



06 November 2015 Ken Walker (kwalker@museum.vic.gov.au) Museum Victoria. Edition 33.

Hi All – One of my major tasks at the Museum is to perform public identifications. I think I have said before, I identify the specimen to the lowest possible taxonomic rank which is hopefully species. Armed with this scientific name, I hit my resources – books, journals or the internet. I use the scientific name as a “key” to open the correct literature seeking specific information about my identification. Using this specific information, I can inform the public on whether their insect concerns are: Of economic significance; Of medical significance; Or only Of nuisance value. If the invertebrate is of economic or medical significance, then I recommend they seek assistance or spend money to resolve the problem. If the literature tells me the invertebrate is only of nuisance value, then I tell the person the decision to do more or spend money is their decision but I would advise against any further action.

This process works fine for about 99% of the public enquiries I receive. However, there is one set of identifications where I feel sympathy, frustration and utterly useless. This is where people tell me they are being bitten or attacked by something I cannot see. Usually, by the time they reach me, they have contacted their: local city council health department, then their local GP who refers them to a dermatologist. In the meantime, they usually engage one or more pest companies to spray their

residence and they often get repeat spray visits from the pest company when they continue to believe they are being bitten. Finally, almost as a last resort they come to the Museum. Unfortunately, you can usually spot these people. They will send a multi-page email or written letter – all as one sentence, no paragraphs. The detail provided is minute and enormous. They sometimes say: “Only I can see what is biting me.”

As a scientist, I seek evidence before making a decision or providing advice. I recommend they place sticky tape on any place they feel a bite and then transfer the piece of sticky tape onto a white sheet of paper. Once they have a number of pieces of sticky tape on a sheet, to send it into me. I often receive multiple sheets of paper covered with multiple pieces of sticky tape – and I put every one under the microscope to examine it. I sometimes receive the contents of a vacuum cleaner bag – which ain’t very pleasant.

The person concerned is often bitterly disappointed when I report back that I found nothing that can cause a bite and they go through the collecting process all over again.

Over the years, I have responded to many such cases from all walks of society and I find them all very sad.

There is a medical condition called “Delusory Parasitosis”. As the name suggests, the patient absolutely believes they are being bitten by something. They often scratch the presumed bitten site and use the redness of the site as evidence of a bite. I once had a person visit me and her head was wrapped in a kerosene towel and she insisted the redness of her skin was due to bites not the kerosene. Many are in despair and at wit’s end not knowing where to turn to get help.

Delusory Parasitosis is symptomatic is a range of condition spanning the serious such as mental illness and depression to as simple as a change in medication which brings on urticaria (itchness). I had it myself once with a change in medication

which brought on urticaria on my legs. My doctor was intrigued when I self-diagnosed with a mild case of “Delusory Parasitosis”. Probably thought – “Bloody scientist!” What made me relate this story, was that I had such a case this week. An elderly lady believes she is being bitten in her bed in a nursing home. I recommended the sticky tape technique and the nurses applied sticky tape whenever she felt a bite and I subsequently received the sticky tape sample. Here are but a few photos of the samples I received:



As you can see, there is no evidence of any animals in the sent samples. Debris, plant tissue and human secretions are the IDs. These are the most frustrating of my identifications.

More of Maree's Mallee Photos!

Look at the detail in this image of a Gum leaf grasshopper.



Location: Wail, Vic. Photo by Maree Goods.

Here is a delicate Bombyliidae fly. Look at the mouthparts!



Location: Wail, Vic. Photo by Maree Goods.

The bees are back and so are male bee roosts.

Gio Fitzpatrick captured a delightful series of roosting male *Megachile ferox* bees. I never tire of seeing roosting males. Here are but a few of Gio's images:



Location: Elwood, Vic. Photos by Gio Fitzpatrick.

Gio's keen eye soon also spotted a cleptoparasite cuckoo male roosting bee. *Thyreus* males never roost communally and they never roost by holding on with their legs – always only holding on by their mandibles. Look out for these “blue gems”.



Thyreus caeruleopunctatus Location: Elwood. Photos by Gio Fitzpatrick

And, how about this male Blue Banded bee also roosting also with its mandibles. Remember, it is the blue cuckoo bees above that are cleptoparasites exclusively on the Blue Banded bees.

