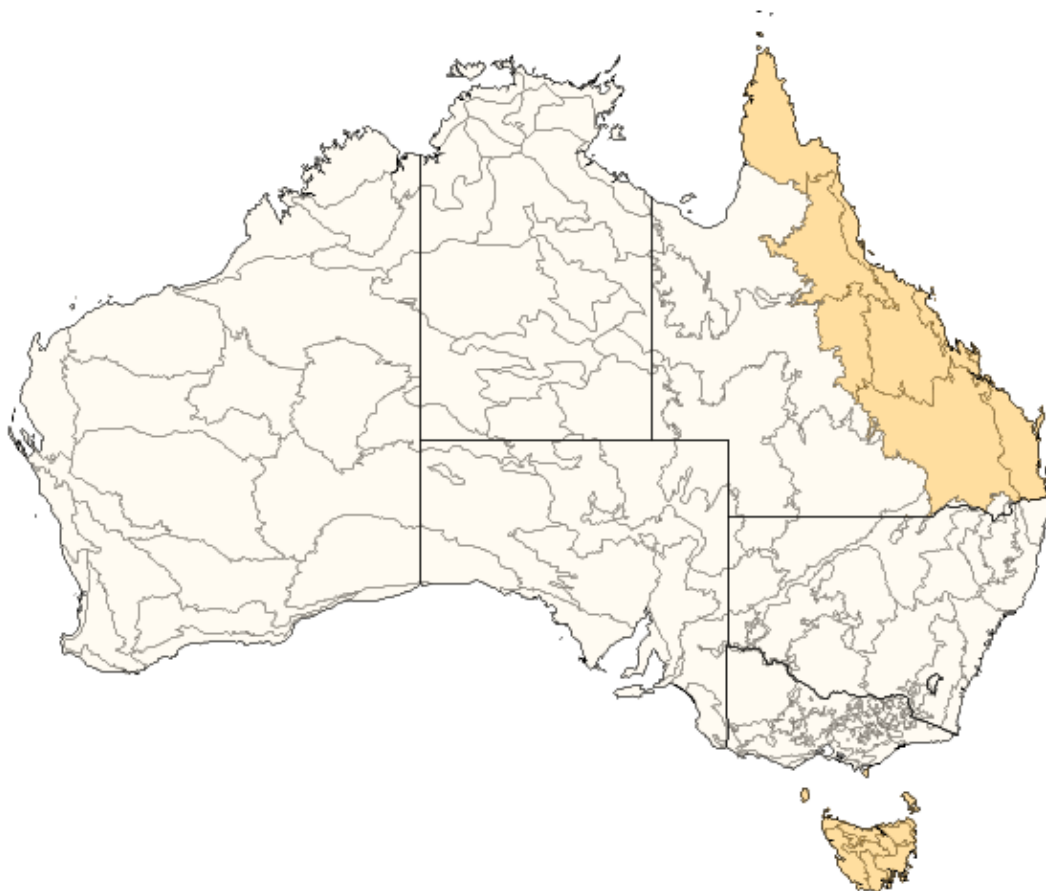
of Australia! (:->! The map is also an easy way to see where gaps in our data exist. Interestingly, BowerBird's contribution to this map is 1526 bee records – small but significant.



