

10 July 2015 Ken Walker (<u>kwalker@museum.vic.gov.au</u>) Museum Victoria. Edition 16.

Hi All – During my working week, I get out to the kitchen about 6:30am to make myself and Heather my wife a morning cup of tea which we have in bed listening to the radio news and comparing our coming days. It could be my imagination, but I am sure each morning now is a "little" bit brighter with a "little" bit more pre-dawn light coming in the kitchen window.

Each morning when I get to work, my first task is to open BowerBird and seeing what fascinating records have been entered overnight or first thing in the morning. I am never let down by what I find. I then send out emails to my "expert identification network" asking for assistance. Taxonomists are a funny bunch of people. I must admit that I mainly know the morphological taxonomists rather than the new molecular breed and apart from a few, the molecular taxonomists are not too good at image based identifications. Initially, I found it strange that many of my fellow taxonomists did not join BowerBird to offer their taxonomic assistance but whenever I send them an identification request they are all more than happy to identify to identify and elaborate on almost any BowerBird record that I send their way. My reasoning is that they just do not have time to wade through the hundreds and thousands of records to find the ones where they can offer taxonomic assistance but are willing to assist if I cull and send them things in their speciality.

Plus we taxonomists ourselves are mostly a bunch of introverts! We usually sit by ourselves all day, looking down a microscope or plugging away at a PC writing a paper about new species.

Once a year, we get together for an entomological conference but usually we are hermits. But was does excite me is when I send an image to a taxonomist and I get a reply back from an excited taxonomist – like a kid with a new toy. It's magic when that happens. For me, this is the merging of two parallel worlds – the citizen science world goes out to find, photograph and share then interacts with the "hermit" taxonomists who usually have a massive reference collection of invertebrates but can get all excited over seeing a single species.

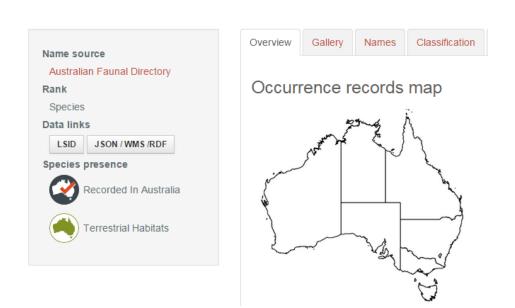
I think of citizen scientists as my "eyes on the ground" searching, finding and recording biodiversity and biosecurity and me trying to make sense of it, providing a name and putting it in context with other members of the genus or even Family.

Then I see the citizen science image and spatial/temporal data uploaded to ALA where it is mixed with Museum and Herbaria data – sometimes to add a dot to an already crowed distribution map but also many times where a dot is added for the first time for a species map – finally, I know where that species occurs in Australia .. and waiting for more dots to be added - That's creating new science and making a permanent record and that's a significant contribution.

There is a butterfly specimen in the Museum Victoria ento collection that was collected in 1742 in China. When it was first collected, it probably wasn't thought of as something special – 273 years later, it's special; it's a postcard from the past; it's an insight to a past habitat. If that species still exists then what has it done to survive and if it is now locally extinct, what changes occurred that lead to its extinction? Every record is special.

Recent "FIRST RECORDS" on ALA.

ALA purports to now have over 10 million records so it is surprising to find gaps – species with no records. Such as:



Chetogaster viridis Malloch, 1936

Seemingly photographed on a fly screen near Bega, NSW.



Identification by Dr Bryan Cantrell who said: "This one is *Chetogaster viridis* Malloch and belongs to the Rutiliini along with *Rutilia* etc. but has some rather unusual characters for Rutiliini, particularly the more ridge-like carina separating the antennae and fewer setae on the dorsal thorax (none of which can be seen clearly in the photograph). The orange anterior section of the wing is diagnostic for C. viridis and a second species C. violacea Macquart, but the latter generally has darker colouration." I told you that taxonomists come alive when talking about their favourite animals.

