



Australia's fungi mapping scheme

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Dear Fungimappers,

I hope the autumn weather finds you wet, dirty and lying in a ditch somewhere... with a pen, some waterproof paper and a camera trying to get that perfect shot of an elusive *Craterellus*! If not, I hope the rain finds you soon.

In this edition of the *Fungimap Newsletter*, you can read about what happened at the Queensland Fungi Festival, learn how you can Sponsor a Species in *Fungi Down Under 2*; hear the news about my fundraising campaign *Fun Run for the Fungi*; get some tips from Neil Tucker from ANGAIR on starting your own fungal herbarium; test out a key on stinkhorns in Queensland from QMS, and read the Fungimap annual report, amongst other exciting things.

As I write this, I'm busy wrapping up everything from the Queensland Fungi Festival, which was really exciting for me. This was partly because I got to go fungi hunting without almost getting frostbite, but also as the Queensland Fungi Festival was my last Fungimap event as Coordinator. Yes, after 3 ½ years and four national events, I'm hanging up my boots (and three pairs of woollen socks) to start a PhD. To those of you who've asked what it's about...well I might be able to answer that in 4 or more years! The broad issue I will try to investigate is cultural diversity within Melbourne's environment/sustainability movement. It's been such a great time for me working at Fungimap and I am certainly a little bit unsure about whether leaving is really the best idea...but I am also sure that my replacement will have a wonderful suite of new skills and experiences to bring to Fungimap. I will definitely still be involved in a few ways although I'm not sure how just yet – but I will be at Fungimap 8 which will be in Batemans Bay, April 16-21 2015 (save the date).

Thanks to everyone who has helped me help Fungimap: from members on conference organising committees to those who've run workshops and given talks at our events; those who've helped me identify a few fungi and those who have inspired me to learn more; those who put in countless hours on the Fungimap Committee each year, scrutinising profit/loss statements and planning the organisation's future, to those who call up for a chat and brighten up my day. It's been absolutely wonderful and I feel very privileged to have worked for such a welcoming, passionate and friendly organisation. Best wishes to everyone for future fungi forays, and I'm sure I'll see you somewhere soon.

Blanche Higgins, Fungimap Coordinator.

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From the editor

This edition comes immediately after the Queensland Fungi Festival and amidst the autumn weather, so here's hoping the season is providing you with some great fungi action! This edition of the *Fungimap Newsletter* features the 2013 Annual Report from the Fungimap President and itemises the 2013 Financial Statements. Please also enjoy the eclectic mix of articles and let me know about any news to be included in the next edition, by **Thursday July 31 2014**.

Many thanks, *Christina Hall, Fungimap Newsletter Editor.*

New fungi field guides, phone apps, and discounts on cultivation courses!

2014 is the year for new fungi field guides. *A Field Guide to Tasmanian Fungi*, by Genevieve Gates and David Ratkowsky, is available for \$40 plus \$7 postage and has over 400 species, all illustrated in colour. Many of the species occur in other parts of south-eastern Australia.

Sapphire McMullan Fisher, Fran Guard and Pat Leonard have put together *Australian Subtropical Fungi*, illustrating 115 species with one page each. This book is available for \$30 plus \$3.50 postage.

You can order both these books online (<http://fungimap.org.au/>), call us, or send us a cheque via snail mail.

You can also download for free the new *Guide to the Common Fungi of the Hunter-Central Rivers Region* from http://hunter.lis.nsw.gov.au/_data/assets/pdf_file/0009/516807/guide-to-common-fungi-hcr.pdf

If you're not a technophobe, you might be interested in the 'iFunch AU' phone app available for iPhones, which can help you identify some common fungi.

Finally, Fungimap has secured a 10% discount for Fungimap members on all Forest Fungi mushroom cultivation courses, including the online correspondence courses. To take advantage, simply check out their website at <http://forestfungi.com.au/> or email contactus@forestfungi.com.au and mention that you are a Fungimap member.

Queensland Fungal Festival 2014

Thelma Bridle and Blanche Higgins

The Queensland Fungi Festival was held in Brisbane 24-27 April 2014 directly following the Australasian Mycological Society meeting. The setting was the beautifully maintained Mt Coot-tha Botanic Gardens in which the Queensland Herbarium is sited. Gordon Guymmer, Director of the Queensland Herbarium, provided the opening address for the day of talks, entitled *Why Mushrooms and Moulds Matter*.

Why Mushrooms and Moulds Matter

Tom May provided an entertaining overview of fungi, their structure, roles, relationships and our current knowledge. Sapphire McMullan-Fisher discussed the many and varied ecological roles of fungi and the related lichens, a subject enlarged upon later by Jutta Goodwin. Lichens consist of a fungus and an alga living together for mutual benefit. Lichens inhabit more ecosystems in the world, from the poles to the equator, than any other living organism.

Alison Pouliot spoke of the need for fungal conservation in Australia. There are currently no Australian fungal species on the IUCN Red List. Richie Robinson has long term knowledge of fungal response to fires, both natural and prescribed. Immediate effects include loss of mycorrhizal partners, soil sterilisation and loss of organic material. A specialised suite of fungi appears to assist with soil structure restoration, binding of soil particles and reduction of soil pH. It takes about 10 years for fungal diversity to recover to that of a non-burnt forest.

John Dearnaley explained that some orchids have a total reliance on a fungal partner. Therefore given that some orchid species have considerable commercial value e.g. vanilla, conservation of that fungus is critical. Epiparasitic native orchid species need to partner with a fungus, often of a specific species, as soon as their tiny seeds germinate. The fungus also requires a different host plant to provide both it and the orchid with sugars. Whilst the fungus provides water and minerals to the host, the orchid provides no benefit to either.

Sandra Abell-Davis spoke on mycophagy, ranging from the use of fungi to develop flavour in some food products e.g. wine, coffee, chocolate, to the reliance of some Australian mammals on the small but numerous underground native truffle and false truffle species for food. Pathogens help to maintain a dynamic equilibrium through population control and Diana Leemon discussed some avenues of current research using fungal pathogens in a natural ecosystem. These included inoculative, inundative and competitive inhibition methods for control of pests and weeds. Rachel Mapperson talked about fungi as endophytes, living within plants without causing disease symptoms to their host.

Ross McKenzie gave an interesting talk on fungi poisonous to animals. A number of macrofungi are directly toxic to animals, particularly dogs (and humans) following fruitbody ingestion. Jeff Powell discussed the benefits and disadvantages of mycorrhizas in agriculture. Some crops e.g. cotton, maize and linseed increase their yield when mycorrhizal fungi are present whereas barley, canola, wheat and oats show no change in yield.

Infectious diseases and cancer are areas of research for Rohan Davis. Fungi are playing an increasing role in drug diversity especially where drug resistance has become a problem. Since 1981 some natural fungal products have had success as drugs eg. Taxol, Lipitor and Lovastatin.

