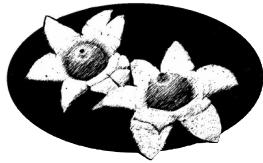


# THE QUEENSLAND MYCOLOGIST



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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.

## Queensland Mycologist

The *Queensland Mycologist* is issued quarterly. Members are invited to submit short articles or photos to the editor for publication. Material can be in any word processor format, but not PDF. The deadline for contributions for the next issue is **15 November 2015**, but earlier submission is appreciated. 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. 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 may be included if that complies with copyright laws and the author and source are properly acknowledged.

## 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](mailto:memsec@qldfungi.org.au)) of changes to their contact details, especially e-mail addresses.

**Cover photo:** This stinkhorn, *Itajahya galericulata*, was photographed at the Bowra Bird Sanctuary, northwest of Cunnamulla by Dianne Clark. Photo © Dianne Clark. See pages 7-8.

## QMS Executive

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## QMS Activities

### Meetings

Meetings are held in the F.M. Bailey Room at the Queensland Herbarium, Mt Coot-tha, 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 Executive.

To assist those unable to attend meetings, notes on the talks are included in the Queensland Mycologist wherever 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. 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. Check the website for details of the roster and if you are able to assist please contact the Secretary.

### Forays

QMS hold regular forays during the first half of the year. The dates are nominally the 4<sup>th</sup> 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 Fran Guard or another member of the Executive.

### Workshops

QMS runs workshops in the second half of the year, when there is little field activity.

You are invited to attend a **"Shoebox Workshop"** on Saturday October 31st at the Pooh Corner Environment Centre, Sumner, from 9-30 am to 2pm.

Bring along those fungi that you have collected and documented but have not got anywhere with identification because you do not have access to a microscope.

The workshop will concentrate on microscope work and various features that help with identification to genus and/or species.

Please e-mail Fran Guard on [franguard@icloud.com](mailto:franguard@icloud.com) to register your interest.

## QMS Calendar 2015

MONTH	MEETINGS	FORAYS/WORKSHOPS
October	13 <sup>th</sup> Speaker: Dave Wood on Fungal Genomics Report: Spore Print Workshop	31 <sup>st</sup> "Shoebox Workshop" Pooh Corner Environment Centre, Sumner, 9-30am to 2pm
November	10 <sup>th</sup> Workshop report. Members talks on items of interest (see website)	-----
December	8 <sup>th</sup> Christmas Party. Our 10 <sup>th</sup> anniversary! More on that in the next newsletter	Christmas Break

# Spore print workshop report

Frances Guard

This workshop was held in Maleny on 29<sup>th</sup> August 2015. Nine people participated and all reported that they enjoyed the day, and learnt something new. Several suggested that we follow up with another workshop focussing specifically on microscopy of fungi and spores.



Participants at the Workshop © Frances Guard

One aim of the workshop was to create a resource for QMS of actual spore prints, with descriptions and photos of the fungi used. This aim was only partially met, though we did acquire a range of spore print colours, which can be helpful in identifying fungi in the field.

Another aim was to involve participants in preparing lists of fungi genera with different coloured spore prints, and to become familiar with using spore print colour as an aid to identification of fungal genera.

We started with checking spore print colour in the field, using a number of clues including prints on surrounding vegetation or soil, prints on adjacent fruit bodies and spores on gills and rings changing their colour.

We then went on to discuss the making of spore prints in the lab, using paper (white or black) versus glass slides for the prints.

We were fortunate to have a large collection of a fresh, “unknown” fungus at the workshop. This meant that we could practise using FunKey, starting with spore print colour to key it out to genus. The collection obligingly dropped a dark brown spore print very quickly. Using only the spore print, the habitat and habit and macroscopic features, FunKey led us to the identification of an *Agrocybe* species. This was confirmed with microscopic details later.



Rusty brown spore print on *Cortinarius australiensis* annulus © Frances Guard



*Volvariella* sp. has a brownish –pink spore print. © Frances Guard



*Agrocybe* sp. Caespitose, growing in mulch in suburban garden, has dark brown spores, showing on mature gills. © Frances Guard

A handout of spore print colours for common fungi groups in Queensland was prepared and follows.

