THE QUEENSLAND MYCOLOGIST

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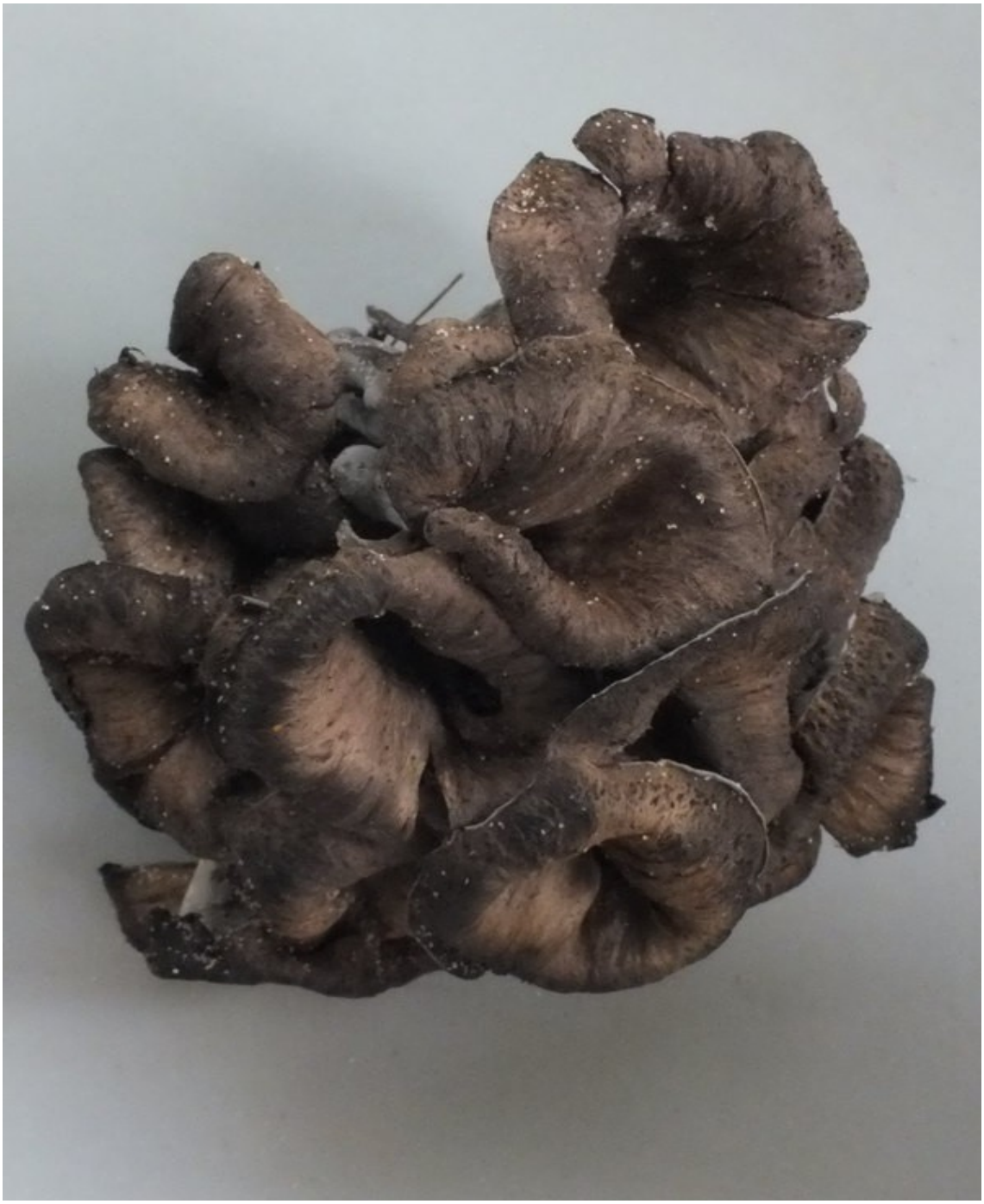

The Queensland Mycological Society

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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 commonwealth 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 August 2013, 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 be 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, and is open to anyone with an interest in Queensland fungi, and is **not** restricted to people living in Queensland. Membership forms are available on the website, http://qldfungi.org.au/.

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

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Cover photo:
A friend picked up this ***Craterellus*** emerging from sandy soil at Amity Point on Stradbroke Island on June 8. *Craterellus* is known to the French as "Trompette des Morts" and to the Poms as the Horn of Plenty! We still don't know what species it is, but it does not appear to be the cosmopolitan species *C. cornucopioides.* As this genus is closely related to the chanterelles discussed by Pat Leonard in this newsletter it seemed to me to be an appropriate front page photo. The individual "trumpets" are about 25mm in diameter. I took this photo using a camera stand at home- David Holdom.

Contents

QMS Calendar 2013

QMS Meetings 2013

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.

July 9
Speaker: Morwenna Boddington: *Russulas*

August 13
Speaker: Pat Leonard: *Lactarius*

September 10
Speaker: TBA

October 8
Speaker: Roger Shivas: *Rusts and Smuts*

November 12
Speaker: TBA

December 10
End of year party. Members bring food to share.

Supper. Check the website for details of the supper roster. At present two volunteers are needed to provide supper (one for each of savoury and sweet) for the September and October meetings, and one to provide a sweet for the November meeting.

QMS Forays 2013

Field trip details may change as a result of drought or other unforeseen circumstances. Check the website for changes. The dates are normally the Saturdays following the QMS meetings of February to July, but there may be exceptions as well as additional forays at other times. Check the website for updates.

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 or another member of the executive.

The final foray for the 2012/13 season will be at 9:30 am on Saturday July 6, to the Maroochy Wetlands to look for fungi among the mangroves. **If you have already signed on, please note that the date has changed because of tides and the foray will now be held one week earlier than originally planned.** To get there from Brisbane, come up the Bruce Highway and take the Nambour/Bli Bli exit signposted to Sunshine Coast Airport. After about 3 km, you will see the 60 kph sign entering Bli Bli, you come up a hill and there is a junction, turn left towards Yandina. Maroochy Wetlands Sanctuary is signposted from here. A short while later turn right in to Lefoes Road. After about 1 km take a right turn in to Sports Road. The Centre is on your right.

