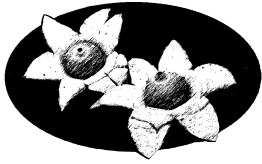


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The Queensland Mycological Society

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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.

The *Queensland Mycologist* is issued quarterly. Members are invited to submit short articles or photos to the editor for publication. The deadline for contributions for the next issue is February 15 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. It is preferred that photos are submitted 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. All original material will be reprinted or reproduced, unless otherwise stated, provided the source of the information and the copyright author are acknowledged.

Cover photo: This photograph of *Humidicutis lewellinae* was taken on the Linda Garrett Foray on June 30, 2012. © David Holdom

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QMS Calendar 2013

Meetings are held in the F.M. Bailey Room at the 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.

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.

QMS Meetings 2013

Details of meetings are not yet finalised. Check the website for updates. 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.

Date	Items
February 12	
March 12	
April 9	AGM
May 14	
June 11	
July 9	
August 13	
September 10	
October 8	
November 12	
December 10	End of year party

AGM April 9: All Executive and Office holder positions will be vacated and elections/re-elections will take place. N.B. It is very important for a community group like QMS, to share the tasks around. Please be prepared to volunteer or "be volunteered" for a job!

QMS Supper Roster 2012-13

Date	Savoury	Sweet
February	Scott Buckley	Susie Webster
March	Lil Spadijer	Matthea Paulus
April	Floss Wainwright and Ken Cowell	
May	Susie Webster	Fran Guard
June	Vanessa Ryan	Patrick Leonard
July	Jutta Godwin	
August	Rhonda Warhurst	Scott Buckley
September		
October		
November	Matthea Paulus	
December	Everyone brings a plate	

QMS Forays & Workshops 2013

Field trip details may change as a result of drought or other unforeseen circumstances. Check the website for changes. The dates are the Saturdays following the QMS meetings of February to July, (except for the weekend at Ravensbourne).

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.

Date	Location	Leader
February 16	Mt Cordeaux	Susan Nelles (zefarella[at]gmail.com)
March 16	Linda Garrett	Pat Leonard_ (patbrenda.leonard[at]bigpond.com)
April 20 and 21	Ravensbourne NP (Weekend Camp)	John Dearnaley dearns [at] usq.edu.au
June 15	Cooloola	Fran Guard (foray [at] qldfungi.org.au)
July 13	Maroochy Wetland	Pat Leonard and Judith Hewitt (patbrenda.leonard[at]bigpond.com)

2013 Workshop Program

The 2013 workshop program has yet to be finalised, but it is intended that one will be held in Brisbane and one outside the metropolitan area, tentatively in July and September. Details should be in later newsletters. In the meantime check the website for details.

Members are invited to suggest topics.

Editor's Comments

First, an apology for the failure of the newsletter to appear in September. Circumstances beyond my control conspired to direct my attention elsewhere.

I would like to thank contributors, and especially Megan for her overview of the polypore workshop, without which pulling the various bits together would have been very difficult indeed. And also Patrick, who as usual provided a significant amount of the newsletter content.

One topic that constantly caused angst is the lack of photographs of important specimens. It always seems to be the case that at least one of the "most interesting" species is not photographed, or if it is, no photos are sent in for inclusion in the newsletter. I strongly encourage photographers to share their work via the newsletter. You will be given credit, and retain ownership of the photos you send. I don't use my own photos because I want to show off, but because very often they are all I have!

The photos included in the newsletter are often cropped and always reduced (typically to 800 x 600 or less) to provide the best view I can manage of the fungus, while keeping the file size manageable. I appreciate that some may prefer their photos are not so manipulated, but it does limit what can be cut out of the document for unauthorised use elsewhere.

However I do realise that sending everything in by email is not practical, and recognise that we need a system whereby I can be made aware of what is available. The simplest is for each of you to check your photos, and make a list of specimen numbers for which you have potentially useful pictures. That simple list of numbers can be sent to me or the convenor of the field trip (or other executive member who can send it on). We can then ask for samples if we need them (we cannot include everything, though). The easiest way to do that if there are several photos is to select the photos of interest, right click and select send to/mail recipient. Windows (XP at least) will ask if you want to shrink the photos or not. Select shrink, and send. I can then request full size originals if they are needed. I find it easier to do all the cropping and resizing myself, but will work with reduced photos if need be.