## Spore print colours of some Queensland genera

### Brownish-pink Spores

*Clitopilus* – *Rhodocybe* group (rough spores)

*Crepidotus* (or brown)

*Entoloma* (angled spores)

*Hebeloma* (rough spores)

*Lepista* (rough spores)

*Pluteus*

*Volvariella*

### Green spores

*Chlorophyllum molybdites*

### Purplish Brown to Black

*Agaricus*

*Coprinellus*

*Coprinus*

*Stropharia*

*Leratiomyces*

*Parasola*

*Panaeolus*

*Lacrymaria*

*Psathyrella*

*Psilocybe*



Blackish spores change the colour of *Leratiomyces cereus* gills © Frances Guard

### White

(Amyloid, warty spores)

*Lentinellus*

*Leucopaxillus*

*Melanoleuca*

*Lactarius*

*Russula*

### White

(Dextrinoid spores, smooth)

*Chaetocalathus*

*Lepiota*

*Macrolepiota*

*Leucocoprinus*

*Leucoagaricus*

*Limacella*

*Chlorophyllum* (not *molybdites*)

### White

(Amyloid, smooth spores)

*Heimiomyces*

*Xeromphalina*

*Mycena* (some)

*Porpoloma*

*Amanita* (some)

### White

(Dextrinoid spores, warty/spinose)

*Conchomyces* (some)

*Limacella* (rarely)

# A New Caledonian foray

Patrick Leonard

I left Noumea early on a sunny morning with Anne-Marie Maviet, the President of the Societe Mycologique de Nouvelle Calédonie (SMNC), and Claude, the Treasurer, as guides. We were bound for the Bois du Sud, a protected forest area in the south-east of Grand Terre. Once we reached the eastern suburbs we halted to meet about a dozen other members of the SMNC for what they called the excursion. The route took us over the central mountains where very poor soils rich in toxic minerals produce a heath like vegetation called maquis after the heathlands of Mediterranean France, but with completely different vegetation. The Bois du Sud had some familiar trees including paperbarks, *Agathis* and *Araucaria*, but also many unfamiliar species. New Caledonia is the second most biodiverse island in the world (after Madagascar).

The foray is similar to a QMS foray in that collections are shared and discussed, photographs are taken and notes made, but almost everything was collected very carefully because it was destined for a public exhibition on the following Saturday. There had been a small amount of rain in the previous week so there were fungi fruiting. The poor soils support a range of *Pisolithus* species of which *P. marmoratus* and *P. albus* are the most frequent, but *P. croceorhizus* and *P. microcarpus* are also relatively common. We were accompanied by a journalist and photographer from the Les Nouvelles who were doing a piece for the weekend magazine the paper puts out. The questions followed a very familiar pattern, and it is reassuring to know that the SMNC forayers know as little about the edibility of their fungi as we do about ours here in Queensland.



*Pisolithus croceorhizus* © Patrick Leonard

The highlights for me were finding a *Lactarius* similar to one found on the Sunshine coast; a *Cortinarius* that looks very like *C. austrovenetus*; *Fistulinella viscida*; a small unnamed *Xerocomus*, and the lovely apricot *Cantharellus garneirii*.



*Cantharellus garneirii* © Patrick Leonard

New Caledonia follows the French tradition that requires the forayers to stop for lunch. “Bring a plate” resulted in there being enough food for a small army.



SMNC at lunch © Patrick Leonard

We resumed our foray and almost immediately came upon a group of *Phaeocollybia raticauda*, a species known from a few collections in New Zealand and in Victoria and Western Australia.

The collections were taken back to the environment centre at the Parc Zoologique et Forestiere where there were two evening lectures on the importance of fungi to celebrate the year of the soil. They were followed by a dinner with the speakers.

Our second collecting day was to a rainforest at Mont Koghi, a mountain that overlooks the city of Noumea. The fungi here were mainly saprophytes, as one might expect, with *Stereum ostrea* and *Auricularia delicata* easy to recognize but also many polypores that were distinctive and looked quite different from those in Queensland. It was good also to find *Leratiomyces erythrocephalus*, a fungus familiar to New Zealanders. The genus is named in honour of Auguste Le Rat, a French teacher in Noumea who was a keen amateur mycologist who collected many fungi between 1900 and 1910. His collections are at the

Paris Cryptogamie collection and the Farlow Herbarium (at Harvard University).

