

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
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/>.

Please notify the membership secretary (memsec@qldfungi.org.au) of changes to contact details, especially your e-mail address.

The Queensland Mycologist

The Queensland Mycologist is issued quarterly, **but issues may be combined if there is insufficient material for four**. 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 and there is an extensive review process.

Material can be in any word processor format, **but not PDF**. The deadline for contributions for the next issue is **1 September 2021**, 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, or the newsletter may come out late.

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 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

This beautiful "leather" could be in any one of five genera according to Matt Barrett. It was photographed on the Maroochy Bushland Botanic Gardens foray in May. The report is on page 7.
Photo © Wayne Boatwright.

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QMS activities

Meetings

Meetings are held at the Albion Peace Centre, 102 McDonald Road, Windsor, from 6:30 – 8:30 pm.

Parking is in McDonald Rd and there's a large off street area there too, opposite the hall, and more under the by-pass. Albion Railway Station is 5 minutes away. Entry to the hall is now from Albion Rd.

For those unable to attend, meetings can also be attended virtually on Zoom. Details will be provided via email.

Meetings held monthly from February (no January meeting), unless otherwise scheduled. **Check the website for details and any changes.** There are typically 3-4 guest speakers invited during the year, with the other meetings informal. Suggestions from members for topics or names of potential speakers will be welcome at any time. Please contact a member of the Committee.

We like to publish notes from presentations in the *Queensland Mycologist*. 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. If you do present at a meeting, a summary of that presentation that can be turned into a newsletter article will be greatly appreciated. But it is better to attend the meetings, get the information first hand, and participate in these invaluable information sharing opportunities.

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

Forays

QMS holds 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 Wayne Boatwright 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 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 2021

Meetings are held on second **TUESDAY** of the month. Check the website for updates on the impacts of COVID-19 on QMS activities, and look out for emails from Wayne Boatwright updating **meeting details and venue directions, or click [here](#)**. Remaining meeting dates for 2021 are:

September 14, October 12, and December 14, all at the Albion Peace Centre unless otherwise notified. On **November 9**, Dr Sapphire McMullan-Fisher will speak on "Fungi in the Ecosystem" via ZOOM.

Editor's Comments

Apologies for a very late newsletter. I did not have enough material until recently, the reason for this double issue. I need more material if I am to bring out four reasonably sized editions each year. I also need it in good time because it takes a lot of time to put a newsletter together. The good news is I already have two articles promised for September, though I need more.

I know people put their finds on Facebook, but it would be great to have something in the newsletter.

An article can be as brief as a photo of something unusual or interesting and a couple of paragraphs describing where it was found, the situation and if possible a name, or at least a genus. Of course anything more substantial, ranging from larger articles with more information and species up to full foray reports are really valuable.

While I like to see as many fungi as possible identified, especially those from QMS forays, that is often not possible, as is the case with the two foray reports in this issue. I decided it was better to report on what we found rather than insist on only writing forays up when everything was identified.

Presentations written up for the newsletter are also much appreciated. As with foray reports, I can assist with fleshing out outlines if I have the basic information. **I prefer photos to be provided separately as originals**, as that not only gives me more flexibility in trimming, sizing and placement, but also because the less processing the better the quality. I generally have to save photos from articles and pull them back in later, and that both reduces quality and adds to the work, and hence time needed.

Back in January, Fran sent in a note about fungal rhizomorphs in bird nests and here it is. Fran has also sent in two book reviews, both of which are on page 6.

I have written two foray reports, for which Matt Barrett provided essential information on the polypores that made it clear that nearly all our field IDs were wrong, and that many species we thought we knew, we don't!

It will take a careful compilation of characters – macroscopic, microscopic, chemical and genetic – of each of the species collected, then comparing these against the descriptions of known species to pin down their identities – and quite likely will end up with species that are new to science.