Leader: Pat Leonard and Judith Hewett (patbrenda.leonard[at]bigpond.com)

QMS Workshop Program 2013

A workshop on **Gasteromycetes** - Stinkhorns, Earthstars, Puffballs, Dyeballs and other wonders of the fungal world-will be held on August 3. It starts at 9.30 am at the Uniting Church Hall at Maleny on Saturday 3 August. Admission $6.

A second workshop, Beginner's guide to basics of fungi ID and recording is planned for Brisbane, tentatively in October, but details have yet to be finalised.

Check the website for details.

Members are invited to suggest topics. Send your ideas to Susan Nelles (info@qldfungi.org.au)

Editor's Comments

Welcome to new members: Timothy Lawrence and Leesa Baker (Brisbane); Gordon Claridge (Gatton), Harvey Stone (Marian/Mackay) and Judith Hewett (Nambour). A special thanks to Leesa for stepping into the role of Treasurer so soon after joining QMS.

I have made a few formatting changes to improve the appearance of the introductory pages. Feedback on the format and general layout of the newsletter is always welcome.

This time we have a report on the Linda Garrett foray, and I think it may be the most colourful report yet! The foray report is accompanied by an article by Pat Leonard on an interesting *Sarcodon* found on that foray.

Vanessa Ryan, one of our hard working website coordinators has a special interest in Girraween National Park and in fact has her own website devoted to that park. She has embarked on her own individual forays there and has written a report on them. The report has a link to her website.

Not only that, but Vanessa has written up her excellent beginners guide talk given in March and it is presented here, along with a link to her full talk on the QMS website.

Finally, Patrick has produced yet another of his excellent technical articles, this time on chanterelles.

By coincidence, a friend of mine spotted an interesting fungus on Stradbroke Island. Not being a biologist she wondered what it was, took a photo on her smartphone and emailed it to me. Enquiries to QMS experts came back with the response that it was a species of *Craterellus. Craterellus* is known to the French as "Trompette des Morts" but to the English as the Horn of Plenty! My understanding of comments from Patrick is that there is uncertainty about just what species we have in Australia. It also seems that the spores size (8.7 x 5.4µm) precludes both *C. cornucopiodes* and *C. verrucosus* for this specimen.

As *Craterellus* is a close relative of *Cantharellus* covered in Patrick's Chanterelle article, I decide a photograph of the *Craterellus* was an appropriate frontispiece.

Finally, many thanks to the small army of people who proofread the newsletter, picking up the many things I miss, not to mention my typos and formatting lapses. For this issue that is Fran, Susan, Pat and Vanessa.

Pislolithus publications

Congratulations to Pat and Sapphire who have published two papers on *Pisolithus*, in the *Australian Mycologist* and *Fungimap Newsletter*. The first reference is available online, but the Fungimap newsletter requires a subscription.

Patrick L Leonard, Sapphire JM McMullan-Fisher and Teresa Lebel (2013) *Pisolithus croceorrhizus* P. Leonard & McMullan-Fisher sp. nov. from Queensland, Australia and New Caledonia. *Australasian Mycologist* 31, 25-29

http://australasianmycology.com/pages/journal.html

Patrick L. Leonard and Sapphire J.M. McMullan-Fisher (2013) *Pisolithus* in Queensland. Fungimap Newsletter 49: 4-8. http://www.fungimap.org.au/

Fungi-linx

International Mycological Association
http://www.ima-mycology.org/

Check out the QMS website for interesting fungi stories
http://qldfungi.org.au/archives/3794

A guide to setting up microscopes. There are many such guides on the web. Quite a few like this one, are class notes for students. This one relates to a specific model of microscope, so the first part on microscope structure will differ from QMS microscopes, but the section on setting up Kohler illumination looks quite good, and there is more on staining and sectioning botanical specimens.
http://www.biologie.uni-hamburg.de/b-online/library/webb/BOT410/anatweb/pages/MICSCOPE.html

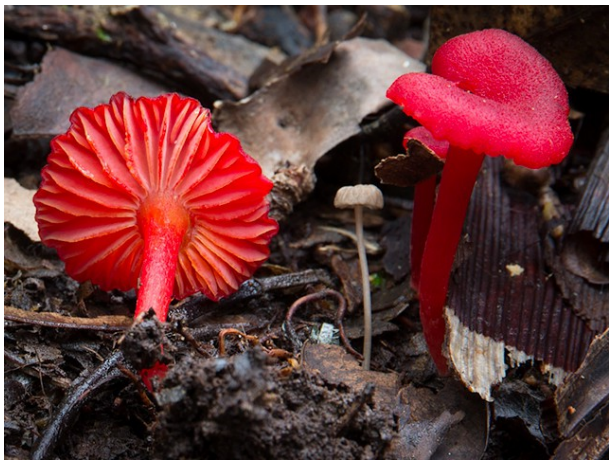
Linda Garrett Foray Report - 16th March2013

Patrick Leonard

After what seemed like weeks of rain, and despite a heavy shower in the preceding week, we had a fine day for the 2013 Linda Garrett Foray. It was particularly good to welcome new members and 5 participants on their first ever QMS foray. An earlier inspection of the site had revealed that very few fungi were fruiting along the route we normally take due to the impact of flooding, so we followed the 'Great Walk' route northwards on what proved to be an unusually long trek for a foray.

Entoloma hochstetteri © Megan Prance

There proved to be many more fungi than we had seen on the preliminary visit, as is so often the case when there are 12 enthusiastic forayers. The outstanding find of the day proved to be an undescribed *Sarcodon* which appears to be not just new to Queensland but is probably new to science. A separate short article on this is on page 6. These fungi are very rare in Europe and are generally listed on 'Red data lists' and protected by legislation.

