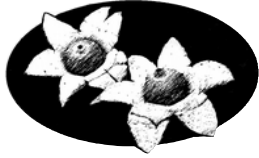


THE QUEENSLAND MYCOLOGIST



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The Queensland Mycological Society

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Society Objectives

The objectives of the Queensland Mycological Society are to:

1. Provide a forum and a network for amateur and professional mycologists to share their common interest in macro-fungi;
2. Stimulate and support the study and research of Queensland macro-fungi through the collection, storage, analysis and dissemination of information about fungi through workshops and fungal forays;
3. Promote, at both the state and federal levels, the identification of Queensland's macrofungal biodiversity through documentation and publication of its macro-fungi;
4. Promote an understanding and appreciation of the roles macro-fungal biodiversity plays in the health of Queensland ecosystems; and
5. Promote the conservation of indigenous macro-fungi and their relevant ecosystems.

Membership

Membership of QMS is \$25 per annum, due at the beginning of each calendar year, and is open to anyone with an interest in Queensland fungi. Membership is **not** restricted to people living in Queensland. Membership forms are available on the website, <http://qldfungi.org.au/>.

Could members please notify the membership secretary (memsec@qldfungi.org.au) of changes to their contact details, especially e-mail addresses.

The Queensland Mycologist

The Queensland Mycologist is issued quarterly. Members are invited to submit short articles or photos to the editor for publication. It is important to note that it is a newsletter and not a peer-reviewed journal. However we do aspire to high standards of accuracy.

Material can be in any word processor format, **but not PDF**. The deadline for contributions for the next issue is **1 November 017**, but if you have something ready, please send it **NOW!** Late submissions may be held over to the next edition, depending on space, the amount of editing required, and how much time the editor has. The standard font used for text is Gothic 720BT, 9pt, with other sans serif fonts used for headings and captions. Font sizes may vary if required to make articles fit the available space, and text may be edited for the same purpose.

Photos should be submitted separately at full-size to allow flexibility in resizing and cropping to fit the space available while minimising loss of quality. Authors who have specific preferences regarding placement of photos should indicate in the text where they want them, bearing in mind that space and formatting limitations may mean that it is not always possible to comply. Material from published sources (including the internet sites such as Wikipedia) may be included **if that complies with copyright laws and the author and source are properly acknowledged**. However extensive verbatim copying is not acceptable.

Cover Illustration

Laetiporus cincinnatus, the white-pored chicken of the woods, photographed by Vanessa Ryan on a foray with Roy Halling in the New York Botanical Garden in the USA. See page 5 for details. © Vanessa Ryan.

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QMS Activities

Meetings

Meetings are held in the F.M. Bailey Room at the Queensland Herbarium, Mt Coot-tha Botanic Gardens, Mt Coot-tha Road, Toowong, commencing at 7pm on the second Tuesday of the month from February (no January meeting), unless otherwise scheduled. Check the website for details and any changes. There will be 3-4 guest speakers invited during the year and other meetings will be informal. Suggestions from members for topics or names of potential speakers or talks will be welcome at any time. Please contact a member of the Committee.

To assist those unable to attend meetings, notes on the talks are included in the Queensland Mycologist and on the website if possible. However, the notes never do justice to the topic as they do not reflect the enthusiasm of the speaker or cover the discussion that follows, and not all talks are written up for the newsletter. So remember, where possible it is better to attend the meetings, get the information first hand and participate in the invaluable information sharing opportunity.

Suppers are provided by volunteers. Please bring a plate if you can.

Forays

QMS hold regular forays during the first half of the year. The dates are nominally the 4th Saturday of the month, but actual dates may vary and additional forays may also be held. Field trip details may change as a result of drought or other unforeseen circumstances. Check the website for changes.

Members are invited to suggest venues for additional forays. If you have any suggestions (and especially if you are willing to lead a foray), please contact Susie Webster or another member of the Committee.

Workshops

What do you, our members, want to learn more about that could be presented in a workshop? QMS is always on the lookout for workshop ideas. Members are encouraged to suggest topics, whether new or reruns of past workshops.

Send your ideas to Judith Hewett or Wayne Boatwright (info@qldfungi.org.au).

Details of workshops will be included in newsletters and on the QMS website as they become available.

QMS Calendar – 2017

MONTH	MEETINGS	FORAYS/WORKSHOPS
March	13 th Speaker: Megan Prance "Mentoring for Mycological Skills, Fungi of Brisbane Project."	6-18th Tropical Fungi Project – Cairns Details are available on the QMS website 18th. Chermside Hills
April	10 th : TBA	2 nd : The Fort, Oxley, Brisbane 28 th : Ben Bennett Reserve Caloundra
May	8 th : TBA	26 th : Maroochy Bushland Botanical Gardens Tanawha
June	12 th : TBA	23 rd : Linda Garret Track, Mapleton
July	10 th : TBA	8 th : Mt Cordeaux, Main range NPO, Tarome
August	14 th : TBA	
September	11 th : TBA	
October	9 th : TBA	28 th . Workshop: Polypores (Nigel Fechner)
November	13 th : TBA	
December	11 th Christmas Party	Christmas Break

Editor's Comments

This has to be the latest Newsletter ever. My apologies, but I did not have enough material to include until recently.

Vanessa Ryan has come through with a second article from her 2017 US trip, adding a day with the Connecticut-Westchester Mycological Association (COMA) to her account of her visit with Roy Halling at the New York Botanic Gardens, giving us an almost all-American issue.

But with Roy Halling being a regular visitor to Queensland and collaborator with Nigel Fechner, a story on the New York Botanic Gardens where he works seems to me to be highly appropriate. And the COMA group seem to me to be a great outfit, and I for one am always interested to see how other mycology groups operate. Oh to have such knowledge about what is and is not edible!

On the subject of edibles, we also have several "chicken" (as in chicken of the woods) recipes from Joe and Kathy Brandt, two COMA members to whom I express my sincere thanks,

A poem by Vanessa follows the recipes, making her the sole source of material (and almost the sole

author) in this issue – thank you so much, Vanessa.

Finally, some links to interesting fungal discoveries from around the world.

In spite of the lateness, I am still calling this the fourth 2017 newsletter rather than skipping that issue.

So I am looking for material for the next newsletter NOW!

I really do need more material if we are to have four newsletters per year. I like to have three reasonable-sized (2-5 page) articles, including at least one foray report. Longer articles may also be OK.