Pat Leonard has added a note on some blue *Cortinarius* species found in Queensland. The largest of the three, *C. archeri* (considered to be a species group, as yet unresolved), was found on both forays. There are also questions about the other species in that article, but until substantive evidence is published the names stand. They were all described before DNA sequences became vital to systematics so changes are likely. *Cortinarius* is a huge genus, so it may be a long time before that work is complete.

There have been more than two forays but nobody who attended has found time to write them up. All I need is a brief description of the location, how many species were recorded (named or not), and some highlights, even if only in note form. I also require photos sent separately from the text, either via email or Dropbox. A more detailed report is, of course, welcome

I prefer not to both write and edit, except for the occasional article, and don't intend to do so very often!

Tracey Steinrucken, president of the **Australasian Mycological Society** has asked me to include a link to their website for virtual seminars. Their most recent newsletter was a wonderful account of forays in New Zealand, with a link to a TV item on that topic (link below).

Once again I am deeply grateful to Nigel Fechner for his essential input, and this time also to Matt Barrett and Teresa Lebel for invaluable information.

Thanks also to Susan Nelles, Vanessa Ryan, Fran Guard, Warwick Nash, Pat Leonard and Anne Frederick for many useful comments and suggestions. In some cases I had to decide which ideas to take on board, or which I could fit in given constraints of space and layout. The final product is my responsibility.

The Australasian Mycological Society

Home page:

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

They also have virtual seminars, though the 2021 series has finished. For more information visit:

<https://www.australasianmycologicalsociety.com/virtual-seminars-2>

The May 2021 AMS newsletter had an excellent report on a foray in New Zealand and a link to a piece on New Zealand television.

TVNZ interview:

<https://www.tvnz.co.nz/one-news/new-zealand/and-fungi-experts-chasing-undiscovered-species-in-aotearoa>

Marasmioid Rhizomorphs in Bird Nests

Frances Guard

A recent survey of bird nests in the tropical countries of Cameroon (Africa) and Guyana (central America), by Rachel Koch et al.¹ discovered that many bird species use fungal rhizomorphs in construction of their nests. This fascinating paper examined 74 rhizomorph-containing nests in the two countries. The rhizomorphs were used in three main roles in nest construction – 1. lining material, 2. structural material and 3. attachment and anchoring of nests to the substrate. It was noted that at least 176 bird species around the world use rhizomorphs when building their nests, so this project covered only a small fraction of those birds. As all 74 nests examined were already abandoned, most of their builders were not identified.

The researchers demonstrated that 25 different species of marasmioid fungi were used, 20 species in Marasmiaceae (17 *Marasmius* and 3 *Crinipellis*) and 5 *Gymnopus* in Omphalotaceae. The methods used to identify these fungi included DNA collected from the rhizomorphs, matched with morphology and DNA from any fruitbodies found in the nests as well as fruitbodies found in the area around the nests. This produced 14 species. Further matching with DNA from GenBank added another 6 species. Two new species of *Marasmius* were also described.

It was found that rhizomorphs of 5 species were used almost exclusively as lining material in the nests. This living material may produce volatile chemicals. It is hypothesized that these could play a role in controlling parasites in the nest.

Another 10 species were used as attachments and anchors and 6 of these were litter trappers, which are normally very strong as they carry heavy loads of leaf litter. This suggests that birds may preferentially select rhizomorphs adapted to bearing heavy loads for nest attachment.

So many questions are raised in this paper, and one I would ask is whether the same use of rhizomorphs occurs in Australian bird nests? If so, there is great opportunity for someone to research this phenomenon and discover not only which fungal species are used, but also to follow up on the production of potentially protective volatile chemicals.

The full paper, published in *Mycologia*, is well worth reading, and the photos of 9 of the bird nests, illustrating the roles rhizomorphs play in their construction, make interesting viewing.

1. Koch, R.A., Liu, J., Brann, M. Jumbam, B., Siegel, N. & Aime, M. C. (2020). Marasmioid rhizomorphs in bird nests: species diversity, functional specificity and new species from the tropics, *Mycologia* **112:6** 1086-1103, DOI:[10.1080/00275514.2020.1788892](https://doi.org/10.1080/00275514.2020.1788892).

