AUGUST 2002

AUSTRALIA'S FUNGI MAPPING SCHEME

fungimapnewsletter 17

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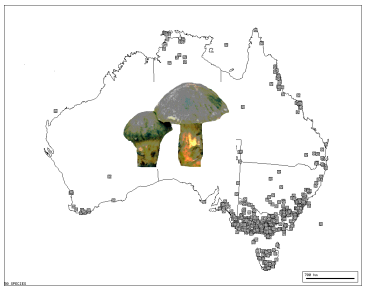


News from the Fungimap Coordinator

The Fungimap website has moved (the new address is given on page 2). I would like to take this opportunity to thank Michael McBain, the previous webmaster for the Fungimap site, for his generous contribution over the years. Michael created the site in 1996, and has hosted and maintained it, in a voluntary capacity, ever since. During that time we have received overwhelmingly positive feedback regarding the presentation and content of the site. So thank-you, Michael.

Dermocybe austroveneta © Tom May

The site is now hosted at the Royal Botanic Gardens Melbourne, where it will be maintained by me. Over the next few months I will be redeveloping the site, incorporating more recent maps for the target species, and other more recent information.

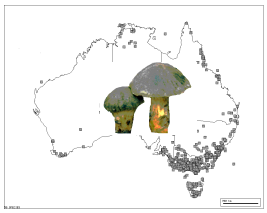
Ed and Pat Grey are still working hard at compiling the **Fungimap book**, which will contain field notes, photos and maps for all 100 target species. We are hopeful it will be published next year.

In June the Coordinators met in SA for their annual Conference (see pages 6–7), which was a big success with an enjoyable mix of meetings and forays (where we encountered many target species, such as *Dermocybe austroveneta*, pictured). With a network of people scattered across Australia, these face-to-face meetings that allow group discussions are a vital part of planning for Fungimap. We were very fortunate this year to receive a **$1,000 grant from the Plant Biodiversity Centre in SA**, which allowed us to cover the regional coordinators' travel expenses. We are very grateful to the PBC for their generosity.

Of course the big item on the agenda was the **2nd National Fungimap Conference** to be held in Victoria in May next year. For further details see page 11.

And finally, I got married in April, which accounts for the confusing name change!

Gudrun Evans
Fungimap Coordinator



Contacting FUNGIMAP

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Website: http://www.rbg.vic.gov.au/fungimap/

Regional Coordinators

These wonderful people contribute their time and experience voluntarily, because they love fungi! They all know lots about fungi, and run workshops and forays from time to time. If you are interested in having a foray or workshop run in your area next season please contact Gudrun.

New South Wales:
Bettye Rees
C/- 10 Lloyd Avenue
Hunters Hill NSW 2110
E-mail: B.Rees@unsw.edu.au

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Pam Catcheside
C/- 72 Eve Road
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Western Australia (Kimberley Region):
Matt Barrett
E-mail: mbarrett@kpbg.wa.gov.au

INTERESTING GROUPS

Sydney Fungal Studies Group

Runs fungi forays, talks and workshops in the Sydney area.

Secretary: Donald Gover
5 Dawes Street
Little Bay NSW 2036
Ph: (02) 9661 4898
E-mail: djgover@bigpond.com
Website: http://argus.appsci.unsw.edu.au/fungi/

Adelaide Fungal Studies Group

Holds monthly meetings and forays during the fungi season.

- **Meetings:** Usually second Tuesday of the month at the Staff Room of the Plant Biodiversity Centre, off Hackney Road, 7.30pm. There will be no meetings from November to February inclusive.
- **Excursions:** Day excursions are normally on the Saturday before the meeting. There will be no excursions from October to March inclusive. Check with Pam before the excursion as venues may change due to special fungal fruiting flushes.

Convenor: Pam Catcheside
Ph: (08) 8222 9379 (w)
E-mail: dpcatchi@arcom.com.au

WA Fungal Studies Group

A new group of the WA Naturalists, running fungi-based activities in the Perth area.

WA Naturalists' Group, PO Box 8257
Perth Business Centre WA 6849
E-mail: wanats@iinet.net.au
Website: http://www.wanats.iinet.net.au/

INTERESTING WEBSITES

- **Natural Selection**: http://nature.ac.uk/ – a listing of quality evaluated internet resources in the natural world, coordinated by the Natural History Museum, London.
- **Royal Botanic Gardens Melbourne fungi pages**: http://www.rbg.vic.gov.au/biodiversity/fungi/
- **Taylor Lockwood**: http://www.fungiphoto.com/ – a collection of artistic fungi photos.
- **The Hidden Forest**: http://www.hiddenforest.co.nz/ – forest fungi from New Zealand, photographed by Clive Shirley.
- **MykoWeb**: http://www.mykoweb.com/ – American fungi, including the "Fungi of California", photographed by Michael Wood and Fred Stevens.

THE WHY AND HOW OF SURVEYS FOR FUNGI – PART 2

Tom May (Royal Botanic Gardens Melbourne)

The following information, in an abbreviated form, continues the discussion of important issues relating to carrying out surveys for fungi which was commenced in *Fungimap Newsletter* **16**: 4-5. For an example of a fungal study list, see Table 1 on page 8.

This series of articles is a response to interest in carrying out more complex surveys from Fungimap recorders. **Please note that the mapping of the 100 Fungimap target species just relies on sight records, and those who wish to send in these records can rest assured that this is very valuable.** The following information is for people who wish to extend their skills in fungal surveys.

Why survey for fungi?

- To provide basic distribution data for fungi, and detect basic distribution patterns.
- To understand what factors influence fungal distribution.
- To provide baseline data against which to assess any effect of global climate change on fungi.
- To determine substrate, soil or habitat preferences.
- To get an idea of the fungi that might prefer or be specific to different habitats such as sand dune, salt marsh, rainforest, alpine grassland and so on.
- To determine the time of appearance of fruit bodies (phenology) and how this might vary with the weather.
- To investigate any effect of pollution on the occurrence of fungi.
- To look at the effect of disturbance (clearing, salinity, loss of diversity in habitats) on fungi.
- To seek to more effectively manage vegetation for fungi – such as understanding the effect of different fire regimes on fungi.
- To compare the fungal community at sites with similar and with different vegetation, and see how much the fungal community changes along with changes in the vegetation community (i.e. how congruent are the two?).
- Because there is nothing better than wandering around the bush on a lovely autumn day exploring for fungi!