Perhaps foray leaders could organise for one or more attendees to take some notes with a view to writing a short note for the Newsletter. Even if forays were not restricted in numbers, not everyone can get to them, and many cannot get to meetings. For those people the Newsletter is the best way for them to be informed about society activities.

I am happy to assist with fleshing out articles from summary notes, but Powerpoint presentations from meetings are not ideal as they usually have too little information on which to build a story.

The New York Botanical Garden and Steere Herbarium

Vanessa Ryan

During August 2017, my husband Chris and I had the chance to go to the USA to see the total eclipse of the sun. Since it was such a long way to travel, we decided to stay in the US for a few weeks after the event and cross to the eastern states for a bit of a holiday. This gave us the opportunity to visit the New York Botanical Garden's Steere Herbarium.

The United States has a lot of herbaria, so why did we choose to go to that one in particular?

Those who did the Boletes workshop with Roy Halling last March might remember him saying that if any of us happened to be in New York, he'd love to catch up. So I let him know we were going to be in the area and he invited us to spend a day with him at his work place. Yes, you guessed it – the Steere Herbarium.



The New York Botanical Garden's Steere Herbarium and Mertz Library Building.

The herbarium is located in an impressive building at the northern end of the New York Botanical Garden. Roy met us at one of its entrances and took us upstairs to his office, which is on the 6th and top floor of the building. There, we sat and chatted for a while about the history of the place and Roy's work.

The garden was founded in 1891 by the eminent Columbia University botanist Nathaniel Lord Britton and his wife, Elizabeth – who was also a botanist. It was to be the United States' version of the Royal Botanic Gardens at Kew in England.

Now, New York City has a park system where each of the five boroughs has at least one large public park. For example, Manhattan has Central Park and the Bronx had the Bronx Park. Britton managed to persuade the City to give up the entire Bronx Park to establish two gardens. The northern half of the park became the botanical garden and the southern half became a zoological garden – what is commonly known as the Bronx Zoo.

The botanical garden contains 50 different gardens and plant collections. The gardens include a wetlands garden, a rock garden and a native plant garden. The collections include herbs, roses, lilacs, crab-apples, maples and oaks. There is a large area in the middle of it all that is original, never-logged, old-growth New York forest.

The garden has had from its very beginning a three-fold mission:

- to be a living museum for plants by maintaining and improving the gardens and collections at the highest horticultural standard;
- to use the garden itself as a venue for teaching the public about plant biology, horticulture, and the natural world generally; and
- to conduct basic and applied research on the plants of the world with the goal of protecting and preserving them where they live in the wild.

The third mission is where the Steere Herbarium comes in. Here are a few facts about the herbarium.

- It's named after William Steere Junior and his wife Lynda, who have had a lot to do with the herbarium, both in its vision and financially.
- It currently has over 7.8 million specimens in its collection, around 850,000 of which are fungi and lichen.
- It is the world's second largest herbarium. The French National Museum of Natural History has the biggest and Kew comes third.
- Its library – the LuEsther T. Mertz Library (often just "Mertz Library")- has the world's largest collection of research material about plant science and horticulture.
- Its associated laboratory, the Pfizer Plant Research Laboratory, is a pure research institution with a focus on plant genomics.
- Overall, the New York Botanical Garden has one of the world's largest plant research and conservation programs, and employs around 200 staff.

The New York Botanical Garden with all its various horticultural, educational and research programs is a non-profit institution.

The City of New York owns the buildings and grounds, just like many other cultural institutions in New York – such as the Metropolitan Museum of Art and the American Museum of Natural History – but the operating expenses come from a variety of sources, such as:

- admission fees;
- gifts and endowments;
- grants;
- perpetual fund-raising; and
- annual politicking of local and state governments.

The institution pays its staff's salaries and fringe benefits. Funding for science projects is paid for by grants from various foundations, such as the National Science Foundation and National Geographic. Some retired staff members come back to work as volunteers. One volunteer lichenologist worked there for over 30 years.

There has been a mycologist at the herbarium since its very beginning and the garden usually has one or two mycologists employed at a time. Roy is the only mycologist there just now.



Dr Roy Halling

When Roy isn't answering the phone or emails, he looks at specimens and works on bolete taxonomy. This can sometimes involve a lot of forensic work on the nomenclature of species and specimens. He's currently working on Australian species of *Austroboletus* and is also assisting one of his past students who is working on *Tylopilus balloui*.

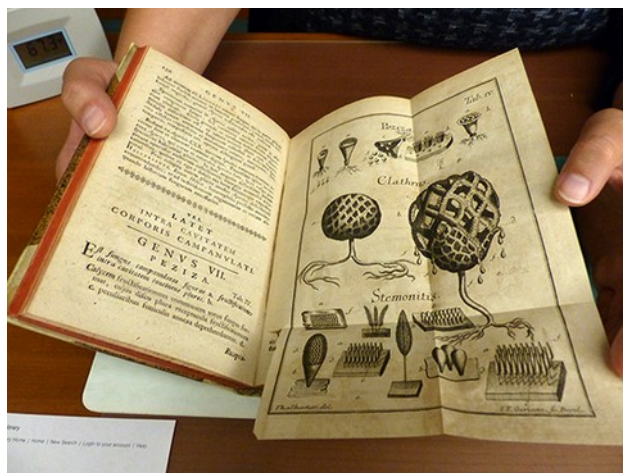
The herbarium's library has a Plant Information Service where the public can phone or write in for plant identification, so Roy gets one or two fungi questions a week from them. The usual question is "how do I get rid of this horrible smelly mushroom from my mulch?" Yes, it seems that stinkhorns are a bane to gardeners all around the world.

Roy also gets calls from the local Poisons Control Board about mushroom poisonings. He gets two or three critical calls per year, but this number can vary according to how good or bad the mushroom fruiting season is.

After our chat, Roy took us on a tour of the herbarium. Our tour began in the library, which is on the same floor as his office. The library has a LOT

of books. I read somewhere that it contains over 11 million items in total. The General Research Collection alone has over 550,000 volumes. The library consists of a number of collections. Other collections include plant catalogues, literature on garden architecture, botanically-themed postage stamps, art and photography, and rare books.

We had a quick look at the Rare Book Collection and one of the librarians, Esther Jackson, kindly showed us a couple of books that were well over two hundred years old. Neither she nor Roy had looked at them before. The plates in them were beautiful.