Postscript: 21/7/21

Since writing the above review, I have had the opportunity to examine several abandoned nests in southeast and north Qld. Three Sunbird nests examined did not use any fungal rhizomorphs, though their complex nests contain many other natural materials. One yellow-throated scrubwren nest (Mary Cairncross Reserve) contained rhizomorphs in its walls and one spectacled monarch nest (Dilkusha N.R.) also had rhizomorphs. Careful searching nearby led to the discovery of *Marasmius* sp. (*crinis-equi* complex), DNA-confirmed rhizomorphs and fruitbodies within 50 metres of each nest. Matching the growing, fruiting fungi with the nesting materials was not easy, with failed DNA extraction from the nests. However, in one small nest from Barron Gorge NP, rhizomorphs were found in the walls and a pad of lining. DNA sequences showed these to be two species – *Gymnopus* sp. in lining, and *Marasmius* sp. (*crinis-equi* complex, but different from the SEQ species) in the walls. So, why do small birds select this material, when other materials are much more common and accessible? Why do they bother to use different species? A few answers raise more questions, and this could be a very exciting project for a QMS member.



The nest (left) and fern frond skeletons, mosses, plant material and black fungal rhizomorphs (right).
Photos © Frances Guard.

Wild Mushrooming – A Guide for Foragers

by Alison Pouliot and Tom May

CSIRO Publishing 2021, 320 pages, richly colour illustrated throughout.

Retailing online for \$37.50. For ebook details see <https://www.publish.csiro.au/books/ebooks>

This is the first forager's guide written in Australia by mycologists for those who would like to forage in the wild for their own edible mushrooms. It is not a quick "identify and pick" manual. Rather it is a careful, warning-filled document, illustrating and describing not only some ten edible native and exotic mushrooms found in Australia, but similar-looking toxic, non-edible species. A whole chapter is dedicated to poisonous fungi, and one is left in no doubt as to their potential deadly effects. The chapter profiling the ten edible fungi includes their non-edible and toxic look-alikes (captioned with skull and crossbones), also carefully described and illustrated.

However, this book is much more than a guide for mycophagists. It starts with a look at the kingdom of fungi, their physiology and roles in the environment, their morphogroups and major identifying features. These are beautifully illustrated. It contains words of advice on how and where to find and collect fungi legally, and how to balance this with conservation needs.

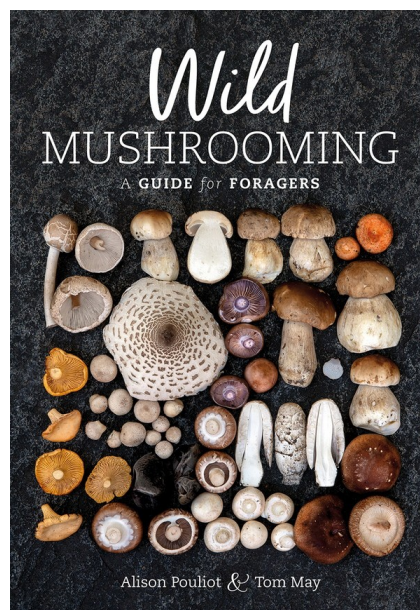
The final chapter is on fungi in the kitchen – storage, preparation and cooking of mushrooms, including some delicious recipes, which I have yet to try!

I found the book easy to read and full of useful information for both novice fungi collectors and more experienced field mycologists. It is a book I have

dipped into several times while trying to identify some of the many *Agaricus* species that grow in my area. I will continue to use it as I try some of the recipes, and as a beautiful resource in training new amateur field mycologists.

I believe it will be a valuable addition to the small, but growing library of Australian fungi guides.

Fran Guard



The Forest in the Tree: How Fungi Shape the Earth

by Ailsa Wild, Aviva Reed, Briony Barr & Gregory Crocetti.