Planning and rationale

It's important to think about what questions your survey will answer.

- You may have a very simple question – such as "when does *Amanita xanthocephala* appear?"
- The more complex your question, the more detailed the planning will need to be.
- Answering any question will always throw up more questions.
- Keep it simple and practical – better to focus on one particular question, rather than try to answer a whole lot of questions.
- Be prepared to try out a survey technique, and then modify this as you gain experience in fungal identification, and as you get an idea of the time and resources necessary.
- Better to aim for a limited survey (in terms of number of sites, visits and species recorded) that can be completed, analysed and written up, than take on a large survey that gets too complicated and cannot be completed.
- Numerous fungi are collected on fungal forays, and most are discarded. With a little thought, all this energy could be directed at accumulating information of long term value.
- The limiting factor in most fungal surveys is expertise in identifying the fungi.

Knowledge of macrofungi

- There are numerous fungi yet to be discovered and formally named.
- For agarics, boletes and coral fungi, there are many un-named species, and the taxonomy of many genera is in a mess.
- In groups where taxonomic revisions have taken place recently (such as *Hygrocybe* and *Mycena*) at least half the species are new, and new species continue to be discovered.
- For polypores, phalloids and puffballs, there are not as many un-named species.
- You will certainly encounter un-named species.
- Some genera are very difficult, with many un-named species, and some species may only be able to be keyed out using microscopic characters.
- There are very few in-depth treatments of genera or families, and most are highly technical and rely on microscopic characters.

How many species to record?

In the face of the great problems in identifying fungi – what to do?

- Work from the known, and don't worry about the unknown.
- Develop for your area a list of the fungi that you can confidently identify.
- This list may just be the Fungimap targets.
- For Fungimap, the approach has been to select a short list (currently 100 species) of fungi which are readily recognisable in the field.
- There are plenty of other reasonably distinctive fungi (some of which we will be adding to the list of target species in time).
- Build up an album of pictures and notes on these fungi, and record what the distinctive characters are for each of your survey species.
- Such an album acts as a fungus flora for your area, and can be used by others who are assisting in your survey. You can create a virtual fungus flora for your local species by making available images and descriptions through the internet.
- Better to keep the list of fungi which you record short, but be certain of the identification, than try and record too many species, and then not be so sure of the identity of some.

- The crucial aspect of applying names is that you are reasonably sure that you are applying the same name to the same fungus each time you use it.
- You may have to resort to looking at spores and other microscopic characters to confirm the name of a species, and to confirm that you are applying the name correctly to different collections.
- It is very time consuming to have to check all collections microscopically, and if time is limited, better to stick to species that are recognisable in the field.

What names to use?

- Informal names are fine. For many years in Victoria a lovely *Amanita* with a peach cap which is dry and scurfy has been recorded on forays. We called this *Amanita* 'peach'. This has recently been described as *Amanita armeniaca* A.E.Wood.
- Informal names should be in quotes directly after the genus, not be italicised, and not be words which could be interpreted as formal epithets (ie anything that resembles Latin – 'alba', 'minor' etc., etc.).
- A single word is preferable for informal names, but a phrase is OK.
- For informal names do not use words which are too obscure – *Lepiota* 'Spot' because it looks like your dog Spot is not so good as *Lepiota* 'brown shaggy'. Place names are OK, but descriptive words or phrases are better. I call a small white hairy cortinar *Cortinarius* 'Bonang', because that is where I saw it first, but it is very common throughout southern Australia, and *Cortinarius* 'white hairy' would be better.
- For species already described, use a standard list such as *Fungi of Australia Volume 2A* (see also internet version with current names at http://www.rbg.vic.gov.au/biodiversity/fungi/cat/). This lists all synonyms under the currently accepted name.
- There is no need to cite authors of fungal names in papers on surveys.
- For difficult genera, you can either ignore them (quite a valid approach for something like *Inocybe*), or lump species either to genus (such as *Inocybe* spp., or even Little Brown Mushroom spp.), or use broad groupings within the genus (such as *Cortinarius* 'small brown' spp. and *Cortinarius* 'large brown' spp.).
- The use of 'spp.' (rather than 'sp.') for broad groups is important to indicate that these are composite categories that are likely to contain more than one species (although on any one visit there may be only one species of the particular category present).
- Limited experience with surveys for all species suggests that use of composite categories is not particularly useful, and if all species need to be recorded, better to just record to genus anything you can't identify to species. So if you can identify *Inocybe scissa*, but all the other Inocybes look the same, just call the rest of them *Inocybe* spp. (rather than create classes for little brown ones and little reddish brown ones and so on).