SMNC members must have worked long hours on Friday evening, as the exhibition was ready to open for the weekend early on Saturday morning. Specimens had been labelled and set out on display tables with their substrate, pictures and posters mounted on the walls, danger labels attached to poisonous fungi and a short video presentation ran continuously. Members were on hand to answer questions and there was a good flow of visitors. It was a really impressive performance by the SMNC who have about half the membership numbers of the QMS. Their best exhibition in the past had 1200 visitors over a weekend; that is 0.5% of the entire population of New Caledonia.



SMNC exhibition display © Patrick Leonard

## Two new fungi for Queensland - A false earthstar and a stinkhorn

Frances Guard

The first of these fungi is *Astraeus hygrometricus* or barometer earthstar, which is not uncommon in other parts of the world.

This species has been found in Australia (NSW, ACT, Vic., and WA), but was not previously recorded in Queensland. This specimen occurred in Toowoomba in a suburban garden under an exotic pine.

Interestingly, *A. hygrometricus* is ectomycorrhizal, and in Australia is always, I believe, associated with exotic trees.

It resembles an earthstar in overall shape, but differs in a number of features.



*Astraeus hygrometricus* © Frances Guard

It consists of an external skin, (exoperidium), which splits into several rays, and a central, sessile, spore-producing papery thin sac (endoperidium). However, the spores are ejected through a tear in the spore sac, not from the central stoma found in *Geastrum* (true earthstars). The spores are considerably larger than in

*Geastrum*, and are brown, warty and globose, 9.5-10.5 $\mu$ m. The rays are covered in a reticulate pattern of cracks.

The rays expand in moist weather and close with dry conditions. This is achieved by an exoperidium made of several different layers of tissue. The innermost, fibrous layer is hygroscopic, and curls or uncurls the entire ray as it loses or gains moisture from its surroundings. [1] This adaptation enables the fruit body to disperse spores at times of optimum moisture, and reduce evaporation during dry periods. [2]

The second very interesting new find for Queensland is the stinkhorn *Itajahya galericulata*.

This fungus was first described by Alfred Møller from Brazil in 1895. It is rarely recorded, but has been found in Bolivia, New Mexico, Arizona, South Africa and central Australia (N.T. & S.A.) where it has not been identified since 1983.

The specimen was growing at the Bowra Bird Sanctuary, northwest of Cunnamulla, an area of mulga woodland with an average annual rainfall of 500mm. The fruit bodies appeared two weeks after a shower of rain in June 2015.

*I. galericulata* are phallic shaped stinkhorns, 90 - 150mm tall when fresh, emerging from a greyish-white egg. The smell of *Itajahya* is strong, but not stinking. It was said by Alfred Møller to be like "yeast dough". [3]

The column is white and spongy in appearance, due to its many-chambered walls. It is topped by a white calyptra (cap), and white lamellate plates, to which the greenish brown gleba is attached. When the gleba is washed off, the cap has a wig-like appearance, and often appears black. Remnants of the volva not infrequently remain attached to the cap. [4]



*Itajahya galericulata* photographed at the Bowra Bird Sanctuary © Dianne Clark

These macroscopic features were used to separate it into a different genus from other Phallales, and this has been confirmed by DNA studies. The generic name derives from the Itajahy River, in the region of Brazil where it was originally found. [5]

The spores are smooth, hyaline,  $4 \times 2\mu\text{m}$ . Spores from the Bowra specimen were somewhat larger at  $4.5 \times 3\mu\text{m}$ . Other features are consistent with those from Brazil and South Africa. However, it would be helpful to check whether DNA is the same in all three places.

(My thanks to Nigel Fechner for his identification of this specimen.)

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Møller's original illustrations of *Itajahya galericulata* from 1895

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4. Long WH, Stouffer DJ. (1943). Studies in the Gasteromycetes: IX. The genus, *Itajahya*, in North America. *Mycologia* 35 (6): 620–8.
5. Seonju Marincowitz, Martin P. A. Coetzee, P. Markus Wilken, Brenda D. Wingfield, & Michael J. Wingfield. (2015) Phylogenetic placement of *Itajahya*: An unusual *Jacaranda* fungal associate. *IMA FUNGUS* 6(2): 257–262

## Something worth reading

Susan Nelles sent a link to a wonderful paper on fungi and soil. The paper is highly readable, informative, and includes wonderful photos. You can read it online without signing up, but that is required for downloading.