CSIRO Publishing ; 50 pages; illustrated children's non-fiction. Retail price \$24.99.

It is not often that a children's book is written exploring the symbiotic relationships of plants, fungi and bacteria. The title is a little cryptic, but the content is not.

This particular book is beautifully illustrated with watercolour paintings and diagrams. It is a story told from the view of a tiny fungal spore and how it becomes connected via its mycorrhizal hyphae to a 'chocolate tree', *Theobroma cacao*, and then to a whole forest in the Amazon, through the wood wide web. The story includes the role of soil bacteria in the processes of phosphorus mining, litter recycling, nitrogen fixing and prevention of parasitic attack. This may be new material to many adults as well as children.

It takes us through the growth and development of fungus and plant, and their relationship with the bacteria. Then the story takes a darker turn as it reveals the stresses of drought on all components of the forest, and the loss of some young trees. However, even the loss is seen in the



wider context of the recycling of dead organic material (as nutrients) and the continuation of life.

It presents scientific facts in a way that is accessible to children, and adults alike. The story line is refreshingly clear. The science behind the story is explained and expanded at the end of the book, which makes it a great resource, especially if it is used in a classroom.

I would highly recommend it for any parent, grandparent or teacher of primary school children. I think it is a welcome addition to our QMS library. (Actually, I recommend it for anyone interested in fungi in the ecosystem!)

Fran Guard

QMS Maroochy Bushland Foray 8 May 2021

David Holdom

The Maroochy Bushland Botanic Garden is a pleasant site to visit and a great one for fungi hunters, especially when, as happened this year, the weather was ideal. Good rain on the preceding Wednesday was perfectly timed for the group that turned out on a mild and pleasant Saturday.

Twenty two species were recorded, and more seen, but the task of identifying large numbers of specimens is such that a limit is placed on collections.

Notable among the collections were five species of *Russula* (Order Russulales, Family Russulaceae¹). Two of these are likely new species, one with a striking reddish cap, the other white. Pat Leonard has submitted DNA samples for sequencing.



Two unidentified, possibly new, species of *Russula*.
© Wayne Boatwright.

Two locally well-known species were *R. iterika* and the as yet unnamed *Russula* "sp. 4", a description of which is on the QMS website.

¹ Names of orders of plants and fungi end in "-ales", and of families "-aceae". It is different for animals.



Russula species 4 in natural and UV light.
© Wayne Boatwright



Russula reddellii. © Wayne Boatwright

One specimen that drew interest was initially thought to be a truffle, but it turned out to be the sequestrate *R. reddellii*. The most recent records of collections of this species in the Atlas of Living Australia are from NSW in 2002, and from Queensland in 1992, though Nigel informs me that its DNA has been detected in soil from South Australia in 2009, Queensland in 2013 and Tasmania in 2014. The holotype is from Queensland.

Another sequestrate fungus, also in the family Russulaceae, was identified as *Zelleromyces malaiensis*, by Pat Leonard, who reports that it fits Teresa Lebel's key

except for slightly more spinose spores. Teresa Lebel has informed me, however, that *Z. malaiensis* was described from a single specimen from Peninsular Malaysia in 1929, and in view of recent discoveries of the diversity in these species, and the lack of new material, it is better to refer to it as *Zelleromyces* aff. *malaiensis*. It produced “milk” when cut, in the same way as does *Lactarius*, and probably belongs in *Lactarius* or *Lactifluus*, but has not yet been formally transferred. See ‘A note on *Zelleromyces*’, below.



Zelleromyces aff. *malaiensis*. © Wayne Boatwright

If we go up a taxonomic level from the family Russulaceae, we come to the order Russulales, and it was a surprise to me to discover that the genus *Stereum* (family Stereaceae), which looks nothing like a *Russula* or *Lactarius* belongs in the same order. We found the common *S. ostrea*. We thought we had another member of the genus, *S. strigosozonatum*, but not only is that species now in a different order, and called *Punctularia strigosozonata*, it is not what we found! Matt Barrett did not recognise it, but said it could be in any of *Podoscypha* (Polyporales, Meruliaceae), *Stereum*, or *Xylobolus* (Russulales, Stereaceae).