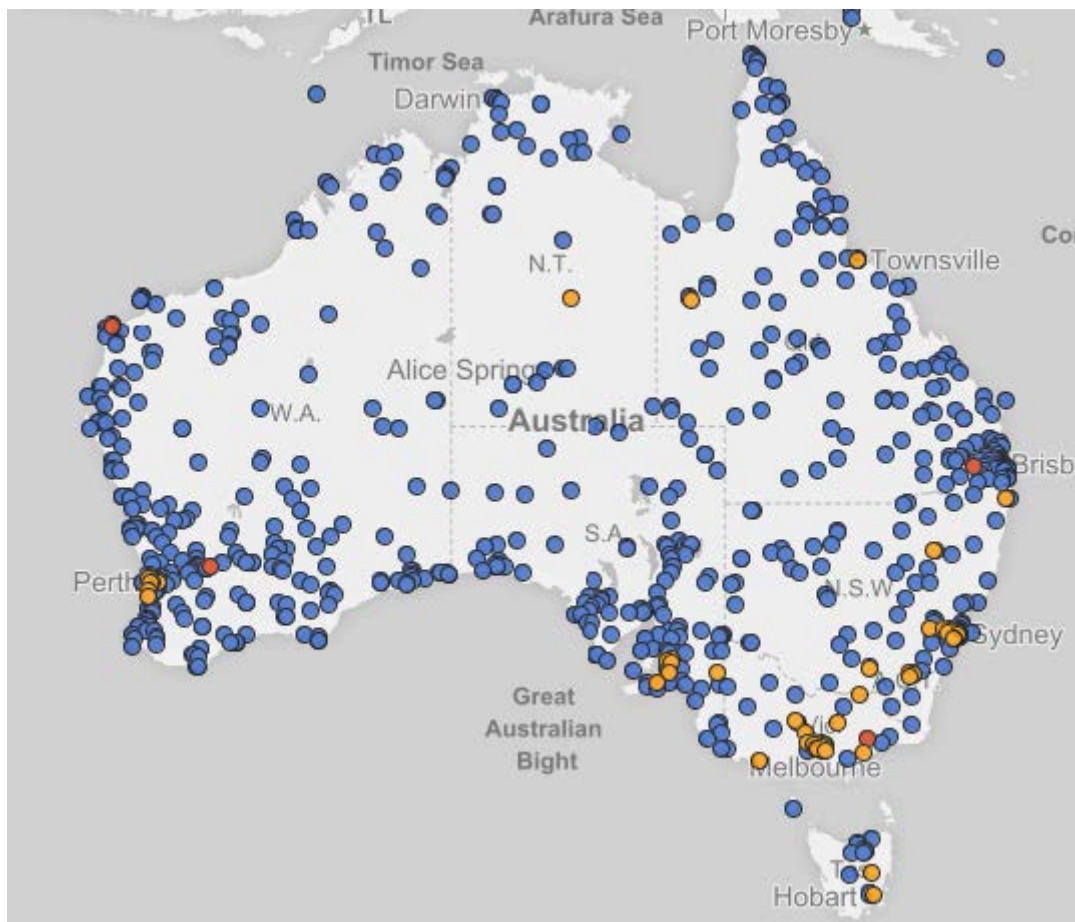
So, Martin's question was about the leaf eating beetle *Paropsis lutea*. He noted the ALA map showed the species occurring in only 3 states (Qld, NSW and Victoria) while the AFD map showed it also occurred in Tasmania and South Australia. Which website should be used to search distribution patterns? In this case, the AFD map appears to be better. However, when someone updates an AFD species, they simply click on a map where they think the species occurs. For AFD, you do not need to substantiate the distribution map with specimen records. Chris Reid did the AFD revision of the leaf beetles and

he may have seen specimens from all of those states during his studies of these beetles. Therefore, he simply added the states. For ALA to put a dot on a map requires someone in a museum to get the specimen out of the collection, print a registration number label (eg. COL – 28976) which is a unique number for that specimen only, then cut it out and put the specimen's pin through the number label, then fill out a database insertion template with the taxonomy and specimen label data, save the record to the Museum database and then upload it to the ALA database. That takes a lot longer than simply clicking an area on a map as you do for AFD.

So, in this case the AFD map for *Paropsis lutea* appears better. Let's compare the AFD and ALA maps for Red-back spiders – *Latrodectus*. The AFD map shows these spiders only occur in Queensland and Tasmania which of course is rubbish.



Whereas the ALA map correctly shows these spiders occur throughout Australia. In this case ALA is a better data source.



So my take home messages are:

AFD – Best source for taxonomic information

ALA – Best source of distribution maps.

For taxonomic information, AFD is as complete and as upto date as possible. The AFD maps are a throw away – the authors do not have to fill them out – some do and some don't.