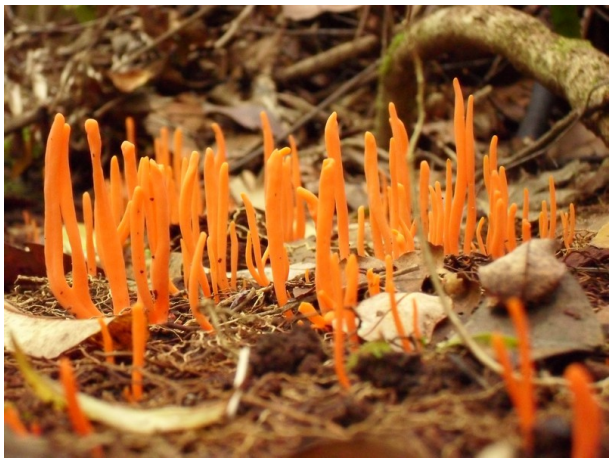


Hygrocybe miniata © Megan Prance

There were very good specimens of the spectacular blue entoloma, *Entoloma hochstetteri* which is often found at this site and of the bright red *Hygrocybe miniata.*

Two *Polyporus* species were also found early in the foray, the elegant, ochre yellow *Polyporus varius* that grows in quantities on twigs and fallen branches and the as yet undescribed *Polyporus* 'Fraser Is' which is very deep rooting and has a small sclerotium. It has been recorded as *Polyporus tuberaster* on occasion in the past but recent sequencing of a collection from Queensland has shown our collections to represent a distinct species. See the winter 2012 Newsletter, page 9.

The main objective of our long trek was to see a carpet of red/orange clavarioid fungi which are common both in the eucalypt litter and on seasonally flooded ground where there is a good quantity of debris. There has been a continuing debate in the QMS about the true identity of this fungus and it has been variously referred to as the red club that was taken in to Nigel, the red club we saw last time, Charlie and *Clavulinopsis miniata.* It appears that it can be either red or orange depending on substrate or age. On this occasion we made good collections which yielded spores, and the general consensus seems to be that it agrees very well with Corner's description of *Clavaria miniata.*



*Clavaria miniata, o*range form. © Adrian Harris

We found nine different species of *Russula* on this foray, six of which could be given published names or tag names (because they had been described on previous forays).

Fistulina hepatica © Fran Guard

There were also other treasures, the first find in Queensland of the Beefsteak fungus *Fistulina hepatica* and the first find also of a delicate little wood rotter *Mycena fumosa.* The very wet start to the year seems to have made it a particularly good year for fungi on wood.

This is the sixth annual visit to Linda Garrett and interestingly there seems to be no shortage of new finds. The proportion of finds that can be identified to species level has varied between 33%, the lowest achieved in 2012 and 70% recorded this year. In part this reflects increasing knowledge amongst the QMS forayers, but in part it is also a function of how many species are found which have never been seen at that site before. A high proportion, as seen in 2012, results in a lower ID rate.

Year	2008	2009	2010	2011	2012	2013
Collections	45	15	30	23	34	47
ID to species	53%	66%	53%	43%	33%	70%
ID to genus	31%	26%	36%	43%	55%	23%
Unidentified	16%	8%	11%	4%	12%	7%
Not seen before	35%	20%	20%	13%	73%	33%
Month	April	July	April	March	March	March

A Sarcodon rediscovered in Queensland?

Patrick Leonard

In 1890 Bailey reported the presence of a *Sarcodon* in Queensland in the third supplement to his "A synopsis of the Queensland Flora: containing both Phaenogamous and Cryptogamous plants." Then in 1892, Mordecai Cooke confirmed that the species sent by J.M. Bailey to Kew had also been collected in Tasmania. Both reports relate to a collection made at Eight Mile Plain by J.P. Birchard.

These reports called the fungus *Hydnum laevigatum,* which was later transferred to *Sarcodon.* There are no more recent reports of any *Sarcodon* species being found in Queensland. So it was a bit of a surprise when we found a *Sarcodon* on the foray to the Linda Garrett Reserve on March 16th.

It was clearly a *Sarcodon* because it had a felty cap, teeth which turn chocolate brown at maturity and tuberculate spores.

All *Sarcodon* species are rare and there are perhaps only a dozen species in the northern hemisphere and nine species in the Asia Pacific region, although 37 different species names exist. There are seven collections in Australian herbaria, none of which have been named to species level and there are two others bearing European names. So a hunt for a name for our collection seemed worthwhile. It did after all have some very distinctive features.

The named species in the region are:

- *Sarcodon thwaitesii* occurs in New Zealand and in Sri Lanka and South East Asia. But this is a grey vinaceous fungus that blackens with age, hence its earlier name of *Sarcodon carbonarium*. The spores also differed from our collection.
- *Sarcodon fuligineoviolascens* is reported from Victoria by Fuhrer. But that has a dark vinaceous grey cap, lacks clamp connections, occurs in ancient pine forests and the flesh turns navy blue on cutting, so it did not fit our collection.
- *Sarcodon imbricatum* is reported from West Australia. That has a strongly scaly cap and is an overall brown colour.

The key work for fungi with teeth is by the Dutch mycologist Maas Geesteranus "Hydnaceous Fungi of the Eastern Old World". He lists six species which have clamps, two had already been eliminated: *S. thwaitesii* and *S. imbricatum*. That left four others:

- *Sarcodon* species 1. Reported from New Zealand, now thought to be *Sarcodon ionides.* The cap colour is close to our collection and intriguingly Geesteranus comments: "*Sarcodon* species 1 is very closely related to what used to be called *S. laevigatus*, but probably had better be regarded as representing two species, *S. leucopus* and *S. colosseus*." He also adds: " Finally there may be diagnostic value in the apparent association of this species with *Nothofagus,* a genus of the Fagaceae, whereas *S. leucopus* and *S. colosseus* grow under conifers." The differences in the spore size and flesh colour between *S. ionides* and our collection also ruled out that possible identification.
- *Sarcodon humilis* is brown with brown flesh and smaller spores than our collection.
- *Sarcodon atroviridis* has flesh that dries olive green and a greenish to brownish cap.
- *Sarcodon conchyliatus* has pale olive or pale buff flesh and cap.