Finally, we need to find a way to leave the numbers with specimens in the field for longer so that photographers have more time to do their stuff. I have often been frustrated to find, after spending some time getting a good shot of one specimen, that the tag has been removed from the next one before I get there. There is a risk of leaving tags behind, but suitably light card or paper should break down quickly if it is missed, and provided it does not happen often, should not be a problem.

Chermside Hills Foray March 2012

David Holdom

The March 31 2012 Chermside Hills field trip was led by John Wrench, with James Hansen recording. This accessible site in the northern suburbs of Brisbane is open sclerophyll eucalypt forest with some *Allocasuarina*, and has yielded some interesting material over the years.

Twenty seven species were recorded, with 25 identified at least to genus. Genera included *Amanita*, *Boletellus*, *Boletus*, *Cantharellus*, *Clavaria*, *Coltricia*, *Fistulinella*,

Gymnopilus, *Hemimycaena*, *Hygrocybe*, *Hyphomyces*, *Inocybe*, *Microporus*, *Phylloporus*, *Pycnoporus*, *Ramaria*, *Russula* and *Scleroderma*, as well as an unidentified polypore.

Three species are illustrated here (from top): *Coltricia cinnamomea*, *Gymnopilus* sp., and *Scleroderma polyrhizum*. All photos © Susan Nelles.



Ravensbourne National Park Foray June 2012

John Dearnaley

A small, but enthusiastic group attended this foray at Ravensbourne National Park, approximately 40 minutes north east of Toowoomba. It had rained 4 days before and the bush was in much better shape mycologically speaking, than when we first planned this foray in April. The National Park is largely subtropical rainforest interspersed with *Eucalyptus saligna* (Sydney Blue Gum), *Lophostemon confertus* (Brush Box) and *Eucalyptus microcorys* (Tallowwood) which means that ectomycorrhizal species are present as well as the usual rainforest saprotrophs.



Fig 1. *Cortinarius* sp. displaying a web-like partial veil. © Susie Webster

We recorded over 40 taxa during the walk and this included 29 saprotrophic specimens and 16 mycorrhizal specimens. Highlights of the walk included a small, purple capped *Cortinarius* species (Fig 1.), an unnamed *Descolea* (Fig 2) – previously recorded at this location by Tony Young and a variety of native truffle species. We were delighted to see so many of the latter fungi and so too were the local animals presumably bettongs, wallabies and pigs, which had been actively digging for



Fig 3. A grouping of collected truffle specimens. © Patrick Leonard

such along the edges of the path. The commonest specimen found was a brownish colour with internal locules and central columella (Figs 3 & 4). Patrick Leonard later examined the spores of this taxon and



Fig 2. *Descolea* sp. © Susie Webster

observed that they were *Laccaria*-like suggesting that it was a relative of *Hydnangium*.

We are currently sequencing the DNA of this specimen to verify this. All in all, a most enjoyable day and worth repeating next year, assuming the rain is co-operative.



Fig 4. Section through a truffle specimen showing locules and central columella. © Morwenna Boddington

Linda Garrett Reserve Foray June 2012

David Holdom and Patrick Leonard

Linda Garrett Reserve (Delicia Road Conservation Park) is a small area of rainforest near Mapleton. The foray, on June 30, 2012 followed ample rainfall and we were rewarded with plentiful fungi, starting with a clump of an unidentified *Laccaria*. A total of 34 species was recorded, though there were others too small, battered or obscure to make it into an already full list. A slight disappointment was that there were quite a few finds that we could not name to species or even to genus. Of the recorded fungi, 29 were identified to genus, and of those only 13 to (or near to) species.

Finds of the foray have to be a violaceous brown *Cortinarius* which is in the *Telamonia* group, the *Hygrocybe* which was next to it and we could not put a name to, the *Stereum rugosum* and *Russula albobrunnea*, the white secotoid truffle that Susie found. All these are new for the site and well over half of what we found was new, despite the fact that QMS members have recorded at this site at least a dozen times over the past 5 years. Unfortunately we do not have photos of all of them.



Photos, from left. Row 1: *Laccaria* sp., upper and lower, *Laccaria canaliculata*

Row 2: unknown genus, *Pluteus* sp., *Gymnopus* sp.