Our next stop on the tour was the room where the herbarium's specimens are being photographed. Kimberly Watson, the herbarium's Digital Asset Manager, gave us the run down on the huge task they were undertaking. Currently, over 3 million of their 7.8 million specimens have been databased, imaged and georeferenced. Every month, about 30,000 new records and images are added to the C. V. Starr Virtual Herbarium, which is the online gateway to the digitised specimens of the William and Lynda Steere Herbarium. Just about all of the herbarium's macrofungi specimens have been processed. The microfungi specimens are still being digitised.

It was time to have a look at the fungal collection. Even though the collection should technically be called a Fungarium, Roy told us that it was called the Fungus



Herbarium to be congruous with the Plant Herbarium.

Like Edinburgh's fungus collection, all of NYBG's specimens are stored in fire-proof metal cabinets. Again, these cabinets are compactor shelves to maximise usage of space. Collections from all over the world are kept mixed together in the cabinets, unlike Kew which has a room for British fungi and another room for the "rest of the world".

However, some of the collections, such as the Gasteromycetes and Russulaceae, have been separated out into their own special areas for various reasons. The Russulaceae, for example, have been kept separate because the herbarium has so very many of them. They were a bequest from Gertrude Bulingham, who was an American *Russula* and *Lactarius* specialist.



The metal cabinets have large "cubbyholes" (as Roy called them) in them. Each cubbyhole holds a cardboard box of specimens. Depending on what's being stored, a box could contain a whole genus, or just some species of a genus – say, ranging from "a" to "d", with the next box containing "e" to "h" of that same genus and so on. Type specimens placed at the beginning of each genus. They are kept in red folders for easy identification – similar to Kew's red-edged folders. Specimens are stored either in a small cardboard box (similar to BRI) or in a packet glued to an archival sheet and placed in a folder (like Kew and Edinburgh). The arrangement is that the boxes are put in the cubbyhole first, with the folders of archival sheets placed afterwards. If you are looking for a particular species, you should look in the boxes first, then at the folders.

The herbarium's collection is not only of macrofungi, but it also includes a great many microfungi as well. One of the microfungus collections consists of 17,000 microscope slides that were given to the herbarium by Jan Kohlmeyer who was, and I quote Roy here: "the founder and guru of marine mycology".



The microfungi include two other significant collections that are worth mentioning.

The first collection is of a fungus that nearly wiped out all the native Chestnut trees in the USA early last century.

These trees used to be a dominant species in the American forests and in just 30 years their numbers were absolutely decimated. The fungus specimen in the Steere Herbarium's collection was found by the NYBG's mycologist at the time – William Murrill – growing on a tree in the Bronx Zoo, which is literally just a stone's throw away from the garden and herbarium. Murrill wrote the description of the fungus *Cryphonectria parasitica* and his collection from the zoo became the type specimen for that species. It was later discovered that the pathogen had been accidentally introduced into the US from Japan.

The other significant collection is Bernard Olgilvie Dodge's collection of *Neurospora* specimens. *Neurospora* is a kind of bread mould that is very easy to grow in culture.

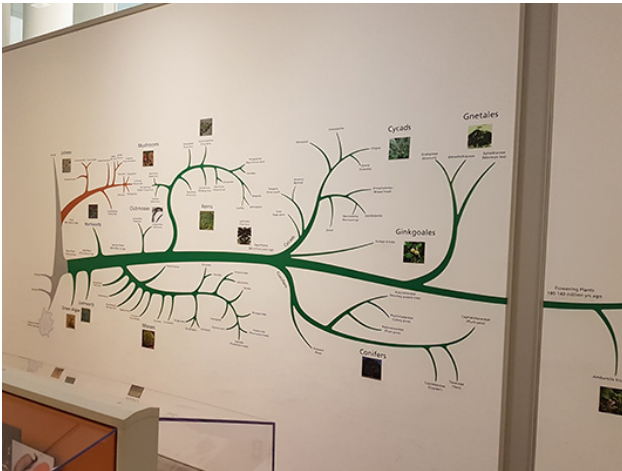
Dodge was a pioneer in fungal genetics but he considered his work on *Neurospora* just a sideline to his main work as a plant pathologist. However, his *Neurospora* work laid the foundation for the discovery of the role genes play in regulating biochemical events within cells. This discovery earned George Beadle and Edward Tatum the Nobel Prize in 1958. Tatum thanked Dodge during his Nobel lecture and Beadle wrote to Dodge, saying:

"Without your pioneer work, those of us who have made use of *Neurospora* never could have done what we did. [...] *Neurospora* has been good to many of us and it is your baby more than anyone else's. Thanks again for giving it to genetics."¹

Roy also took us to see some of the educational displays that were on show. The Ross Gallery is used for all kinds of displays and, quite appropriately for our visit, it was holding a special exhibition about herbaria at the time.

The Britton Science Rotunda and Gallery usually has a permanent display titled "Plants and Fungi: Ten Current Research Stories". When we were there, the part of the display in the rotunda had been dismantled and the space was being used for a glass sculpture. (The garden was hosting an exhibition by Dale Chihuly and his works were scattered throughout the grounds and buildings.)

The part of the "Plants and Fungi" display housed in the adjoining gallery was still there. It's pretty good. There are computer stations where visitors can access audio-visual presentations about each of the featured ten research projects, as well as the Virtual Herbarium. On one of the walls is painted a simplified version of the evolutionary tree of plants and fungi. The fungi part (in red) is grossly simplified. Roy said he would like it to be repainted to be at the same level of accuracy as the plants part. To do that, it would need to be just as large, if not larger than the green section representing the plants! There's space for it on the wall on the other side of the tree, so I hope they do it one day.



Roy told us that the herbarium has lots of guided tours go through it each year. Spring time is especially busy with visiting school groups. General herbarium tours are led by herbarium staff.

Mycological clubs who visit for a tour are shown around by Roy or his wife Barbara, who is Curator of Bryophytes as well as Director of the herbarium.

They've had at least three or four mycology clubs visit by the time of our visit in September.

After lunch, Roy took us out into the botanical garden. It is a beautiful garden. We saw some very interesting native American plants and a few more Chihuly sculptures.

Roy led us into the old-growth forest part of the garden and showed us some of his favourite foraging places. We found a good variety of fungi, but we didn't find any boletes, much to Roy's disappointment.



Dacryopinax spathularia, Fan-shaped jelly



Cyathus species, possibly *C. stercoreus*.

When we found some bird's nest fungi, I happened to mention to Roy that I've been studying them. As we were later saying goodbye, he gave me his personal copies of Brodie's books. If you want to learn about bird's nest fungi, these books are pure gold. It was a very kind and thoughtful gift and I am deeply touched by it, and have passed on some of Roy's generosity and given a copy to the QMS Library.