Conclusions

It seems likely that the collection seen by Bailey and now at Kew is not the same as that found at Linda Garrett. None of the Sarcodons listed by Geesteramus for Europe or the Asian Pacific region or by Baird for North America seem to fit our collection. That leaves some difficult unanswered questions:

- How is it possible that such a striking fungus has gone un-noticed for over a century?
- Has it been found and abandoned after a similarly fruitless search for a name?
- Is it perhaps hiding in the Queensland Herbarium under some other name?
- Could *S. thwaitesii* or another species be more variable than currently recognised?

But, as is so often the case for Queensland fungi, there are no easy answers. The description written for Fungi of

Queensland is appended in the hope that others now report this fungus. I have given it the tag name 'griseoviolaceum' to link to the cap colour. But, it is possible that it is truly rare as other Sarcodons are!

Acknowledgements

Thanks to Adrian Harris for finding this fungus on his very first foray with the QMS, to Judy Hewett for photographing it and to Megan Prance for digging out the Bailey references.

References

Bailey J.M. (1890) A synopsis of the Queensland Flora: containing both Phaenogamous and Cryptogamous plants.

Baird R.E. (1986) Type Studies of North American and other related taxa of stipitate hydnums: Genera *Bankera, Hydnellum, Phellodon, Sarcodon.* Bibliotheca Mycologica Band 103. J. Cramer.

Cooke M.C. (1892) Handbook of Australian Fungi. Williams and Norgate, London.

Fuhrer B. (2005) A Field Guide to Australian Fungi. Bloomings Books.

Maas Geesteranus R.A. (1971) Hydnaceous Fungi of the Eastern Old World. North Holland Publishing

Maas Geesteranus R.A. (1975) Die terrestrischen Stachelpilze Europas. North Holland Publishing.

Pegler D.N., Roberts P.J. and Spooner B.M. (1997) British Chanterelles and Tooth Fungi. RBG Kew

Annexe 1

Sarcodon 'griseoviolaceum'

Cap: irregularly planoconvex; 35 – 50 mm diameter but some up to 80 mm; surface rugulose, concentrically banded, brownish bands fibrillose, lilac bands velutinous, fibres more or less hyaline; overall dull violet (15D3); margin lobed.

Stipe: caespitose, irregularly cylindrical or tapering to base, hollow; 25 – 40 × 10 – 15 mm; minutely velutinate with hyaline fibres; darker lilac (15E4) than cap.

Spines: adnate or occasionally adnexed; 4 – 6 mm long; more or less geotropic; a bright ochre brown (8E7).

Flesh: firm; relatively thin (1 – 3 mm) in both cap and stipe; pale pink, darkening slightly on exposure to air; whole fruit body eventually blackening.

Smell: none.

Chemical reactions: dark green with KOH.

Spore print: Rusty brown.

Spores: tuberculate; 7.1 – 8.9 × 6.5 – 8.4 µm, average 8 ± 0.5 × 7.5 ± 0.55 µm, Q = 1.01 – 1.21, average Q = 1.07 ± 0.06; subglobose, irregular, tubercules mostly 1 – 2 µm high.

Basidia: narrowly clavate; two spored

Pleurocystidia: clavate; 30 – 45 × 7 – 11 µm; with oily contents.

Pileipellis: a cutis with some tufts, composed of hyphae 5 – 9.5 µm wide, with dark ornamentation externally; clamps present.

Habitat: caespitose in rainforest, growing on a very well rotted mossy log which could not be identified.

Notes: Cooke reports *Sarcodon laevigatum* as present in Queensland on the basis of a collection made by Bailey. The collection is at Kew and Maas Geesteranus reports that it is not in good condition and is possibly *Hydnum repandum*. This collection was thought at first to be *S. thwaitesii*, but it has different colours and larger spores. It does not match any other species in Maas Gesteranus so we have tagged it 'griseoviolaceum'.

Sarcodon 'griseoviolaceum' © Judy Hewett (left), Pat Leonard (right)

A Beginner's Foray into Fungi

Experiences, Questions and Lessons Learned

Vanessa Ryan

In the past few months I've done some things that a year ago I would never had dreamed of doing. I've found myself kneeling in mud and wet leaves, asking all sorts of weird questions, and even buying a microscope! I've made lots of mistakes, but I've learned a lot too.

I first got interested in fungi and lichens while working on my website about Girraween National Park. On it, I've got some pages dedicated to Girraween's species. To cut a long story short, in my quest to find out more about these strange organisms for my website, I ended up joining the QMS.

I went on my first foray (Linda Garrett) and had a fabulous time. That day I learned a lot about fungi and how to collect them. After that, I also went on a couple of mini forays around my local suburbs with Megan Prance and learned even more.

Feeling confident with my little bit of experience and new knowledge, I felt it was time I went on my first solo foray. This was, naturally, to be in Girraween National Park.

As some of you might know, Girraween is located just south of Stanthorpe on the border of Qld and NSW. Everything in it – including fungi - is protected by law.

Fortunately, the QMS has a collecting permit which includes Girraween as one of its foray sites. I made sure that my name was added to the list of people allowed to collect under this permit. I also made sure that I understood my responsibilities as a collector in a protected area. The permit, being a legal document, has a few simple rules and regulations that a collector must follow.

The next step was to put together a basic kit - a foray sheet and a pen, a sharp knife, an old table fork for digging, a magnifying glass, some tags with numbers printed on them and a carry case for storing the tools and any specimens.

Now properly prepared, my husband, Chris, and I set off for a day in Girraween. It was September and the weather had been very dry and cold. There were, as usual, lots of lichens about, but we only saw three fungi the entire day. I carefully photographed and collected two of them – both from the same log!