Or how about this fly ... Taken by our Wimmera farmer Maree (remember, spends her days on her stomach in front of the from garden bird bath). Maree and Graham have headed north to visit the Lawn Hill NP in Queensland and along the way Maree captured a few great finds. Dr Christine Lambkin (fly specialist at Queensland Museum) was most excited when she identified this Bee fly : Bombyliidae: *Ligyra septentrionis* and Christine added: "This is the first ever image of this fly alive." It's also only the second locality record on ALA for this species.



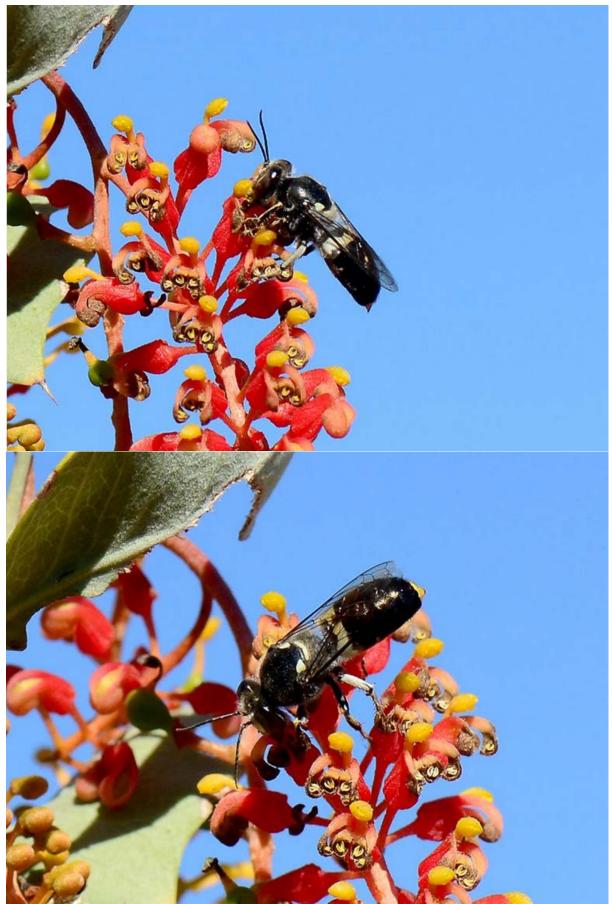
Photo by Maree Goods

Staying with Maree's northern trip, here is a curious assassin bug, with two different colour morphs, she photographed at the Bladensburg NP just north of Longreach, Qld. Personally, I had never seen this species before so I sent the image to Australia's Reduviidae expert, Dr Mallik Malipatil who replied: "This fascinating assassin bug with two colour morphs". WOW – "fascinating" indeed. It's *Poecilosphodrus gratiosus* and is only ALA's second distribution point.



Photos by Maree Goods

And, here is a wasp that I have never seen alive before. It's *Bembix vespiformis*, a Crabronid sand wasp. I always enjoy Maree's photos as she seems to have a knack for "composition" – there are always interesting things in the photo other than the object of the photo but there is a balance in her photography. There are currently two records on ALA for this species but Maree's photos will be the first on ALA.



Photos by Maree Goods

BowerBird assistance is amazing ...

a community effort.

On Wednesday morning, Steve Young posted images of a charcoal black fungus and asked for help: "I need some help please... could this be Xylaria polymorpha?"



Photo by Steve Young

A few hours later, Torbjorn von Strokirch replied: "I struggle with the Xylaria too. X. polymorpha is probably better called X. castorea in Australia and that's what is commonly the name given to things that look like this. However if you look at 'A Field Guide to Tasmanian Fungi" it shows X. castorea to be straight all the way without a stem and X. apiculata to be the stemmed variety and most of your pictures show stems. I think there must be many varieties of Xylaria that are unrecognised. The one I get most commonly at my place looks like a cross between X. castorea and X. aff. hypoxylon (again from the above book). ALA shows a long list of Xylaria."

