# THE QUEENSLAND MYCOLOGIST

**Bulletin of**

**The Queensland Mycological Society Inc**

Vol 12 Issue 2, Winter 2017

# The Queensland Mycological Society

ABN No 18 351 995 423

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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 **15 August 2017**, 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

*Trichaptum biforme*, a beautiful, purple-fringed polypore. See more in Fran's article on purple polypores on page 10. Photo © Frances Guard.

## QMS Committee

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# Contents



# 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 |
|---|---|---|
| **September** | 12th<br>Speaker: Dr Roger Shivas "Entomopathogenic Fungi" | 16th Workshop:<br>Using microscopes to identify spore features for the purpose of taxonomy.<br>Megan Prance and Tony Young |
| **October** | 10th<br>Speaker: Patrick Leonard. "The genus *Lactarius* "<br>Diana Leemon*: "*Microscopic Mechanisms" | 15th<br>Scenic Rim Bioblitz (with the Wildlife Preservation Society of Qld.) |
| **November** | 14th<br>Speaker: Dr Tony Young "Cyanogenesis" | ---------- |
| **December** | 12th<br>Christmas Party | Christmas Break |

# Editor's Comments

Two themes dominate this newsletter and link three of the four articles: colour (blue and purple) and the problems of identification and the uncertainties that exist over names, synonyms and the real identity of species occurring in Australia that are considered to be the same as species overseas.

Wayne Boatwright has written on blue fungi. No, not a taxonomic group, but a relatively uncommon colour for fungi and a great "handle" for a brave attempt to tackle the fraught subject of fungal nomenclature, in the context of one particular fungus. Or is that two? Or three? Not the whole story, but a helpful lay person's introduction, I think.

Also on the subject of colour, Frances Guard has written on a couple of purple polypores. These are only partly purple, but attractive enough for one to grace the front cover. Fran has also written an article on fungi found on her travels in North Queensland.

Barry Muir has written on fungi on decaying wood, recording species in relation to the stage of decay. As we have been learning from Fran's occasional series on succession on a hoop pine log, different fungi prefer wood at different stages of decay. Barry's classifications of wood rot stages is likely to be particularly useful, and in my view that is something we should be recording more carefully.

During the review process, I received comments about the reliability of identifications in Barry's article. That followed "nicely" (actually, this is a headache!) from Wayne's piece. There are so many uncertainties over names, what species we have, and whether what we think we have is what we do have that my head begins to spin! Hence "aff." appears a few times. And those were the "easy" species! Barry's study represents a huge amount of work and highlights the difficulty of ecological studies. Even with massive resources for DNA sequencing there will be many unknowns. But the most important point is that we need to think about more precise descriptions of substrates on which fungi are found as that constitutes valuable ecological informations and potentially clues to identity.

Starting this year Barry is producing, with Peter Newling and Jenn Muir, "**Cairns Fungi Foragers**" a very readable and interesting newsletter that will be of interest to people far from Cairns. The introduction to the first edition (there have been four so far) explains it far better than I ever could, and is reproduced below. Contact Barry if you want to receive it.

To end, a note about some technical aspects of the newsletter: It is prepared on the open-source office suite LibreOffice, so all articles received are converted to Open Document (.ODT) files. LibreOffice has it issues, but also strengths, and is free (I make a modest annual donation). I use San-serif fonts as they are easier to read for some people. At present I am using Gothic 720BT for the main text, Arial for captions, and Trebuchet MS for titles. Text is typically 9pt, but fractional variations may be used in order to fit articles to available space. Fonts are under review for 2018. Suggestions welcome.

While a fully formatted article is a useful guide for me, I usually have to start the layout from scratch (that explains why your italics etc. can vanish). So if you spend ages on some special formatting, you may find all of that gone from the article in the newsletter. Photos stacked together give me nightmares, so please keep it as simple as possible! Please read the information on page 2.

David Holdom

## Cairns Fungi Foragers

Greetings

This is the first of what we hope will be a series of information newsletters with the aim of uniting the interests of the many Cairns-dwellers who have a soft spot for fungi. We are not a club with its needs for incorporation, insurances and all the other impediments to casual information swapping. We are just a couple of amateur mycologists that find fungi fascinating on many levels.

We spend as much time as we can in the field, especially during periods of rainfall, and have collected over the years a wealth of information, some of which may be of interest to those with less time on their hands than we have. This newsletter is not formally published, but is emailed free of charge to anyone who may be interested. Anyone who wishes to contribute to the newsletter with observations, anecdotes, corrections, comments or photographs is welcome to do so. Additionally, although this "newsletter" is science-based we try not to make it too "scientific". We recognise that there are school children, bush-walkers and others that are just interested, and we hope this leaflet will become a medium for furthering that interest.