Row 3: *Clavaria* sp., *Stereum rugosum*, *Hygrocybe* sp.;

Row 4: Undescribed *Russula*, unknown corticioid *Hexagonia*-like polypore, *Ramaria* sp.

Credits: *Stereum rugosum* © Suzie Webster, all others © David Holdom

Polypores and Fungi on Wood: Workshop Report

On 21 July 2012 QMS in association with Veteran Tree Group held our first polypore workshop.

Introduction

Pat Leonard

The workshop was an opportunity to share knowledge amongst those of us who are interested in 'polypores'. There were no 'experts' in the room, there are none in Queensland as far as we know and probably none that know the whole field in Australia. So the workshop was an opportunity to find out what we know and to discuss what we might collectively do to improve things.

The term 'Aphylophorales' is used to collectively describe basidiomycetes that have fruiting bodies in which the fruiting surface is flattened, club like, tooth like or is lined with tubes or sometimes lamellae, the pores or lamellae being tough or leathery and not fleshy as in the Agaricales or Boletales. Those that are lined with pores are known as the polypores, and they were the focus of the workshop, although that term has little taxonomic meaning.

Overview

Megan Prance

The day began with Gretchen Evans giving a presentation on the important macroscopic features to be noted when attempting to identify a polypore.

Those characters include the size, shape, texture of the hymenophore, the size and shape of the pores, how many pores per mm, presence or absence of a stipe, and other aspects of the growth form (see below). The host species, the nature of the substrate, what type of rot is happening and the stage of decay are also important. The presentation was concluded with a brilliant demonstration of tangled wool to explain the hyphae in polypores.

Pat Leonard spoke next and gave a run down on a number of the more important references needed when working on polypores.

Fran Guard had a few tips for obtaining spores from polypores. Due to the shape of polypores, it is important to ensure the tubes are running vertically to allow the spores to be dropped. If you just place the specimen on the table, the tubes may be sitting at an angle, and the spores will be retained within the fruit body.

Pat Leonard spoke again, this time on the Ganodermataceae. The Interactive Catalogue of Australian Fungi (ICAF) lists 21 species in Australia, but Pat believes this really reduces to 6, with 5 of these reported from Queensland, and only 4 in Southeast Queensland.

Two have a matt finish; *Ganoderma incrassatum* is stipitate and less than 40mm diameter, *G. australe* is 50-500mm diameter with distinctly truncate spores, it stains red-brown when writing on the pore surface.

The other four Ganodermas are laccate i.e. they have a polished or shiny (upper) surface. *G. boninense* hasn't been recorded in Queensland. *G. cupreum* and *G. weberianum* tend to be in sclerophyll forests & can be

separated by spore size while *G. steyaertanum* is very large and usually in rainforest or vine forests.

Sean Freeman gave a very interesting presentation, speaking about the differences between brown rot and white rot. Recognising the type of rot can often be diagnostic for the fungus. Brown rot leaves little cubes in the timber that some people describe as "brick-like". The cellulose has been removed, and lignin remains. *Phellinus* is an example of a brown rot fungus.

White rot fungi degrade both lignin and cellulose, giving the timber a bleached appearance. *Ganoderma* and *Trametes* cause white rot.

Megan gave a presentation about *Trametes* and her experience of gathering the required information when seeking to get an understanding of a genus of polypores. As per Pat Leonard's article "On Becoming an Amateur Mycologist" (see QMS web site), the first step is to find out which members of the genus are known to occur in Queensland. The next step is to check ICAF to see which ones are known in Australia.

<http://www.rbg.vic.gov.au/dbpages/cat/index.php/fungicat/alogue/search>

Note ICAF hasn't been updated for a few years, and gilled fungi are probably more up to date but ICAF remains a primary reference and is very good resource for Australian fungi. Also check on Australia's Virtual Herbarium known as AVH. <http://avh.ala.org.au/search>

The next step is to obtain descriptions of these species. Megan's initial research suggested there were 153 *Trametes* in Australia, however it quickly became apparent that this was 153 synonyms and it reduced to about 30 species. After several years of trying to get descriptions from books and journals she discovered the CBS-KNAW databases, in particular the Aphylophorales database at:

<http://www.cbs.knaw.nl/databases/aphyllo/database.aspx>

About halfway down the screen is the red line : [Display data on records retrieved](#)

Click there and enter your search term. A search turned up descriptions for over 700 *Trametes*! Most, but not all of the Australian species were listed here.