Orchid pollinators on BowerBird

Over the years, many people have contacted me about orchid pollinators. Orchids are a difficult group in which to define pollinators and even to correctly assign the term pollinators. Mainly bees, wasps, ants and flies seem to be the primary pollinators of orchids. Many of you will have heard about the "pseudocopulation" of male wasps with orchids. The orchid releases a pheromone (like a perfume) which resembles the pheromone usually released by the female Tiphiidae flower wasp so the male thinks the orchid is a female wasp and attempt to mate. But, for all of his efforts all he gets is a pollen load deposited onto this back which the orchid hopes he will transfer to another orchid.

Caladenia clavigera (Spider orchid) and Phymatothynnus monilicornis (male Tiphiid wasp)



The term "pollinator" is often mis-used. Many use the term for any insect that visits a flower. However, to actually define a pollinator, the insect must be observed collecting and transferring pollen between flowers. That's a high bar to set but that's what defines a pollinator rather than merely an appearance of an insect at a flower.

"There are those amongst us" who devote their considerable time and efforts to discovering and documenting orchid pollinators. They sit beside orchid for many hours waiting for just "that" moment when an insect visits and leaves with a pollen packet firmly attached to their thorax – and they document it photographically!

Orchid pollinia are easy to spot – they are always paired and usually deposited on the back of the insect. As the insect walks into the orchid, the male anthers are triggered to "wack" the insect on the back and adhere the paired pollinia.

Here is a classic image of orchid paired pollinia on thorax of an *Amegilla* Blue banded bee:



Photo Rudie Kuiter.

Rudie Kuiter and Mitch Smith are a couple of orchid pollinator devotees ! And, they have the photographic evidence to back up their research. Recently, Mitch posted a series of fascinating records showing fungus gnats (Mycetophilidae) pollinating orchids. Mitch also supplements his images with marvellous explanatory text. One of his images completely surprised me.



Pterostylis falcata Sickle Greenhood orchid

Mitch wrote: "Two similar Greenhood Orchids (Pterostylis) can both utilise the same pollinator species, attracting them by sexual deception. Normally in orchids with such a close relationship this would spell disaster for the two species as it would lead to hybridisation and their merging or disappearing over time. Luckily this species lives in very different habitats to its pollinator sharing relatives and crossing would not normally happen or only in very rare circumstances. With the vast alterations to the environment in the last 200 years (and lesser extent since the first occupation) these events can become more common, and with the draining of swamps and landclearing, two species, Pt. nutans and Pt. falcata, have now been able to occupy close, or the same, habitats and can hybridise where this occurs, creating a sterile hybrid named Pterostylis X ingens. These images shows the same species of pollinator which also visits the orchid species in the post previously mentioned."

And, look at this wonderful image showing a fungus gnat with orchid pollinia on its back: That is the definition of a pollinator!



And more positive proof that flies are orchid pollinators:

Pterostylis alata var striata and Mycetophila sp.



Genoplesium rufum with Drosophilidae



Genoplesium tepperii and Drosophilidae



Mictrotis parviflora Slender Onion Orchid and visitors



Mictrotis parviflora Slender Onion Orchid and ant visitors



Leporella fimbriata (Fringed Hare-orchid) and Myrmecia pilosula (male Bullant)



Chiloglottis seminuda (Bare-tip Wasp-orchid) with Neozeleboria proxima (male Tiphiid wasp)



Cyrtostylis reniformis Gnat Orchid with Mycetophila gnat fly



Mitch wrote this interesting text: "With big wasps on flashy Spider-orchids, and bees taking the pollinator spotlight, the Dipterans have flown under the radar until late. Whilst there has been some recent study overseas on Orchid/Diptera relationships it has been much neglected in Australia. Several families of fies have been recorded on many orchids and some are their principal pollinators. The mimicking of female Diptera with pheromones by some orchids is now coming to light and is a fascinating subject, but some orchids still attract their pollinators the old fashioned way, through nectar rewards. Whilst it is difficult to see the nectar in most orchids, and some contain it subcutaneously, we believe as the insect feeds the orchid responds by making the exudate available to the feeding insect. We believe that this happens in the case of several similar small orchid genera including this one. This orchid attracts several small non pollinating insects (images 4,5,6.) appearing to feed on the labellum secretions and whilst most of the visitors don't have the potential to pollinate these orchids due to their size and shape, one family of Diptera, the Mycetophylidae (images 1,2,3) seems to perform the right actions and are the right size. Unfortunately we have not witnessed the collection of pollinia by these 'vectors' so cannot rule out that there is some other mechanism. Both male and female insects visit these flowers leading us to believe it will be food related rather that the more 'romantic' sexual deception. Go Flies!!!"