To plot or not

- Plots of defined shape and size are often used for surveys of the plant community. Plots can be square, rectangular or circular. Plots are sometimes called 'quadrats'.
- Permanent plots can be marked out so that the same area is surveyed on different visits.
- Plots are also used so as to reduce the area that needs to be surveyed to the minimum necessary to characterise the plant community.
- The optimum area for plots can be assessed from a species/area curve. This records the number of species found in plots of different sizes. The plot size chosen is usually one where making the plot larger would not include many species not already included in plots of smaller size.
- Plots for plant surveys are as large as 1000 m^2. For surveys of vegetation in Victoria, standard plots are either a 30 m diameter circle (area about 700 m^2) or a 30 m x 30 m plot (area 900 m^2). Optimum plot size will vary for different vegetation types, and so plots in grassland may be smaller.
- For fungi, limited studies of species/area curves show that if you make the plot bigger, you keep finding more species!! The choice of plot size then becomes one of the practicality of having an area that can be surveyed in the time available to get a reasonable idea of what is present
- Plots of 100 m^2 have been used with success in fungal surveys in Australia.
- Fungal fruit bodies are scattered through forest in a less homogenous way than are plants. The distribution of fungi seems to be more patchy (at least on any one visit).
- Using a permanent plot has the advantage of focussing the survey on a defined area, which can be searched thoroughly. It is easy to miss smaller fungi when just walking around.
- Repeated visits do mean that there is a danger of trampling plots. Long thin plots can be surveyed from one or other side, and even though there might be some trampling over time, the plot itself can be kept relatively undisturbed.
- Walking along the same existing path through a piece of bushland on each visit, looking for fungi for 2 m on either side of the path is a repeatable survey method (in effect using a very long, thin and winding plot).
- If a fixed plot is not used, the most important aspect of surveys is to keep records for different vegetation types or habitats (such as soil type) separate.
- Spending a defined time within each habitat is another methods of surveying, say 30 minutes walking around at each site surveyed. There will be an optimal time that allows enough of the species present at each site to be found, but also allows time to look at other sites.
- There is much further work required on optimal methods for surveys.
- Whatever you do, keep details of your method, and try and develop a standard method that you use on each visit.

Measures of abundance

- Plant surveys often include a measure of the cover/abundance of each species (such as the Braun-Blanquet scale).
- For fungi, you can count fruit bodies (using classes such as 1, 2-10, 11-100, 101-1000, etc.).
- The number of fruit bodies produced by different species varies widely, and it is difficult to equate fruit bodies to genetically distinct individuals (at the level of the mycelium below the soil or in the substrate).
- A single genetically uniform mycelium may produce one to very many fruit bodies, sometimes over large areas (several 100 m^2) or be quite small.
- A single log may have many different genetic individuals, each producing various numbers of fruit bodies, and the fruit bodies of each individual may not be distinguishable.
- Preliminary results indicate that analysis of the presence/absence of fungi yields similar patterns to that of abundance, so just ticking off that a species is present can still yield useful information (especially when comparing the community present at different sites).
- Measures of abundance will be important when following the occurrence of a particular species in different seasons and in different years.

Fruit bodies, mycelium and DNA

- Recent studies in Australia and elsewhere are finding that there are often fungi present which do not or rarely produce fruit bodies.
- Fungi which do not produce fruit bodies can be detected by analysis of DNA from soil or mycorrhiza samples.
- Most species seem to have unique DNA 'fingerprints', although some methods cannot separate some species.
- DNA analysis is not yet cheap and reliable enough to be used routinely, but may eventually become so.
- There is still a role for surveys of fruit bodies, because a great deal of information can be gathered by non-experts, without expensive and sophisticated equipment.
- Findings from surveys for fruit bodies can provide hypotheses to be tested by more elaborate methods.

Vouchers are vital

Please note that vouchers are vital for surveys, but for the day to day recording of Fungimap target species, it is not necessary to collect vouchers. If you do, lodge them at your local Herbarium, don't send them to Fungimap. Pictures are always welcome with Fungimap records as a way of verifying records.

- For every different species that you record from a survey there must be a voucher collection.
- Voucher collections should be lodged at your state botanical herbarium.
- You must get appropriate permission from the land owner or manager to collect, and formal permits as required (such as for National Parks).
- If you do not have a local herbarium which is willing to accept vouchers, there are several herbaria in Australia willing to accept material from all regions (such as the National Herbarium of Victoria).
- Too many fungi are being collected which do not end up lodged in herbaria. This is a waste of effort, and means that there is less material available to taxonomists than there might be when genera are revised.
- You do not need a voucher for every sighting of a particular species, as long as you are confident that you are seeing the same fungus each time.
- The voucher should be ample, well dried, well labelled, with good field notes and/or photo and ideally be of different stages of the fungus.
- See FNCV Fungi Kit for details on preparing dried specimens of fungi.
- If you are regularly lodging material at your local herbarium, assistance should be provided by the herbarium on the finer details of the required format for label and other information.
- Extensive field notes and/or photos are valuable, especially for collections of species yet to be formally names, and will help immensely down the track when such collections are utilised in revisionary work.
- Any report should mention in which institution vouchers are lodged.
- A list of fungi with no vouchers is of little value, especially for the less distinctive species and species designated with informal names.

Analysis

- For a survey following the appearance of a single species over time, results can be summarised as a graph of the number of fruit bodies seen on each visit (say once a fortnight).
- A very large amount of data can be collected with regular visits to sites. This needs to be presented in a consolidated form.
- A two-way table (of species by sites) can reveal much information about the preferences of different fungi for particular conditions (such as forest types, soils or different aged forests after fire).
- Key results may show up as patterns shown by different species, as much as by statistical analysis.
- Some studies may require multivariate analyses (contact your local research institution for assistance).

Writing up results

With all the effort that goes into a survey, it is great to be able to share the results.

- Provide progress reports in *Fungimap Newsletter*.
- Good places to publish a report of your study are the journals of the field naturalists clubs, such as *The Victorian Naturalist*.
- Where journals are refereed, valuable feedback can be gained from referees' comments, and the editors of field naturalists journals can offer helpful advice on getting papers into the right format.
- If a report is prepared, distribute copies so that the data and results are accessible. Places to lodge reports include your state library, herbarium library, and field naturalists club library.

FUNGIMAP COORDINATORS' CONFERENCE

Aldinga Beach, SA, 19th – 23rd June 2002

Gudrun Evans, Fungimap Coordinator

Thank-you to the Plant Biodiversity Centre in SA, who generously gave Fungimap a $1,000 grant to help cover transport costs for the Regional Coordinators to attend this important meeting.

Eleven enthusiastic Fungimappers met in SA to discuss future plans for Fungimap, and to hone their field fungi ID skills for future forays. The group were Tom May (Fungimap Convenor, Vic), Gudrun Evans (Fungimap Coordinator, Vic), Pam (SA Coordinator) and David Catcheside, Bettye (NSW Coordinator) and Neville Rees, Katrina Syme (WA Coordinator), Sapphire McMullan-Fisher (Tas Coordinator), Pat and Ed Grey (Vic) and Jenny Tonkin (Vic).