My first ever specimen was a humble *Pycnoporus*. Megan later helped me to identify it as *Pycnoporus sanguineus*. The other specimen was a *Trametes velutina,* syn. *T. pubescens*.

Things had gone pretty smoothly, but I had some ideas on how to improve my next foray:

- a checklist of things to do, such as taking a photo of the fungi's habitat and recording the GPS data;
- include a scale on the numbered tags to give an idea of the specimen's size; and
- a push pin to hold the numbered tags in place during photography.

Now, it was about this time when I realised something.

My very first solo foray fungus specimen! © Vanessa Ryan

Collecting fungi is doing Science!

This realisation was reinforced when I noticed the slogan that's on the banner at the top of the QMS website. It reads: "A Community *Science* and *Education* Network for the *Identification* and *Research* of Queensland Fungi". (The italics are mine.)

On the home page of the website is the Society's list of objectives. Number two is: *"Stimulate and support the study and research of Queensland macrofungi through the collection, storage, analysis and dissemination of information about fungi though workshops and fungal forays."*

So, as a collector for the QMS, I realised that I should try to do the best I can to add to the Society's (and ultimately the Queensland Herbarium's) knowledge of Queensland fungi by providing accurate and detailed information along with my photos and dried specimens.

To be able to do this, I have had a lot of help and support from various members of the Society. Also, when I had first joined the QMS, Susan Nelles had emailed me a copy of "A Guide to Collecting and Preserving Fungal Specimens for the Queensland Herbarium". I have found this to be a fantastic resource with detailed explanations of what to do. It makes the science side of collecting fungi easy.

The following are a few of the things I've learned to do to make the result of my forays good science.

The first step of the process happens out in the field by filling out the QMS's foray sheet. My Girraween foray sheet had ended up looking a mess of scribbles, but it didn't matter. I had recorded all the necessary information.

Using numbered tags in your photos is a good way of keeping track of the specimens. They give each specimen a unique reference number for initial identification and tracking. They also give an indication of size. Traditionally, a jeweller's tag is used, but I didn't have any so I made up my own numbered tags and later refined them by adding the ruled scale to them.

Specimen labels are a must, as they identify the fungus and keep with the specimen the basic, but very important

information about it - such as where and when it was found and who found it. Without this information, I've learned that a collected specimen is useless.

One of my ruled and numbered tags in action. © Vanessa Ryan

The specimen label is the first place where the fungus is given its proper reference number. I've found that people like to use their own numbering system - there is no right or wrong way. My personal system is a bit complicated, but it helps me to keep track of where the specimen came from, when it was collected, its field number and who found it.

The final piece of paper to be filled out is the fungus record sheet... I made up my own template from a mish-mash of examples people had given me and I'd found in the Guide and other books. I use it as a checklist as I examine the fungus and write up my initial notes on a sheet of blank paper. I later enter those messy handwritten notes into the record sheet template on my computer. This way, I don't forget to record any of the key features of the fungus.

Spore prints are a very useful tool for helping to identify a fungus. They can be very easy to get - or impossible! My first attempts didn't work as my Girraween fungi were just too old and dry. I've since learned that the fresher the specimen, the better chance of getting a print - but the fruiting body needs to be mature! A light spray of water can help coax a reluctant specimen to drop spores.

I found that it can take a fair amount of room to lay your specimens out for spore prints. They need to be somewhere where they won't be disturbed. I leave them for some hours, usually overnight.

Also for spore prints, I found that you need lots of containers of different sizes to cover the specimens so that drafts don't blow away the spores. Takeaway and ice-cream containers are good. Tall and wide containers are *very* good.

While examining the specimen, it's useful to take photos of any interesting features. Some of these photos may need to be taken out in the field, such as when cutting a fresh fruiting body to see if there is a colour change. I use a sheet of mid-grey cardboard for photos taken in the "lab" as a neutral background to highlight the fungus's colouring.

Specimens must be dried properly for preservation. Before I got my dehydrator, I dried my fungi in paper bags hanging on a clothes airer. I found this works very well in hot, dry, windy weather, but not so well in calm, humid weather. It doesn't work at all for some fungi - such as Boletes. So, a food dehydrator really is a must.

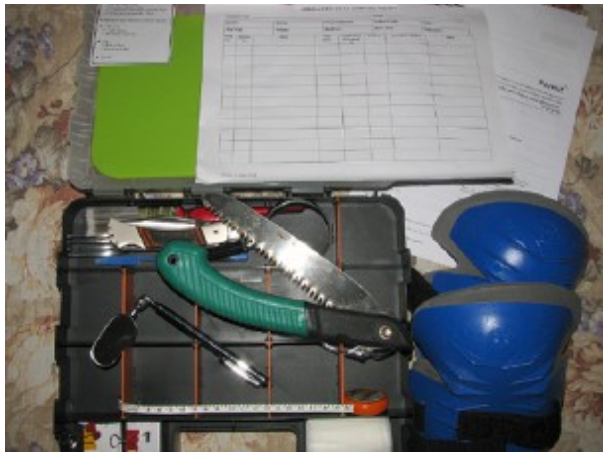
One of the most important things I've learned is that all of this – the photographing, collecting, recording, preserving and identifying specimens - takes TIME.

Now, that all being said, I shall move on to my second solo foray.

This was to the Bunya Mountains – another National Park and one of the QMS's regular foray sites. Going there had been a last minute decision, so I hadn't done the right thing and contacted the park's rangers beforehand. Luckily, I managed to meet up with some rangers on duty at the park, otherwise I would *not* have collected. There is a hefty fine for collecting illegally from protected areas.