This fungus could be in *Podoscypha*, *Stereum* or *Xylobolus*. © Wayne Boatwright

Another similar-looking fungus could not be identified, and Matt has informed us that, based on a photo (front page), it could be in any one of five genera. Many fungi are difficult to identify from photos. Microscopic characters are needed at the very least, and DNA sequences are often essential to distinguish very similar species, and critical to descriptions of new species.

The only confirmed member of the order Agaricales recorded was the striking purple *Cortinarius archeri*. “*C. archeri*” is thought to be a group of similar species so we cannot be sure just what our find was. *Cortinarius* is a huge genus with over 3000 species worldwide, so it may

be some time before the *C. archeri* group is sorted out.

A single bolete, an *Austroboletus*, has yet to be identified.

A toothed fungus identified as *Hydnellum aurantiacum* (Thelephorales, Bankeraceae) in the field turned out to be misidentified, and may in fact be undescribed. It has been collected only twice before, also from the Maroochy BBG, so is worthy of more attention as it may be rare.



Cortinarius archeri. © Wayne Boatwright



Austroboletus sp. © Wayne Boatwright



Hydnellum sp. © Wayne Boatwright

Several true polypores (order Polyporales) were found, as is usual on forays, along with other fungi often lumped under general terms like brackets or resupinates. It turned out that few of the names we applied to them were correct, and I am very grateful to Matt Barrett for setting me straight.

Nigroporus vinosus (Steccherinaceae) is a polypore and white rot fungus that is only known from about a dozen collections in Queensland, but is pantropical (occurring throughout the tropics).

Rhodofomitopsis pseudofeei (Fomitopsidaceae) is another polypore we found. This species was thought to be *Rhodofomitopsis* (formerly *Fomitopsis*) *feeii* but Matt Barrett has informed us that our species is not the same and should be referred to as *R. pseudofeei*.



Nigroporus vinosus upper and lower surfaces. The lower photo shows the dark vinaceous-brown flesh that is characteristic for the species. © Wayne Boatwright



Rhodofomitopsis pseudofeei. © Wayne Boatwright

What we thought might have been *Trametes modesta* was also a misidentification. Matt Barrett informed me that it is likely in *Trullella*, or possibly *Flabellophora* (both Polyporales, Steccherinaceae). It is not easy to distinguish these two genera. What has been called *Trametes modesta* in Australia is not correct, and more work is needed to find appropriate names for these fungi.



Another unknown that we thought was *Trametes modesta*, is likely a *Trullella*, or possibly a *Flabellophora*. © Wayne Boatwright

Another species was thought to be *Trametes polyzona* (Polyporaceae), but while it could be that variable species, it is more likely a *Hexagonia* (also Polyporaceae), but could also be one of several other things.

A species of what is likely a *Favolus* (Polyporaceae) was thought to (maybe) be a *Polyporellus*. *Polyporellus* is regarded as a synonym of *Polyporus* in Australia.

"Inonotus" albertinii (Hymenochaetales, Hymenochaetaceae) was originally named as *Polyporus*

albertii in 1912, and much later transferred to *Coltricia*, then to *Inonotus*. Matt informed me that based on DNA evidence, it actually belongs in *Coltricia*, but as that has not been published I have left it as *Inonotus*, but in quotes.



Tentatively identified as *Trametes polyzona*, this specimen could be that or something else, possibly a *Hexagonia*. © Wayne Boatwright



We thought that this specimen might be a *Polyporellus* (= *Polyporus*), but is most likely a *Favolus*. © Wayne Boatwright



"Inonotus" albertinii. The lower photos show it cut open to reveal the context. © Wayne Boatwright

We found one specimen of *Ramaria* (Gomphales, Gomphaceae). These fungi are beautiful in form and often colour, but are seldom identified from forays and should perhaps receive more attention. However they are difficult to identify for non-specialists and mature, sporulating specimens are needed in the absence of DNA analysis.