**Unearthing: A Foray into Fungal Underworlds** , by Alison Pouliot

[https://www.academia.edu/16226164/Unearthing\\_A\\_Foray\\_into\\_Fungal\\_Underworlds](https://www.academia.edu/16226164/Unearthing_A_Foray_into_Fungal_Underworlds)

# What was coming down the stairs?

Ken Goulter

During November 2014 I spent time with friends at the Glasshouse Mountains, where I was shown a handrail on external stairs with obvious wood rot and small orange fruiting bodies present (Figure 1). These I recognised as one of the jelly fungi which piqued my curiosity because during my previous reading into the wood rotting fungi I had not come across any of this group of fungi being described as aggressively attacking wood.



**Figure 1.** Wooden stair handrail with decay and fruiting bodies.

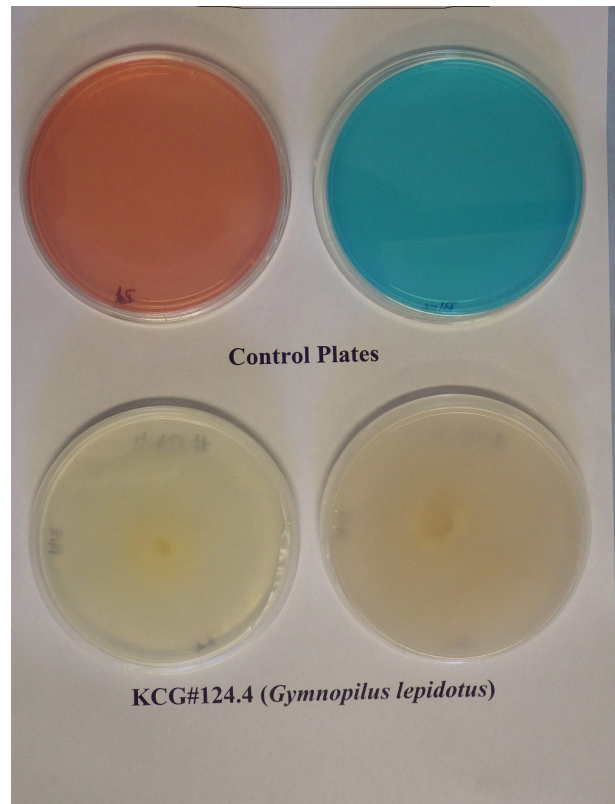
Samples of the fruiting bodies and slivers of the decayed wood were collected and returned to my laboratory for analysis. The fruiting fungus was identified as *Dacryopinax spathularia* (Shwein.) G. W Martin (Mycobank#285971; KCG#124.1). On aMTA (acidified malt tryptone agar) cultures initiated from the fruiting bodies were slow growing white to orange/yellow that in time generated malformed structures (Figure 2). When transferred to food colouring plates no decolorization was seen after several weeks' culture.

Cultures were initiated from the wood chips on aMTA and BSMA (benlate streptomycin malt agar; Worrall 1991). A number of different culture types were recovered from the wood chips but of particular interest was a fungus that grew well with very white mycelium on BSMA. When transferred to food



**Figure 2.** Culture of *Dacryopinax spathularia* showing abnormal fruiting body production.

colouring (Queen Fine Foods Pty Ltd) plates only this isolate caused rapid clearing of pillar box red (INS#124; Ponceau 4R) and blue (INS#133; Brilliant Blue FCF) (Figure 3) indicating the likely production



**Figure 3.** Decolorisation of food dyes by *Gymnopilus lepidotus* KCG#124.4

of enzymes involved in degradation of lignin: that is, the fungus is likely a white rotter. Genomic DNA was extracted from this isolate from which the internal transcribed sequence (ITS) was PCR amplified with primers ITS1 and ITS4 (White et al., 1990) and sequenced. BLAST comparisons with the non-redundant GenBank database showed that this isolate (KCG#124.4) was most likely to be *Gymnopilus lepidotus* Herler (GenBank AY280989;

Identity 629/630 >99%; MB#314787) (Guzman-Davalos et al. 2003).

*G. lepidotus* is a sub-tropical to tropical agaric normally associated with saprophytic growth on fallen logs. It is likely therefore that *G. lepidotus* was the primary wood rotting fungus present in the handrail and that *D. spathularia* was a secondary coloniser.

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classification of *Gymnopilus* is not supported by ribosomal DNA sequence data. *Mycologia* **95** (6): 1204-1214.

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