It was a good day. We (Chris and I) found twelve specimens and I also learned a few more things:

- You really do need to contact the park rangers well before the foray date.
- Research the foray area before going - there may be dangers such as stinging nettles or ticks.
- Be prepared to talk to people about what you are doing. Even though you are supposed to collect out of view of the public, sometimes this is not possible and some people are curious – especially kids!
- I needed a mirror to check the underside of a fungus before collecting it. I'd wasted some time photographing a polypore that turned out to be quite mouldy underneath.
- Knee pads are a must! In fact, simple safety gear such as a hat, sunscreen, and good shoes are all very necessary.
- A tripod for your camera is an absolute must for low-light photography.
- Some fungi are really tough. I needed to get a small saw or a hammer and chisel for my kit.


My collecting kit - more stuff to carry! © Vanessa Ryan

Later, as I was processing the collection, I learned:

- Some fungi really shrink a lot when they dry. They can also dramatically change colour.
- Don't get upset if your specimen goes mouldy and you have to throw it away.
- Don't use fingernail polish remover fumes to kill insects infesting a fungus, as it may affect the fungus as well!

- Try not to rush your photography. I had rushed in the field because I thought it was going to storm and accidentally changed the colour balance settings on my camera. I didn't find out until I downloaded the images onto my computer. Fortunately, I could correct the mistake. Next time I might not be so lucky!
- Limit the number of specimens you take. Processing them takes TIME. Six is a good number. Twelve was a real stretch for me.
- Do the recording of the specimen as soon as possible after collecting...
    - Measure specimens while they are still fresh.
    - Cut specimens while they are fresh (preferably just after collecting in the field). I'd left them until after they were dry, so I couldn't get some information such as the proper flesh colour and texture.

As you can see, I had learned a lot through the experience of *doing*. But my Bunya Mountains foray had also raised a whole lot of questions that I couldn't answer on my own. I sought help from Nigel Fechner, QMS president...

Q Is it ok to collect specimens that have algae growing on them?

A The aim is to collect specimens of the best possible quality. You'd only collect ones with algae on them in exceptional circumstances – such as it being a special fungus and there being only one fruiting body available.

Q How much material do you need for a specimen sample?

A It really depends on the size of the fruiting body. The following measurements are for things like agarics and boletes, but you can get an idea of what to do for other types of fungi.

- Really large fruiting bodies (12 cm +) = only 1 (or part thereof), but it wouldn't hurt to take note of the variation in the population for your notes.
- Moderate size ones (5-12 cm cap) = 6;
- Small (2-5 cm) = a dozen (12);
- Smaller still (1-2 cm) = 20+;
- Really tiny – (or as Nigel put it - "Painful") - (< 1 cm) = 30+.

Q Do you need to allow for shrinkage as the fungus dries?

A Yes, for some kinds of fungi you do. Jelly-like fungi tend to shrivel to nothing when dried. Very small specimens can virtually disappear, so it pays to have at least 30+ of these. Polypores, for the most part, hardly shrink at all.

Q Is it okay to take ALL the fruiting bodies, or should you leave some behind so the fungus can reproduce?

A Ideally, you should leave some behind. Usually there are samples that you won't want as they are too small or too old. Sometimes, though, you will need to take them all. This is okay, because the main part of the fungus is still alive and underground. The fruiting bodies are just like apples on a tree. Pick them and the tree doesn't die and it will fruit again.

Q Is is ok to take only a section of a large specimen?

A If possible, you should get the entire specimen. However, you may take just a section if it is very large, so long as it is representative of all the fruiting body.

Q How do you take the measurements of a specimen when you have multiple samples of varying sizes?

A Note down a range of measurements – include the smallest mature specimen and the largest.

Q What if the fruiting body is an imbricate bracket with multiple "shelves"?

A Treat each "shelf" as if it is an individual specimen. Again, note down the range of measurements. It also wouldn't hurt to get measurements of the overall dimension of the 'surface area' of the reproductive structure eg. 93 x 56 mm.

Q How do you measure pore spacing?

A Measure pores in the mature area – not near the margins. Take five measurements from different places and note down the range. For example 5-7 per mm.

Q What can you do about insects in a specimen?

A Put the dried specimen in a zip lock plastic bag and freeze it at -18-20 ºC for at least a week. Thick polypores could do with at least two weeks. *Never* freeze fresh specimens.

Q What about using an insect spray on fresh specimens?

A Some people do use a light mist of spray on fresh specimens, but I would advise against it. The spray might damage microscopic features and/or it could make DNA analyses useless. It would also definitely ruin any chemical studies done on the specimen. If a spray is used, it should be noted on the fungus record sheet.

So that pretty much sums up what I have learned from my first two solo forays.

With all the rainy weather we've had this year, I've also been busy collecting specimens from my own garden and local area. It was "interesting" carrying one lot home in my handbag on the bus!

Marasmius haematocephalus in my garden. © Vanessa Ryan

With just about every specimen I've found, I've learned something new. It might have been about photographing fungi, or how to transport them safely home, or how some dry out a lot faster than others on the dehydrator.

I've done a lot of science these past few months, but I've also had a lot of fun!

I'd like to thank everyone who's helped me by offering advice and patiently answering my very many questions. In particular, thank you Nigel, Megan, Pat and Susan.

Reference

"A Guide to Collecting and Preserving Fungal Specimens for the Queensland Herbarium", QMS foray sheet, specimen labels, and Vanessa's numbered tags and fungus record sheet are all available from the QMS website:

http://qldfungi.org.au/memberresources/collecting

A copy of Vanessa's full presentation is also available from the QMS website:

http://qldfungi.org.au/memberresources/past-meetings/presentations

Two Girraween Forays

January and April, 2013

Vanessa Ryan

As some of you might know, Girraween National Park is a favourite place of mine. I've made a website about it and I like to visit the park as often as I can. Now I have another reason to go there – to collect fungi!

So far this year, my husband, Chris, and I have visited Girraween twice.

The first trip was in January, just after the New Year. The weather had been quite hot with strong winds. It was just before the rains began, so everything was very dry. In the time we had to look for fungi, we found only eight. I collected five of them.

Specimen #1, most likely a *Phellinus* sp.
© Vanessa Ryan

Here's a breakdown of the foray results... Field numbers of the specimens are in (brackets).