Attendees at the workshop were given a Key to Polypores that probably includes most of the Australian genera. Combine this with the information given by each of the speakers and the practical component of the day, and we all left with some ability to identify most Australian polypores at least to genus. Some of these we will be able to take to species level and with the information in the CBS database we should be able to confirm these identities at the species level. [Unfortunately the key, by Ryvarden and Buchanan, has not been published and while QMS had permission to use it in the workshop, we are unable to publish it - Ed]

Characters for Polypore Identification

Gretchen Evans

To use the keys you will need to collect the following information:

1. Macroscopic features

The shape, texture, colour and size of the fruiting body and how it is attached to the host, e.g. pileate (with a cap), stipitate (with a stalk), Resupinate (effused, lying flat on the substrate), effused-reflexed (flat on the substrate etc but with part raised, forming "shelves").

Try to identify what it is growing on; many fungi are host specific e.g. *Phellinus*.

Measure the diameter, length etc. of the log, stump or twig

Note the stage of decay

Is it a brown or white rot?

Record pore size and shape - round, lamellate, maze-like

2. Microscopic features

There are three types of hyphae:

- Generative - thin with septae and sometimes with clamps;
- Skeletal – long, thicker, unbranched
- Binding – branching, sometimes thick-walled.

And three types of hyphal system:

- Monomitic – with only generative hyphae
- Dimittic – with generative hyphae plus either b or c. Most have generative and skeletal hyphae; some, e.g. *Laetiporus* have generative and binding hyphae.
- Trimitic - has all three types, e.g. *Trametes*.

Spores - size and shape, possible ornamentation - most polypore spores are white

Presence or absence of cystidia [special sterile cells]

References: Volk, Tom. Polypore primer: An introduction to the characters used to identify poroid wood decay fungi.

http://botit.botany.wisc.edu/toms_fungi/polypore.html

(Originally published in *Mcllvainea* 14(2):74-82, (2000). See also http://botit.botany.wisc.edu/toms_fungi/

A brief illustrated description of hyphal systems is at <http://www.mushroomthejournal.com/greatlakesdata/Terms/monom140.html>.

Sources of information

Pat Leonard

You need to think carefully about any books or websites that you use to determine whether they are going to help you to identify a polypore in Queensland. There are many polypores in Queensland, but most are not the same as those that occur in Europe or North America. So if you look in a book like *Fungi of Switzerland* volume 2, an excellent book on the Aphyllophorales, there is less than a 5% chance of identifying your fungus because there is less than a 5% overlap between the species in

Queensland and those in Switzerland. If you are only trying to identify the genus, then the chances are slightly better. Secondly, you need to be aware that the names of fungi have changed substantially over the years as taxonomists and geneticists work on them. Thus, if you look in a book like Cooke's *Handbook of Australian Fungi* published in 1892, the majority of names will be out of date. If you look in something modern like Hood on Wood then there is a much better chance of finding the correct name.

There are five books that you may find useful:

1. Hood, Ian, *An introduction to Fungi on Wood in Queensland*. Published by the University of New England Press in 2003. It is modern, covers Queensland, has a full key, covers lots of polypores and we use it frequently. Ian is a member of QMS but lives in New Zealand. The key often ends up leading you to several species rather than one, and the text and diagrams are poorly organised, so it is not an easy book to use, but it is one you must own if you are going to get interested in polypores in Queensland. In QMS Library.

2. Cunningham, G.H. *The Polyporaceae of New Zealand*. Published as DSIR bulletin 164 in 1965. Covers a large number of Australian species, has good keys and excellent drawings but no illustrations. Long out of print it is difficult to get hold of but a key reference. Beware that many of the names are out of date. In QMS Library.

3. Quanten, E. *The Polypores of Papua New Guinea*. Published by the National Botanic Garden of Belgium in 1997. It is modern and there is a considerable overlap between the fungi of PNG and that of Queensland. There are good keys and descriptions and diagrams of microscopic characters. Unfortunately the book is now out of print, but occasional second hand copies are available.