Citizen Science is a way of becoming involved and contributing valuable data to projects and Patrick Leonard spoke on this topic. Projects designed by scientists can have data collected by volunteers with a scientist then analysing the data. Britain holds two million records of fungi, Sweden half a million and Australia over 100,000. Therefore more records are still required. Australia requires better aids for

identifying fungal species, more records submitted and funding to link amateur and professional scientists. Fungal species may then be identified for inclusion on the Red List, raising their profile to protect rare species. Tom May also promoted the submission of fungal sightings to Fungimap and the Atlas of Living Australia (ALA). ALA now has bioclimatic modelling allowing various climatic regions or geology to be overlaid with fungal records to highlight regions worthy of further searches. There will be more details of this on the Fungimap website in the coming months and updates on recent fungal name changes.

Australian Subtropical Fungi

A highlight of the Queensland Fungi Festival was the launch of the book *Australian Subtropical Fungi* by Sapphire McMullan-Fisher, Patrick Leonard and Frances Guard. This excellent book describes and illustrates in colour fungal species in Queensland, some for the first time. A special cake had been decorated as a tree stump with many different fungal species, and for once all the fungi were edible. I can attest to the usefulness of the book both during the forays and later as Phil and I travelled further afield in southern Queensland searching for fungi. We found it an invaluable identification aid. Copies of the book are available through Fungimap.

Stinkhorn Poster

Vanessa Ryan, a QMS member produced a superb poster on the *Stinkhorns of Queensland*. We were fortunate to find a number of these at Mt Coot-tha and others during forays. The poster can be found on the QMS website together with detailed species descriptions.

Masterclass

Roy Halling ran an all-day masterclass on boletes at the Queensland Herbarium which was well attended. Participants learnt to identify species using microscopic characteristics.

A number of workshops and forays in the South D'Aguiar Range were held over the weekend. A Kid's Foray was held in the Mt Coot-tha Botanic Gardens and attracted a number of interested children and their parents, who having learnt a bit about fungi and where to look for them were keen to search their local areas. Despite dry conditions a number of subtropical fungal species were found on the forays, including some unidentified species. The Fungimap AGM was held on Saturday followed by an informal dinner.

Records

A range of forays and workshops were held over the weekend. Not all of the records from the Festival have been processed yet, but there is one worth mentioning. *Gymnogaster boletoides* was one of the highlights found at Mt Glorious. Gregory Bonito from the Royal Botanic Gardens says this is a particularly exciting species to find because it 'represents an independent and partial transition of an aboveground bolete to the truffle-like form'. It is just a partial transition because 'there is still a vestigial cap (the small red ring at top) and stipe (quite reduced) and it still fruits above ground. The similarities to boletes are quite evident (as we saw by looking at them, including the spores, and bluing reaction, the mycorrhizal habit, and the poroid hymenium)'. We were also very excited because it was found close to the type locality - Mount Glorious - where Cribb first collected and described it in 1956.



Gymnogaster boletoides, Reiner Richter,
www.ala.org.au

Proceedings of *Why Mushrooms and Moulds Matter 2014*

Notes by Susan Nuske, edited by the speakers

Fungi in the environment

Tom May: *What are fungi? An introduction*

Fungi are a fantastically unique and diverse group of organisms that form their own kingdom within the spectrum of the natural world. What makes fungi unique includes almost everything from the fundamental structure of their cells and chemistry to their lifecycles and interactions with other organisms. Fungi consist of microscopic hyphae which are tubular cells that explore the environment. The familiar mushrooms and puffballs are the result of these fundamental components aggregating to form a mycelium after reproduction in order to disperse spores. Unlike plants and animals, fungi obtain their nutrients through the production of extracellular enzymes that breakdown nutrients that the fungi then absorb.

Sapphire McMullan-Fisher: *The ecological roles of fungi*

Fungi are *the links* that connect ecosystems. Their feeding strategies span the spectrum of biotic interactions. Biotrophs range from mutualists like lichens and mycorrhizae, and commensal endophytic (inside-plant-living) fungi to parasites and pathogens. Fungi have a unique capacity to breakdown and recycle important nutrients. They are also an important food resource for many other organisms. Most plants depend on mycorrhizal fungi to help them absorb nutrients from the soil. These can help their plants with drought tolerance. Fungi can also be very important for maintaining soil integrity, reducing erosion and nutrient leakage. All of these traits make fungi vital components of any ecosystem.

Richie Robinson: *The response of fungal communities to disturbance associated with management of southern Australian eucalypt forests*

Fungi are an important and rich component of eucalypt forests. Much of the eucalypt forest estate in southern Australia is subject to management, either by fuel reduction burning or for timber harvesting and silviculture. Recent adaptive management research and monitoring projects have enhanced our knowledge of the response of fungal communities and species to disturbance including fire and silvicultural treatments. Many species are adapted to survive fire, while others are stimulated to germinate and colonise burnt sites. Patterns of succession result in different communities of fungi occupying sites at different times since disturbance. Management based on creating patterns or mosaics of disturbance, especially using prescribed fire, has the potential to increase fungal diversity either locally or across broad regions.

Alison Pouliot: *Conservation of fungi*

Although public interest in fungi has increased in recent years, a gap still exists between interest and action toward fungal conservation. While more knowledge of fungal distributions and life histories is required, the public and political dimensions of conservation also need greater focus. In order to 'mend the gap' and instigate effective fungal conservation, fungi need a greater place within public consciousness and empathy. In situ experience with fungi and ways to visualise the less visible aspects of the kingdom provide opportunities for greater appreciation and understanding that might inspire active conservation.

Fungal symbioses

John Dearnaley: *Orchid mycorrhizas*

Mycorrhizal fungi grow in and around plant roots in a mutualistic relationship where the fungus helps the plant take up nutrients from the soil and the plant provides the fungus with food (sugars). Orchids, the most

diverse plant family, have their own specialised group of mycorrhizal fungi. Orchid seeds cannot germinate without their mycorrhizal fungal partner. Studying orchids and their mycorrhizal fungi is important for the conservation of rare orchids. In order to propagate rare orchids in the wild, their fungal partners need to be transferred with them. Not all orchids are so sensitive; some 'cheat' by connecting to *Eucalyptus* mycorrhizas and steal the sugars from the tree via their mycorrhizal connection!

Jutta Godwin: *Lichens*

Lichens are an ancient association; in this mutualism, fungi provide an effective way to obtain nutrients and the algae or cyanobacteria perform photosynthesis to obtain energy. With enough moisture and light, lichens can grow practically anywhere. They have even been shown to grow in outer space! Lichens are an important part of ecosystems; they contribute to nutrient cycling by slowly weathering rocks and other hard chemicals, and provide food and habitat for many insects and vertebrates. Lichens are important bio-indicators for pollution and in some cases, climate change. Unfortunately, this ancient and fascinating group are threatened by pollution and constant habitat disturbance.