For distribution maps, ALA is your best source but you must realise that ALA is reliant on Museums and Herbaria databasing their collections. We estimate it costs \$7 per



specimen registration and we have 18 million specimen so the cost for 100% registration is about \$126 million – and that is just for Museum Victoria. The total cost for all 60 million specimens in Australian Museums is about \$420 million. Remember, no Commonwealth or State governments have ever given any Museum any funding to database. We have had to relocate funding from other tasks and direct it to resource databasing. The Museum Victoria insect collection has about 3 million specimens and we have databased about 500,000 records. That above the 10% mark we set ourselves – but it still leaves 2.5 million specimens in just our collection that our not databased which means their data is not available publically.

This is where citizen science websites such as BowerBird, are helping to fill the gaps for spatial and temporal data for Australia's fauna and flora. Not only does BowerBird help to fill gaps but the data is a current view rather than Museum's which general present a past view. BowerBird data does in no way take away the need for Museum data as they are quite different datasets adding information from different time zones.

I hope you have found my laboured discussions on AFD and ALA of use and value. These websites should be your working tools for names and places. I am always checking them when I upload records to BowerBird and how I sometimes comment – “First record on ALA”.

Our combined citizen efforts are a wonderful collaboration with Museum and Herbaria datasets. If you have any questions about this discussion or want more information about these datasets, then please ask me. They are my “tools of trade”.