Barry Muir & Peter Newling. Proofing: Jenn Muir

unit57.may@gmail.com.

# True Blue – Some Australian Blue Fungi and a Story Behind Nomenclature.

Wayne Boatwright

I was once advised to wear blue if going for a job interview. Why? Apparently it's the "universally most accepted colour", and would increase my appeal, thus making the interview panel psychologically more receptive to me. This having been a word of mouth suggestion I've never been entirely certain of its merits, but I do agree you can't deny the beauty nor the common appeal of the colour blue. Perhaps it's because the sky is so often blue that we love this colour so much... who knows? With regards to fungi it's a colour that is considered to be quite rare and, as such, blue fungi often appear at the very top of mycologists' and photographers' wish lists, and why not? Is there anything more intriguing or photogenic than blue fungi? There are a few that occur here in Australia, but I would like to focus on one in particular which appears in South-East Queensland. It's a real beauty and there is an interesting story behind its naming. A story which, it seems, is far from over… but I'll get to that after a couple of the other star attractions.

***Mycena interrupta*** – we rarely see this in South-East Queensland and Steve Axford, who captured this lovely photo, says he has only seen *M. interrupta* in the Northern Rivers Region of New South Wales, although he suspects it may also be found in other areas within the Border Ranges. There are only two reported sightings for Queensland recorded in The Atlas of Living Australia, both of these having been observations made in Lamington National Park.

*Mycena interrupta*. Photo reproduced with permission – © Steve Axford

**"The Lady Blue".** The following photos were taken by Paul Vallier in 2015 near Gympie. He uploaded the photo to Facebook and there was quite a buzz, with the image receiving over 500 likes on just one of the mycology pages! Discussion ensued over the next week or two concerning the identification of this fungus and the senior mycologist from Brisbane Herbarium, Nigel Fechner, was eventually able to collect a specimen. After painstaking work he has identified it as an unknown species of *Cortinarius*. [MP]

Other blue fungi that occur in Australia include

*Cortinarius* sp. "Lady Blue". Photo reproduced with permission © Paul Vallier

*Chlorociboria aeruginascens*, the bluish-green elf caps, a newly discovered *Leratiomyces* sp. both pictured below.

*Chlorociboria aeruginascens.* Photo reproduced with permission – © Charlie Price

*Leratiomyces* sp. – early in fruiting. Photo reproduced with permission – © Steve Axford

Then there is the occurrence of a blue fungus in the South-East Queensland region which has an interesting story behind its naming and, as mentioned earlier, it is this fungus that I would like to focus on.

## *Entoloma hochstetteri* (Reichardt) G.Stev.

The following description comes from "Australian Subtropical Fungi" with additional notations by myself and Nigel Fechner.

Cap: conical at first, becoming broadly conical or bell shaped; fresh powder blue, sometimes greenish-blue as it ages; 15-40mm diameter, smooth to minutely pubescent or velutinous, margin occasionally splitting radially.

Stipe: cylindrical and twisted, 40-120 x 5-15 mm, vivid blue at apex fading downwards with a bright yellow/greenish base.

Gills: adnexed, fairly distant, blue. A pinkish tinge may be visible from spores when mature.

Spore print: pink.

Spores: 12-14 x 11-12 $\mu$m and cuboid.

Substrate: litter, very rotten wood and often with moss.

Habitat: rainforest and wet sclerophyll forest but also in heath or sclerophyll / heath ecotones [NF]

*Entoloma hochstetteri* 13th March 2016, © Wayne Boatwright

Edibility: research has not been conducted on edibility or toxicity [NF] and it is not known if it contains psychoactive or other toxic compounds.

Notes: These fungi are usually found in the months of March to May after heavy or persistent rain.

The following specimen was photographed and collected on the 13th of March, 2016. It was located on the Linda Garrett Circuit Track of Mapleton National Park.

*Entoloma hochstetteri.* 13 March 2016,
© Wayne Boatwright. Permit: TWB/01A/2015
WITK15524915 SCC Document 2016/840262

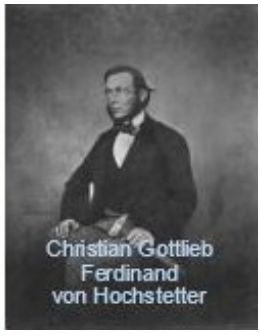

But what do we call this fungus? By that I mean, what is it to be correctly identified as? I am of course proposing to now travel down the precarious path of nomenclature. For fungi, nomenclature (the naming of things) is determined by the International Code of Nomenclature for algae, fungi and plants (ICN) which is a set of rules dealing with the formal botanical names given to plants, fungi and some other organisms. Ratified in 2011 as part of the *Melbourne Code*, it sets out principles around nomenclature, including:

- That a botanical name is fixed to a taxon (an organism or group of organisms) by a **type**. A type is usually dried material, but may also be preserved in other ways e.g. in alcohol. It may also be an image or culture preserved by other means and is usually deposited in a herbarium.
- A guiding principle in botanical nomenclature is priority – if a name has already been validly published for the specimen, it has priority and must (generally) be used. The 'start date' for this system of priority (as it relates to plants at least) is 01 May 1753 which is the publication date of '*Species Plantarum*', by Carl Linnaeus, the father of modern taxonomy who formalised the system of binomial nomenclature.
- Names of taxa are based on Latin grammatical forms. Whilst the majority are actually Latin-derived, Latinised forms of words from any language can be used. [NF] Hence the latinisation of the name Hochstetter to *hochstetteri.* Nomenclature is also binomial in form when used to identify a specimen with both a genus, which is a more general name of the group or organisms marked by common characteristics and a specific name within that group (the species).

Considering these guidelines I'd like to come back to this blue fungus. It, or something similar, was first observed and collected in 1854 by Charles Wright, a member of the crew aboard a small fleet known as the "North Pacific Exploring and Surveying Expedition", this expedition having been undertaken by the US Navy between 1853 and 1856[NF]. This fleet was visiting the Bonin Islands in a remote area south of Japan. According to Wikipedia, these islands have earned the nickname "Galapagos of the Orient". Long isolated from everywhere else, they have a unique collection of flora and fauna. This Bonin Islands collection was examined by Rev. Berkeley at Kew Herbarium in London, in 1858. Published in 1860, Berkeley & Curtis also indicated that it fitted the concept of the Tribe *Leptonia*, which Fries had established in the genus *Agaricus* in 1821. Unfortunately, the Bonin Islands were completely deforested during the Second World

War and subsequent attempts by the Japanese to collect the fungus at this location were unsuccessful.


As luck would have it, the German born geologist and surveyor Christian Gottlieb Ferdinand von Hochstetter observed a similar looking fungus in New Zealand, during his visit there in 1859. Although unverified it is alleged that he collected a specimen, but after being trapped in his tent for a week by heavy downpours, lost it to mould. Upon his return to Vienna he did, however, pass on notes and drawings of this fungus to the mycologist Heinrich Wilhelm Reichardt who, in 1866, described it as *Cortinarius hochstetteri*. After what seems to be a period of decline in taxonomic investigations of the fungi of New Zealand, Dr Greta Stevenson then recombined the name and supplied an expanded description of the taxon[NF]. This was published in the Kew Bulletin in 1962 as *Entoloma hochstetteri*.


Wikipedia provides the indigenous name for this fungus as “Werewere kokako” which translates as “Kokako’s wattle”. Apparently so named by the indigenous people of the area because the kokako (a now rare native wattlebird) has blue wattles (ornaments beneath their beaks) which are of a similar colour to the fungus. Both appear on the New Zealand fifty dollar note and the fungus also appears on a New Zealand stamp. Needless to say, this blue fungus seems to be a source of some national pride and beloved as an icon of New Zealand.

Clarifying nomenclature is not as straight forward as it might seem, and I found the more that I, as an amateur, tried to explain it, the more aware I became of the gaps in my knowledge. Deeper into the rabbit hole we go!

In 1976, Egon Horak, studying *Entoloma* species from around the world, concluded that the New Zealand


*Entoloma hochstetteri* and the blue Japanese species *Entoloma aeruginosum* Hiroë were the same as an older named species *Entoloma virescens* (Sacc.) E.Horak ex Courtec. Assuming this to be true, then the principle of priority would prevail meaning that the subsequent name would revert to *Entoloma virescens*.

Following on from this conclusion, Barbara Segedin made the following notation in The Auckland Botanical Society Journal, in 1988: "*Hygrophorus cyaneus* Berkeley [yet another name that had been introduced into literature around that time for the blue New Zealand fungus], later called *Entoloma hochstetteri* by Stevenson and now called *E. virescens*, described first from the Bonin Is., Japan, by Berkeley & Curtis".

The implications of this were significant for the iconic status of this “New Zealand fungus” as it would (potentially) lose its name to the earlier Japanese discovery. As a species first sighted in Japan, but which also occurs in New Zealand, I think it would diminish its value as an icon of New Zealand somewhat. I don’t know why but this reminds me of the Pavlova dispute. Remember when Australia and New Zealand wrangled over the origin of Pavlova? I think in the end it was acknowledged as a dessert of New Zealand origin, but I digress…

In 1939, the Japanese mycologist Tsuguo Hongo named 'another' blue Japanese fungus *Entoloma aeruginosum*. In the late 1980’s, Hiroë visited New Zealand and studied *Entoloma hochstetteri* and decided that *E. hochstetteri* and *E. aeruginosum* represented different species, thus saving the name *E. hochstetteri* for New Zealand.