An unidentified *Ramaria*. © Wayne Boatwright

Another interesting find was a distinctive *Xylaria*. This genus belongs in the Ascomycota, a different phylum of fungi that includes many of the so-called microfungi. Many *Xylaria* are finger-like in form but this one looked like black balls that, when cut, revealed a pure white solid interior. So far it has not been matched to any known species, but the search continues. It could be new.

The other Ascomycete we found was *Penicillium coccotrypicola*, an unusual *Penicillium* that produces finger-like synnemata, which are clearly visible in the photograph. Most *Penicillium* species are simple moulds. *P. coccotrypicola* was described from, and is widespread

in, southeast Queensland. I have seen it on Mt Tamborine (in winter) and in the Mapleton Falls National Park. Fran Guard recently reported it from Far North Queensland, so we now know it is very widespread and can thrive in a range of climates.



A possibly new *Xylaria*. © Wayne Boatwright



Penicillium coccotrypicola. © Wayne Boatwright

A Note on *Zelleromyces*

David Holdom

Australian sequestrate, latex-secreting fungi related to *Lactarius* have been variously placed in *Arcangeliella*, *Gastrolactarius* or *Zelleromyces*. Teresa Lebel informed me that diversity among these fungi is high and there is more work to be done on them.

Verbeke et al. (2014) studied South East Asian Russulaceae and compared DNA sequences with examples from around the world including sequences from unnamed Australian (Tasmanian) species. They found that all the *Arcangeliella* and *Zelleromyces* they included in their analysis fitted within *Lactarius*.

Vidal et al. (2019) included the same Australian sequences in their work, which was focused on sequestrate Russulaceae of Europe and the Mediterranean, but included the same Australian sequences as "*Lactarius* sp." in the subgenus *Russularia*. No named species from Australia were included, however. Lebel et al. (2021) have recently placed some Australian *Zelleromyces* into *Lactifluus*, but most have not yet been reassigned, with just a few *Arcangeliella* transferring to *Lactarius*.

The Atlas of Living Australia lists *Zelleromyces* as a synonym of *Lactarius*, but that is premature, and in view of the placement of some in *Lactifluus*, incorrect, though it seems likely that some will end up in *Lactarius*. Until any transfers are formally published, *Zelleromyces*,

Arcangeliella and *Gastrolactarius* should continue to be used. (It does not matter for unnamed species as there is no official name to change.)

A recent paper on *Lactifluus* (De Crop et al. 2021) has a useful summary of systematics of the order Russulales and family Russulaceae.

References

- De Crop, E., Delgat, L., Nuytinck, J., Halling, R.E. and Verbeke, A. (2021). A short story of nearly everything in *Lactifluus* (Russulaceae). *Fungal Systematics and Evolution*, **7**: 133-164.
- Lebel, T., Cooper J.A., Castellano M.A. and Nuytinck J. (2021). Three independent evolutionary events of sequestrate *Lactifluus* species in Australasia. *Fungal Systematics and Evolution* **8**: 9–25. doi: 10.3114/fuse.2021.08.02
- Verbeke, A., Stubbe, D., van de Putte, K., Eberhardt, U. and Nuytinck, J. (2014). Tales of the unexpected: angiocarpous representatives of the Russulaceae in tropical South East Asia. *Persoonia* **32**: 13–24.
- Vidal, J.M., Alvarado, P., Loizides, M., Konstantinidis, G., Chachula, P., Mleczko, P., Moreno, G., Vizzini, A., Krakhmalnyi, M., Paz, A., Cabero, J., Kaounas, V., Slavova, M., Moreno-Arroyo, B. and Llistosella J. (2019). A phylogenetic and taxonomic revision of sequestrate Russulaceae in Mediterranean and temperate Europe. *Persoonia* **42**: 127-185.