Here is the image that caught me by surprise. Moth flies (Psychodidae) visiting an orchid. Amazing what images reveal.

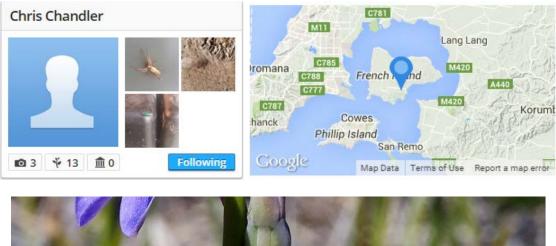


Thanks Mitch. You can view Mitch's BowerBird orchid/pollinator photo array at:

http://www.bowerbird.org.au/users/2309/sightings?category=Plants

New members

Welcome to Chris Chandler who is part of an active nature group on French Island, Victoria. Chris has joined BowerBird to get assistance identifying insects and spiders. Welcome.





Here is a well camouflaged *Ledromorpha planirostris* just posted and identified by Mark Ridgway from French Island!



Chris invites anyone with French Island floral or faunal images to join and contribute to his French Island Ecology project.

Fascinating fungi

These images initially came through our Museum enquiry centre (Discovery Centre). Dr Tom May at the Herbarium identified the fungus as *Cordyceps* and noted the species had not previously been recorded in Victoria. The photographer is Andrew Bould gave permission to add his images to BowerBird.







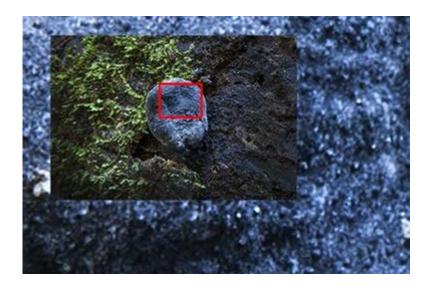
Photos by Andrew Bould

How about this beautiful fungus photographed north of Coffs Harbour. Reiner Richter commented: "A bit hard to tell being so young but it could be *Laetiporus portentosus*, although these are usually found on living Eucalyptus."



Photo by Steve Young

But then Steve posted some intriguing photos of this bell shaped fungus. Steve took a closer look at the area marked in red and found a forest of protrusions!





Photos by Steve Young

Mark Ridway has suggested slime moulds - very cool.

How about this "Trumpet" fungi from near Warburton ..



Photo by Torbjorn von Strokirch

I love it when we are told some history about a species as Teresa Van Der Heul did with this yellow fungus. Location north of Narooma, NSW. "Family Pyronemataceae. Cheilymenia raripal. Found by participants on the foray searching for Fire Fungi or Fruits of the Fire. Tiny orange discs (apothecia) with buff coloured 'eyelashes' (setae) around the perimeter of each individual cup. Unable to see 'eyelashes' without the aid of a hand lens. Found growing on 'roo poo'. Dade observed several species of Cheilymenia in his early studies, and made comprehensive and copious notes and diagrams. He also stated that he only observed this genus during the months May to September. The majority of Dade's studies of coprophilous fungi were undertaken during his retirement years in Australia."



Photos by Teresa Van Der Huel

My "AP" (Atheistically Pleasing) moments

Last Sunday, I headed up to the Toolangi in the Yarra Ranges to search for fungi. Well, I found fungi alright but the leeches also found me! I wore a long-selve shirt and I kept seeing leeches doing that characteristic peristaltic walking motion across the back of my hands. At one stage, I was convinced I had one of the blighters inside my sock so I took off the sock expecting to see an engorged leech sucking me dry ... but, it was just the heebee jeebees had got to me – no leech.