Cleptoparasites are usually closely related to their host as is the case here.



Amegilla cingulata Location: Sunnybank QLD Photo by Jenny Thynne.

Reading the (tea?) leaves!

Sometimes I am asked to take groups for walks in the bush to see what insects we can find. I usually begin such a tour telling people that we are more likely to see “Tracks and Traces” of where insects have been rather than actually seeing insects themselves. I speak about the “art” of “reading the leaves or bark” and then the “skill” of deciphering what insect left those signatures. There is a project called “Traces” that I love to visit and then to put on my detective hat and try to work out what left those traces. Here are a few examples:

These caterpillars are “skeletonising” the leaf. They are eating just one layer of the leaf rather than taking out full chunks from the leaves. Often these leaves look something like my grandmother used to create with crochet lace knitting.



Location: Gippsland. Photo by Mountains to the Sea

These are the eggs from which these caterpillars emerged:



Location: Montmorency, Vic Photo me.

Here is a close up of these eggs.



Location: The Basin VIC Photo Leuba Ridgway.

When these caterpillars begin to grow and moult, they characteristically, keep their old head capsule and add it a front horn like projection made up of old, shed head capsules.



Location: Montmorency, Vic Photo me.



Location: Great Western VIC Photo by Jenny Holmes

And finally, here is the adult moth.



Location: Yarra Ranges Photo by Ken Harris.

Have you guessed the name of the moth yet?

The name goes right back to the first image in which the caterpillars were seen to be skeletonising the leaf.

The species is *Uraba lugens* which is commonly known as the Gum-skeletonising moth (How original! (->!))

Compare the above delicate eating of a leaf to this gross eating of a leaf. Probably done by a Chrysomelid leaf eating beetle.



Location: Viewbank, Vic. Photo by me.

I often suggest to teachers to use leaves in a maths class. You place the chewed leaf of a piece of graph paper and you draw out the leaf's outer margins. Then you go back and smooth out the lines as if the leaf had not been eaten. Then you count of the number of eaten squares and count of the total number of squares as a whole and you can work out a percentage of the eaten leaf. Each leaf will have a different percentage but are any over 50% or 60%. What is the average amount of leaf eaten from 10 leaves? So many ways to learn about nature.

Many insects leave their traces in wood.



Hepialidae moth larvae. Location: Willagee WA. Photos by D. Heald



The Scribbly-bark caterpillars leaves these characteristic markings. Location: Suggan Buggan VIC Photo by Me!



Longhorn beetle larvae damage - *Phoracantha semipunctatus*

Location: Baldivis WA. Photo by Daniel Heald.



A scolytine weevil - *Scolytus multistriatus*. Location: Elaine VIC
Photo Me.

Would you recognise a praying mantis egg case?



Location: East Albury. Photo by Manu Saunders.

Or a swift moth pupal cocoon?



Location: Mukinbudin WA Photo by Daniel Heald.

Would you recognise a burrowing crayfish chimney?



Engaeus sp. Location: Morwell National Park. Photos by Tamara Leitch.

What about water-rat tracks?



Location: Port Melbourne VIC Photo by Jan Carey

Or the Northern marsupial mole track and entry hole



Location: Telfer WA Photo by John Read

I used to like Peacocks! Not any more.

One of our neighbours inherited a male peacock bird when her mother sold her country property. As seemed well for a few months, until the bird recently came into the mating season. The bird screams out for a peahen in a loud, cat-like pitched noise repeatedly between 2am and 5am – each morning.

The funny thing was that I rang our local council to see if it was legal to have a male peacock as a pet in the suburbs - as I know you cannot have male roosters. I did not give my name or address so the council person went off to ask the ranger. When she came back she asked: “Do you live in Kirwana Grove Montmorency – you are not the first to complain.” What a hoot !

The ranger is trying to catch the bird but it is resisting the bait.



Location: Baldivis WA Photo by Daniel Heald

Here are some peacock spiders I like.



Maratus calcitrans Everton VIC Photo by Mitch Smith



Maratus aff. Harrisi Location: Carlisle River VIC Photo by Rudie Kuitert.