Notes:

¹ "Bernard Ogilvie Dodge" *Wikipedia*;
https://en.wikipedia.org/wiki/Bernard_Ogilvie_Dodge

References:

"Bernard Olgilvie Dodge" *Wikipedia*;
https://en.wikipedia.org/wiki/Bernard_Ogilvie_Dodge

New York Botanical Garden website;
<https://www.nybg.org/>

"New York Botanical Garden" *Wikipedia*;
https://en.wikipedia.org/wiki/New_York_Botanical_Garden

Images: Copyright Vanessa and Chris Ryan 2017

A day with the Connecticut-Westchester Mycological Association

Vanessa Ryan

As well as spending a day with Roy Halling at the New York Botanical Garden Herbarium. I thought it might also be interesting to try to get together with an American mycology group for one of their meetings or a foray.

Roy informed me that the Connecticut-Westchester Mycological Association would be having their annual Clark Rogerson foray during the time we would be in the New York area. That event is a four day residential foray held over a long weekend. A couple of emails later and Chris and I were booked to attend. Unfortunately, because of our travel schedule we could only make it for just one day – the Saturday – but what a wonderful day it was.

The Connecticut-Westchester Mycological Association is an American group of amateur and professional mycologists – a lot like the QMS. The Association is called COMA for short.



© Connecticut-Westchester Mycological Association

To quote from their website: “COMA is an educational and recreational group devoted to advancement of the science of mycology through public education, organized forays and field trips, publication, lectures, and nature study. Our activities encompass the fields of natural history, botany, taxonomy, culinary arts, photography, toxicology, microscopy, and more. The club actively promotes public education about mushrooms to prevent poisoning by toxic species.”

They are located – as their name suggests – in the state of Connecticut and the adjoining Westchester County in New York State.

COMA was founded in 1975 by a group of people who wanted to learn and share knowledge about

the science of mycology. It currently has about 280 members.

The association holds 6-8 informational evening programs each year. The general public is welcome to come to these and admission is free.

COMA hold walks every weekend from early April to early November. The general public is again welcome and again they are free of charge. COMA does have some walks that the public aren't allowed to attend – these are the special morel hunting forays they hold each Spring.

COMA's scientific activities includes recording comprehensive lists of the fungi collected on their walks and forays and conducting an annual survey of fungi at a reservation in Pound Ridge, New York, for the Westchester County Department of Parks.

Each year in late winter, the association holds something they call “Mushroom University”. This is an advanced mycology course for non-professionals. It's held over a period of six to eight weekends, with Gary Lincoff, the author of a number of books and papers about fungi, leading the classes. Sometimes they also have guest lecturers on specialized subjects. Each year the course focuses on a different genus, but this year it covered a number of different topics such as agarics, boletes, Ascomycetes and lichens.

COMA has a scholarship program named in honour of Sylvia Stein, one of their founding members and an eminent amateur mycologist. The total scholarship funding per year is \$1,500 and each recipient receives up to \$300. Only mycology related events or projects are eligible for consideration. These include projects involving cultivation, photography, microscopy, crafts and the culinary arts.

Recipients are expected to lead a minimum of three of the association's walks and to submit an article to COMA's quarterly newsletter which is called “Spores Illustrated” - a deliberate pun on the popular sports magazine, Sports Illustrated.

The newsletter is issued several times a year. During the mushrooming season, weekly updates are also sent out – the COMA Weekly News - and event reminders are emailed to all of their members.

Each November, COMA holds a banquet where members are asked to bring dishes that are mushroom based.

A lot of the mushrooms used in the dishes for the banquet are foraged from the local forests. The association is very much orientated towards identifying edible wild fungi and eating them.



COMA annual banquet, 2017. © Julie O'Grady

And so now I come to the Clark Rogerson Foray.

Dr. Clark Rogerson was mycologist and former curator of the mycological herbarium of the New York Botanical Garden. He and Roy Halling were colleagues for several years at the herbarium before Rogerson retired. Dr. Rogerson served as advisor to COMA from its inception to his retirement in 1996. In 1981, COMA named its annual foray after him in honour and appreciation of his tireless commitment to education and the development of amateur mycology.

The foray this year was held at Camp Hemlocks in central Connecticut. The Camp is run by Oak Hill, one of the Connecticut's largest providers of services for children and adults with developmental disabilities. It also caters for a broad variety of conferences and events – such as weddings, parties, mycological forays, anything. It is located in 160 acres of unspoiled woodland with a 22 acre lake, and includes three lodges with overnight accommodations for 100 campers, a cafeteria that seats 150, spacious meeting rooms, a hall with a stage, and an indoor heated swimming pool. There are a number of state parks and forests close by. It really is, in my view, the perfect place to hold a residential foray.

As I mentioned earlier, the foray is a four day event – what we'd call a residential foray – and it's held over their Labor Day long weekend.

Each day is full of activities, starting with a morning fungi foraging walk. The walks go for two to three hours – that's up to lunch time and a packed lunch is provided. Walk participants are organised into small groups and each group heads off to one of the local parks or forests that have been designated a site number. There were a total of eight foraging sites for the weekend. The site I went to was the Salmon River and Day Pond State Park.

Before the group I was with set off into the forest, I asked about any dangers we might encounter. I'd already been warned to use a good quality insect repellent. Deer ticks carry Lyme disease and mosquitoes can also carry a range of nasty diseases – like zika virus and dengue fever. Chiggers are another hazard. They are a kind of mite that is related to our scrub itch mite.

The one thing the group warned me most about was poison ivy. This plant is quite variable in habit and in Connecticut it grows as a low vine on the ground, right at the level you get down to to look for fungi. Just a light touch is enough to transfer the oil from these plants onto your skin. The oil causes an allergic reaction which can be quite severe in some people.

I was shown another plant, jewel weed – a kind of *Impatiens* species. It often grows in the same places as poison ivy, which is good, because the juice of the crushed stem and leaves is a natural preventative and treatment for poison ivy. Jewel weed seeds are also edible and Native Americans used to grind them up to make a flour. I tried tasting some raw seeds – they have a nutty taste, a bit like walnut or pecan.

We found quite a few fungi specimens that were worth collecting.