Some of what I saw:



But my "AP" moment was photographing water droplets around a minute fungal ball and on a blade of grass ...



Photos by Ken Walker

I rolled over one particular log and initially I thought I saw three small, pale fungi but then they moved and I wondered what the heck were they? The multi-segmented body suggested an isopod crustacean but the short, almost globular antennae suggested collembolan springtails. I posted the images on BowerBird and overnight Steven Thorpe identified them to the Order Poduromorpha – a collembolan. They had me stumped as this was my first viewings of these animals.



Following Steven's identification, I contacted Australia's Collembola expert - Dr Penny Greenslade to ask for her assistance. She replied: "Yes, I know what that is. It is a new genus of Pseudachorutinae I am in the middle of describing. They may feed on slime moulds. That is the furthest west that I have a record of the genus." You never know what you will find under a log.

My favourite image for this week ...

This caterpillar really caught my eye and interest this week. Jean and Fred, from WA, spotted this caterpillar "Found under a granite rock chip on a larger granite rock." Is no place safe from intrepid photographers??? The "moth-ers" believe it to be a lichen feeding Arctiidae moth caterpillar.





Photos by Jean and Fred Hort

BowerBird Tip

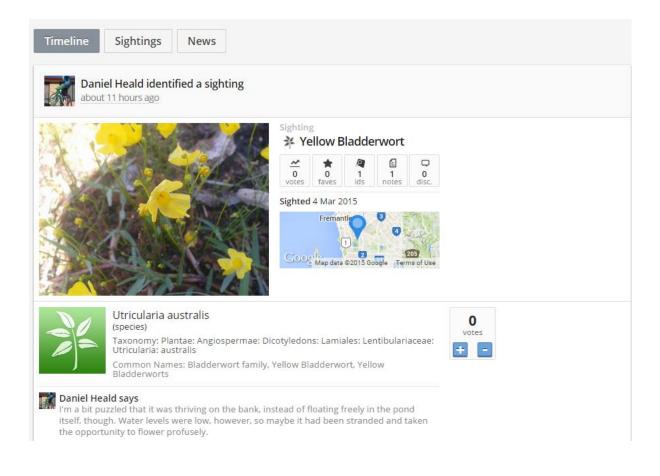
During this week, a BowerBird member asked me this question:

"Is there any way to display all the entries for a genus or even family?" – You know who you are! (:->!

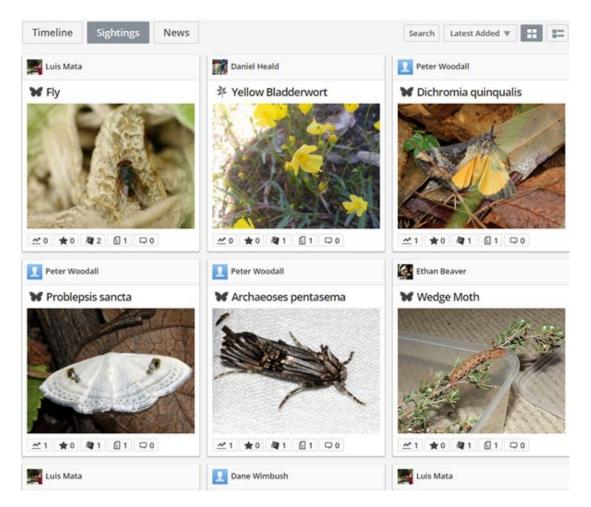
That's a great question and it goes to the core of using BowerBird as your first port of call when seeking an identification. There are now over 23,000 identified image based records on BowerBird – why not start here!

BowerBird has a very powerful search function that can be accessed in the "Sightings" mode. Remember, there are two ways to view BowerBird records: Timeline and Sightings.

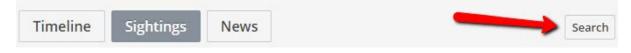
The Timeline view shows whole records – one at a time.