As a result of the taxonomic confusion of the species which was initiated in the mid 1800's, opinion as to the correct name to use in Australia has continued to oscillate between *E. virescens* and *E. hochstetteri*. Several amateur mycologists from the Queensland Mycological Society, however, believe that because of our geographical proximity to New Zealand, *E. hochstetteri* is a more appropriate name, as indicated by Patrick Leonard in the following statement…

“I do not believe that the fungus we have in Queensland is either of these, but there is a much greater likelihood of it being related to the New Zealand one than to the Japanese one. In 2011, Sandra Abell (at James Cook University in Cairns) and David Largent (from the United States) described the fungus again and called it *Inocephalus virescens*. There are other names about as well. Needless to say, this requires sorting out by a taxonomist!”

And yet another argument exists! *E. hochstetteri* is described in *Agaricales of New Zealand* as “rooting in

moss" Our collections from SEQ are found not only associated with moss, but in leaf litter near mature eucalypts, so perhaps this is *E. virescens* after all?[MP]

Nomenclature is something best left up to the taxonomists, in this case you end up with more questions than answers… Are there two species or one?

Thankfully because of the use of synonyms, I guess it doesn't really matter for the layman which name we use, as long as it is a valid synonym. Here are some of them. These are only for *E. hochstetteri* and you may note that they are in conflict.

*Entoloma hochstetteri* (Reichardt) G.Stev., *Kew Bulletin* **16 (2):** 233 (1962)

**Mycobank:**
Synonyms (1)
*Cortinarius hochstetteri* Reichardt, *Verhandlungen der Zoologisch-Botanischen Gesellschaft Wien* **16:** 376 (1866)

**Species Fungorum:**
Synonyms (3)
*Hygrophorus hochstetteri* Reichardt, *Verh. zool.-bot. Ges. Wien* **16:** 370 (1866)

*Entoloma virescens sensu* Horak; fide Segedin & Pennycook (2001) – this is indicated as currently *E. hochstetteri*

*Cortinarius hochstetteri* Reichardt, *Verh. zool.-bot. Ges. Wien* **16:** 376 (1866)

**The Atlas of Living Australia: (ALA)**
Synonyms (4)
*Cortinarius hochstetteri* Reichardt, *Verh. zool.-bot. Ges. Wien* **16:** 376 (1866)

*Hygrophorus hochstetteri Reichardt,* Verh. zool.-bot. Ges. Wien **16:** 370 (1866)

*Hygrophorus cyaneus* Berk.

*Hygrophorus azureus* Berk.

**The Interactive Catalogue of Australian Fungi: (ICAF)**
Synonyms (1)

*Entoloma virescens* (Berk. & M.A.Curtis) Courtec. (1986). – indicated as the accepted name.
And so you see, this story is certainly one that needs to be and no doubt will be…continued.

## Acknowledgements

[NF] A special thank you to Nigel Fechner for his invaluable contribution to the content of this article, helping transform it from a cut and paste "Frankenstein's monster" into a reasonably good read which is now more factually robust.

[PL] A special thank you also to Patrick Leonard for sharing his knowledge and sparking my interest in this story.

[MP] Thank you Megan Prance for sourcing materials and information which have contributed to the content of this article and for their meaningful review.

## References

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Horak E. (1976) On cuboid-spored species of *Entoloma*. *Sydowia* **28:** 171–236.

Largent, D.L., Abell-Davis, S.E., (2011) Observations on *Inocephalus virescens* comb. nov. and *Albolteptiona stylophora* from northeastern Queensland. *Mycotaxon* **116:** 231-245.

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May, T.W., Milne, J., Wood, A.E., Shingles, S., Jones, R.H. and Neish, P. (2004) *Interactive Catalogue of Australian Fungi, version 3.0*. Australian Biological Resources Study, Canberra/Royal Botanic Gardens Melbourne.

Segedin, B.P. (1988) An historical view of the larger fungi. *Auckland Botanical Society Journal* **43:** 23-24.

Smiley, M. (2010) *Quest for the Blue Entoloma of New Zealand. Fungi* **3:** 4-6. http://www.fungimag.com/fall-2010-articles/NewZealandLR.pdf

Stevenson, G. (1962) *Agaricales of New Zealand III Rhodophyllaceae.* Kew Bulletin **16(2):** 227-237.

**Web sites**

*Binomial nomenclature* https://en.wikipedia.org/wiki/Binomial_nomenclature

*International Code of Nomenclature for algae, fungi, and plants* https://en.wikipedia.org/wiki/International_Code_of_Nomenclature_for_algae,_fungi,_and_plants

*Mycobank* http://www.mycobank.org/

*Species Fungorum* http://www.speciesfungorum.org

T*he Atlas of Living Australia* https://www.ala.org.au/

*The Interactive Catalogue of Fungi* http://data.rbg.vic.gov.au

Photos provided by Steve Axford, Paul Vallier, Wayne Boatwright.