Sandra Abell: *Mycophagy*

Even if you are not a fan of store-bought mushrooms, you are probably still guilty of mycophagy (fungi-eating)! Surprisingly, fungi are not only necessary for making beer, cheese and bread, but also wine, chocolate and coffee. In nature, fungi are a great food source for a variety of animals. Some mammals, like bettongs and potoroos specialise in feeding on fungi. Mammals also do the fungi a great favour by dispersing spores. This is particularly important for truffle fungi which fruit underground and have no other means of dispersal. Most truffle species are mycorrhizal; fungi that form mutualistic associations with plants. Therefore, mammals are integral to healthy ecosystems by dispersing fungal spores and maintaining the fungi-plant relationship.

Rachel Mapperson: *Endophytes*

Endophytes are fungi that live inside plant tissues. They are a very diverse yet understudied group of fungi. Their precise role inside the plant is mostly unknown but exciting studies suggest that some endophytes can help plants tolerate stressful conditions like drought or high salinity. They are thought to be able to do this through the production of secondary metabolites which the plant can recognise and respond to. The identification of fungal endophytic species can be done by growing them on nutrients in the laboratory and recognising morphological characters or by DNA sequencing. However, much more work is needed to understand this vital group.

Pathogens and pathology

Diana Leemon: *Biocontrol using fungi*

In natural ecosystems fungi, as pathogens or parasites, play a significant role in regulating populations of their hosts. In artificial environments, such as agricultural systems, this dynamic equilibrium has been disrupted and traditionally invading agricultural pests or pathogens were controlled using chemicals. However, due to increasing realisation of the health and environmental risks, as well as other consequences like increasing pest resistance and disruption of other beneficial biological organisms, alternative methods may be needed. Fungi can act as powerful biocontrol agents. However, to utilise them properly it requires a great deal of knowledge about the organism's biology and ecology. This is an active area of research. Some success stories include fungal agents available for the control of locusts and grasshoppers for agriculture and fungal agents to control invasive weeds like lantana and water hyacinth.

Ross McKenzie: *Fungi that are poisonous to animals*

For all the great diversity of fungi, only a few taxa (< 1%) are known to be poisonous, but their impact can be widespread and serious for humans and domestic animals. The chemical toxins they produce can be the

fungi's defence against being eaten by insects and molluscs, or can defeat other microbes in competition for food. Toxins from endophytes can help their host plants resist insect attack. The most common poisoning from fungi is by ethanol, the alcohol produced by yeasts in human beverages. Other toxins from fungi (macrofungi, moulds, endophytes and ergots) are highly variable and cause a wide array of health effects in humans, pets and livestock.

Uses and research of fungi

Jeff Powell: *Mycorrhizas in agriculture*

Mycorrhizal fungi form a mutualistic association with plant roots; nutrients are transported from the soil via the fungi to the plants and the plants provide food (sugars) to the fungi. Many plants in agricultural systems form an association with a widespread group of mycorrhizal fungi called Arbuscular Mycorrhizae (AM). Different crops are benefitted by associating with AM to differing degrees; cotton and maize depend highly on their mycorrhizal partners, whereas barley, oats and wheat have a lower dependency. As general guidelines, practices like reducing tillage, avoiding non-mycorrhizal crop rotations (e.g. canola) and excess phosphorous fertilisation would benefit mycorrhizal fungi in agricultural soils. Arbuscular mycorrhizal fungi are diverse and benefit plants in diverse ways, which may not always correlate with the amount of fungal colonisation on plant roots.

Rohan Davis: *Exploiting Fungal Chemistry for Drug Discovery*

Fungi produce a diverse array of unique chemicals and excitingly some have been shown to display powerful anti-microbial, anti-cancer and anti-inflammatory properties. The development of drugs from natural products (biodiscovery) is a long process and can take up to 2 decades from discovery to product, but the benefits can be well worth the effort. Some very important drugs were originally discovered from fungi, for example, the anti-bacterial penicillins, and the cholesterol-lowering statins. Currently, extensive research is being performed on fungal chemicals in an attempt to find new anti-malarial drugs. These examples are just the tip of the iceberg and many exciting and new chemicals are still being discovered from the diversity of fungi.

Pat Leonard: *Citizen science - what is it, and how can you get involved?*

Citizen science is the actions of interested amateur scientists that contribute to a range of scientific pursuits. Amateur mycologists have been known to contribute a great deal to the field. For instance, a wide-scale survey by the British Mycological Society contributed to changing policy and conservation focus of fungi. The goals are simple; to increase knowledge and appreciation for this fascinating and important group. With better and more accessible identification tools, opportunities for community-based funding and collaboration between amateur mycologists and academics the world of mycology can only grow.

Tom May, Myriam Amiet-Knottenbelt and Lyn Allison: *Fungimap and the Atlas of Living Australia*

The Atlas of Australia Living is an online biodiversity database in which fungi are not forgotten! The majority of the fungal records are from Fungimap, a community-based NGO with a focus on improving knowledge and conservation of Australian fungi. Fungimap encourages citizen scientists to contribute observational records of readily recognisable target species. Thus far, observations have contributed to distributional information of 200 species. Such valuable information will contribute to published maps within Fungimap's guide to the target species, *Fungi Down Under*. But most importantly, it provides the tools and inspiration for more citizens to go out and 'test' these maps.

Fungimap on Facebook

Isabelle Green, Ben Sharp and Blanche Higgins

Fungimap has finally entered the world of social media, starting a Facebook page in March this year. So far, it has been a huge success: we have over 500 'likes' already. Some of our followers are Fungimap members, but overwhelmingly, most are not, meaning we are engaging a whole new audience. Facebook – as we are well aware – knows a lot about its users, and so we know that exactly 50% of our followers are women; 334 are Aussies, with the USA taking second place with 15 followers. We have as many followers from Athens as we do from Lismore (4) and some from places as diverse as Turkey and Malaysia! The majority of our Aussie followers are from Melbourne (97), followed by Sydney (34), Brisbane (32), and Hobart (25). We have very few under 18 year olds, but 16% of followers are 18-24 years old and 27% are aged 25-34, with figures dwindling as age increases from there.

Fungimap Facebook page

Facebook has been a very interesting way to communicate with people about fungi. It's really opened up a conversation, allowing us to hear from the community as well as keep everyone updated on our news. It's also allowed us to learn all of this in real time, which given the ephemeral nature of fungi is certainly useful.

We've shared news on new scientific publications, fungi in the media, new fungi identification tools, and received many interesting messages from individuals and groups about their activities, things they have found, and new stories.