Each morning was spent in meetings, with much attention focused on how to obtain long-term funding for the project, how best to present results of the project to participants (new maps are in development), and how to assist the development of observer's skills most efficiently (more workshops, more material on website, field ID book in progress). Plans for the 2003 Conference were also discussed.

Afternoons were spent in the field at various locations (Belair NP, Deep Creek NP, Kuitpo Forest), and many target species were found. The fungal highlight was the discovery of *Leucopaxillus lilacinus* at Kuitpo (see article below). At Belair we retraced the steps of early fungi collector J.B. Cleland, and visited the now derelict railway station where he used to disembark at the start of his fungi forays to Belair in the 1930's.

Coordinators at Belair: (L to R) Neville, Gudrun, Bettye, David, Pam, Tom, Jenny, Pat, Sapphire, Katrina and Ed.

Excitement in Kuitpo Forest

Uni Carnegie, Adelaide Fungal Studies Group

During their conference at Aldinga Beach, the Coordinators took a break from meetings to join the Adelaide Fungal Studies Group on a foray to Kuitpo Forest, led by Pam Catcheside, SA Regional Coordinator.

Leucopaxillus lilacinus © Tom May

Shouts of excitement rang out in Kuitpo Forest on 22nd June 2002. The shouts came from the state co-ordinators of the national Fungimap project, and especially from Tom May of the Royal Botanic Gardens in Melbourne, a key player in establishing Fungimap. Andrew Donnelly, a new member of the recently-formed Adelaide Fungal Studies Group, had found *Leucopaxillus lilacinus*! The only previous records were from Denmark in Western Australia and Kermandre Falls in Tasmania. This was the first record in South Australia and provided a geographical link between the other sightings.

Omphalotus nidiformis also evoked scientific interest and a sense of excitement, especially at 4:00 am when I saw it glowing brightly green as if the cap and gills were covered with luminous paint. One's eyes have to adjust sufficiently to see the glow, and in his book, *A Field Companion to Australian Fungi*, Bruce Fuhrer says his photograph required a three-hour exposure. A GPS reading was also taken of the site, because *O. nidiformis* is one of the Fungimap target species, and the record will be added to the national database.

It was about time to go home when someone called out "*Amanita muscaria*". This is the red-with-white-spots 'fairy toadstool' which excites many people. It was interesting to note the change from the brilliant red of the young specimens to pale orange in the older ones. Some people gathering edible fungi told our group that they would sometimes take a toadstool inside if they were bothered with flies. Obviously this is the reason for the common name for the fungus, Fly Agaric. There have been suggestions that *A. muscaria* should be deemed a 'weed' species in native forest. These specimens were in pine forest, where they may have a value yet to be discovered.

Fungimap Coordinators' Conference – Post Conference Foray

Flinders Ranges, SA, 23rd – 27th June, 2002

Pam Catcheside, SA Regional Coordinator

After the Fungimap Coordinators' Conference ended, some of the group travelled from Adelaide to survey Mount Remarkable and the Flinders Ranges National Parks. The group consisted of Pat and Ed Grey, Bettye and Neville Rees, Katrina Syme, Pam and David Catcheside, Graham Bell (from the Plant Biodiversity Centre, formerly the State Herbarium of South Australia) and Angus Forgan (from Flinders University).

We travelled our separate ways up to Spear Creek near Port Augusta, just over 200 km north of Adelaide, meeting up in the late afternoon of Sunday, 23rd June. Microscopes and dryers were set up and the remaining collections made the previous day at Kuitpo Forest were documented and put back in dryers.

The next day we set off for Mambray Creek, part of Mount Remarkable National Park and a few kilometres south of Spear Creek. The creek runs through a wonderful gorge with steep sides of blocky, red-orange sandstone. The woodland vegetation of *Eucalyptus camaldulensis* (River Red Gum), *Callitris columellaris* (Northern Cypress-pine), *Acacia pycnantha* (Golden Wattle) and *Exocarpos cupressiformis* (Native Cherry), with its varying shades of greens and grey-greens, complements the red-ochre of the cliffs.

Within a few minutes there was a shout from Katrina of "target". Large specimens of *Bolbitius vitellinus* were documented, some were young-capped specimens with ovals of glutinous yellow, some older ones with almost plane, whitish-grey caps. Another shout from Katrina announced *Oudemansiella (Xerula) radicata*, a dark, grey-capped specimen. Further finds of *Volvariella speciosa* and *Tremella mesenterica* were noted, together with good collections of *Gymnopilus* by Bettye. In all, 38 species were recorded.

On the following day we went to Alligator Gorge, a little to the north-east of Mambray Creek but still in Mount Remarkable National Park. It's a steep climb down the steps (and seems an even steeper one on the way back up!) but well worth the effort. The sides of the gorge are steeper than are those of Mambray Creek and the gorge is narrower. The vegetation is very similar. It was exciting to find *Mycena nargan*, its small blackish, bell-shaped caps ornamented with the characteristic patches of white fibrils. Another target was *Tremella mesenterica*, though its orange, jelly-like mass was rather dried up. In all, 21 species were recorded and included a Birds-nest Fungus, *Cyathus olla*, and the Cannonball Fungus, *Sphaerobolus stellatus* which had already rocketed off most of its 1-2 mm spherical spore balls.

We left Alligator Gorge after lunch and travelled up to Wilpena Pound in the Flinders Ranges National Park. There, the National Parks and Wildlife Service of SA had generously provided us with accommodation, the shearers' quarters, an ample homestead with living room, kitchen and several bunkrooms.

Our third day was spent surveying part of Wilpena Pound, a huge natural amphitheatre, approximately 16 km long by 6 km wide. Unfortunately, there has been little rain this season and the soil and leaf litter were very dry. Twenty-one species were recorded (compared with 31 species recorded by Pam and David in June 2000) including the Fungimap species of *Mycoacia subceracea* forming a mustard-yellow crust of short, blunt spines on the inside of *Eucalyptus camaldulensis* bark.