Ganoderma tsugae, hemlock varnish shelf, hemlock reishi mushroom



Suillus granulatus, sticky-bun bolete, weeping bolete



Poronidulus conchifer / *Trametes conchifer*



Lenzites betulina (birch mazegill)



Gymnopilus junonius group

When we got back to the camp, we found that the other foragers had also been very busy. The collected fungi had tags written for them, put together with their tag into a cardboard takeaway container and then laid out on a table to be identified. After the fungi were identified, they were laid out on tables in the middle of the room for display. They were organised by group - so all the agarics were put together, the polypores were together and so forth.

I thought that the number of finds was impressive, but apparently it was nowhere near as many as usual. In total, over the weekend, they collected about 200 different species. Usually this number is well over 300. One of the reasons is possibly the Gypsy moth. While we were out on our foraging walk, we'd seen a lot of their empty pupal casings on some tree trunks. The moth was introduced into eastern North America from Europe in 1869. Since then it has been gradually spreading south and west across the country. I was told that the eastern states had a mild winter that year and that this meant that as many moth eggs hadn't been killed off as usual by the cold. The resulting plague of

caterpillars in the spring and summer had stripped the trees of their leaves. The thought was that this meant that many of the trees had been badly stressed, which in turn meant that their fungal mycorrhizal partners were also stressed. As a result, less fungi were fruiting that autumn.

So that's enough about the foraging walks. In the afternoons and evenings there were talks. I was lucky in that three of the talks were held on the day I was there, so I got to hear Dr Roz Lowen, Bill Yule and Karen Raczewski all speak.

Their three topics were all very different. Roz spoke about the trials and tribulations of hunting on a protected mountaintop for a rare fungus - which is actually the fruiting body of a basidio-lichen. Bill spoke about various creatures which eat fungi, and Karen spoke about identifying which fungi are safe for us to eat and showed us some of her recipes.

Karen, her husband and daughter call themselves the "Three Foragers". They have a blog and a Facebook page with information about edible native North American fungi and plants and lots of

yummy-looking recipes. If you are interested, the URLs are at the end of this article.

There were some other, less formal talks held during the foray as well. Each afternoon, there was a table tour of the day's finds. Most of the questions about the finds were about edibility and how to recognise certain species in the field.

And now we get to the mycophagy part of the foray.

Hunting for wild mushrooms, cooking and eating them is a very popular pastime in North America. I already touched on this when I mentioned COMA's annual banquet. Having seen for myself just how easy it is to find enough edible wild fungi for a meal over there, it's no wonder this is so. I have to admit that one of the things I'd been really looking forward to at the foray was tasting some of the local fungi. I've never eaten wild mushrooms before and this was a fabulous opportunity to do so.

On Saturday afternoon is a pot luck, where people bring in their dishes from home to share. On Sunday afternoon is a mycophagy event, where a team of chefs cook up from scratch the edible fungi

that had been found on the weekend's foraging walks. For that event, the vast majority of dishes are planned out well in advance and so it can be set to a theme, though provisions are made for the unpredictable nature of the finds that come in.

I found the table tops for Saturday's pot luck to be densely covered with platters of food. As I had expected, a great many of the dishes were fungi based but some were also made from other foraged foods such as nuts and berries. By the end of the event, the bowls and plates were mostly empty with very few leftovers. Fortunately dinner, which was held about two hours later, was only a very light meal as we were all still too stuffed full from the pot luck to eat!

Joe Brandt is the president of COMA. He and his wife Kathy are regular food columnists in the quarterly magazine "Mushroom, the Journal of Wild Mushrooming". During the pot luck, Joe and I got chatting about mycophagy, a key aspect of fungi I'd had very little to do with before. Joe and Kathy had made the puffball casserole, pictured below.



Puffball Casserole



Black Trumpet Pate



Pickled *Griffola*



Pasta Shells with *Leccinum* and White Cheddar

Since returning home, I've kept in contact with Joe. We have worked out a list of species that grow in both Connecticut and Queensland and he has sent me some of his favourite recipes to share with you. The first of these are included below, and others will be in later editions of the Queensland Mycologist.

Now, there is one more event at the Clark Rogerson foray that I'd like to mention. It's the Tchotchke* Auction. This auction is held on the Sunday evening of the foray and the aim is to raise money for the association. The primary theme of the items for sale is mushroom related, but any outdoor or nature-themed items are acceptable. It's a highlight of the foray and even though I couldn't be there for it, I thought it might be nice if the QMS could contribute something as a gesture of friendship from a fellow mycological organisation.

I asked the QMS committee if they could help out and they generously gave me two sets of the Sunshine Coast Pocket Guides, a copy of Australian Subtropical Fungi and a pack of the 1981 series of stamps on Australian Fungi. One set of the guides and the stamps were for the auction and the book and other set of guides was a gift to COMA's library.

Upon arriving at the foray, I presented the items to Joe. He was touched by the gift and said to please say a big "thank you" to the QMS. So "thank you" everyone! I don't know what our items went for at the auction as they didn't keep individual records, but apparently the event raised about \$400 overall, which is pretty good. It's nice to know that we helped with that.

In return, Joe gave me a copy of "The Complete Mushroom Hunter" (revised edition) on behalf of COMA. The author, Gary Lincoff, is a member of the association and he was at the foray. He wrote a little personalised message inside it for us. This book is now in the QMS library available for loan to our members.



Working hard at the identification table.



One of the display tables.

Well, that's about it... but there is one last thing.

While I was giving the presentation that this article is based upon at the December meeting, I was asked a couple of questions that I could not answer at the time. I have since contacted Joe and got some answers. Here is what he said:

How do you prepare edible mushrooms for freezing?

"We strongly recommend that wild mushrooms be at the very least blanched before freezing, but Kathy and I normally cook them completely, then freeze them.

We generally cook them simply, which gives us a wider range of options once they're thawed – but we will sometimes cook them in a particular style, or as a partial recipe that may be finished when we're ready to use the mushrooms in a dish. Certain mushrooms have a very long freezer "shelf life" after cooking (black trumpets, for instance), and some will begin to have a slight loss of both flavor and texture before one year's time – although some of this depends on what the age and condition the mushrooms were before cooking. We do not recommend freezing mushrooms raw, except as a temporary measure – and then only if absolutely necessary. We normally use Ziplock freezer bags for storage, removing as much air as possible. If you have the equipment, vacuum sealing works wonderfully, but it can be tricky."

Do any of the COMA members grow their own mushrooms and do they have workshops/classes, newsletter articles etc. about doing so?

"We have several club members who grow (or have grown) mushrooms, one of which does in fact conduct workshops and classes."

Joe gave me the contact details of the person who conducts the workshops. Please let me know if you have any questions for him and I will pass them on.