If you are using Facebook but not following Fungimap, we'd love to see you there. If you're not on Facebook but considering it, we would recommend it as a great way to keep in touch with fungi friends and news. You can find us at www.facebook.com/fungimap

Sponsor a Species in *Fungi Down Under 2*



Fungimap is excited to announce 'Sponsor a Species': your opportunity to be a part of Australian fungal history!

Fungimappers are busy working towards publishing a second edition of Fungimap's highly successful field guide to Australian fungi, *Fungi Down Under*. This project involves hundreds of thousands of

dollars' worth of volunteer time to identify and record the species, convert this data into maps, describe the species, source the images and manage the project, etc. We're offering Fungimappers the opportunity to donate to the Austral Fungi Fund which will help us publish the book.

The minimum donation to sponsor a species is \$100. We auctioned the 25 most popular species (as voted by the FDU2 team) from *Fungi Down Under* at the Queensland Fungi Festival this April.

The remaining 75 species from the first edition of *Fungi Down Under* are now available to be sponsored by returning the enclosed form, or by purchasing online or calling us to arrange the payment, from June 16. The list of the second 100 species that will be published in *Fungi Down Under2* has not been finalised yet. As this information becomes available, the second 100 species will be released for sponsoring. We'll publicise this on our website, on our Facebook page, and by emailing and mailing our members.

What is Sponsor a Species?

Your donation as part of Sponsor a Species supports the Austral Fungi Fund. The AFF supports the work of Fungimap in advancing knowledge and conservation of Australian fungi, such as through publication of field guides, organising training workshops and preparing submissions that assist public policy development. Fungimap will be pleased to acknowledge your donation in the following ways:

- Acknowledgement of your donation in the print and, if relevant, e-book editions of *Fungi Down Under 2*. Your donation will also be acknowledged in the *Fungi Down Under Online Field Guide*, and in the *Fungimap Newsletter*.
- An A4 certificate of appreciation at the time of donation, and also a proof of the A5 page of the species that has been sponsored, once the hard copy book is printed (expected to be in 2016).
- A tax invoice detailing your tax-deductible donation to the Austral Fungi Fund.

Please note only individuals and not-for-profit groups are eligible for their Sponsor a Species donation to be tax-deductible. Businesses can still Sponsor a Species, but the donation would not be tax deductible.

For all enquiries, please contact us.

Fun Run for the Fungi: Why running for the environment makes sense (and cents).

Blanche Higgins, Fungimap Coordinator



My housemates, Sarah, Blas and I, post half-marathon. Image: Blanche Higgins

Earlier this year, my housemates decided to do a triathlon, and being competitive, I figured I could give it a shot too. I did end up completing the triathlon, although I hadn't really been confident I could do it. This was around the time I had been calling businesses seeking sponsorship for Fungimap, with little success. Afterwards, I realised that this was a missed opportunity for my family and friends to sponsor me, to raise money for a charity – like Fungimap!

The decision to run a half marathon was probably inspired partly by realising that as I had already done a triathlon, if I was going to ask people to sponsor me, it had to be *hard*, and in part by Adam Walker, Fungimap office volunteer and fitness fanatic who harassed, I mean encouraged, me to get fitter. I set the ambitious goal of raising \$1000, which would have doubled Fungimap's annual donations.

Anna from the Royal Botanic Gardens is a die-hard runner, and convinced me that the Great Ocean Road Marathon was the right one to do: beautiful scenery and all... She didn't highlight the hills, until later...

So, the training began. I've never been a huge fan of running. And I can't say I am now, either! But I did enjoy getting to know more about where I live. I found that running places that I might normally ride or drive past gave me a different perspective on them, and in that way, further developed my sense of place. Sense of place is widely acknowledged in environmental education literature as important in helping people care about the world around them. Going at a slower pace meant I had time to appreciate the beauty of places like Albert Park, St Kilda and Elwood beaches, Southbank and the Royal Botanic Gardens. I also realised that running, like cycling, is a great form of sustainable transport. Given a little bit of organisation, if you live close enough to your workplace you can run to work, getting fit and reducing carbon emissions as you go. I'm not sure how long I'll keep this up for!



View of Melbourne from St Kilda Beach. Image: Blanche Higgins



Leucocoprinus birnbaumii. Image: Blanche Higgins

I also spotted some fungi along my runs, who I liked to imagine were cheering me on. My apartment's owners' corporation had hoped that laying concreters plastic under their orderly landscaping would quell the onslaught of nature, however this functioned quite well as a southern hothouse, meaning *Leucocoprinus birnbaumii* could travel down from somewhere warmer, and burst through the plastic just in time for some much needed motivation.

The run itself *was* really hard. Although the weather was great, the hills made it really challenging. Of course, it was a real privilege to be able to run along the Great Ocean Road,

which being so narrow and winding isn't normally particularly safe if you aren't in a car. After 2 hours and 40 minutes I crossed the line, which was a huge relief! I consider the biggest win as not having spewed on the way back along the Great Ocean Road, like a few other poor souls.

Thanks to so many people (acknowledged in the acknowledgements section), I managed to raise an astounding \$1500 for Fungimap. This was a real lesson for me: that people are willing to support you, even if they don't know about or support the cause. So expect to hear more from us in the future about how to help us raise funds from the fungi-phobes! And if you have any ideas for fundraising, get in touch with us!

A Fungi Herbarium for Anglesea Neil Tucker

ANGAIR (Anglesea and Aireys Inlet Society for the Protection of Flora and Fauna) is one of the oldest and largest regional conservation and natural history societies in Victoria. We were formed in 1969 and have a membership estimated at about 700. We do all the things such groups do – many working bees, walks, speaker nights, bird and microscopy groups, hold an annual Wildflower Show and document our diverse and valuable natural resources.

Anglesea area is one of the most biodiverse in the world, depending on how such diversity is measured. We have a rich orchid flora, rare and threatened species in all categories but also many pests and threats. In 1997 we received a grant to prepare an herbarium of all indigenous and naturalised exotic species in the Surf Coast Shire. The indigenous flora of the area has been well documented over the 45 years of ANGAIR's existence, so we began the herbarium with weeds. Over 430 taxa have been collected and new ones regularly appear but the rate has slowed, so, to fill the gap in our knowledge created by that difficult group called fungi, we have started on a fungi herbarium.

One of the main aims of the whole project is to photograph all the species, with a view to producing identification materials, either books, CDs or on our website (we are well advanced with plans for one of those fold-out glossy brochures). Voucher specimens are also collected as a reference, particularly for the regular name changes in the plant (and fungi) world. The weeds are mounted traditionally, i.e. on paper, in paper folders but that is not appropriate for three-dimensional fungi so they are stored dried in bags or specimen jars.

Step 1: Collect and record

Various members of FNCV fungi group have been very helpful in finding and identifying specimens.