4. Bernicchia, Annarosa. *Polyporaceae*. Published by Candusso in the *Fungi Europaeae* in 2005. Up to date, in Italian with English summaries, excellent microscopic drawings and photographs. Good keys to the families and genera of polyporoid species. Already out of print. Very small overlap between the polypore fungi of Europe and that of Australia, but good on genera and a good source of information on microscopic characters.

5. Ryvarden, Leif. *Genera of the Polypores*. Published as *Synopsis Fungorum 5, Fungiflora*, Oslo, Norway in 1991. A guide to the worldwide genera of the polypores by the acknowledged world expert on polypores. A useful reference book with descriptions in English of almost all the polypore genera that you will find in Queensland.

The illustrations of polypores on the web are very numerous indeed and almost all wrong. Megan Prance provided more information about websites to use in her presentation on *Trametes*.

Polypore Spores

Fran Guard

As in all fungi identification, checking the spores of polypores is important. However, it is notoriously difficult to obtain spore prints from this group. In my experience there are several reasons for this.

1. Polypores are usually long-lived and therefore some specimens are already old when collected and may have stopped producing spores.
2. Spores may only be produced from a part of the fruiting body and so can be missed. e.g the growing edge may be sterile.
3. If the specimen is curved, or irregularly shaped, it may need to be propped up so at least some of the tubes are vertical, to allow spores to drop on the slide (or paper), and not be caught in the tubes. This is particularly important in species which have very long tubes.
4. Many polypores have very tiny spores, which are hyaline and the spore print is sparse and white – easier to see on glass than paper.
5. Fresh specimens collected after rain, in my experience, are better for getting spore prints

When you do finally see the spores, they are often unremarkable, in that they are smooth, ellipsoidal or bean shaped with few distinguishing features. However, they are still important features in the I.D. of the different species.

One family of polypores is somewhat of an exception to the above. That is the ganoderms. This family has such distinctive spores that they are a beginner's joy to find! The spore print may be very heavy, obviously brown and the spores are quite large, ovoid to broadly ellipsoid with a blunt end, double walls and septate (apparent striations across the double walls). Some are even warty as well.

These features put the polypore into *Ganoderma*, but don't take you easily to a species.

Ganoderma

Pat Leonard

There are at least 21 named species of *Ganoderma* that have been reported in Australia, many of them in Queensland. Fortunately B.J. Smith and K. Sivasithamparam published a paper in Australian Systematic Botany in 2003 based on the results of an extensive analysis of sequencing results that demonstrated that in reality, there were only six species of *Ganoderma* in Australia and only 5 of those are known to occur in Queensland.

It is fortunate that *Ganoderma* is relatively easy to recognize. They are hard woody fungi, with brown spores, but their key character is the presence of double walled spores that have septa between the walls and are often truncate; that is, they appear to have been chopped off at one end. *Ganoderma australe* is a very frequent, large, matt brown bracket found at the base of trees in Queensland.

A summary of the species descriptions and trial key for the genus has been produced and is available in the foray box, the QMS library and will shortly be going on the website.

Pat's note: One *Ganoderma* was brought to the workshop that does not fit the key and descriptions very well and is possibly a new species.

The main pored and dentate genera on trees and shrubs in Queensland. Note that work has been done to remove synonyms from the Australian, but not the Queensland list, leading to the peculiar (and impossible) result that it looks like there are more species in Queensland than in Australia as a whole. The Australian information is available from the Atlas of Living Australia.

Species	Number in Australia	Number in Queensland	Pathogens	Key
<i>Corioloopsis</i>	10	8	No	
<i>Fomes</i>	9	34	Yes	
<i>Fomitopsis</i>	7	3	No	
<i>Ganoderma</i>	6	5	Yes	QMS PL
<i>Gloeophyllum</i>	5	5	?	
<i>Hexagonia</i>	9	11	No	
<i>Hymenochaete</i>	24	9	No	
<i>Inonotus</i>	19	18	?	
<i>Lenzites</i>	5	8	No	
<i>Phellinus</i>	25	37	Yes	
<i>Polyporus</i>	68	114	No	QMS PL (16)
<i>Trametes</i>	29	?	No	QMS MP
<i>Tyromyces</i>	5	12	?	
<i>Stereum</i>	24	16	No	QMS GE