What I collected:

Phellinus sp.	(#1)
Fomitopsis feeii x2	(#2 & 3)
Gloeophyllum abietinum?	(#4)
Bolete (specimen rotted)	(#5)

What I didn't collect:

Polyporus arcularius
Polypore – large flat
Another *Phellinus* sp?

Chris' and my next trip to Girraween was in early April. This time the weather had been cool and showery - a lot more fungus friendly - and so I was looking forward to a more successful trip. The ground was very damp in places and we found quite a few fungi.

Now, I'm very much a beginner when it comes to identifying fungi. I've also only just got my microscope and I'm learning how to use it, so the identification process has been very slow. Still, I've managed to come up with a few names to put to the things we'd found. Nigel Fechner and Megan Prance have had a quick look at my photos and suggested a few possible names as well.

The following list has a lot of question marks - but it gives an of indication of which genera were about.

Agarics	*Lepiota* sp.?	(#2)
	Rhodocybe sp.?	(#3)
	Agrocybe sp.?	(#5)
	Macrolepiota sp.?	(#6)
	Gymnopus sp.?	(#7)
	Amanita sp.	(#9)
	Hymenopellis sp.	(#12)
	Amanita sp.	(#15)
	Cortinarius sp.	(#16)
	???	(#17)
	Hymenopellis trichofera	(#12)
	Amanita sp.	(#24)
	Hymenopellis sp.	(#26)
Boletes	*Fistulinella* sp.?	(#10)
	Gyroporus sp.?	(#13)
Corals	*Clavulina* sp.	(#4)
	Clavulina sp.	(#20)
Leather	*Podoscypha petalodes*	(#1)

Polypores	*Fomitopsis feei*	(#11)
	Laetiporus portentosus	(#18)
	???	(#19)
	Phellinus? *inermis*?	(#20)
	Coltricia cinnamomea	(#23)
	Trametes? sp.	(#25)
Puffballs	*Lycoperdon* sp.	(#8)
	Scleroderma sp.	(#8 -> #27)
	Scleroderma sp.	(#14)

It is interesting to note that this time there was a lot more variety and a preponderance of agarics.

I had some confusion with the puffballs. What I thought to be individuals of varying maturity of the same species turned out to be two totally different genera! They'd been growing together in a group and so I'd given them the same field number. I'm now going to have to rewrite some of my notes. I can't wait for the workshop on puffballs, earthstars and stinkhorns to be held later this year.

The most work I've done is on the *Hymenopellis* (*Xerula*) specimens. From the spores and cap colours, I think I might have collected three different species. I've only managed to key one of them out so far.

Even though I haven't yet finished identifying all my collection, I have at least ten new fungi to add to my list for the park.

I've also learned a few more things:

- A dehydrator is a must for preserving boletes. The brown bag treatment dried the rest of my specimens enough so I could get them home safely, but the boletes just turned to mush. Once I got the other fungi home, I finished drying them off properly in the dehydrator.
- Now I have my microscope, I'm learning all about how to make up slides and how to measure things.
    - I've learned that spores shrink when you dry them, so you should put them in KOH to rehydrate them before measuring.
    - I also learned that the standard is to measure spores at 1000x.
- As a beginner amateur mycologist, the following is a very important lesson I've learned. You simply can *not* identify many fungi properly without looking at their microscopic features.
- And finally, no matter how hard I tried, I couldn't get as sharp an image in a photo as I could by looking through the eyepieces of my microscope. I discovered that the softer focus is due to how the microscope's camera sensor plate works. I will have to put up with slightly blurry images until I can afford a much more expensive camera.

I've still got quite a bit of work to do on this collection before I hand it over to the Queensland Herbarium, but I don't mind doing it. It's an interesting journey with interesting results.

On the last day of the foray, Chris and I found three Corticioids. Not knowing what to do with them, I didn't take any specimens. Later, when I was going through my photos, I began to regret leaving them behind. I think they are quite interesting with their variety of colours and textures. I've now decided that I want to learn more about them.

The next time I go to Girraween, I will be better prepared from the experience and knowledge I have gained from these two forays.

I'll also be keeping a special eye out for some more Corticioids so I can treat them with the respect they deserve!

Vanessa's Girraween website:
http://www.rymich.com/girraween/

The three *Hymenopellis* (*Xerula*) and their spores © Vanessa Ryan

Chanterelles

Pat Leonard

Introduction

Chanterelles occur in most continents and in Europe, North American and East Africa they are prized as food. There are several chanterelle species in Australia although they do not appear to have been collected for food here. Over the years Berkeley, Cooke and Cleland between them described or noted 17 different chanterelles as present in Australia. A review by French mycologists Eyssartier and Buyck in 2001reduced the number of species that had been described or recorded here to just three. There was acknowledgement that there were more species than this present, but they concluded that only three species had been properly described for the genus. Five different chanterelles seem to be found in South east Queensland. This article reviews them, seeks to fit them to the Essaytier & Buyck concepts and provides brief descriptions to help with future recording.

Most people can recognise a chanterelle when they find one, they are often brightly coloured with a funnel shaped cap and they have 'false gills' which are really folds. When you look at them under the microscope they tend to have quite long basidia that often bear 5 or 6 spores, rather than the more usual four.

Species

Cantharellus concinnus

Cap up to 40 mm diameter, a brilliant pinkish orange but the colour bleaching out so that it becomes paler than the 'gills' and stipe; margin usually inrolled. Gill folds strongly decurrent and a deep pinkish orange. Stipe solid, cylindrical, smooth, 25 – 50 mm tall by about 4 -5 mm diameter. Spores 7 – 8 × 5 – 6.5 µm; Q = 1.35. Basidia 5 or 6 spored.