Regretfully, the forays and surveys came to an end on Thursday 27th June and, having breakfasted, packed and tidied up the shearers' quarters, we said our goodbyes and set off for our various homes.

NB: All records are sent to Fungimap, the Plant Biodiversity Centre, NPWSSA and the individual Parks.

Agaricus xanthodermus at Belair NP © Tom May

Lepista nuda at Deep Creek NP © Tom May

NEWS FROM TASMANIA

Sapphire McMullan-Fisher, Tasmanian Regional Coordinator

Tasmania's fungi season has finally started after a very dry and windy autumn. I don't think I've seen a 'normal' Mediterranean climate fungal season since I moved to Tasmania. Is this because 'normal' doesn't really exist, or are the weather patterns being strange?

The Adult Education Classes advertised for May, which were delayed due to the absence of fungi, were finally held on 30 June and 7 July 2002. Both days were a lot of fun. Hopefully with luck, liability insurance and interest they will be held again next year. Please contact me if a Northern Tasmanian Workshop would be of interest; I could organise it with Adult Ed but I'll need local help for where to walk and what is a likely time that fungi will be around.

The foray mornings were spent wandering up Myrtle Gully on Mt Wellington at a 'mycological pace'. In the dim forest light we found many fungal treasures, mostly saprophytic (living off dead organic matter) fungi. *Mycena* was the most common genus, industriously recycling leaf litter and wood for the ecosystem. As ever most of these were the pale buff to brown types, and most names could not be found, but we were glad to see them at work.

We saw Fungimap targets *Anthracophyllum archeri, Ascocoryne sarcoides, Mycena austrororida, Mycena interrupta* and *Tremella fuciformis* on both weeks. *Leotia lubrica,* was found in the first week but had disappeared by the second week.

It is interesting that although the forays were only held a week apart there were 29 taxa common to both surveys (Table 1). Five taxa were only seen on the first foray including *Leotia lubrica,* and the second foray there were another five taxa not seen before. The overall diversity was about the same, with 36 taxa seen each foray.

After spending the morning collecting examples of different fungi we went back to the University and started trying to identify them. People quickly learnt that there is a huge diversity of fungi so they are not all going to be found in any book, let alone all in the one book! We started grouping the fungi collected by form and spore colour, which allowed us to discuss the different tricks for seeing differences in groups. Then people chose a specimen to focus on more closely. I think most people left feeling they had a better grip on the fungi as a group; probably the strongest message was that you shouldn't be surprised if you can't identify everything – nobody can!

I hope the rest of you fungi enthusiasts have been out and about enjoying yourselves in the bush and gardens. The best fungi are probably found with the rain, so this year the West Coast is having a good year.

Table 1: Fungi Species from Adult Ed Forays

Taxon, Substrate (g = ground, L = litter, W1 = wood < 1 cm, W5 = wood < 5 cm, W10 = wood < 10 cm, W20 = wood < 20 cm, W50 = wood < 50 cm, and W100 = wood < 100 cm), and Frequency (number of times taxon was observed) are shown. Fungimap target species are in bold.

	30-Jun-02		7-Jul-02	
Taxon	**Substrate**	**Freq**	**Substrate**	**Freq**
Agaricus sp.	g	1	g	1
Anthracophyllum archeri	**W1-W5**	**4**	**W1-W5**	**4**
Ascocoryne sarcoides	**W5-W50**	**2**	**W5**	**1**
Bertrandia sp. 'red/black'	g	1		
BM (Brown mushroom)	L	1		
Calocera 'orange branching'	W10	2	W10	2
Clavaria amoena	g	2	g	1
Clitocybe clitocyboides	g	1		
Collybia butyracea group	g	4	g	6
Conocybe sp.			g	1
Crepidotus eucalyptorum	W20	1	W10	2
Dermocybe 'small olive'	g	2	g	2
Discomycete yellow centre black hairs (aff. *Torrendiella* sp.)	W1	1	W1	1
Discomycete 'disks pale'	L	2	L	2
Galerina patagonica	W10	1	W10	1
Gymnopilus ?eucalyptorum	W100	1		
Galerina sp.			g	1
Geastrum aff. *indicum*			g	1
Hygrocybe 'red viscid CS'	g	1	g	1
Hygrophorus involutus	g	1	g	1
Hypholoma fasiculare	W50	2	W10	2
Inocybe cystidiocatenata			g	1
Laccaria sp. 'darker gilled'	g	3	g	1
Laccaria sp. 'pale gilled'	g	1	g	1
Leotia lubrica	**g**	**1**		
Marasmius 'HH'	LL	3	LL	1
Meruliopsis corium	W2-10	2	W2-10	2
Mycena austrororida	**W10**	**2**	**W10**	**2**
Mycena 'brown'	L	3	L	2
Mycena 'brown clusters'	W10-200	5	W10-200	3
Mycena 'buff'	L	5	L	3
Mycena cystidiosa	L	2	L	2
Mycena 'epipterygioides'	L & W1	3	L & W1	2
Mycena interrupta	**W10-200**	**3**	**W10-200**	**2**
Mycena sanguinolenta	L	1	L	1
Panellus stipticus	W10-100	3	W10-100	2
Pluteus sp.			W2	1
Polyporus sp, 'red leather eccentric'	W10	1		
Puffball yellow	g	1	g	1
Russula sp. 'purple'			g	1
Strophariaceae orange yellow	W20	1		
Tremella fuciformis	**W10-200**	**4**	**W10-200**	**3**
Zelleromyces sp.			g	1

SLIDE NIGHT:

The Geographical Society of the Uni of Tasmania is holding a slide night on **Friday 20 September 2002 at 5:30pm**. Sapphire McMullan-Fisher will present some Fungimap images, and some Fungimap distribution data she recently prepared for the Hobart City Council using GIS. David Ratkowsky and Genevieve Gates will also present some of their fungi slides. It will be held at the Uni of Tasmania Geography Department (Earl St car park). Feel free to bring friends and family. For further details contact Sapphire McMullan-Fisher. (E-mail: smcmulla@postoffice.utas.edu.au, Ph: (03) 6226 7612 (w)).