# The Known Unknowns and Unknown Unknowns

## Thanks to Donald Rumsfeld

One of the aspects of BowerBird I enjoy watching is when members post images of animals that they cannot identify. I am often amazed how quickly someone else will jump in an offer and identification or a clue to an ID. This is a value of BowerBird social network software. Here are a few recent examples:

### Invertebrate

This is a Hemipteran nymph – perhaps Eurymelidae.



Photo by David Mules.

## 🦋 Beetle

This is a Silvanidae beetle. They are flattened species with a characteristic pronotum which often has lateral teeth.



Photo by David Mules.

🦋 A black, red and white  
Leaf-hopper.

*pulchra*.

Identified as *Eurymeloides*



Photo by Michael Bedingfield

🦋 A small pale green leaf-hopper with pink trim.

Later identified as *Siphanta acuta*



Photo by Michael Bedingfield

Below is a curious image photographed by Ken Harris near Wangaratta, Vic of what appears to be either a stick protruding at right angles from the substrate or some animal shelter.

Initially, Ken suspected it was an insect but could not go further as he identified the image as simply "Insecta".



But within a few hours on the same day, Martin Lagerwey offered an identification suggestion.

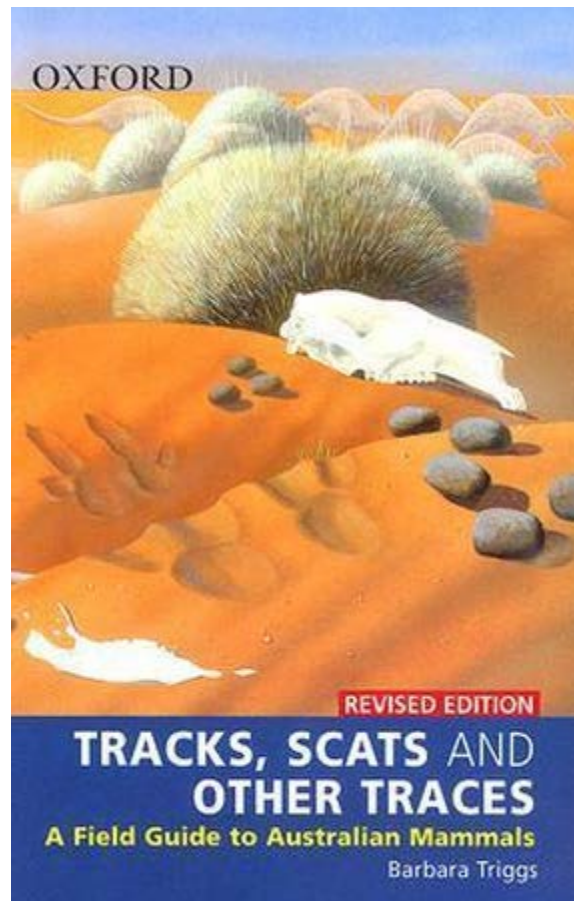
Martin said: “I am not the expert so I'd like someone to confirm. I have recorded this before.

<http://www.projectnoah.org/spottings/19602002> so has Mark <http://www.projectnoah.org/spottings/13221137> Also here [http://www.brisbaneinsects.com/brisbane\\_moths/Tube.htm](http://www.brisbaneinsects.com/brisbane_moths/Tube.htm)”

Martin’s suggested identification was correct – Moth: Oecophoridae: *Hemibela* sp. The Brisbane Insects website, as usual, was a wealth of useful information saying: “Caterpillars of genus *Hemibela* live in tube. They make a hollow tube from small twig and live inside as protection. They change tube when they grow up. They pupate inside the tube as well. All of them feed on gum leaves, although we found the above tube on an *Acacia*.”

# Tracks and Scats

There is an “art and a science” to divining species names from the animal’s droppings, the tracks animals leave behind and bits of animals. Back in 1984, Barbara Triggs produced the first book on this topic called “Tracks and Scats” which opened many people’s eyes to the ability of determine a species presence by their scats and tracks. Barbara’s book won a Whitley Award for the Best Field Guide in 1984. As they say – the rest is history. Below is her revised 2004 edition.



John Read is a special kind of “scat reader”. He uploads scats from some of the most remote parts of Australia and tells us what he has determined by their presence. John recently uploaded scats of the Yellow-footed Rock-wallaby (*Petrogale xanthopus xanthopus*) from the remote location of Yardea, SA.