Maratus aff. plumosus Location: Steiglitz VIC Photo by Rudie Kuiter



Maratus plumosus Location: Langwarrin. Photo by Mitch Smith



Maratus pavonis Location: Won Wron VIC Photo by David Akers



Maratus volans Location: Garfield North VIC Photo by Nick Porch



Maratus speciosus Location: Halls Head WA Photo by Daniel Heald



Maratus tasmanicus Location: Cape Otway, Vic Photo by Nick Porch

Notice how side on, the coloured abdomen is very narrow.



Maratus volans Location: Bend Of Islands VIC Photo by Frank Pierce.

And, I saw this spoof the other day of a peacock spider with light sabers! The video is great to watch!



Commentary helps us all to learn.

I enjoyed the commentary that went with this image explaining how the identification was reached.



Common Wallaroo *Macropus robustus erubescens*

Location: Black Hill SA Photo by Ellura Sanctuary

“On first sighting we thought it was a small female red kangaroo. But on closer inspection you can see the shaggy coat, huge front paws, and then when it scratched itself that it's male; and so much too small for a red. Also note its stocky (robustus?) build.”

The Atlas of Living Australia: Mapping ‘Species’

Lee Belbin

The Atlas’ Spatial Portal (SP: <http://spatial.ala.org.au>) has five main menu items – Add to map, Tools, Import, Export and Help. For this article, we are going to look at **Add to Map** and specifically the first option - **mapping taxon and taxa**.

Wikipedia says “a taxon (plural taxa; back-formation from taxonomy) is a group of one or more populations of an organism or organisms seen by taxonomists to form a unit”. To keep it basic for general consumption, even if incorrect, the SP uses the term “species”. You can blame me for that.

The figure below provides the options available. “**Spatially suspect**” records are those that we are unsure about as they have some spatial ‘data quality’ assertion applied (e.g., the record is flagged as being an environmental outlier – we will discuss these important assertions in a subsequent article), so by default, the SP assumes you only want to map spatially valid records. The choice is yours. “Expert distributions” are polygons defining the spatial limits of the distribution of a species (*sensu stricto*) generated by an acknowledged expert. We only have them for a few groups of species (fish, birds, some trees). The usual form of the mapped output for species is a points layer, so if an expert distribution exists, it is handy to compare the two.

Add species

Include spatially-valid records
 Include spatially-suspect records
 Include Expert Distribution areas

All species
 Search for a species by scientific or common name
 Use the scientific names supplied with the records

For example: "Macropus rufus" or "Red Kangaroo"

Create new species list
 Use existing species list
 Import points

Cancel Next >

The “**All species**” option is useful if you want to map everything we know of within a defined area. Note: Using this option on a large area is information overload.

You can use **common** or **scientific** names for taxa. For example, you could enter “fly” and the system will display a list of any taxa that includes these characters, such as

superfamily ASILOIDA (bee flies), and species such as *Anthomyia pluvialis* (Bean Fly – and we have no observations! Hint) etc. Note that you need to type in at least three characters for our ‘autocomplete’ function to kick in. You can now see that you could map a species, genus, family, order, class, phylum or kingdom and even those pesky things in between, if they have a name. Mind you, the ‘taxonomic backbone’ of the Atlas is far from perfect, as Ken knows. The Atlas has spent many millions of dollars (yes, millions) trying to update and bring together a set of National Species Lists (see <https://www.anbg.gov.au/confluence/display/bdv/National+Species+Lists+Services>) and that is an ongoing saga.

When you get back the list of names of potential matches, you will also see how many **records** are associated with each name and if there are expert distributions available. I find the former helps home in on a match. Once you select the name you want, you can then go on to map it within any defined area, but the easiest option is “world”. More will be said in another article about how fancy you can get defining ‘areas’.

There are two options relating to ‘**species lists**’; create or use. These lists (see <http://lists.ala.org.au>) are a powerful component of the Atlas that I dreamed up a few years back. A list is defined by any set of taxa, can be created by any registered user and are retained indefinitely, unless you want to delete any you have created. For example, there is a list of the world’s mangroves generated by the Australian guru (<http://lists.ala.org.au/speciesListItem/list/dr1891>) and then there is a list of bats created by an amateur (<http://lists.ala.org.au/speciesListItem/list/drt1361236915816>).