Paul Vallier https://www.facebook.com/myceliummagic/

Steve Axford https://steveaxford.smugmug.com/

# Finding Fungi Along the Road

## A Trip To North Queensland (19 May-26 June, 2017)

Frances Guard

We set out in May only 10 days after widespread rains throughout eastern Queensland. This meant that the countryside was in fine condition, with green pastures, full dams and fat cattle.

I expected to find lots of fungi along the way. However, we were no longer in rainforest, and so the occurrence of fungi was much less obvious. Each one that we did find seemed special and sometimes different from the common description of that species.

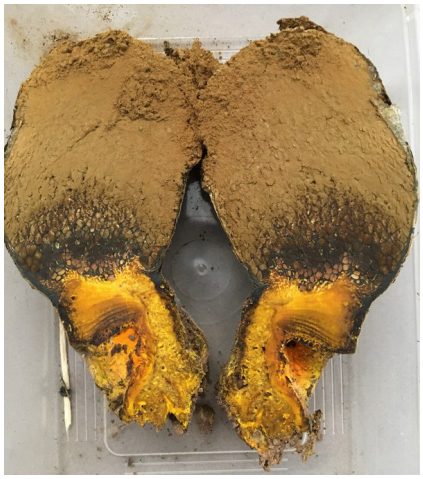
We found a group of white fungi growing by the roadside between Monto and Biloela in the Coominglah State Forest. It was a stony, rather dry ridge, but the fungi were in very good condition. They turned out to be *Macrolepiota dolichaula*. This is a common fungus in S-E Qld, growing in lawns and pastures, where it has a long stem, usually twice the length of the mature cap width. (Aberdeen uses that feature in his Key[1]). These had much shorter and stouter stems, and one can surmise that growing without the competition of grass, and in a drier environment, the fungus would not waste energy just to fit the description that humans have given it!

*Macrolepiota dolichaula* © Frances Guard

Our next interesting find, and also in one of the lepiotoid genera, was *Chlorophyllum molybdites*. Once again, this fungus commonly occurs in pastures and watered lawns. (I do not find it in rainforest.) The places where we found it were in all cases irrigated lawns in Charters Towers parks, Lake Dalrymple Campground (by Burdekin Falls Dam), and Townsville coastal walkway. In these man-made habitats it clearly thrived, forming large fairy rings, with some huge individual specimens.

*Chlorophyllum molybdites* © Frances Guard

On other trips west and along inland roads, I have often found horse dung fungi growing regularly by the roadside and at times pushing up through the bitumen. *Pisolithus marmoratus* is now accepted as being the most common of the Australian *Pisolithus*, although many field guides still use old names, such as *P. arhizus*. I was surprised on this trip to not find it at all until we were almost to Undarra Lava Tubes. I have no explanation for this, apart from it possibly simply being the wrong time of the year. This specimen had spectacular yellow rhizomorphs.



*Pisolithus marmoratus* © Frances Guard

As we drove north, we observed thousands of termite mounds of all shapes. We were constantly looking out for the termite powderpuff fungus, *Podaxis beringamensis*. Once again we were disappointed, until finally as we neared Herberton, two weeks into the trip, we found a fresh specimen growing on a large rounded mound, close to the road. This fungus, which appears to be a stalked puffball, is actually in the family Agaricaceae, and more closely related to *Coprinus*. It even somewhat resembles *C. comatus*.

*Podaxis beringamensis* © Frances Guard

Another interesting fungus we found growing in watered grass in a Townsville park was what I believe to be *Macrocybe crassa*. This is not a fungus that I am very familiar with, and as it was clearly young, it was not as huge as it sometimes gets. However, its caespitose habit, bulky stems, smooth, then cracking pileus and crowded pale gills are typical. It is apparently known only from a few collections in Queensland.

*Macrocybe crassa* © Frances Guard

The last of this interesting and varied bunch of fungi was a very unexpected stinkhorn, growing in the sand just 30 metres from the seashore at Clairview in central Queensland. It was *Itajahya galericulata*, an unusual stinkhorn only once previously collected in Qld. The other specimen of *I. galericulata* came from near Cunnamulla, many hundreds of kilometres away. It stands alone among the stinkhorns as having a wig-like cap and a second white cap on top, which could be part of the volva. This species was described in Brazil and has also been found in Africa, and had so far only been recorded in Australian desert habitats in N.T. and S.A. and in the mulga of western Qld. What an amazing distribution.