Ganoderma in Queensland - Trial Key and Notes

Pat Leonard

Background

The taxonomy of the genus *Ganoderma* has been described as chaotic. Worldwide there are 214 described species, but very few good descriptions exist which might allow accurate recording of these fungi in the field. The only readily available reference to the genus in Queensland is Hood's (2003) Introduction to Fungi on Wood which lists 11 species. The critical work by Ryvarden & Moncalvo (1997) was published by Fungiflora in Oslo and is not readily available. But, papers by Smith and Sivasithamparam (2000, 2003) examined Australian species in considerable detail and concluded that only 6 species were present and only 5 of these were found in Queensland.

But none of these publications allow reliable identification of Queensland *Ganodermas* to species level.

Ganodermas in Queensland

We see *Ganoderma* species on almost every QMS foray and frequently have rather inconclusive discussions about their identity. As Smith and Sivasithamparam point out the morphological differences between *Ganoderma* species are small and indistinct and neither pore density nor spore size provide reliable ways of separating species. It is therefore not surprising that they did not include a key in their 2003 paper.

Some of their results are summarised in Table 1 below.

Host and habitat information seems to be particularly poor in the published literature. Differences in distribution, cap texture and spore morphology may nevertheless provide just enough to allow the production of a trial key. The aim of this article is to provide a trial key and notes to try to improve our recording

Species	Surface	Pores/mm	Spore sizes	Records in Queensland
<i>G. australe</i>	Matt	3.0-4.5	9.1-11.8 × 5.5-9.1	25
<i>G. incrassatum</i>	Matt	3.6-5.9	6.8-10 × 5-6-8	1
<i>G. steyaertanum</i>	Laccate	3.4-5.6	7.3-12.7 × 5-9.5	13
<i>G. cupreum</i>	Laccate	3.4-5.6	8.2-11.8 × 5.5-10	8
<i>G. boninense</i>	Laccate	3.2-5.0	8.2-13.5 × 5-8.6	0
<i>G. weberianum</i>	Laccate	2.7-5.9	6-10.9 × 4.5-7.3	2

Trial Key

- | | |
|--|--------------------------------------|
| 1. Cap matt (dull) | 2 |
| 1. Cap laccate (polished like furniture) | 3 |
| 2. Cap sessile (no stem), 50 - 500 mm diameter, with a white or pale edge and spores distinctly truncate | <i>Ganoderma australe</i> |
| 2. Cap stipitate, spathulate or occasionally sessile, < 40 mm diameter, margin concolourous and spores indistinctly truncate | <i>Ganoderma incrassatum</i> |
| 3. Spores Q > 1.7 on average | <i>Ganoderma boninense</i> |
| 3. Spores Q < 1.6 on average | 4 |
| 4. Cap large, 50 - 500 mm diameter, red brown or black, in rainforests or vine forests, usually near the ground | <i>Ganoderma steyaertanum</i> |
| 4. Cap small to medium, 30 - 90 mm diameter, in sclerophyll forests | 5 |
| 5. Spores truncate, smooth, 8.2-13.5 × 5 - 8.6 µm | <i>Ganoderma cupreum</i> |
| 5. Spores ovate, finely echinulate, 6-10.9 × 4.5 - 7.3 µm | <i>Ganoderma weberianum</i> |

Notes:

Truncate means cut off at one end.

Q is the length of the spore divided by its width.

Echinulate means spiny.

Notes on species

Ganoderma australe

This is the most frequently seen matt species in South-east Queensland. It forms large, 50 to 500 mm diameter, shelf like brackets growing on *Eucalyptus* and other hardwood trees in wet and dry sclerophyll forests. The surface is often uneven and shows growth bands and is a pale matt brown. The edge is often paler or even white. The flesh is brown and very hard and wood like. The lower surface is poroid, white or ochraceous in living specimens and stains dark brown when scratched. There are usually 3 – 4.5 pores per millimetre.

The spores are produced in very large quantities and can often be seen coating both the surface of the bracket and the surrounding area, they are pale brown. They are ovoid-ellipsoid with an ornamentation of small dark warts, a thick septate wall and a clearly truncated end. Photo © Patrick Leonard



Ganoderma boninense

Basidiocarp stipitate, substipitate or sessile, kidney shaped. Typically 30 – 90 mm across. Surface in concentric zones, violet brown to black, laccate shiny, with a paler margin. Flesh greyish to brownish orange. Pores pale yellow, 3 – 6 per mm. The distinguishing feature appears to be its elongated ellipsoid spores with a Q-value (Length /width) of 1.7 or greater.