Sighted 16 Sep 2015



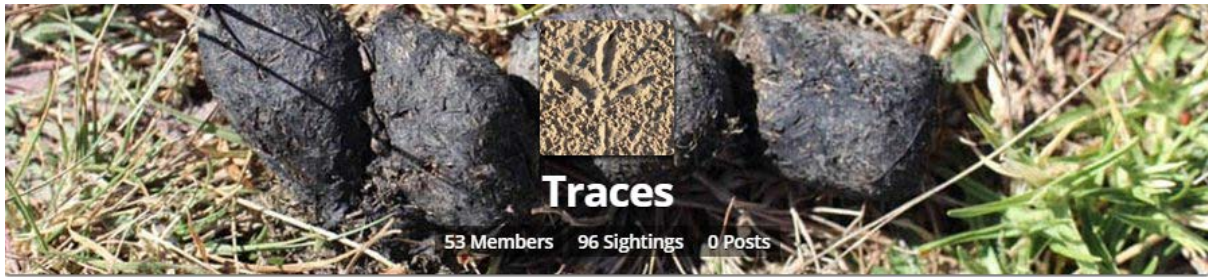
Yardea SA 5601, Australia



Photo by John Read

John commented: “Fresh scats more elongate and pointed than more abundant typical euro scats but low Triodia Hill near Pondana Ruins not typical habitat for the Yellow-footed Rock-wallaby.”

BowerBird has a project dedicated to Tracks, Traces and Scats which currently has 53 members and 96 sightings. Join up!



The variety of records in this project is amazing:

Balls of chewed Acacia leaves



Photo by Tamara Leitch

Ghost Moth pupal cases



Photo by Daniel Heald

Longhorn beetle



Photo by Daniel Heald

Northern spiny-tailed gecko tracks



Photo by John Read



## Burrowing Crayfish tower



Photos by Tamara Leitch

## Western Grey Kangaroo Tracks Portuguese Millipede Tracks



Photos by Daniel Heald



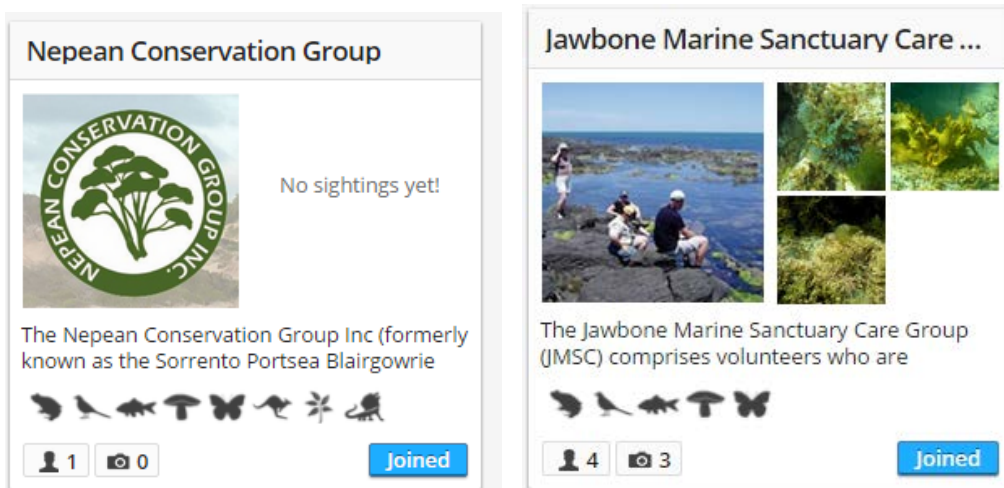
This scat image generated 7 different conversations about what produced it. Great stuff.

Photo by Colin and Wendy Cook

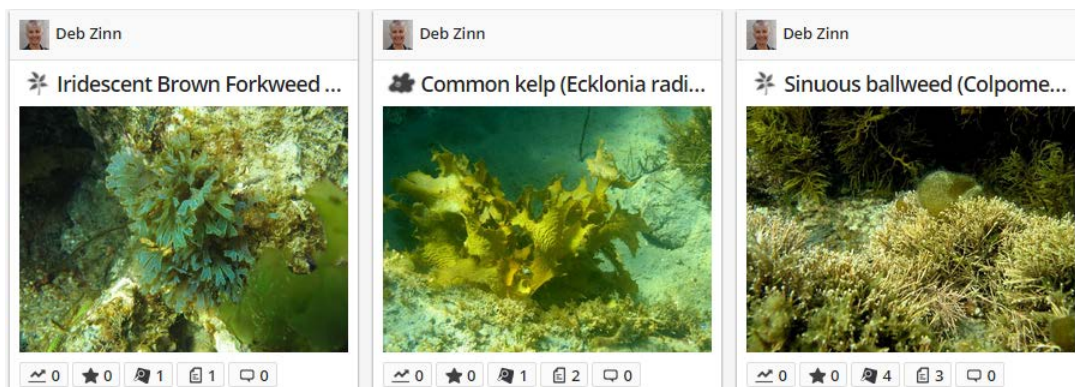
# It's the chats that are more important than the meeting

While last Saturday's Anthropocene symposium talks were interesting and stimulating, for me the best parts were the chats over a cup of tea and sandwiches. In particular, I had two people talk to me about joining BowerBird. Both were from different local conservation groups – The Nepean Conservation Group and the Jawbone Marine Sanctuary Care Group. Both groups run their own websites but admitted having difficulty getting much traction as the websites were rarely visited.