So, no matter where one travels in the Sunshine State, there are new and exciting fungi to find.

*Itajahya galericulata* © Frances Guard

### Reference:

[1] Aberdeen, J.E.C., (1992) *Lepiotoid Genera (Agaricales) in South-eastern Queensland*. Gailes, Qld. : Aberdeen Publications.

# Purple Polypores

## Rediscovering Two Species of the Genus Trichaptum

Frances Guard

***Trichaptum byssogenum* (Jungh.) Ryvarden:** This species was first collected in Queensland by F. M. Bailey in 1879. The specimen forms the first fungal collection of the Queensland Herbarium. It had been described by F. W. Junghuhn in Java in 1838 under the name of *Polyporus byssogenus*, was collected by Bailey as *Polystictus venustus* Berk., and finally, in 1972, renamed *Trichaptum byssogenum* by Leif Ryvarden[1].

Interestingly, Bailey's collection is currently on display in the Public Foyer of the Queensland Herbarium (BRI) along with a family photo, early copies of his field books and other memorabilia. Sadly, as the specimen is 138 years old, it has lost its purplish colour and is now dark brown.

*Trichaptum byssogenum*. Top: brackets on a burnt log, as seen from above. Bottom left: Tubes and underside. Bottom right: cystidia. © Frances Guard.

Since 1879, only five more specimens, two of them other Bailey collections, have been added to the BRI collection. These have been found in north Queensland (1) and south-east Queensland (4). Other specimens are held in Melbourne (MEL).

The current specimen (F2017031, F.E. Guard, 22/5/17) was found in Blackdown Tableland National Park, central Queensland (23° 47' 47.2" S, 149° 04' 46.8" E, Alt. 790m.)

It consisted of narrow (15-20mm) conjoined shelves and a resupinate layer, with one broadly attached fan shaped bracket (30 x 40mm); occurred as tiers; upper surface woolly hairy, zoned off-white and brown with vinaceous grey margin; flesh thin, texture slightly corky, flexible; lower surface vinaceous grey, maze-like coarse pores, (1-2/mm) with dark lilac lacerate edge; tubes 2-5mm deep; spores hyaline, 5.5-7.5 x 3-4µm; Qmin. 1.51, Qmax 2.16; dissepiment walls contain cystidia with apical crystal encrustations. These characters fit well with the description by Ryvarden.[2]

**Trichaptum biforme (Fr.) Ryvarden:** This is a widespread fungus first described by Fries in 1833. The first collection in Queensland was by F. M. Bailey, and though no date was recorded, it must have been before 1915, (the year of Bailey's death). There are 17 specimens in BRI,

*Trichaptum biforme* en masse. © Frances Guard.

collected over the following century. One collection by N. Fechner and A. Young (2001), from Lamington was checked by Leif Ryvarden and the identification confirmed. However, another collection (which looks identical to my eyes), also from Lamington in the same year, was identified by Ryvarden (by sight only) as *Trametes menziesii*. This has led to some confusion regarding the latter species.

*Trichaptum biforme*. Underside of a bracket. The upper side is shown on the front cover of this newsletter. © Frances Guard.

The current specimen (F2017041, F.E. Guard, 17/6/17) was collected at Topaz in the Wet Tropics (17° 24' 18.3" S, 145° 42' 04.8" E, Alt. 691m.) It consisted of multiple brackets, spatula or fan shaped, arranged in overlapping tiers; each bracket thin, flexible ~1mm thick, 20-30mm long, 15-35mm wide, narrowly attached, +/- white mycelial pad, upper surface silky velvety, with appressed hairs, zoned off-white/buff and light brown, with a violet to lavender smooth or scalloped margin. These colours faded to dirty white with age and in places were tinged green with algae. The under side varied from off-white to clay pink with lavender margin, fading with age; pores angular, 3-5/mm, lacerate to almost tooth-like; spores hyaline, cylindrical, inamyloid, 5-5.5 x 2.5-3µm, Qmin.1.76, Qmax. 2.07. Although cystidia are meant to be present, they may be difficult to find (Ryvarden[2], Hood[3]), and none were found in this specimen.

*Trichaptum biforme* is found throughout Australia, and is apparently well known in the Sydney region[4]. A photograph appeared in the most recent SFSG Newsletter, naming it without further comment. It was this image that alerted me to the identity of the fungus, and started me on the trail to confirm my specimen. It seems that it has dropped out of the consciousness of QMS, or never been there. All of which brings me to the conclusion that we need a polypore expert to lead some workshops and help us gain a little more expertise in this large and challenging morphogroup. Also, that it is really valuable to exchange newsletters, information and experience with sister mycological groups in other states. My thanks to Nigel Fechner for clarifying the identification of the troublesome BRI specimen and re-allocating it to *Trichaptum biforme*.