Figure 1. Author Neil Tucker in wet weather gear recording GPS data for a log covered with *Coprinus disseminatus*.



Figure 2. Richard Hartland taking close-up photos of the top, gills or other under surface and a habitat shot. Sometimes a studio shot is also needed when we get home.

Step 2: Get them home and start spore-printing. I use black and white paper to show all spore colours well. I cover the specimens with whatever fits from the kitchen, to stop air movement overnight. To avoid damaging agarics and boletes I cut holes in the paper and dangle the stipe in a cup or something similar. After photographing the spore print I laminate it and store in a ring binder.



Figure 3. Spore-printing.



Figure 4. *Amanita ochrophyloides* spore print.



Figure 5. Storage of spore prints.

Step 3: Drying.

It can be a challenge trying to get all the urgent ones on at once, but the wood heater does a great job.



Figure 6. Drying of specimens.

Step 4: Storage

The process goes two ways from here – smaller specimens are stored in medical specimen jars. I would like to thank the Anglesea Pharmacy for providing these at a significant discount. The jar has a name attached and full details are glued to and wrapped around the jar.

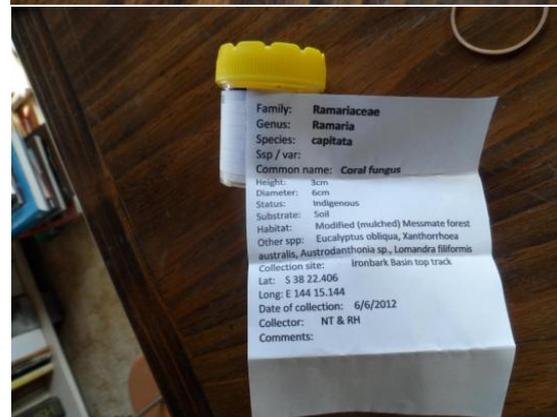


Figure 7. Storage of small specimens in jars.

Specimens that won't fit into a jar go in resealable 'Glad' bags of various sizes. In the past, a sprinkle of naphthalene was added to both large and small specimens to control insects, but unfortunately it is no longer available. Not many glues work on polyethylene but I have found 'Selleys All Clear silicone sealant' satisfactory for attaching labels to the bags.



Figure 8. Front and back of a bagged specimen.

Finished specimens are stored in lidded plastic crates, small and large separately. Over 400 fit

into 4 crates. The specimens may be finished, but the work isn't – all the data and photos have to be written up. I get descriptions from various online sources. These are stored in ring binders too. All of these have been provided to Fungimap for the dual purpose of checking our field IDs and to add to the state records.



Figure 9. Storage of multiple specimens.

An example of a Specimen Record is provided below for *Cortinarius rotundisporus*. Many thanks to Tom May and Graham Patterson for their assistance with identifications.

Editor's note:

Neil is to be congratulated for assembling such a well-documented fungal herbarium of the species in the Anglesea area. It is worth knowing that there are some different requirements for a reference set for species found in a local area, in comparison to permanent collections lodged in a reference collection such as a state botanical herbarium. In particular, for spore prints, it is ideal to leave the print on the original paper, without laminating or spraying with fixative. This means that spores can be removed later for microscopic examination. Making the spore print on a larger piece of paper, and folding the paper in half is sufficient to protect the print. It is also recommended for herbarium collections to include only first-hand observations directly with specimens. Information about the particular species from other sources, such as the internet or field guides, can be useful to compile, but is best kept separate from the collections.

T.M.

Specimen records

Family: **Cortinariaceae**
 Genus: **Cortinarius**
 Species: **rotundisporus**
 Ssp / var:
 Common name: **Elegant Blue webcap**
 Height: 10cm
 Diameter: 5cm
 Status: Indigenous
 Substrate: Soil
 Habitat: Wet forest
 Other spp: Eucalyptus spp., Coprosma quadrifida,
 Cyathea australis, Bursaria spinosa,
 Polystichum proliferum, Lepidosperma sp.
 Collection site: Lemonade Creek track
 Lat: S 38 30.982
 Long: E 143 55.408
 Date of collection: 18/7/2012
 Collector: NT & RH
 Comments: Fungimap ID: Correct



In situ



Spore print



Gills

www extracts

Cortinarius (Phleg. [?]) *rotundisporus*, n. sp.

Pileus up to 1 inch in diameter, slightly viscid when moist, surface dull, convex with a trace of an umbo, the edge a little turned in when young, occasionally of a beautiful mauve colour, becoming pallid with a greyish-blue tint and traces of brown when dry. Gills adnate or with a trace of decurrence and slightly sinuate and ventricose, moderately close, dingy flesh-tinted drying pale yellow-brown then browner. Stem up to 2 inches high, attenuated upwards, rather bulbous below, slightly striate, slender to moderately slender or rather stout, white tinged with the colour of the cap, with remains of a superior cobweb veil (bluish when young), hollow. Flesh of the stem and cap pallid watery or turning yellowish in the stem, no blue. Spores smooth, nearly subspherical, 6.8 to 7.4 x 5.5 to 6 µm. Subcaespitose under trees.

Colour tints noted: - Pileus when dry becoming creamy-yellow, No. 30, Tons 2 and 3, tinged more or less with eucalyptus green, No. 248, Ton. 2. Stem tinted with the colours of the pileus. Gills when dry yellow-ochre, No. 326, Ton 1. Spore mass near snuff brown (deep bistre), No. 303, Ton 3. Pileus and stem of one specimen tinged with lavender-blue (violet-blue), No. 204, paler than Ton 1. It is probable that this species should be placed under *Myxamicium*. In one specimen the stem seemed to be viscid as well as the cap. The specific name *rotundisporus* is given on account of the subspherical spores.

Cortinarius rotundisporus, also known as the elegant blue webcap, is a basidiomycete mushroom of the genus *Cortinarius* found in southern Australia, where it is found in eucalypt forests and rainforests. The cap of the fruiting body is a steely blue colour, with a yellowish boss, and paler similarly coloured stipe. *Cortinarius rotundisporus* was initially described by naturalists John Burton Cleland and Edwin Cheel in 1918. It is a member of the subgenus *Myxamicium* within the genus *Cortinarius*; these species are characterized by the presence of a viscid to glutinous outer veil and stipe. Its specific name is derived from the Latin *rotundus* "round", and Ancient Greek *spora* "seed". The cap ranges from 2.5 to 7 cm (1–3 in) in diameter, and is initially convex before flattening. It has a slight boss which is mustard-, honey- or cream-yellow



Habitat

tinged and steely blue elsewhere. The adnate gills are creamy or lilac-tinged early, and darken with the spores. The slender 5-7.5 cm stipe lacks a ring; it is pale yellow or white with a tinge of the cap colour. The flesh is yellowish and may have a lilac or pale blue tinge. The spore print is reddish brown and the oval to round spores measure 8.5 x 6.5 µm. There is no particular taste or smell. Potassium hydroxide will produce a pink-purple reaction in the stipe or cap. The mycelium is white.