This week both groups created new BowerBird projects and have begun to upload new records.



Deb Zinn from the Jawbone group told me of the hundreds of images and records they have of their marine life. Here's some:



## What's in a name? Confusion possibly!

People sometimes ask me why we scientists use scientific names rather than common names. Well – Here's why.

Three days ago, John Read was travelling along this dirt track near Yardea, SA when he spotted this snake. Rather than me, John captured the snake, a colleague photographed it and John recorded the sighting on BowerBird. However, it was his record title that caught my eye – He called the snake a “gwardar”. That's its SA and WA common name but in other parts of Australia it is called Mengden's Brown Snake or Western Brown Snake. However, it has only one scientific name: *Pseudonaja mengdeni* and that name we all agree upon!

Put the snake down now John and walk away quickly NOW !!

 gwardar Gawler  
Ranges



**Just when I thought it was all over –  
an explosion of fungal records!  
So - Your Fungal Fix for the week!**



Currently Unknown



*Ganoderma applanatum*

Location: Wadbilliga National Park NSW

Photos by Teresa Van Der Heul



*Polyporus arcularius* Location: Wadbilliga National Park NSW

Photos by Teresa Van Der Heul



*Trametes versicolor* Location: Wadbilliga National Park NSW



*Stereum hirsutum* Location: Wadbilliga National Park NSW



*Tremella fuciformis* Location: Yowrie NSW

Photos by Teresa Van Der Heul



*Usnea* sp. Location: Yowrie NSW Photos by Teresa Van Der Heul



*Hexagonia vesparia* Wasp Nest Polypore Location: Morwell National Park Photos by Matt Campbell



*Lichenomphalia umbellifera* Ararat VIC  
Photo by Reiner Richter



*Cyathus stercoreus* Bunbury, WA.  
Photo by Daniel Heald

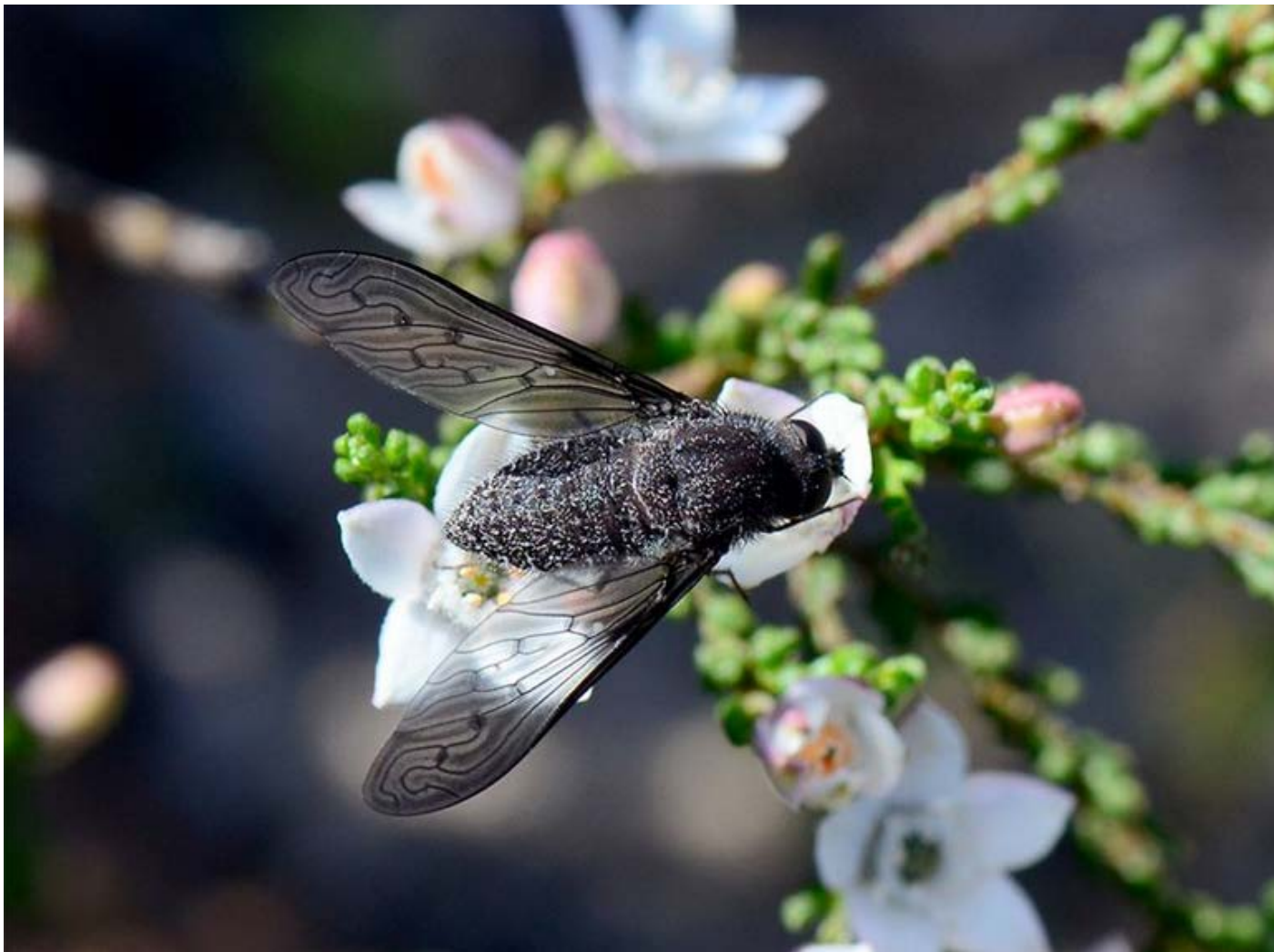
Teresa uploaded these beautiful images of the West Indian Raspberry - *Rubus rosifolius*