References:


[1] Ryvarden, L. (1972) A critical checklist of the Polyporaceae in tropical East Africa. *Norwegian Journal of Botany*. **19:** 237.

[2] Ryvarden, L.; Johansen, I. (1980) A preliminary polypore flora of East Africa. Oslo : Fungiflora. (includes non-original descriptions of *Trichaptum byssogenum* and *Trichaptum biforme*).

[3] Hood, I. (2003) An *Introduction to Fungi on wood in Queensland*, p.182. Univ. New England, Armadale.

[4] Personal communication D. Gover & P. O'Sullivan.


## A beetle on *Omphalotus nidiformis*

**Susan Nelles**

The Greater Glider Conservation Reserve at Alexandra Hills, Redlands is an interesting open sclerophyll woodland on sandy soil. QMS visited there in a dry May 2013, but the regular coastal showers often produce something of interest.

On a Qld Naturalist Club outing on 27 May, I took the group to see the *Omphalotus nidiformis* cluster on the stump of an *Allocasuarina littoralis*. It regularly appears on this stump and a nearby tree. It had been fruiting for some days, and on that visit 5-8 small beetles were crawling on the surface of one fruiting body. There was no visible evidence of damage to the surface of the fungus, and we did not collect a specimen.

I collected several beetles, and Peter Woodall photographed and identified them - the Family Erotylidae, ***Thallis compta***, sometimes called a "Pleasing Fungus Beetle". Indeed.

# Fungi on Decaying Wood

Barry Muir

This paper is a collation of information gathered on the host wood decay state of 14 species of fungus. These species were selected because (1) observations on host wood decay state had been collected at five or more separate locations scattered over the known range of the fungal species, and (2) the fungi listed had a good reliability prospect of a correct identification, at least to Genus level. Owing to the morphological plasticity of many fungal species, the incomplete state of taxonomy, and the abundance of many undescribed species, especially in northern Australia, the unreliability of identifications of many other species meant that they had to be excluded. However, in spite of the uncertainty over some identifications, it is worth presenting the data to help illustrate the theme of this article, which is that we need to consider the stage of decay of wood on which fungi are growing because different species attack wood at different stages of decay.

During the course of many years of fungi-foraging, observations have been made by the author on the decay state of the wood on which many lignicolous species of fungi were found. Initially the decay states were described in accordance with Mäkipää & Linkosalo (2011) or Tobin *et al.* (2007), but these were found to be inadequate, especially in rainforest of the WA Kimberley and Tropical North Queensland where decay can be very fast. A more specific (although still subjective) method of describing decay state in rainforest was developed and this is presented in Appendix A. Results of the decay state observations are presented below in Table 1.

Observations, although limited, suggest that some species (about 35%) were found on "fresh" wood, i.e. wood in decay state 1. It remains to be seen whether these species are weak parasites that attack living trees and then persist (as Fuhrer suggests for *Gymnopilus junonius*), or whether they actually favour fresh timber.

By contrast, all were found on wood of decay states 2 to 4, i.e. in the 'mid-range" of decay conditions. Undoubtedly the decay state is driven to a greater or lesser extent by the presence of the fungi, but it is equally plausible that bacterial decay plays a role in making the wood "suitable" for fungal colonisation.

Interestingly, only one species (*Xylaria* aff. *polymorpha*) occurred on wood in a very advanced state of decay (decay state 5), although wood in a very advanced state of decay was frequently observed, especially in the wet tropics. Only rarely were any fungi, including species not discussed here, found on decay state 5, perhaps suggesting that the lignin and/or cellulose resource has been exhausted or the wood has been rendered unsuitable by fungal waste products.

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## Table 1: Results of Decay State Observations

| Fungal species | Number of locations in which observations were made[1] | Decay states of the host wood |
|---|---|---|
| *Auricularia cornea* | 8 | 2, 3 |
| *Auricularia delicata* | 14 | 2, 3, 4 |
| *Coprinellus disseminatus* | 13 | 3, 4 |
| *Filoboletus manipularis* | 6 | 2, 3 |
| *Gymnopilus* aff. *junonius*[2] | 5 | 1, 2, 3 |
| *Gymnopilus* sp[2] | 10 | 1, 2, 3 |
| *Omphalotus nidiformis* | 8 | 1, 2, 3 |
| *Panus* aff. *fasciatus* | 6 | 3, 4 |
| *Pycnoporus* aff. *coccineus* | 23 | 2, 3, 4 |
| *Schizophyllum commune* | 8 | 1, 2, 3, 4 |
| *Stereum ostrea* | 12 | 1, 2, 3, 4 |
| *Trametes versicolor* | 9 | 3, 4 |
| *Tremella mesenterica* | 9 | 2, 3, 4 |
| *Xylaria* aff. *polymorpha*[3] | 7 | 3, 4, 5 |

**Notes:** 1 – a minimum of 10 decay state observations were made at each site. 2 –similar to *G. penetrans sensu* Fuhrer (2005): pp74-75. 3 – *Xylaria "polymorpha"* as used here follows Wood (2003) and Kuo (2008), and resembles *X. castorea* as described by Rogers & Samuels (1986).