Leon Shernoff, the editor of Mushroom, the Journal of Wild Mushrooming, answered some more of the questions. Leon was in the group I went foraging in the forest with. He also knows a lot about fungi.

Roughly what percentage of the mushrooms found over the Clark Rogerson foray were possible new species?

It's hard to know which of the things we found are new species without specialists. We had some specialists who used to come but for various reasons don't any more; they used to find at least half a dozen or so things that were unidentifiable each year, and another half dozen or so that were "this may be something that was found once and described in 1935, but we can't really tell. This was only in the genera that they worked in. So if we were more on point, there would probably be quite a few each year.

Did the Native Americans teach the European settlers about the local wild foods – which local mushrooms are safe to eat and so forth?

I don't know how much knowledge of mushrooms they passed along, partly because the settlers didn't listen much and partly... My friend Larry Millman, who has worked a lot with First Nations people in Canada, reports that up there at least they consider them completely inedible, possibly because they're so low in fat which feeds into the danger of rabbit starvation. I don't know how far south that attitude extends. I know that the Plains Nations ate puffballs and used the dried-out spore masses as stypics and I believe they passed both of these practices on to the settlers.

Some “Chicken” Recipes

Joe and Kathy Brandt

These recipes have been previously published in the magazine *Mushroom The Journal of Wild Mushrooming* (<http://www.mushroomthejournal.com>) and are used with permission.

Pickin' Chickens

OK, let's get something straight right off the bat - chicken mushrooms (*Laetiporus sulphureus* and *L. cincinnatus*) are probably our all-time favorites, so we write this column with a certain degree of bias. Why do we prize them? Not necessarily because they have the absolute best flavor (although they're really good), or because of the incredible texture, but because their versatility is unbeatable. There is very little you cannot do with these. You are limited only by your imagination.

Let's assume that you've managed to correctly identify a suitable specimen, whether it be *Laetiporus sulphureus* or *Laetiporus cincinnatus*. (These are the two species of the genus *Laetiporus* most commonly found in the

[*Rabbit starvation is a form of protein poisoning from eating a diet high in protein with devoid of fats and carbohydrates – ed*]

As I wrote near the beginning of this article, the day I spent with COMA was wonderful. I am so glad that we made the effort to do it. I learned about some interesting species – both fungal and plant, tasted some delicious mushroom dishes, had lots of fun and got to meet some very friendly and very knowledgeable people.

If you should ever get to travel – whether it be overseas, interstate or to another nearby town - I can only urge you to try to contact a local mycology group and get together with them. It is well worth it!

* Tchotchke – means “small trinket”

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For the full presentation this article is based upon, please go to:

<http://qldfungi.org.au/wp-content/uploads/Meetings-Presentations/QMS-Presentation-Vanessa-Ryan-COMA-2017.pdf>

References:

<http://www.comafungi.org/>

<http://the3foragers.blogspot.com.au/>

<https://www.facebook.com/The-3-Foragers-118852208201771/>

<https://www.mushroomthejournal.com/>

Eastern United States, and the only ones that we are really familiar with for culinary purposes.) Cooking methods for both are exactly the same for either - although the window of opportunity (as far as maturity goes) is a bit larger with *L. cincinnatus*. Of course, very young specimens are always preferred and can sometimes be used in their entirety if undamaged by insects. However, compared to other mushrooms, either type of *Laetiporus* are reasonably forgiving as far as age restrictions go. By using certain cooking methods, chicken mushrooms (both *L. sulphureus* and *L. cincinnatus*) may be used almost to the point that they actually become brittle – but we're getting ahead of ourselves.

To clean your chicken, separate the individual "fronds" from the central stalk, because the center is often woody (unless you have one of the really young juicy ones and can use it all). Sometimes only the thinner edge areas (those farthest from the center) will be suitable for use. If a sharp knife cannot pass through without actively sawing, or if the fronds crumble or shatter with the least amount of pressure exerted, forget about it. Make sure your harvest has some pliability and moisture still present. The average find is several pounds of "leafed-

out," mature, or semi-mature chicken. Every once in a blue moon, you may find a specimen that has not yet matured enough to form fronds at all, resulting in something that looks suspiciously like an orange/yellow blob from outer space. This form is the Holy Grail of chicken mushrooms, and when found, is often completely solid and 100% usable. (Very young specimens can "bleed" yellow, which is truly optimal.) In order to cook these successfully, they must be sliced (after minimal cleaning) then baked, pan-fried, or grilled.

Chicken mushrooms should be harvested promptly, without waiting to see how big they'll get because you're in a race with the bugs to see who gets there first and maggots can do a tremendous amount of damage very quickly, never mind the idea of actually cooking them with the mushroom. Because insects are, after all, only protein that would be cooked anyway, some might think it's okay to use mushrooms with maggot holes. We are not in that camp, even remotely. (As we've previously mentioned in this column, we don't "do" bugs – any bugs.) While we're on the subject, we would like to address the "soaking" method of eliminating insect infestation from fungi. Here's the story: it's effective, but only up to a point. Especially with a dense mushroom (like a chicken), you cannot completely remove tunnelling insects by this method. If eating bugs bothers you at all, you must carefully observe cut areas when slicing. "Pin holes" are evidence of maggots. Some people don't care if there is a small hole or two, but if the flesh of a mushroom begins to look like a Swiss cheese, it may be time to think about "Plan B" - and without cutting, this is rarely obvious. One tell-tale sign is the presence of small flying insects in the immediate vicinity of a mushroom. If this is the case, your find is most likely already compromised and will require careful evaluation before investing time and effort in cleaning.

So you've managed to get home with your prize - now what? Although chickens will hold up fairly well if stored in the fridge (preferably in a paper bag) for a day or two, it's always a good idea to cook them ASAP, in order to avoid having your prize slowly deteriorate, or having a few tunnelling insects progressively make mincemeat out of your mushroom. (The refrigerator cold doesn't stop them.) You can certainly "field clean" them to avoid the possibility of having insects conducting a foray of their own inside your refrigerator, but do not wash a mushroom then store it without cooking it first – and don't even think about freezing it raw. Although some mushrooms may be OK to freeze raw, there is information that doing this with chicken mushrooms may pose a danger to your health and it's not worth the risk.

As with any wild mushroom, restraint must be used if you will be sampling these for the first time – take only a very small portion. This is especially important with this particular mushroom, as unpleasant gastro-intestinal reactions (and sometimes actual allergic reactions) are unusual but not exactly uncommon.