Fruiting bodies are found in eucalypt forests and rainforests. It has been found in New South Wales, Victoria, southeastern South Australia, southern Western Australia, and Tasmania. It has also been recorded from New Zealand.

Proof that the dark-coloured *Trametes* species is *T. versicolor*

Pat Grey

Bruce Fuhrer in *A Field Guide to Australian Fungi* (Fuhrer, 2011: p 275, no. 425) includes a '*Trametes* sp.' with dark zonation and white margin, and notes that it 'is probably a colour form of *Trametes versicolor*'. He goes on to say that it differs 'in showing less zonation and being much darker with a very obvious velvety pile on the upper surface'.

This photo, taken by Joy Hick at Sweeneys Flat, Templestowe (NE Melbourne) in 2013, proves him right. Some fruit bodies show only a very dark colour with a pale margin, a couple show dark zonation alongside the lighter colour zonation typical of *T. versicolor*, while others are entirely zoned in paler colours (see also Bougher and Syme 1998, p 340-41; Fuhrer 2011, p 274, no 424; Young 2005, p 81, ill. 19).

Thank you Joy for sharing your photo.

References

- Bougher, N.L and Syme, K. (1998), *Fungi of Southern Australia*, University of Western Australia Press.
 Fuhrer, B. (2011), *A Field Guide to Australian Fungi*. Blooming Books.
 Young A.M. (2005), *A Field Guide to the Fungi of Australia*, UNSW Press.



Image credit: Joy Hick.

Correction:

There was an identification error printed in *Fungimap Newsletter 51*.

The caption accompanying the image on Page 11 identified the fungus as *Mycena haematocephala*, when it was actually *Marasmius haematocephalus*.

As reader Frances Guard pointed out, the wiry blackish stem and the extremely thin flesh was typical of the genus, and this species may occur in several colour forms from maroon red to vivid pink. It is a widespread fungus throughout the world and is not uncommon in subtropical Queensland.

When Sapphire McMullan-Fisher alerted us to the mistake, she noted that in the *Marasmius haematocephalus* group, spores need to be checked to identify to species level.

QMS Fungi Key – Queensland’s Stinkhorns

The Queensland Mycological Society (QMS) was formed in 2005 to bring together enthusiasts with an interest in the discovery, survey or research of macrofungi. The group encourages experienced mycologists, amateurs, or beginners who want to know more about mushrooms. To help conserve Queensland’s macrofungal biodiversity through identification, documentation and publication of its macrofungi, QMS provides an informative website (www.qldfungi.org.au) with useful resources including identification keys. Below is an example of a trial key for Queensland's Stinkhorns that is available on the website. QMS would greatly appreciate your feedback on the key: feedback@qldfungi.org.au.

Edited by: Susan Nelles and Vanessa Ryan. **Adapted from:** Joan Cribb and others. **Created for QMS Gasteromycetes Workshop 2013. Version date:** 6 February 2014

- | | |
|---|--|
| 1. Receptacle (fruit-body) finger-shaped, without arms. Gleba (spore mass) is carried on the upper section of the receptacle, either on a cap-like structure or directly on the stipe. | 2 |
| 1.* Receptacle with arms that may be short or long, simple or forked, joined at the tips, or branched and joined to make a latticed cage. Gleba is carried on the inner or upper surface of the arms. | 6 |
| 2. Cap-like structure on top of stipe. | 3 |
| 2.* Cap-like structure absent. | 5 |
| 3. Indusium (net-like veil) present below cap, stipe white or yellowish. | 4 |
| 3.* Indusium absent, stipe red. | <u>Phallus rubicundus</u> |
| 4. Indusium white, cream or pale yellow. | <u>Phallus indusiatus</u> |
| 4.* Indusium a rich yellow, orange or salmon. | <u>Phallus multicolor</u> |
| 5. Gleba appears to be on a continuation of stipe, indusium absent. | <u>Mutinus sp.</u> |
| 6. Arms united to form a latticed cage. | 7 |
| 6.* Arms don't form a latticed cage. (Can be forked or joined at the tips.) | 10 |
| 7. Cage colour yellow to red, with a stipe at base, arm surface wrinkled. | 8 |
| 7.* Cage colour white, usually without a stipe, arm surface may be smooth or wrinkled. | 9 |
| 8. Cage meshes are large all over. | <u>Coluspusillus</u> |
| 8.* Cage meshes suddenly change to small meshes at the top. | <u>Colushirudinosus</u> |
| 9. Arms of cage slender, smooth, flattened, thickened at joins. | <u>Ileodictyongracile</u> |
| 9.* Arms of cage broad, wrinkled, elliptical cross-section, not thickened at joins. | <u>Ileodictyoncibarium</u> |
| 10. Membranous disc covers top of stipe, disc may be perforated, arms attached to edge of disc. | 11 |
| 10.* Disc absent, arms attached to top of hollow stipe. | 12 |
| 11. Arms forked, from white to red in colour. | <u>Aseroërubra</u> |
| 11.* Arms not forked, white in colour. | <u>Aseroëarachnoidea</u> |
| 12. Arms as long as, or longer than stipe. | 13 |
| 12.* Arms much shorter than stipe. | 15 |
| 13. Colour yellowish to reddish. | <u>Pseudocolusfusiformis</u> |
| 13.* Colour white. | 14 |
| 14. 3 to 4 arms. | <u>Pseudocolusgarciae</u> |
| 14.* 5 to 6 arms. | <u>Anthurusbrownii</u> |
| 15. Stipe is fluted with vertical ribs, arms typically joined together at tips. | <u>Lysurusmokusin</u> |
| 15.* Stipe is cylindrical without ribs, arms free or joined at tips. | 16 |
| 16. Arms usually joined at tips, upper section of arm is deeply wrinkled – base is bare. | <u>Lysurusgardneri</u> |
| 16.* Arms not joined at tips, arm surface wrinkled for the entire length. | <u>Lysuruscruciatius</u> |

Fungimap - President's Report Year Ending 31 December 2013

Tom May
President, Fungimap Inc.

There were 220 members at 30 December, 2013, comprising 109 ordinary members, 79 concessional members and 32 associate members. The state with the most members is Victoria, but there is also good representation of members from across Australia. Membership is slightly down from 223 in 2012.