Annie Hehir Environmental Reserve Foray 22 May 2021

David Holdom

The Annie Hehir Environmental Reserve is a new reserve at the end of River Road, Peachester, on land recently bequeathed to the Sunshine Coast Council. At about 180 m above sea level, it occupies a spot at lower altitude than Linda Garrett Reserve (400 m) and is well inland. As such, it adds to a mosaic of parks and reserves in the Sunshine Coast Hinterland, an area fragmented by land clearing for agriculture, timber and housing for over a century. The reserve is regarded as having environmental significance.

Unfortunately, none of our specialists were with us to take specimens home and share the burden of identification, so we relied on the field experience of Wayne and others to make on-the-spot IDs. As always, field identifications are provisional for the many species we find that are not distinctive, and even some we thought we knew were not what we thought. This is not a simple task!

An enthusiastic group of forayers arrived bright and early and were soon rewarded when Wayne Boatwright spotted a specimen of *Macrolepiota clelandii* (Agaricales, Agaricaceae) next to the driveway where we parked. We also found some case moth larvae on lichen-covered fence posts, beautifully camouflaged with two of the lichens. It is highly likely that the insects were feeding on the lichens.

Twenty three species of fungus were recorded by the scheduled end of the foray, but some participants stayed behind and added another five.



Macrolepiota clelandii. © Wayne Boatwright.



A lichen-covered post and a camouflaged case moth found on it. © Wayne Boatwright.

In addition to *M. clelandii*, 14 fungi belonged in the order Agaricales, albeit in different families. There were four species of *Cortinarius* (Cortinariaceae), including *C. persplendidus* and *C. archeri*; two possible *Inocybe* species (Inocybaceae); *Marasmius musisporus* (Marasmiaceae); *Cyptotrampa asprata* (Physalaciaceae); a possible *Laccaria* (Hydnangiaceae); *Clavulinopsis sulcata* and two species of *Clavaria* (Clavariaceae). The last three were a surprise to me because though they are in the order Agaricales, they look nothing like any of the other members of the order recorded here. The taxonomic level “order” is fairly high up in the hierarchy, and can encompass diverse forms. Two more, clearly agarics, were not identified to genus.



Cortinarius persplendidus. © Wayne Boatwright.



Cyptotrampa asprata. © Wayne Boatwright.



Marasmius musisporus. © Wayne Boatwright.



Clavulinopsis sulcata. © Wayne Boatwright.

Two species of *Russula* (order Russulales, family Russulaceae) were found. Pat Leonard was not present, but on seeing the photos says they are both unpublished species. While members of this genus are mostly gilled fungi (some are truffle-like) they are in a different order to the true agarics. Yet other gilled fungi belong with the boletes, so it is clear that the “gilled mushroom” form has evolved a number of times as an effective approach to spore dispersal.



Russula sp. © Wayne Boatwright.

The same thing is true of the “polypore” form. While most “polypores” belong in the Polyporales, one found on this foray, *Cyclomyces setiporus*, is in the order Hymenochaetales, family Hymenochaetaceae.

On the other hand, the widespread and common *Cymatoderma elegans* has the form of a “leather”, where spores are produced on the surface of the fungus and not in pores and belongs in the Polyporales (family Meruliaceae).



Cyclomyces setiporus. Inset (bottom left) shows the pore structure. © Wayne Boatwright.



Cymatoderma elegans. © Wayne Boatwright.

A bracket fungus with a distinctive mauve edge was assumed to be *Trichaptum bifforme*, but Matt informed me that it is not that at all, but a probably undescribed species that is widespread in Australia. The family placement of *Trichaptum* is uncertain, but it is considered to be in the order Hymenochaetales.

Some tiny immature *Auricularia cornea* (Auriculariales, Auriculariaceae) specimens were mistaken for cup fungi (Ascomycota).