Photos by Teresa Van Der Heul

Our intrepid farmer from north of Horsham, Maree, is now back from her north Queensland trip and she is finding spring insects in her garden and a recent visit to the Little Desert. Here is a selection:

Look at the beautiful wing venation and grey shading patterns.



Beefly – *Comptosia* sp. – Little Desert, Vic. Photo Maree Goods.



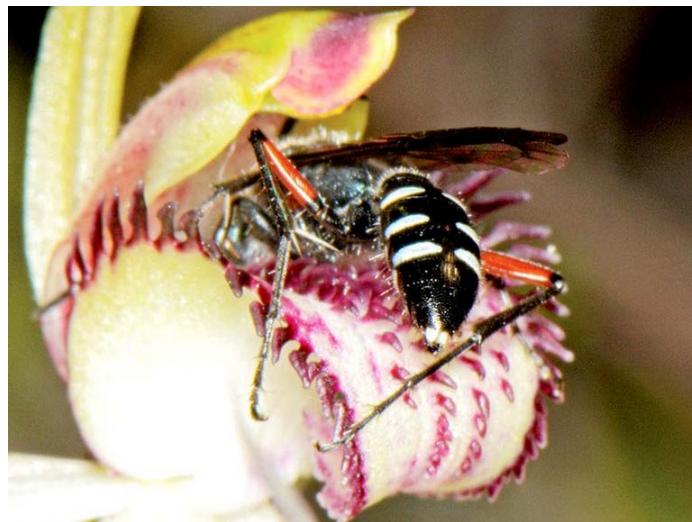


Another beautiful beefly as yet unidentified. Little Desert, Vic



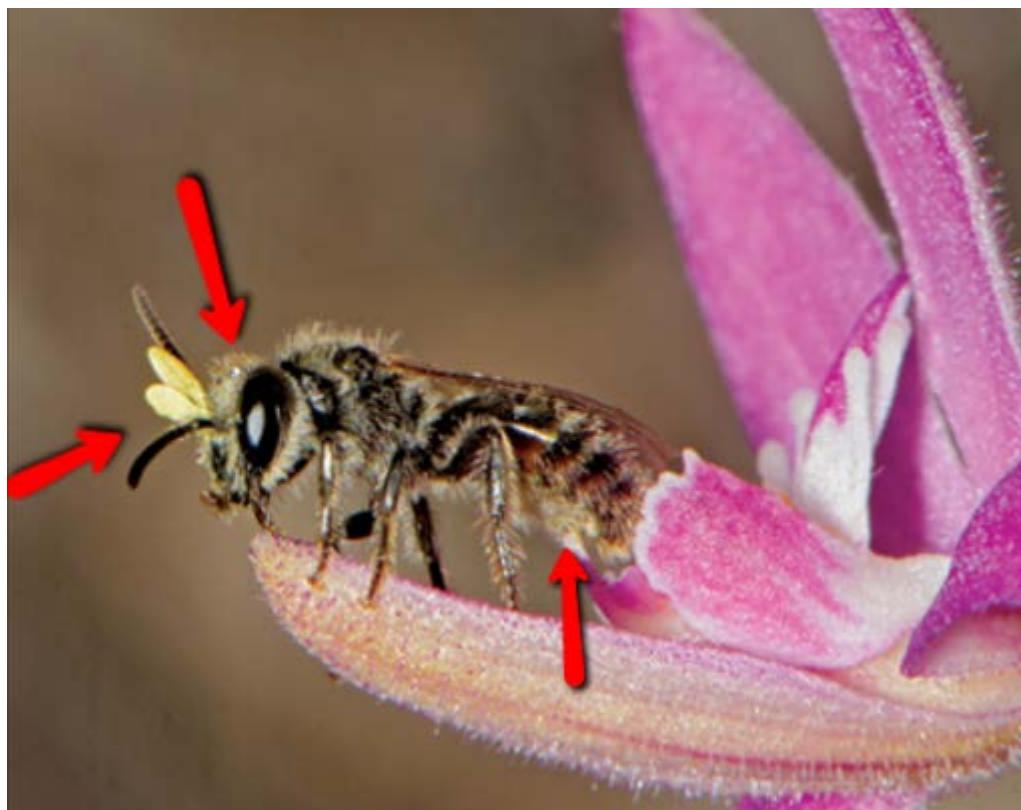
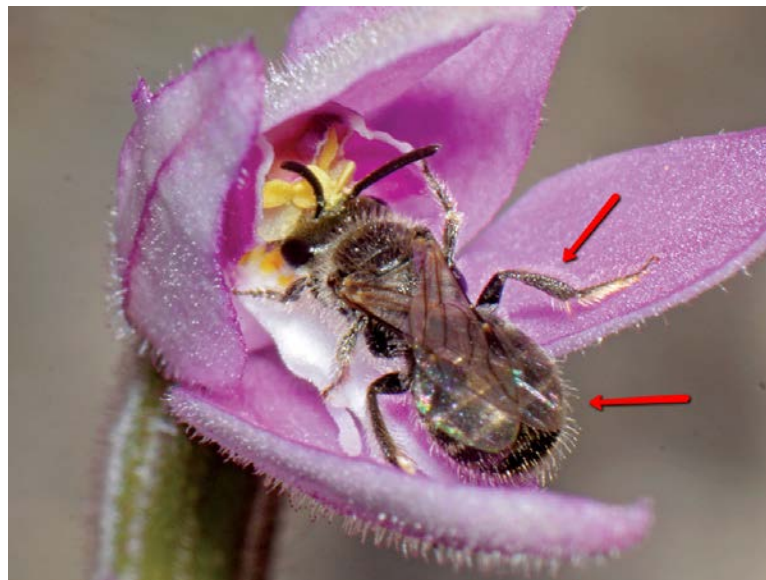
Ichneumonidae – *Labium* sp. Notice the yellow tipped antennae. Little Desert Photos by Maree Goods.

Rudie Kuitert recently ventured to western Victoria where he found and photographed bee and wasp orchid pollinators.