Whereas the Sightings view shows almost 9 thumbnail records:



When you are in the Sighting view mode, you have a "Search" function:



Which opens like this offering many ways to ask a query :

Search	In Field	Category	
	All Fields	Go All Categories	Needs Id
Browse			
Animalia (23183)			
Bacteria (2)			
Chromalveolata			
Chromista (5)			
Fungi (1434)			
Plantae (1449)			
Protozoa (7)			

If you know the scientific name of the animal to query then use that term:

You can ask for the Order name: Diptera

Search	In Field		Category	
Diptera	All Fields 🔹	Go	All Categories 🔹	Needs Id
Rrowse				

Or ask the Family name: Tachinidae

Search	In Field	
Tachinidae	All Fields	▼ Go

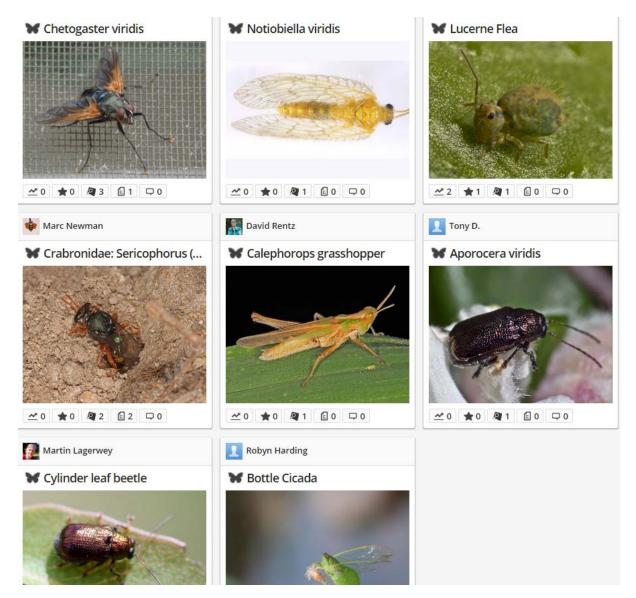
Or ask the Genus name: Chetogaster

Search	In Field		
Chetogaster	All Fields	▼ Go	

Or ask the species name: viridis

Search	In Field		
viridis	All Fields	•	Go
Drouteo	7		

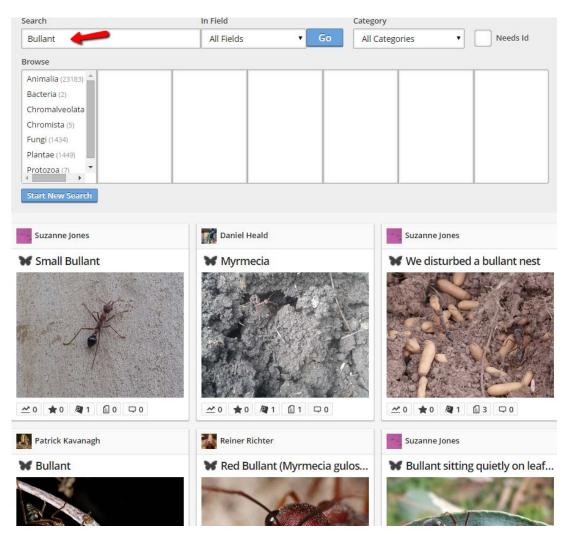
All these queries will return different numbers of records. Obviously, if you ask for an Order or Family name, you will return many more records than if you ask for a Genus or species name. Interestingly, if I query on the species name "viridis", I am returned 7 records for flies, lacewings, springtails and bees all of which have the species name "viridis".