Basic Preparations

This basic method works well for cooking any large quantities, regardless of whether the material is young and tender or slightly dry. For the somewhat older find, a

chicken that is not-too-terribly past its prime (just a bit too dry, but still not brittle), this method helps to rehydrate the mushroom. The mushroom should be completely cleaned and cut (or torn) into pieces no larger than two inches maximum. You will need one or more baking pans, vegetable broth, onion(s), garlic, olive oil (preferably extra-virgin), salt and pepper.

Pre-heat your oven to 350° F (175° C). Chop one or more onions (you will need approximately one medium onion for every 8 to 10 cups of mushrooms) and minced garlic cloves (you will need 3-4 cloves for every 8-10 cups of mushrooms). Place the prepared mushroom in a large bowl with the onions and garlic, and mix well. Drizzle on olive oil, sprinkle on salt and pepper. Toss. Repeat. Toss. Repeat. (You will want about 1/2 cup of oil, approximately 1 teaspoon of salt, and 1/4 teaspoon of pepper, total for each 8 – 10 cups.) Transfer the mixture to a 9 X 14 inch glass baking dish. Pour approximately 1/2 cup of vegetable broth over everything, cover with foil, and bake for 30 minutes. Uncover, stir, re-cover, and bake for another 30 minutes. (If your mushroom was dry to begin with, it may need another 20-30 minutes of cooking.) Taste and adjust salt if needed.

For smaller quantities (NOT the older finds), basic pan-fried is usually the way to go. Slice young tender chicken mushrooms. Be sure that the resulting pieces are flat or they will cook unevenly. Please note that for best results, these will be turned individually, so the larger the better. Smaller pieces may be pan-fried as well, but care must be taken to assure that both sides cook evenly. (Note: Do not exceed 1/4 inch (6mm) in thickness.) Sometimes, the young fronds are just the right size to pan fry. Place 1-2 tbsp. extra-virgin olive oil in a suitable frying pan, heat (medium/ medium-low) until oil is hot but not smoking, place a single layer of sliced mushrooms in pan and cook until each piece is lightly browned on bottom, (about 2-3 minutes) turn once and cook until evenly browned. Transfer to paper towels to soak up excess oil. Squeeze a few drops of fresh lemon juice on each slice and sprinkle with salt. May be eaten warm or cold as is, (maybe with just a touch of light mayo) or used in recipes. If you wish to add in more flavor, first sauté 1/2 of an onion (chopped) in the oil (about 2-3 minutes, until slightly translucent), then toss in a clove of minced garlic (if desired) just before adding the mushrooms, but if using, care must be taken not to burn the garlic.

Braising on the stovetop is also an option. Sweat a few shallots and butter together on low heat. When they are translucent, add cleaned, sliced chickens and approximately 1/4 cup water, salt & pepper. Cook on low for 25 minutes. You can store them in their liquid, or freeze them at this point. Can you grill them? Heck, yes - but they should be brushed with olive oil (both sides) prior to putting them on the barbie. In a hurry? You can simply boil cleaned, cut-up pieces of chicken mushrooms in vegetable broth for 10-15 minutes, then store (or freeze) them in their liquid, a quick and easy trick, but somewhat less versatile.

Any way you go with your basic preparation, these wonderful mushrooms are great by themselves, in sandwiches, or as chicken substitutes in a variety of

recipes. Once cooked and cooled, you may transfer them to a suitable container (we use Ziplock freezer bags with as much air removed as possible), and freeze for up to a year.

Simple "Chicken" Parmesan

1 (24-oz, 700 mL) jar prepared tomato sauce [tomato puree in Australia]. (We prefer Classico Tomato Basil)
Approximately 6 cups cooked chicken mushrooms
1 small package shredded mozzarella cheese, or non-dairy cheese substitute
1/4 cup shredded parmesan cheese or non-dairy cheese substitute

Preheat oven to 375° (190° C). Coat the bottom of a 9" x 14" (23 x 35 cm) baking pan (or similar) with tomato sauce. Place cooked chicken mushrooms (close-spaced) in a single layer into the pan. Cover with a thin layer of tomato sauce. (You'll use about 2/3 of a jar, total) Cover with shredded mozzarella cheese, approximately 1 cup. Distribute shredded parmesan cheese evenly across top. Cover with foil, and bake in pre-heated oven until heated through and cheese is completely melted, approx. 30 minutes. (Longer if chicken mushrooms are stone cold.)

Chicken Mushroom Masala

5-6 cups fresh young chicken mushroom, torn into 1 - 2 inch (25-50 mm) pieces.
2 tbsp butter (or butter substitute, such as Earth Balance) or olive oil
1/3 cup vegetable broth
1 yellow onion
5 cloves garlic
hot sauce to taste
1 cup canned, diced tomatoes
2 inch piece fresh ginger, peeled and sliced
3 tbsp canola oil
2 tsp. Coriander
1 tsp. Cumin
1/2 tsp. chili powder
1/4 tsp. tumeric
1 tsp. garam masala
7 ounces (200 g) tofu, cut in 1/2 inch (12mm) cubes (alternative: 1 - 2 cups cooked chickpeas)
2 tbsp canola oil
2 tbsp soy sauce
salt to taste
4 tbsp unsweetened plain yoghurt, soy or dairy

Heat the butter or oil in a fry pan over medium heat, add the chicken mushrooms and braise till they begin to brown, then add the vegetable broth, cover, lower heat and let cook about 15 minutes, stirring frequently. (OR - use mushrooms prepared in any of the basic preparation methods mentioned above, if frozen, defrost and proceed).

Meanwhile, puree onion, garlic, hot pepper sauce, ginger & canned tomatoes in a food processor. Heat 3 tbsp canola in a saute pan. When hot, add the onion puree mix and all the powdered spices. Cook over medium heat for

30 - 40 minutes – sauce will thicken and oil will begin to separate out.

Meanwhile, when chicken mushrooms have cooked, remove them from fry pan, heat the additional canola oil in the same pan, and add the cubed tofu & soy sauce. Cook on all sides until browned, stirring frequently. (Skip this step if using chickpeas.)

When the sauce has thickened, add the cooked chicken mushrooms pieces and 1/2 to 3/4 cups water. Cover and cook about 10 minutes. Add tofu, taste for seasoning, add salt and, if desired, additional hot sauce. Remove from heat and add yogurt.