NEWS FROM SA

Pam Catcheside, SA Regional Coordinator

The Adelaide Fungal Studies Group has approximately twenty members and meets during the fungal season on second Tuesdays with excursions on second Saturdays of each month. Fungimap records are sent to Gudrun by our Fungimap Secretary, Chris Robinson.

This year has been a dry and rather disappointing season. In May we visited Hindmarsh Valley Falls, finding a group of small specimens of the Bootlace or Honey Fungus, *Armillaria luteobubalina*. Millbrook Reservoir Reserve provided more fungi but the rain, though welcome, was so heavy we had to abandon our survey by the end of the morning. Members joined the Fungimap Coordinators at Kuitpo Forest and a number of collections of interesting fungi were made (see Uni Carnegie's article, page 6). Our last excursion was to Cleland and Loftia Conservation Parks where we found a number of *Cortinarius rotundisporus* and a handsome specimen of *Amanita grossa*, its white cap ornamented with large conical warts.

I have given talks to a number of groups including the Rhododendron Society and the Adelaide Over-60s Group. An interesting and tasty evening was spent with the Adelaide Chapter of Slow Food at which I gave a talk on the fungi eaten during the evening. The dinner, with an emphasis on mushrooms, began with a tasting of *Flammulina velutipes* (enokitake), *Pleurotus ostreatus* (Oyster Mushroom), *Agaricus bisporus* (Button Mushroom and Swiss Browns), *Auricularia polytricha* (Wood-ear) and *Lentinula edodes* (shiitake). All fungi were bought from the market and warnings on possible allergies were given to the diners.

The Adelaide Fungal Studies Group events are listed in the calendar on page 11. For further information contact Pam Catcheside – Ph: (08) 8222 9379 (w). Pam will also be speaking at the Field Naturalists Society of SA meeting in November.

NEWS FROM WA

Katrina Syme, WA Regional Coordinator

On Sunday 21st July, a foray and series of workshops was held jointly by the Friends of Shenton Bushland, the WA Naturalists' Club and Fungimap WA. The event was based at Shenton College, where we were able to use the science labs, thanks to science teacher Murray Thomas**.** Organised by Roz Hart with the help of Dr Elaine Davison, Karen Clarke, Dr Mark Brundrett, Janina Pezzarini and Dani Boase-Jelinek, it was most successful and more than sixty people contacted Roz to secure one of the forty places offered.

Participants were placed into five groups of eight people, each with a leader, a recorder, a guide and a photographer. Kevn Griffiths and Dr Neale Bougher assisted by leading two of the groups. The object was not to collect all the fungi we saw, but to record species and gather small samples for display & demonstration. Two groups searched the Shenton Bushland while the other three foraged in nearby bush which had experienced an intense burn earlier in the year.

Following lunch, a brief introduction to fungi was presented while the fungi were being sorted and labelled on long tables. Workshops included talks on the fungi collected, discussion of macroscopic characters of fungi, microscopy, packaging and drying of fungi. I had brought along some collections of target species from our property in Denmark and this was useful in demonstrating variations in each species. At intervals, each group moved to another workshop. The Fungimap CD-Rom and the Fungimap website were both displayed and used during the workshop.

We gauged the success of the day by the large numbers of participants who eagerly asked when the next workshop would be!

Six target species were found, four in each area of which only two were common to both: *Tremella aurantia* and *Volvariella speciosa*. Shenton Bushland also had *Omphalotus nidiformis* and *Colus pusillus*, while the burnt bush had *Amanita xanthocephala* and *Fistulina hepatica*. In the burnt bushland, there were large numbers of Ascomycetes, at least 4 different species including *Anthrocobia muelleri* and very few gilled fungi, which is consistent with other observations of the effect of fire on fungi. Comprehensive lists of fungi recorded on the foray are available from the WA Nats, FSPB, or me.

Fungal Studies Group Begins in WA!

After our successful foray over the long weekend in June and during the Shenton Bushland workshop, it became apparent that we have a small group of keen Fungimappers who wish to meet more frequently and work together to learn more about WA's macrofungi. The day after the Shenton workshop, Roz Hart and I met Karina Knight (part of whose job is to curate the fungi collections) and Dr Neville Marchant, Director of the WA Herbarium. The WAFSG have been offered work space and the use of two microscopes in the area used by the herbarium's large band of volunteers. The WAFSG will be having a meeting about collecting fungi and lodging them at the WA Herbarium on Thursday 15th August. Anyone who would like information on this group, based in Perth, should contact Roz Hart on (08) 9382 2086. (For information on the Denmark sub-group, please contact me.)

Thanks to all the wonderful people who helped run workshops this year. **[For Donnelly River Foray report see page 12.]**

NEWS FROM ACT

Heino Lepp, ACT Regional Coordinator

I've had fungal enquiries come in from various parts of the country (via enquiries to the general Gardens and CSIRO web addresses or phone numbers). I make a point of telling such enquirers about Fungimap and sending them a link to the Fungimap website. Of course, I don't know how many people will follow it up - but a few have bothered to send me follow-up messages saying how useful/interesting they found the Fungimap site. Similarly for the U3A people I talk to every year and the fungal walks I've taken in the botanic gardens and at Tidbinbilla Nature Reserve outside Canberra. As usual, I explained Fungimap to the summer university students who were at the herbarium for January and February.

I am working on a fungal addition to the website at the ANBG, Canberra, which is nearly complete. Fungimap will get a specific mention (including aims and contact details). In addition I am including links to many of the Fungimap target species pages throughout my text.