Fungimap VII was the major event for Fungimap in 2013, held in Rawson, Victoria, in May. The Fungimap VII organising subcommittee comprised Blanche Higgins (Chair), Paul George, Jurrie Hubregtse and Geoff Lay. Blanche Higgins was responsible for the overall co-ordination of Fungimap VII. Some 76 people attended the day of talks, which included 13 speakers. Over the rest of the event, there were 14 forays and 13 workshops. In total, 83 people attended some part of the event. The Norman Wettenhall Foundation and the Baw Baw Shire Council provided generous support for Fungimap VII. The event ran very smoothly, was financially viable and participant satisfaction was high, with an average feedback score of 4.5/5.

A masterclass, led by Tom May, was held after Fungimap VII, attended by 10 participants, with laboratory facilities kindly provided by the Botany School of The University of Melbourne.

Alena Moison continued as Data Co-ordinator, chairing the Data and Images Subcommittee. Fungimap received 5,499 records during 2013, including processing of several years of data from Fungimap events in the Tarkine region of Tasmania, totalling 1,401 records, and the Fungimap VII foray records totalling 791 records. The total number of records in the database currently stands at 102,428. Records from Fungimap are accessible through the Atlas of Living Australia (ALA). Fungimap is the second largest contributor of fungi records to the ALA after Australia's Virtual Herbarium (representing the combined state herbarium collections). A Fungimap project was created in Bowerbird, the ALA's online citizen science recording portal.

A new database system for images held by Fungimap was implemented using the program Cumulus. Some 7,387 digitised images have been processed, of which 2,440 have a Creative Common license applied to them. A curated subset of images is scheduled to be made available on line in 2014.

Funding from Cradle Coast NRM supported preparation of the *Fungimap Guide to Surveying Fungi in Australia*, along with an associated training weekend and foray to northern Tasmania, attended by 30 people in May 2013.

The Fungimap website had 21,809 visits during 2013. Many new features were added to the website, including: online sales of books and event registrations, the *Fungi Down Under* online field guide, videos showcasing talks from events, a Kidzone, online *Newsletter* article submissions, online donations via Paypal, and a minutes section for sharing committee and subcommittee documents. Many book orders are now processed through the website, which is more efficient. The ability to order and donate online is likely to be increasing sales and donations.

The Fungimap Blog attracts about 1200 page views per month. There were 12 posts during the year, covering international mycological events, content from Fungimap VII talks, *Amanita phalloides*, and the most reported fungi from 2013.

Planning commenced for the Fungi Festival to be held in Brisbane in April 2014. The Fungi Festival is being organised to run alongside the scientific meeting of the Australasian Mycological Society. The Brisbane Fungi Festival provides a welcome opportunity to work collaboratively with AMS and the Queensland Mycological Society. The Fungi Festival organising subcommittee is chaired by Blanche Higgins, along with John Dearnaley, Diana Leemon and Richard Robinson (from AMS), Fran Guard (from QMS) and Tom May.

The *Fungi Down Under* 2nd edition (FDU2) subcommittee continues to prepare descriptions of new target species for use in the book. Towards the end of the year, Alena Moison implemented a wiki (collaborative editing space) for use in compiling and editing descriptions for FDU2 online.

The Conservation and Biodiversity subcommittee was reactivated under the chair of Sapphire McMullan-Fisher, with members Lyn Allison, Roz Hart, Tom May, Jasmin Packer and Alison Pouliot. Sapphire, Lyn and Alison attended the Third International Congress on Fungal Conservation in Turkey in November.

Christina Hall continued to provide valuable service as the Newsletter Editor, with the support of Tom May. Three issues of *Fungimap Newsletter* were published in 2013, each of 20 pages: issue 48 was printed in January, 49 in May, and issue 50 in October (including a two page colour insert). Issue 50 was a celebration of this milestone for the *Newsletter*, and included reflections from the wide range of people involved in Fungimap since 1996.

Volunteers Graham Patterson, Wendy Cook and Geoff Lay continued to provide valuable support in the Fungimap office, and in 2013 Myriam Amiet-Knottenbelt and Adam Walker joined the volunteer team in the office.

The Committee elected at the 2013 AGM consisted of Tom May (President), Sapphire McMullan-Fisher (Vice President), Paul George (Secretary), Tom Jeavons (Treasurer) and committee members Nikki Bennetts and Kirsten Tullis. The Committee has members from New South Wales, Victoria and Western Australia. The Committee met about every two months during the year.

Fungimap had a loss of \$34,016, which was budgeted for. Much of the expenditure has been on staff salaries. The loss was largely funded through income in previous years from special projects such as provision of data to ANHAT (Australian Natural Heritage Assessment Tool). However, new funding sources will be needed in future years to continue with current staffing levels.

The Austral Fungi Fund is the special fund that receives tax deductible donations under the Deductible Gift Recipient status granted to Fungimap. In 2013 donations to the Austral Fungi Fund totalled \$1,315, compared to \$938 in 2012. There was no expenditure from the Fund.

Royal Botanic Gardens Melbourne continued to provide valuable assistance in hosting the Fungimap office and employed the Coordinator and the Data Coordinator on behalf of Fungimap.

After extensive consultation among the Committee, members and stakeholders, Fungimap released a Strategic Plan for 2013-2018. This is an ambitious plan, that will require substantial external funding to achieve all listed activities, particularly in the areas of conservation and education. In tandem, Fungimap developed a Business Plan that demonstrated that the Fungimap Coordinator can be employed at the current level (3 days per week) through funding from membership, book sales and event profits, with a modest increase in sales and donations. However, funding the Data Coordinator position will rely on new internal funding sources and on significant external funding. As one way to make up shortfalls, several enhancements to donations have been introduced, including the ability to donate online and a regular donation scheme, which has already been taken up by some members. A Funding and Promotions Subcommittee was formed during 2013, to actively pursue grant and sponsorship opportunities. Blanche Higgins chairs the Subcommittee, which also comprises Caroline Barrett, Nikki Bennetts, Tom Jeavons, Alena Moison and Katrina Syme.