Spicy Peanut "Chicken" Mushroom Stew

2 cups cubed, boiled tender young chicken mushroom
2 cups cooked chick peas
1 medium sized eggplant, peeled and cut in 1/2 inch dice
1 tsp salt
1 tsp ground cumin
1 tsp ground coriander
1/4 tsp turmeric
1/8 tsp cayenne
1/4 cup peanut oil
2 shallots, thinly sliced
2 inches (50 mm) fresh ginger, peeled and minced
1 jalapeno pepper, seeded and minced
1 yellow onion, chopped
1/3 cup tomato paste
1 small can (14.5 oz, 400 g) diced tomatoes
4 cups vegetable stock
1/2 cup unsweetened peanut butter
1 medium zucchini or yellow squash, cubed
2 tbsp freshly squeezed lemon juice
1/3 cup coarsely chopped cilantro
Cooked brown rice

Toss diced eggplant with 1 tsp salt, place in colander to drain for 30 minutes. Rinse, drain well and set aside, mix spices in a small bowl.

Heat 3 tbsp peanut oil in a large pot. Add shallots and fry until caramelized. Using a slotted spoon, remove to bowl, leaving oil in pot. Add eggplant to hot oil in pot and cook 10 minutes until lightly browned. Add chicken mushrooms and saute quickly for 1 - 2 minutes. Transfer to bowl with shallots.

Add ginger, jalapeño and spices and stir for 30 seconds. Add onion and cook until softened and translucent. Add tomato paste and stir in, cook about 1 more minute. Add diced tomatoes, stock, eggplant, chicken mushrooms, shallots, chick peas and salt. Cook 5 minutes on high.

Place peanut butter in a medium bowl. Add 1 or 2 ladles full of liquid from pot and still till emulsified, then pour into pot.

Reduce to a simmer and add squash. Cover and cook 10-15 minutes until vegetables are tender. Turn off heat and stir in lemon juice. Add salt to taste. Serve over brown rice, sprinkle each bowl with chopped cilantro.

"Chicken" a L'orange

4 cups sliced young chicken mushrooms
2 shallots, minced
2 cloves garlic, minced
1/4 cup olive oil
1/3 cup tamari
1/2 cup orange juice
1/2 tsp. salt
1 tbsp Grand Marnier (or similar orange-flavored liquor)
1 tbsp lemon juice
1 1/2 tsp. salt

Preheat oven to 350° F (175° C). Place mushrooms in a glass baking dish. Mix remaining ingredients in a bowl, then pour over chickens & stir to coat. Cover with foil and bake for 90 minutes, stirring every 30 minutes. Good hot or cold. (Less good frozen!)

"Chicken" Salad

4 cups cooked chicken mushrooms, cut into small bite-sized pieces, approximately 1/2 inch (12 mm)
3 stalks fresh celery, cut in half lengthwise, then sliced crosswise, approximately 1/4 inch (6 mm).
1/4 fine-chopped yellow onion, or 3 green onions, chopped fine.
2-3 heaping tbsp. light mayonnaise or mayonnaise substitute, such as Veganaise
1 tsp. prepared mustard
1/2 cup toasted salted pecans, coarsely chopped
1/2 cup green or red seedless grapes, cut in half lengthwise (larger grapes may be quartered)
Salt (approximately 1 tsp.) & pepper (approximately 1/4 tsp)

Place all ingredients (except mayo, salt & pepper) into a large bowl, and toss well. Add mayo (or mayo substitute), and mix well until evenly distributed. Sprinkle on half of the salt & pepper. toss well. Check seasoning, add more salt & pepper as needed. Toss well and refrigerate before serving.

Mycena

Through the cathedral forest I go
and I pause for a moment
captured by a delicate complexity.

Pale head bowed in humility,
slender body curved in a dancer's grace.
Translucent beauty,
fleeting in its perfection.

Life from death.
Soft sweet breath of decay.
The cycle rolls unending.

But here a singularity,
too small for scientific scrutiny.
And so I wander on.

Vanessa Ryan

Fungal Discoveries

This collection of stories has come to my attention over the last few months. My own favourite is the series on the Rhynie cherts, including ancient fungal fossils.

The following link is to the table of contents of Philosophical Transactions of the Royal Society B (volume 373, issue 1739, February 2018). Don't be deterred, these papers are all open source so you can download them. There are plenty that are easily readable, and they tell a fascinating story of fossils from the oldest known terrestrial ecosystem, the 407 million year-old Rhynie cherts from Scotland.

And yes, fungi were there right at the beginning of the colonisation of land by living organisms. There are four papers on fungi among papers on plants and invertebrates.

'The Rhynie cherts: our earliest terrestrial ecosystem revisited'

<http://rstb.royalsocietypublishing.org/content/373/1739>

This story was reported in the Guardian:

<https://www.theguardian.com/science/2018/jan/16/strangest-things-fossils-reveal-how-fungus-shaped-life-on-earth>

Not fungal as such but interesting:

<https://www.theguardian.com/science/series/lost-worlds-revisited>

Ancient moas may have furthered the spread of beech forests by eating mushrooms.

This one from New Zealand, where DNA analysis has revealed that the now extinct moas ate fungi and were critical to the distribution of fungi that beech trees depend upon.

<https://www.sciencemag.org/news/2018/02/fossil-poop-reveals-critical-role-giant-birds-new-zealand-ecosystem>

Fungi aids plants in scavenging nutrients from ancient soils.

This one is an Australian story, about the role of fungi in helping plants take up nutrients.

<https://phys.org/news/2015-11-fungi-aids-scavenging-nutrients-ancient.html>

It seems that that role becomes more vital as soils age, as shown in this related article from the Smithsonian:

Necessity at the roots of innovation: The scramble for nutrients intensifies as soils age

<https://phys.org/news/2015-04-necessity-roots-scramble-nutrients-soils.html>

Mushrooms are full of antioxidants that may have anti-aging potential

A bit of boost from Penn State, but interesting nonetheless, though I suspect many of us won't be surprised.

<http://news.psu.edu/story/491477/2017/11/09/research/mushrooms-are-full-antioxidants-may-have-antiaging-potential>

Researchers quantify nutritional value of soil fungi to the Serengeti food web

This story from Arizona State University is about arbuscular mycorrhizal fungi, not the usual focus of QMS but a fascinating and critically important group nonetheless.

<https://phys.org/news/2018-02-quantify-nutritional-soil-fungi-serengeti.html>

And finally, ants and fungi:

Taking a piece of home with you: Farming fungi in a new Azteca ant colony

<http://blogs.plos.org/everyone/2018/02/22/fungiculture-azteca-ants/>