## Appendix A - Decay states of wood as used in this study

| Decay state | Standing trees, saplings and shrubs | Logs | Coarse woody debris | Creepers and vines | Soft-stemmed plants |
|---|---|---|---|---|---|
| 1<br><br>(Fresh material)<br><br>Decay is indicated by the presence of fungi | Bark still wholly or partly intact, plants standing and basically healthy. | Freshly fallen, usually after storm or flood impact. Bark still wholly or partly intact. Branches still attached and with leaves and still with bark (although some may have fallen off on impact). | Freshly fallen branches possibly with leaves attached and still with bark (although some may have fallen off on impact from falling). | Still alive or at least with structure ± intact. | Soft-stemmed plants such as Graminae, Cyperaceae or Zingiberaceae are still intact, alive and apparently healthy, or recently collapsed. Tree ferns with intact living foliage. |
| 2<br><br>(Early decay) | Standing trees will have shed most of the bark yet the wood is still ± intact. Tissues are obviously dead. Saplings are dead but still standing. Penetration with a knife point is less than a couple of millimetres. | Branches and twigs intact but leaves are all dead and dropped off. Penetration into the log with a knife point is less than a couple of millimetres. | Branches and twigs intact but leaves are all dead and dropped off. Many smaller twigs have broken off. | Creepers and vines are dead but still strong. | Soft-leaved plants alive although the individual leaves may be dead. Tree ferns have dead foliage but still stand. |
| 3<br><br>(Moderate decay) | Surface tissue break-down is visible, and a knife point penetrates relatively easily up to 1 cm into the wood. Bark has almost all been shed but may still be intact on some species with papery bark. Saplings often broken or collapsed. | Surface tissue break-down is visible, and a knife point penetrates relatively easily up to 1 cm into the wood. Bark has all been shed but may still be intact on some species with papery or corky bark. | Thicker branches show decay and knife-point penetration can be 1 cm or more. Twigs crumble at the touch. | Creepers and vines are dead but still intact, but becoming brittle. | Soft-stemmed plants have collapsed but decay is not advanced. Tree ferns have broken off and the fungi are growing either on the fibrous stumps or pieces of fallen trunk. |
| 4<br><br>(Advanced decay) | Wood well-decayed and a knife point penetrates easily to 2 cm or more. Standing trees are broken and collapsing, wood easily pulled off in large chunks.<br><br>Saplings now part of the ground litter but are still recognisable as saplings rather than branches. | Wood well-decayed and a knife point penetrates easily to 2 cm or more. Logs broken and collapsing, wood easily pulled or prised off in large chunks. | Large branches beginning to crumble, especially where in contact with the ground. May be brittle if above the ground. | Creepers and vines easily snapped by hand yet remain more or less *in situ.* | Soft-stemmed plants in advanced decay. Tree ferns collapsing into fibrous masses. |

| Appendix A - Decay states of wood as used in this study | | | | | |
|---|---|---|---|---|---|
| **Decay state** | **Standing trees, saplings and shrubs** | **Logs** | **Coarse woody debris** | **Creepers and vines** | **Soft-stemmed plants** |
| 5<br><br>(Very advanced decay) | Generally not applicable although some very large stumps may fit this category. Wood totally deconstructed and becoming soil. Stumps are collapsing and crumble into fibrous powder at the touch. | Wood totally deconstructed and becoming soil. Logs are collapsing and crumble into fibrous powder at the touch. | Wood totally deconstructed and becoming soil. Large branches are collapsing and crumble into fibrous powder at the touch. Smaller branches now part of the decomposing ground litter. | Reduced to fibres or incorporated into ground litter. | Soft material now part of the ground litter. Tree fern stumps and trunk fragments may still be recognisable but disintegrate when handled. |
| 6<br><br>Ghost | Not usually applicable but occasionally remains of a stump can be discerned. | No wood remains, but previous outline of log is characterised by a change in soil cohesiveness, the presence of fungi or cryptogams along the previous alignment, or the unusual presence or absence of seedlings. Close examination of the soil shows traces of ligniferous material. | No wood remains, but previous outline of branches is characterised by a change in soil cohesiveness, the presence of fungi or cryptogams along the alignment, or the presence or absence of seedlings. Close examination of the soil shows traces of ligniferous material. | Not applicable. | Not applicable. |

This classification has been guided by, and partly derived from, the following references:


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