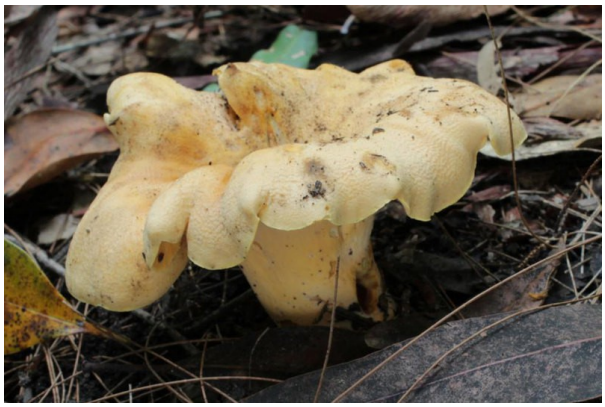
Cantharellus concinnus © Patrick Leonard

Notes: Easily recognised by its small size and its colours. Cleland reports eating it and commends it for its delicate apricot flavours.

Cantharellus ochraceoravus

Cap 40 – 120 mm diameter, a brownish orange to cinnamon, surface matt, margin lobed, cap centre depressed. Gill folds decurrent but very shallow or absent, a brighter yellowish orange than cap. Stipe thick and tapering towards the base, up to 50 mm tall and 30 mm diameter.

Spores 5.3 – 7.3 × 4 – 6 µm, Q = 1.32. Basidia mostly 4 spored.



Cantharellus ochraceoravus © Patrick Leonard

Notes: All the recent collections of this fungus relate to Queensland and there must be some question as to whether this is the same as the fungus described by Cleland and later Grgurinovic which was less robust.

Cantharellus viscosus

Cap convex with a flattened top but becoming centrally depressed, 30 – 55 mm diameter, pale apricot to orange yellow, margin inrolled at first but becoming acute as it matures. Gill folds deeply decurrent, generally paler orange than cap, splitting and with cross veins. Stipe solid, cylindrical, tapering towards base, 35 – 50 × 4 – 10 mm, smooth, same colour as cap.

Spores 6.8 – 7.6 × 4.7 – 5.8 µm, Q = 1.7. Basidia 5 or 6 spored.

Cantharellus viscosus © Patrick Leonard

Notes: This species most closely resembles the northern hemisphere species *Cantharellus cibarius*, but it has a slightly viscid or shiny cap and smaller spores than the European species. This is a relatively common fungus and is edible.

Cantharellus aff *melanoxeros*

Cap more or less flat, 4 – 8 mm diameter, matt, pale orange, margin in rolled. Gill folds subdecurrent and widely spaced, dull greyish orange, blackening on bruising. Stipe cylindrical but usually irregular, sometimes thicker at base, sometimes hollow, very bright apricot orange.

Spores 8.5 × 6 µm, Q = 1.4. Basidia narrowly clavate, four or five spored.

Cantharellus aff *melanoxeros* © Patrick Leonard

Notes: this is very similar in size and form to the European *Cantharellus melanoxeros* and shares the feature of blackening gills when it is bruised. It is however considerably smaller and has much brighter orange colours than the European species. Only known from a single site in a Wallum habitat.

Cantharellus ' brunneus'

Cap more or less centrally depressed, 25 – 35 mm diameter, matt, brownish orange, margin mostly deeply lobed. Gill folds decurrent, cream, strongly interveined. Stipe cylindrical, tapering downwards but only slightly, a much paler brown than the cap.

Spores 6.3 – 8.3 × 4.5 – 6.3 µm, Q = 1.37. Basidia narrowly clavate, mostly 5 spored.

Cantharellus ' brunneus' © Patrick Leonard

Notes: Cleland described a fungus from South Australia as *Cantharellus brunneus*. Stevenson later transferred this to the genus *Hygrophorus*, and then Grgurinovic transferred it to *Hygrocybe*. That was not the same species as is described here.

Key to the species

1. Cap and stipe ochraceous, robust, basidia 4 spored	***C. ochraceoravus***
1. Cap and stipe another colour, fungus not robust	2
2. Cap and stipe both a bright pinkish orange	***C. concinnus***
2. Cap and stipe both orange yellow, or contrasting colours	3
3. Cap and stipe both orange yellow, cap viscid or shiny	***C. viscidus***
3. Cap, stipe and gill folds contrasting colours	4
4. Cap dark brown, gill folds cream and stipe pale brown	***C. 'brunneus'***
4. Cap pale orange, gills fold greyish orange, stipe bright orange	***C.* aff *melanoxeros***

Chanterelles and conservation

The chanterelle has been in sharp decline all over the northern hemisphere. A combination of habitat loss, pollution from farming and industry and over collecting have reduced the quantities of this once abundant mushroom to endangered status in Germany and other populated parts of Europe. Persson quotes a study made in Saarbrucken, in the industrial heartland of Germany on the Dutch border, showing the decline in chanterelles offered for sale from 9 metric tons in 1955 to just 200 kilos twenty years later. Fortunately collecting restrictions in place in Queensland offer some protection, from over collecting at least in National Parks. But increasing nitrification of our waters from intensive agriculture and from traffic fumes do pose a threat to these fungi that seem to be very sensitive to nitrate pollution.

Acknowledgements

My thanks to Sapphire McMullan-Fisher for her companionship on many forays in South East Queensland and for providing the photograph of *Cantharellus viscidus.* Thanks also to many members of the QMS who found chanterelles and pursued me with insightful questions about them.

References

Cleland J.B. (1935) Toadstools and Mushrooms and other Larger Fungi of South Australia. Government Printer, Adelaide.

Cooke M.C. (1892) Handbook of Australian Fungi. Williams and Norgate, London.

Eyssartier G. & Buyck B. (2001) Notes on the Australian Species Described in the Genus Cantharellus (Basidiomycetes). Australian Systematic Botany 14, 587 – 598.

Fuhrer B. (2005) A Field Guide to Australian Fungi. Bloomings Books.

Grgurinovic C.A. (1997) Larger Fungi of South Australia. Government of South Australia.

Pegler D.N., Roberts P.J. and Spooner B.M. (1997) British Chanterelles and Tooth fungi. RBG Kew

Persson O. (1994) The Chanterelle Book. Ten Speed Press. Berkeley. California.