RED WATTLEBIRDS AND TOADSTOOLS

Jill Dark, Australian Bird Study Association

This article originally appeared in the *Australian Bird Study Association* Newsletter 66, March 2002. It is reproduced here with the kind permission of the editor, Stein Boddington. Website: http://www.absa.asn.au/

This description was given to me by the Wires rescuer concerned. The call came through to Wires in late afternoon that birds were falling from the sky in Katoomba. When the rescuer arrived the first thing she saw were two Red Wattlebirds almost dead in the middle of the road, necks twisted, wings spread out and legs splayed. One was bleeding from the eyes, the other had the third eyelid over the eyes. Both were barely moving and the pulse was faint.

A thorough search found 22 more birds (all Red Wattlebirds). Some were lying on their sides, four were perched in trees, fluffed up and with heads down, and others were lying where they had fallen, either in the garden or road. The callers advised that they had seen the birds converge on the toadstools (*Amanita muscaria* - big red toadstools with white spots, usually found under pine trees) and start to eat them. Our rescuer checked several of the toadstools and found that the red fleshy tops had been extensively pecked at but the white part of the fungi had not been eaten. One wattlebird (a juvenile) was observed pecking at the toadstool during the rescue and when approached moved away. Within 2 minutes it was dead. It fell down, convulsed and died. Blood was coming from its eyes and its body was limp.

In all, 24 birds were rescued and two flew away (they seemed to be OK). Twelve birds died before the rescuer could treat them - three adults and nine juveniles. Some had blood coming from their eyes, others had the third eyelid across or their eyes rolled back. All had limp necks, splayed legs and spread wings. Some had thick, yellow diarrhoea.

The remaining 12 birds were slowly warmed and then given tepid water with lectade. They were very thirsty and took the fluid readily from an eyedropper. They could still not support their heads and some were convulsing intermittently. They were kept warm and given fluids throughout the night. The next morning all appeared fully recovered. They were given another drink and released. All flew well and dispersed. A few stayed around for a couple of days, feeding, drinking and flying normally. The rescue area was checked over the next few days and no other birds were found.

Does anyone have any other records of this or any ideas on how the birds could be treated if it happens again?

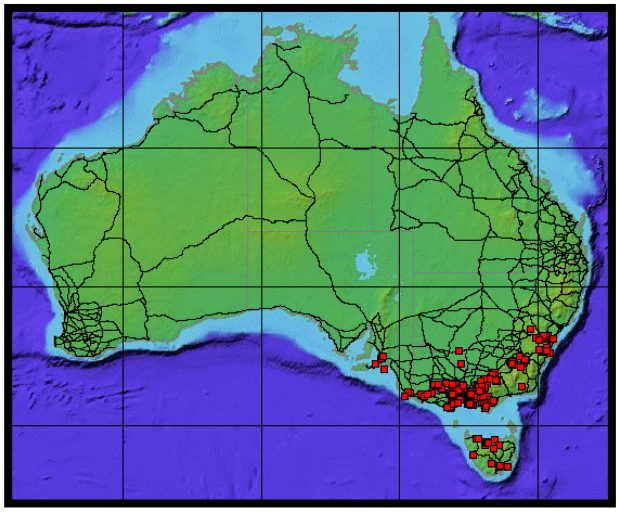
Contact: Jill Dark
PO Box 7
Hazelbrook NSW 2779
Email: jilldark@pnc.com.au

Fungimap results: *Amanita muscaria*

Gudrun Evans, Fungimap Coordinator

Data from Fungimap allows us to monitor the changing distribution of fungi species, and the environmental consequences of this change. *Amanita muscaria*, one of the Fungimap target species, is not native to Australia. It was chosen because it is very easy to identify, and also because we wanted to monitor the change in its distribution over time. The map shown is a pilot of the new series of distribution maps being developed for Fungimap. On it you can see that *A. muscaria* is currently broadly distributed across SE Australia.

Amanita muscaria © Paul George



Distribution of *Amanita muscaria* © Fungimap

On the Fungimap record sheets, recorders are asked to note the habitat the fungus was found in, and particularly if it was associated with a tree species. For *A. muscaria*, it is generally associated with introduced pine or oak trees. More recently, however, it has been found associated with the native myrtle-beech (*Nothofagus* sp.), and is beginning to move into native forests. The article by Jill Dark, above, shows that changing fungal distributions can affect more than just other fungi species, and demonstrates the importance of distribution data collected by Fungimap.

FORTHCOMING EVENTS Please note that these activities are **not** organised by Fungimap.

Event	Date	Place	State	Contact
Adelaide Fungal Studies Group Foray **Leader: Pam Catcheside**	Saturday 10th August	Boehm Springs Reserve	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
Adelaide Fungal Studies Group meeting Specimens: identification / discussion.	Tuesday 13th August, 7:30pm	Plant Biodiversity Centre, Adelaide	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
WA Fungal Studies Group meeting	Thursday 15th August	WA Herbarium, Perth	WA	Roz Hart Ph: (08) 9382 2086
Adelaide Fungal Studies Group Foray **Leader: Pam Catcheside**	Saturday 7th September	Venue TBA	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
Adelaide Fungal Studies Group meeting Specimens: identification / discussion.	Tuesday 10th September, 7:30pm	Plant Biodiversity Centre, Adelaide	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
Geographical Society of the University of Tasmania Slide Night **Slides from Sapphire McMullan-Fisher, David Ratkowsky & Genevieve Gates.** All welcome.	Friday 20th September, 5:30pm	Geography Department, University of Tasmania	TAS	Sapphire McMullan-Fisher Ph: (03) 6226 7612 (w) E-mail: smcmulla@postoffice.utas.edu.au
Adelaide Fungal Studies Group meeting **Speaker: Renate Velzeboer** Phytophthora in South Australian Parks	Tuesday 8th October, 7:30pm	Plant Biodiversity Centre, Adelaide	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
Sydney Fungal Studies Group Workshop	Saturday 19th October, 10:00am – 4:30pm	University of NSW, Sydney	NSW	Donald Gover Ph: (02) 9661 4898 E-mail: djgover@bigpond.com
Field Naturalists Society of SA meeting **Speaker: Pam Catcheside**	Wednesday 13th November, 7:45pm	Royal Society Lecture Room	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
Adelaide Fungal Studies Group meeting Programme Planning for 2003	Tuesday 14th March 2003, 7:30pm	Plant Biodiversity Centre, Adelaide	SA	Pam Catcheside Ph: (08) 8222 9379 (w)
2nd National Fungimap Conference Bookings open in November – for details see Newsletter 18. Places will be limited.	Thursday 15th May – Tuesday 20th May 2003	Rawson Village	VIC	Gudrun Evans Ph: (03) 9252 2374 Email: fungimap@rbg.vic.gov.au