This laccate species has not so far been reliably recorded in Queensland. It has however been found in NSW. Photo © Patrick Leonard



Ganoderma cupreum

Basidiocarp stipitate, substipitate or sessile, kidney shaped. Typically 30 – 90 mm across. Cap highly laccate when fresh, from bright red brown to almost black, with concentric zones which can be in contrasting colours. Margin pale. Flesh hard, pale reddish brown. Pores very pale yellow, 3.5 – 5.5 per mm. Spores brown, thick walled with septa in the wall, more or less smooth, truncate, $8.2-13.5 \times 5 - 8.6 \mu\text{m}$. Small to medium laccate species which are distinctly stipitate and have smooth truncate spores are most likely to be *G. cupreum*. Photo © Fran Guard



Ganoderma incrassatum

There are several records, but only one collection of this species. It appears to have a northerly distribution and to favour rainforest habitats. The fruiting bodies are small, up to about 40 mm diameter and generally stipitate or spatulate. They are dark brown to almost black in colour and matt. The surface is wrinkled and shows concentric zoning. The margin is concolourous as the crust overhangs the pores. The flesh is dark brown, hard and quite thin, 2 – 3 mm. The pores are yellowish brown and there are 3.5 – 6 per mm. It is readily distinguished from *G. australe* where the specimens are small and stipitate or spatulate. Where specimens are sessile, examination of the spores is a good guide with this species having warty spores with a thick septate wall, but unlike *G. australe* they are ellipsoid and indistinctly truncate. Photo © Patrick Leonard



Ganoderma steyaertanum

This laccate species can be readily distinguished in its large, 50 -500 mm diameter, fruit body. The attachment is sessile or can be broadly stipitate. The cap surface is uneven, with concentric zones and dark brown (Chestnut) to almost black cap. Margin yellowish white. The pores are pale yellow to greyish orange and there are 3.5 – 5.5 per mm. The spores are brown, ovoid ellipsoid with an average Q below 1.6. They are echinulate, thick walled and usually truncate. This species appears to favour rainforest habitats. Specimens that are red brown and stipitate can occur and are more difficult distinguish from *G. boninense*, *G. cupreum*, and *G. weberianum*. Photo © Patrick Leonard



Ganoderma weberianum

Basidiocarp laccate and stipitate or spatulate up to 50 mm wide. Violet brown to dark brown to black. Radially and concentrically wrinkled, with a pale yellowish margin. Stipe short, 10 – 15 mm and dorsally attached. Flesh greyish orange, hard. Pores pale yellow, 3 – 6 per mm. Spores ovoid, thick walled, echinulate, 6 – 10.9 × 4.5 – 7.3µm.

Small to medium laccate species which are distinctly stipitate and have finely echinulate and smaller spores are most likely to be *G. weberianum*. This is the species illustrated in Fuhrer under the name of *Ganoderma resinaceum*. Photo © Fran Guard

Note: The QMS does not have a reliable photograph of this species and it would be greatly appreciated if members could look out for it. If you find it please check the spores and if they fit, send the collection and photograph to Pat Leonard or Fran Guard.



Xerula R.I.P.

Pat Leonard

A bit of history

There used to be a genus of Agarics called *Oudemansiella*. It was easy to recognise, they had a viscid cap, white gills and large globose white spores and there was a species with a long tapering root to the stem, and that was called *Oudemansiella radicata* (Young 1982, Fuhrer 1985). There was another species that grew on wood and also had a viscid cap, white gills and large globose white spores and this one was called *Oudemansiella mucida* var *exannulata* (Cleland).