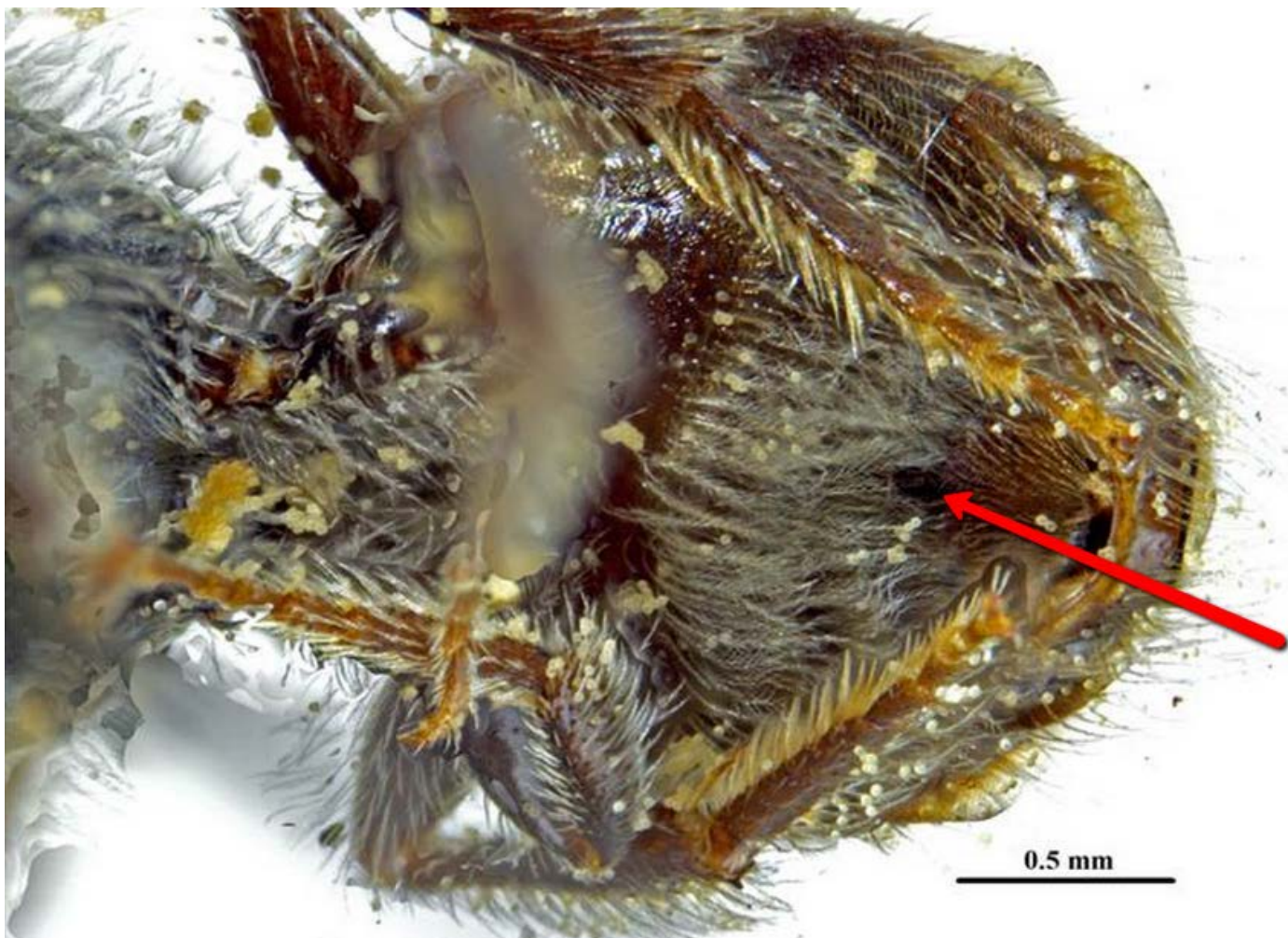
I asked Dr Graham Brown, Australia's Tiphidae expert, to identify this thynnine wasp. Graham is currently visiting the British Museum in London but he answered that it was the male of the Blue Botte ant – *Diamma bicolor*. Graham was surprised to see it as an orchid pollinator. The orchid is the Tawny Spider-orchid *Caladenia fulva*; Location Stawell, Vic.

And, here is a small male bee pollinating *Caladenia latifolia* or Pink Fairies at Tallageira in western Victoria. You can tell it's a male by the lack of hair on the hind legs and the abundance of hair on the face. Notice the yellow paired pollinia attached to the head. Notice also the unusual width of the abdomen wider than the thorax. Only the male of *Lasioglossum (Chilalictus) globosum* has this character. It made for an easy identification.



Male *Lasioglossum Chilalictus* bees often have unique and distinctive hair patterns on the underneath of the abdomen. There are 9 subgenera of *Lasioglossum* in Australia and *Chilalictus* is the only subgenus where males exhibit this unique character. If you look closely at the lateral bee image above, you can see where I have arrowed this strange tuft of dense hair on the underneath of the abdomen – use your imagination!

These hairs can only be associated with mating. I presume the males have some type of sex gland on the underneath of the abdomen which produces a pheromone. The abundance of hair around this gland would help to spread the liquid pheromone and enable it to evaporate quickly and then be picked by the female. Here is a close up of the dense hair tuft on *L. globosum*. This pattern is unique to this species.



Finally, a selection of Mark Berkery's wonderful imagery. Notice that all of the ants are drinking water .....

And here are Mark's words accompanying his images:

*Here in Oz the ant is in charge of turning the earth, as in other places it is the worm. That's how it looks to me.*

*Everywhere I look there are ants, always on the move, busy, busy, busy. They are better built for working the dry soil, with a little help from the occasional rain.*

*There are so many kinds of ant I have lost track, as if I was ever so inclined. Here are a few I invited to stop for a picture, by placing a drop of sugar-water along their path.*

*Everything works its patch, you and me included. And everything needs the right kind of nourishment.*

*A little nectar is a passing heaven, to an ant.*

*Sensational ...*







© Mark Berkery



© Mark Berkery



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