NEWS FROM NSW

Bettye Rees, NSW Regional Coordinator

The Sydney Fungal Studies Group (SFSG) continues to run forays each season, and records of fungi species are submitted to Fungimap. I ran a workshop for the Central Coast Community Environment Network again this year despite dry weather, and it looks like becoming an annual event on the mid-coast. The Blue Mountains Council staff attended a SFSG foray to Lawson and are hoping we can do walks and talks up in the mountains next season. We've crossed the great divide again with the latest sighting of *Gymnopilus junonius* (*pampeanus*) in the Dubbo region (good old Gymnotonous!). Deb Haesler, senior education officer at the Dubbo Plains Zoo, turned this record in, and is helping involve school kids with looking at fungi as part of the total environment.

Enthusiasm runs high on the south coast with some good rain earlier in the year, and a survey project has commenced at Tuross Head with our recorders Robin Corringham and Ray and Noreen Baxter (among others) travelling weekly to the site to keep up the records. Congratulations to this group on starting the first Fungimap survey in this state.

SFSG is holding its annual Workshop and seminar on all aspects of Fungi on 19th October and all Fungimappers are most welcome to attend.

NEWS FROM VIC

Gudrun Evans, Fungimap Coordinator

The Fungi Open House held in May was very successful, with approximately 30 people attending during the afternoon. Working with a group of people, Tom May and Teresa Lebel were able to identify fungi from photos and specimens brought in, and were able to explain to everyone why this was one species and not another, or which features were missing from the photo so that they couldn't tell. This proved to be a very efficient way of doing IDs, and we plan to run another two sessions next season.

In May, Tom led a FNCV trip to Dom Dom Saddle. The trip was well attended despite the cold, wet weather, and the fungi did not disappoint. 14 target species were seen, amongst many other interesting fungi.

2nd National Fungimap Conference

Rawson Village, Victoria

Thursday 15th – Tuesday 20th May 2003

ADVANCE NOTICE

Planning is now well underway for this event, which will be hosted by the Field Naturalists Club of Victoria. Accommodation and conference rooms have been booked at Rawson Village, in the Victorian alps north of Moe, close to a diverse range of habitats for fungi forays. Accommodation is all on site, so numbers will necessarily be limited to 150. Bookings will open in November. **Full details of the Conference and the booking procedure will be distributed with *Fungimap Newsletter* 18 in October.**

ACKNOWLEDGEMENTS Fungimap recorders

Fungimap is dependent on the generous contributions of our volunteer recorders. We are very grateful to everyone who has contributed this fungi season. Every individual record is important, so regardless of whether you have found one record or had the good fortune and time to find many, your contribution is valuable.

Jamie Derkenne	3	**TAS**		David Meale	2
ACT		Christine Howells	7	Graham Patterson	23
Russell Barrow	1	Eve Lazarus	5	Martine Paull	2
NSW		Sarah Lloyd	129	Josephine Peake	7
Malcolm, Adele, Evan & Estelle Carrall	1	Di Williams	3	Lois Prictor	12
Claire deLacey	2	**VIC**		Judy Rutherford	1
Barry Kemp	20	Robert Bender	5	Elizabeth Sevior	1
Jeffrey Ralph	1	Helen Bernasconi	4	Nigel Sinnott	12
Margery Smith	16	Wendy Cook	2	Rosalie Snoxall	1
Sydney Fungal SG	16	John Eichler	35	Roger Steer	2
Michael Ward	2	Paul George	105	Kevin Thiele	68
Susan Wrigley	1	Pat & Ed Grey	26	Bon Thompson	9
QLD		Dean Hart	1	Gael Thornton	3
Annette Devonshire	7	Sheila Houghton	15	Hilary Weatherhead	20
Eva Ford	4	Virgil Hubregtse	42	**WA**	
SA		Paul Jones	11	Alan Elliott	3
Adelaide Fungal SG	20	Simon & Emma Lewis	16	Roz Hart	16
Uni Carnegie	5	Jean Lightfoot	1	Jarred Pedro	14
		Ian McCann & Thelma Argall	70	Kay Rae	3
		Marie McIntyre	2	Mavis Sowry	2
				Katrina Syme	66

Donnelly River Foray, WA

1st – 3rd June, 2002

Katrina Syme, WA Regional Coordinator

We had an extremely successful Fungal Foray at Donnelly River with 30 participants, good weather conditions and lots of fungi. We made 322 records of sightings of about 184 species of fungi, including 14 target species. Much of the bush was logged so we found large numbers of wood rotting fungi. *Armillaria luteobubalina* was prevalent in some areas such as sections of the Bridgetown Jarrah Park.

Fungimap target species seen:

Amanita xanthocephala	6	*Marasmius elegans*	2
Anthracophyllum archeri	1	*Panus fasciatus*	1
Armillaria luteobubalina	6	*Piptoporus australiensis*	6
Boletellus obscurecoccineus	6	*Podoserpula pusio*	1
Fistulina hepatica	3	*Stereum hirsutum*	6
Gymnopilus pampeanus	1	*Tremella aurantia*	6
Hebeloma aminophilum	2	*Tubaria rufofulva*	6

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Fungimap Newsletters are available in colour on-line at our new website:
http://www.rbg.vic.gov.au/fungimap/

The Fungimap Newsletter is edited by Gudrun Evans.

FUNGIMAP NEWSLETTER

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