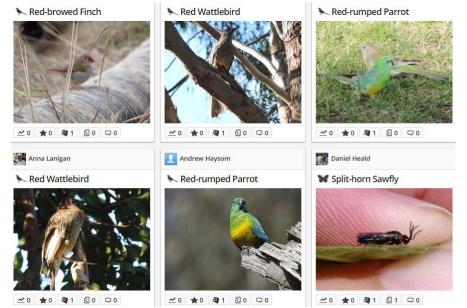
If I ask the genus name Chetogaster, I get back only 2 records



You can also use a common name terms such as "Bullant":



You can also "just have fun" asking "trivial" common names just to see what comes back. Try Red, Green and Blue queries:



There are other powerful query terms already in-built:

For example – This query will return all Fungi & Lichen records:

Search	In Field		Category	_
	All Fields	Go	Fungi & Lichens	Needs Id
Browse	,		All Categories Amphibians	
Animalia (23183)			Birds	
Bacteria (2)			Fishes	
Chromalveolata			Fungi & Lichens	
			Invertebrates	
Chromista (5)			Mammals	
Fungi (1434)			Others	
Plantae (1449)			Plants	
Protozoa (7)			Reptiles	

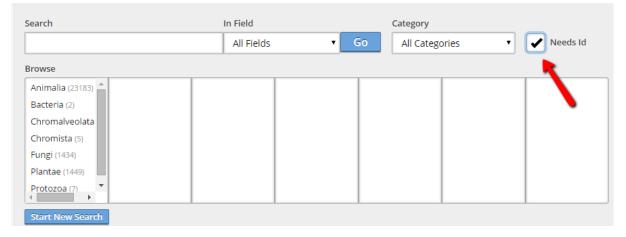
Or this will return all Frog records:

Search	In Field		Category	
	All Fields	▼ Go	Amphibians 🔹	Needs Id
Browse			All Categories	
			Amphibians	
Animalia (23183) 🚔			Birds	
Bacteria (2)			Fishes	
Chromalveolata			Fungi & Lichens	
			Invertebrates	
Chromista (5)			Mammals	
Fungi (1434)			Others	
Plantae (1449)			Plants	
Protozoa (7)			Reptiles	
			· · · ·	

Or this will return all Bird records:

earch	In Field		Category	_
	All Fields	▼ Go	Birds	Needs Id
Browse			All Categories Amphibians	
Animalia (23183)			Birds	
Bacteria (2)			Fishes	
Chromalveolata			Fungi & Lichens	
Chromista (5)			Invertebrates	
			Mammals	
Fungi (1434)			Others	
Plantae (1449)			Plants	
Protozoa (7)			Reptiles	

However, when I have a spare hour or two, I like to check the "Needs Id" which returns only records that are waiting an identification. Then I scan through them and begin to add identifications where I can.



So, the "Sightings" view mode Search function is the best way to quickly and easily navigate around BowerBird. The alternative is to scroll through lots of records until you think the one you want. With Searching, you can narrow down what you need to scroll through or you can return the exact record you want out of a possible 25,000+ records.

There is an extension to the Search function which is neat.

You can combine a "People" search with a "Record" search.

Let's say you remember that I posted an image of a fungi some time back and you want to look at it again as you believe that it is a match to what you have just photographed.

Well, begin by bringing up just my personal contributions to BowerBird.

- 1. Begin by clicking the "People" tab on the top line of the webpage
- 2. Then open the Search function
- 3. Type in "Walker"
- 4. Click GO

Sightings Projects People O	Organisations Search	
1 People	1	2
Search 3	In Field	Search 4
Walker	All Fields	Go
Start New Search	J	

You will find there are 7 Walker's registered on BowerBird and so you select my ugly mug and click my name



This will open up "Ken Walker's" public BowerBird account and show just the records that I have uploaded.

Now, if you move to the Sightings view and click the Search function, you will query ONLY the records that I have added and no other record.

1 User	
Ken Walker	
Sightings Projects Organisations	
Timeline Sightings About	Search Latest Added 🔻 📰 📰

You can follow exactly the same process to search within a Project.

Sightings Proj	ects People Organisations	Search	
🌾 Projects			
		•	Search
Search	In Field	•	Category
Fungi	All Fi	elds 🔹 🔽 Go	All Categories 🔹
Start New Sear	h		
	World of Fungi		
	When we see a fung actually only seeing	u above ground, we are about 10% of the whole	2 2
	★ 第 182 ◎ 1505	Joined	

Any searches within a Project will search only the records within that Project. Please make the Search function your preferred BowerBird navigation option. As always from BowerBird

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)