Trichaptum sp. © Wayne Boatwright.



Immature *Auricularia cornea*. © Wayne Boatwright

We found just one species from the phylum Ascomycota, probably *Plectania campylospora* (Pezizales, Sarcosomataceae). That is not particularly surprising, as only some of the Ascomycetes produce easily visible fruiting structures. Many are what we call microfungi. These occur in a wide range of habitats and include many plant and insect pathogens, as well as saprophytes such as *Penicillium* which a lay person would refer to as “moulds”.



Plectania campylospora. © Wayne Boatwright.

Finally, a word on SAFETY on forays. This park has a number of Gympie Gympie (stinging) trees (*Dendrocnide* sp.). One participant was wearing tights and had the misfortune of brushing up against a small specimen, receiving painful stings. Tight clothing is no protection. Forayers are reminded to wear loose, preferably heavy clothing that will provide improved protection against physical hazards (but not, unfortunately, against leeches and ticks).

Cortinarius Blues

Patrick Leonard

The first of June signals the start of winter in Queensland and the tail end of the 2021 fungus season. It is also the time of year when *Cortinarius* species become more prominent. They may be equally prevalent earlier in the season but one can safely ignore them because there are plenty of more interesting fungi around. Despite a large number of species in the genus, they have been given little attention by taxonomists. The exceptions are in the subgenus *Dermocybe* where Rod Jones produced a useful key and in subgenus *Myxacium* where Egon Horak and Alec Wood produced a review of the species in Australia, New Zealand, New Caledonia and Papua New Guinea back in 1990.



Cortinarius archeri photographed by Wayne Boatwright on the Annie Hehir foray.

The last week in May produced a flush of purple and violaceous *Cortinarius* on the Sunshine Coast. Three are in the subgenus *Myxacium* which is recognized by having fleshy fungi that have a glutinous cap and stipe, at least when young. All have rusty brown warty spores that characterize the genus *Cortinarius*. The most commonly recognized species is *Cortinarius archeri*, a deep purple cap colour when it first emerges and pale blue lilac stem and gills.

C. archeri is believed to comprise a group of species which are very similar fungi that have yet to be separated. The distinguishing features are the amygdaliform (almond shaped) spores about $12 \times 6 \mu\text{m}$, and a robust cap and stipe where the cap diameter and stipe height are more or less equal. They are found under *Eucalyptus* and *Allocasuarina* species. The purple and violaceous colours fade with age and the fungi become brown. The violaceous colour is almost always retained at the top of the stipe.

The other two violaceous species close to *C. archeri* are less robust and have narrower stipes. Both were described by Cleland. *Cortinarius subarcheri* is distinguished by its pale violaceous cap that quickly fades to light brown, and its ovoid spores about $10 \times 5 \mu\text{m}$.

While it is very viscid when young it is less so when mature. The stipe is white with a faint violaceous tinge which is most pronounced at the apex. This species is also found under *Eucalyptus*.



Cortinarius subarcheri, photographed by Patrick Leonard at the Tewantin National Park. The cap has faded to brown.

Cortinarius microarcheri is the smallest of the three species described here and has ovoid spores $6 - 8 \times 4.5 - 5.5 \mu\text{m}$ in size. The glutinous character is soon lost and this species also starts to become brown with age – with the cap browning first.



Cortinarius microarcheri, photographed by Patrick Leonard at the Arthur Harrold Reserve.

References:

- Cleland, J.B. (1935). Toadstools and Mushrooms and other Larger Fungi of South Australia. Govt. Printer, South Australia.
- Grgurinovic, C.A. (1997). Larger Fungi of South Australia. Govt. Printer, South Australia.
- Horak, E. and Wood A. E. (1990). *Cortinarius* Fr. (Agaricales) in Australasia. 1. Subgen, *Myxacium* and subgen. *Paramyxacium*. *Sydowia* **42**: 88-168.