Fungimap Inc
Profit and Loss Statement

January 2013 through December 2013

INCOME

Memberships	\$7,084
Sales	
"Fungi Down Under" Retail	\$1,585
"Fungi Down Under" Wholesale	\$3,551
Books - Other Titles	\$3,310
Fungimap CD-ROM	\$18
Other Stock	\$680
Project income	
Registration	\$11,957
Accommodation	\$13,975
Food	\$14,236
Transport	\$582
Bank Interest Earned	\$5,156
Handling and Postage	\$685
Donations	\$1,316
Donations NON - DGR	\$554
Grants	
Grants	\$18,590
Miscellaneous Income	\$182
Total Income	\$83,461

Cost of Sales

Fungi Down Under	\$1,398
Book Purchases - Other Titles	\$2,702
Newsletters and Brochure Print	\$373
Other Stock	\$863
Total Cost of Sales	\$5,336

Gross Profit **\$78,124**

EXPENSES**General and Administrative Exp**

Accounting and Audit Fees	\$1,000
Filing and Compliance Fees	\$50
Bank Charges	\$107
Merchant Card Fees	\$1,087
Subscriptions By Fungimap	\$1,018
Office Supplies	\$539
Postage Paid and Couriers	\$524

Insurances \$670

Operating Expenses

Printing	\$44
Teleconferencing	\$274

Employment Expenses

Coordinator Salary and on costs \$72,288

Project expense

Accommodation	\$8,593
Food	\$16,407
Travel	\$1,065
Transport	\$1,905
Equipment Hire	\$736
Other project expense	\$5,834

Total Expenses **\$112,141**

NET PROFIT / (LOSS) **(\$34,016)**

Fungimap Inc
Balance Sheet
 As of December 2013

ASSETS**Current Assets**

Cash On Hand	
Bendigo Bank Cheque Account	\$17,716
Business Debit Card	\$50
Austral Fungi Fund	\$1,002
Austral Fungi Fund Term Depos	\$7,000
Petty Cash	\$32
Term Deposit 2503	\$28,125
Term Deposit 2502	\$29,994
Term Deposit 2504	\$0
Undeposited Funds	\$179
Trade Debtors	\$595
Total Current Assets	\$84,692

Inventory

Books	(\$528)
"Fungi Down Under" Retail	\$3,234
"Fungi Down Under" Wholesale	(\$433)
Other Book Titles	\$2,117
Fungimap CD ROM	\$169
Other Stock	\$748
Book Revaluation Adjustment	(\$268)
Total Inventory	\$5,040

Total Assets **\$89,732**

LIABILITIES**Current Liabilities**

Trade Creditors	\$382
-----------------	-------

GST Liabilities

GST Collected	\$22,592
GST Paid	(\$27,222)
Total GST Liabilities	(\$4,631)

Import Duty Payable \$21

Total Current Liabilities **(\$4,228)**

Total Liabilities **(\$4,228)**

Net Assets **\$93,960**

EQUITY

Retained Earnings	\$127,976
Current Year Earnings	(\$34,016)
Total Equity	\$93,960

Fungimap Inc No. A 0047228L

Report of the Committee of Management

Your committee is pleased to submit the financial accounts of Fungimap Inc for the calendar year January to December 2013.

The names of the committee members in office at the date of this report are:

N Bennetts, P George, T Jeavons, T May, S McMullan-Fisher, K Tullis

The Secretary of Fungimap Inc is P George.

The principal activities and objects of Fungimap Inc. are to promote and support the study and conservation of Australian macrofungi.

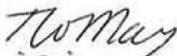
The net result for the twelve month period is a deficit of \$34,016 (2012: deficit of \$51,938). No provision for income tax is required, as Fungimap Inc has been self-assessed as income-tax exempt.

No office holder has received or become entitled to receive, during or since the end of the reporting year, a benefit because of a contract made by Fungimap Inc with the office holder or any entity with which the office holder has a substantial interest.

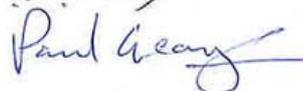
During or since the end of the reporting year, Fungimap Inc has not entered into any mortgage or other arrangements affecting any of the property of the association. Fungimap Inc has not created any trusts, and is not a trustee of any trust.

Signed on 7/4/14 in accordance with a resolution of the Committee of Management.

Committee member: T May (President)



Committee member : P George (Secretary)



Statement by the Committee of Management

The office holders declare:

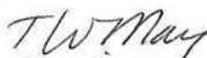
(1) that the following financial statements and notes give a true and fair view of the financial position of Fungimap Inc for the 12 month period 1 January 2013 to 31 December 2013, and of the financial performance of Fungimap Inc for that period;

(2) that at the date of this statement, there are reasonable grounds to believe that the association will be able to pay its debts as and when they fall due;

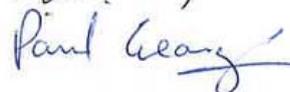
(3) that in the intervening period between 31 December 2013 and the date of this declaration, there have been no material changes to the affairs of the association.

Signed on 7/4/14 in accordance with a resolution of the Committee of Management.

Committee member: T May (President)



Committee member : P George (Secretary)



Acknowledgements: funding, volunteers and supporters

Principal Sponsor

Royal Botanic Gardens Melbourne provides significant inkind assistance to Fungimap Inc. through hosting the Fungimap office and providing IT and administrative support for Fungimap staff and volunteers.



Records

Thanks to the following who have sent in fungi records:

Australia (by email)

Philip Hartnett	1
Daniel Hoffman	1
Wayne Martin	10
Mala Miller	2
Sharron Mills	1
Bob Williams	1

NSW

Paula Breese	1
Fiona Duggan	2
Myra Fox	2
Wendy Kerrison	1
Catharina Smith	1
Adrian Spragg	1

NT

Denise Goodfellow	1
Rod Hobson	1
Anthony and Sue McCann	1
Ray Palmer	7
Queensland Mycological Society	725
Kerry Roberts	1

SA

Adelaide Fungal Studies Group	38
Pamela Catcheside	451
David Setchell	1

VIC

Liz Carey	1
CSIRO Division of Forest Products/G. Lay	956
Friends of Westgate Park	187
Tony Harvey-Hall	1
Joy Hick	1
Judy Jones	1
Geoff Lay	19

Jean Lightfoot	36
Tom May	1
Malcolm McKinty	9
Neil Tucker	137
Kaitlin Wright	1

WA

Elaine and Peter Davison	23
Ben Sharp	2

Volunteers

Thanks to our volunteers: Wendy Cook, Tom Jeavons, Graham Patterson, Adam Walker, Isabelle Green, Ben Sharp, Melissa Green and Myriam Amiet-Knottenbelt for providing office and administrative support.

Donations

Thanks to the following people for their generous donations:

Maria Goodwin, Robert Goodwin, Emily Toome, Wil Barrett, Suzie Barrett, Verity Newstead, Katie Hay, Morgan Coleman, Tai Phillips, Janina Phillips, Ian Thomas, Ian Bell, Cameron Visser, Tom May, Graham Patterson, Lori Kravos, Roz Hart, Valerie La May, Timothy Lawrence, Sapphire McMullan Fisher, Bev Miles, Dave Munro, Megan Prance, Elizabeth Sheedy, Anne Spooner, Peter Warhurst, Susie Webster, Sarah Bisson, Jacqui Vidal, Gretchen Evans, Julie Martin, Kirsty Belfrage, the Royal Botanic Gardens, France Guard, Meddwyn Coleman, Susan Nelles, Steve Axford, Catherine Marciniak, Ken Monson, Sandra Abell, Virginia Barrios, Uni Carnegie, Ken Cowell, Lukah Dykes, Anna Fawcett, Wayne Gebert, Ken Goulter, and Blanche Higgins

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