Almost anywhere in the SP you see an option to use a species, you can use a List! Lists are great when you are working with a group of organisms and don’t want to have to enter (and re-enter) them separately. There are some **special lists** such as ‘Threatened’ and ‘Invasive’. These are ‘bucket lists’ that contain species that have some form of conservation status in a State/Territory or have been nominated by someone as ‘invasive’ in some circumstances. Such lists are used in the SP’s area report tools. My philosophy here BTW is that it is better to include a species rather than exclude it. One of the attributes of a List is ‘authoritative’, meaning here that I have evaluated the List and its owner/agency and flagged it as authoritative if it seems appropriate to do so. As with taxonomy, nothing is perfect, but some things help.

The screenshot shows the Atlas of Living Australia interface. At the top, there is a navigation bar with 'Atlas Of Living Australia', 'ALA Apps', 'ALA Info', a search box, and a 'Search' button. Below this, the breadcrumb path is 'Species lists → Mangrove species of the World'. The main heading is 'Species List: Mangrove species of the World' with a 'List info' button. To the right are buttons for 'Download', 'View occurrences records', and 'View in spatial portal'. On the left, a summary box shows: 'Number of Taxa: 84', 'Distinct Species: 47', and 'Unrecognised Taxa: 37'. Below this is a 'Refine results' section with a 'family' filter showing 'Rhizophoraceae (13)', 'Acanthaceae (8)', 'Lythraceae (6)', and 'Combretaceae (3)', with a 'choose more...' link. The main content is a table with columns: 'Action', 'Supplied Name', 'Scientific Name (matched)', 'Image', 'Author (matched)', and 'Comm'. The table contains four rows of species data.

Action	Supplied Name	Scientific Name (matched)	Image	Author (matched)	Comm
	Acanthus ebracteatus subsp. ebarbatus	Acanthus ebracteatus subsp. ebarbatus		R.M.Barker	Spinel
	Acanthus ebracteatus subsp. ebracteatus	Acanthus ebracteatus subsp. ebracteatus			White-t
	Acanthus ilicifolius	Acanthus ilicifolius		L.	Bear's-
	Acrostichum aureum	Acrostichum aureum		L.	Goldf

Alternative preservatives of insect DNA for citizen science and other low cost applications.

Scientific paper. Authors: Sedonia Steinger, Caroline Storer, Jiri Huler and Andrea Lucky. Just published in "Invertebrate Systematics 2015, Volume 29, pages: 468-472."

I noticed this paper the other day and I thought it would be of interest to us. It was particularly aimed at the citizen science audience to inform them on what to preserve insects in if they were asked to send specimens to a researcher for DNA analysis. The preferred storage solution for DNA analysis is 95% alcohol but they looked for cheaper alternatives that can be easily purchased by the public. The researchers tried 3 different types of cheap preservatives: (1) Alcohol based hand sanitiser; (2 & 3) Propylene and ethylene based automobile antifreeze.

They placed samples of beetles into these 3 liquids for both 2 and 7 days and then they ran DNA analysis on all samples.

The great news is that all of the 2 and 7 days samples in all liquids produced excellent DNA results which means all three liquids successfully preserved the DNA for short term storage.

So, if ever you are asked to collect samples for DNA analysis just pop down to your local supermarket or car shop and purchase any of these 3 liquids. They work a treat as a substitute for 95% alcohol.

At the Museum, we purchase 95% alcohol in the old 44 gallon drums. We have a joke when we see someone with a drum. We say – *Don't forget to add some orange juice! YUK!!*

Congratulations to the first female jockey to win the Melbourne Cup.

Michelle Payne and her brother Stevie made us proud. Apparently, some of the horse's owners had not wanted Michelle to ride in the Melbourne Cup. After the race, she had a few words to say to them. Phar Lap is just 2 floors below me.



Mark Berkery's Nature's Place

Pretty Boy

He is a charmer, colourful fellow, proud headdress, garden ranger, deadly hunter.

When nature is left to itself everything finds a place. The plants feed the caterpillars, they feed all sorts – including spiders, they feed the lizards and they feed the birds.

Everything produces something for the tiny stuff to start it all over again, a perpetual motion machine requiring all the parts to be functioning, as intended.

There is no panic in the garden. They all go about their business without fear of future, or losing what's known. And the end comes, naturally, inevitably.

Living, eating, sleeping, working, playing, mating and dying is what it's about. When that can be done without a mental emotional problem it's a pleasure ...

... that passes understanding.



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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)