Well, the usual thing happened, a couple of taxonomists thought this was all a bit messy and we do not often have fungi that grow on wood in the same genus as those that grow in soil, so the soil ones were renamed and put in a new genus called *Xerula* in the mid 1980's. At that time it was still thought that *Xerula radicata* (Young 2000) was a species with a worldwide distribution and that it was to be found in Australia as well as Europe and North America. Over the next 20 years it was gradually realised that the Australian *Xerulas* were different to the Northern Hemisphere ones, and that although they all had large white spores, some were more globose than others. So we get names like *Xerula radicata* var *australis* and then *Xerula australis* (Bougher and Syme 1998). Finally in 2008 Ron Petersen published a paper entitled: The genus *Xerula* (Agaricales; Fungi) in Australia and New Zealand which should have clarified matters.

Xerula in Australia

Petersen described eight species and one variety of *Xerula* for Australia and one species in New Zealand. None of these was *Xerula australis*. It also seemed that at least some species were restricted to particular states. QMS members who attended our first foray to the Bunya Mountains will recall that we found three species of *Xerula* but had some difficulty identifying them, even with the help of Petersen's key which we had just acquired. Two species were found on our Girraween foray the following year. Again, we failed to pin these down to species level with absolute certainty.

We had been warned in the paper on *Xerula* (Petersen 2008) that the molecular evidence was suggesting that the genus was not monophyletic, that is to say that there might be

more than one genus hiding here. But before we leave *Xerula* it is important to remember that everyone found them easy to identify to genus. They are all tall fungi, with the height of the stipe above ground usually significantly greater than the cap diameter. The stipe is rooting, hence its common name of 'rooting shank'. They have white gills and white spores, the spores are large, generally more than 12 µm in diameter and many over 17 µm. The spores are globose or ellipsoid.

The end of Xerula as we know it

Well you cannot say you were not warned, Petersen and Hughes (2010) have published a worldwide monograph on these fungi following the completion of the molecular analysis they foreshadowed and we no longer have any *Xerulas* in Australia.

There are now 8 species of *Hymenopellis* and one species and one variety of *Protoxerula* in Australia. Two species of *Hymenopellis* are reported from Queensland: *H. trichofera* and *H. gigaspora*. One species of *Protoxerula* is found in north Queensland: *P. flavo-olivacea*. But it is fairly clear that there are more species in Queensland. Unfortunately the Petersen & Hughes Monograph (Should it be a Polygraph given the number of genera?) extends to 625 pages and the key is not arranged geographically, so it is of little use to QMS members.



Mycokey 4

Pat Leonard

QMS members who attended the Identification to Genus Workshop in October will have seen a version of the interactive key produced by Thomas Laessle and Jens Petersen. Although it is not comprehensive for Queensland genera of fungi and has European genera that are not found here, it still frequently comes up with the correct answers.

The authors have just announced that MycoKey version 4.0 is finally ready and can be downloaded from their website: www.mycokey.com.

MycoKey 4.0 is a major update with a redesigned user interface and a much enlarged contents. It covers more than 1,100 genera of the Basidiomycota and Ascomycota that occur in Northern Europe (i.e. Europe north of the Alps). It includes more than 3,300 species illustrated by more than 8,400 high quality illustrations, more than

24,000 cross references to literature.

Version 4.0 also contains 600 analytical species keys to agarics, boletes, cyphellaceous fungi, aphyloporales and gastromycetes including all keys from *Funga Nordica* 1st edition, from *Nordic Macromycetes* vol. 3.

MycoKey 4.0 sports a whole new, simplified user interface including a very convenient report view where all pictures of the genus are presented in conjunction with the genus description. It also includes a new system for automated internet searches for literature and for finding further information through MycoBank, Gbif, Index Fungorum, Google and Cyberliber.

You can purchase Mycokey 4 for 40€ (\$50).

Useful for learning your genera, much less helpful at species level.

Iconografia Mycologica

Pat Leonard

Giacomo Bresadola was an outstanding Italian mycologist who lived and worked in northern Italy and produced one of Mycology's standard reference works, the *Iconografia Mycologica*. It appeared in 26 volumes during the 1920s and 1930s and has wonderful paintings and descriptions of a huge range of fungi. There is an active mycological society based in Trento that is named in honour of Bresadola and they have now published his entire work on their website thanks to the efforts of Marco Floriani and other members of the society.

You can download this classic work free by going to:

<http://www.mtsn.tn.it/bresadola/iconografia.asp?pt=IV>

There is one PDF per volume so it takes some time. If you have difficulty with the Italian version of the website there is a change language button on the top right hand corner of the home page.

